

Status and Progress in Engaging Communities of Color to Advance Resilience to Climate Change

Experiences of 15 U.S. Cities

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CONTENTS

EXECUTIVE SUMMARY	4
I. INTRODUCTION	10
II. SETTING THE CONTEXT	11
III. DESIGN & METHODOLOGY	13
City Selection Process	13
Literature and Program Review	14
Review Of Local Adaptation Plans	15
Interviews.....	15
IV. STUDY FINDINGS	17
Atlanta, GA.....	19
Baltimore, MD	22
Boston, MA.....	25
Chicago, IL.....	28
Cleveland, OH	31
Dallas, TX.....	34
Denver, CO	37
Detroit, MI.....	40
Las Vegas, NV.....	43
Miami, FL.....	46
New York, NY.....	50
Oakland, CA	53
Philadelphia, PA.....	56
Phoenix, AZ.....	59
Sacramento, CA.....	62
VI. DISCUSSION	65
Status And Progress In Advancing Resilience For Communities Of Color	65
Key Elements to Building Resilience	66
Challenges To Improving Resilience for Communities of Color.....	75
VII. RECOMMENDATIONS	78
VIII. CONCLUSION	85

EXECUTIVE SUMMARY

Background

A growing body of evidence suggests that low-income communities of color are especially susceptible to the adverse effects of climate change, often facing greater morbidity and mortality than the general population. To date, much of the attention to climate change has focused primarily on national and international proposed actions and policies, with some state programs also drawing attention. However, few, if any, efforts have highlighted related initiatives to inform, engage, and build community resilience among diverse, poor, and other vulnerable populations at the local level within major cities in the United States. The absence of “community voices” is acutely felt given the lack of progress in advancing top down approaches to address climate change. As such, growing interest has turned to “ground level” experiences, innovations, and lessons learned that can serve to both inform efforts in other areas and provide new insight to guide state and national recommendations.

This report is the first-of-its-kind to focus on and document actions taken by a select set of cities across the country to educate and engage vulnerable and, in particular, racially, ethnically and linguistically diverse communities in building, undertaking and sustaining efforts to address and redress the effects of climate change. City-specific summaries and synthesis of their experiences and related research offer new perspective on public-private partnerships, specific community-centric programs, and where adaptive strategies work to involve vulnerable neighborhoods.

By its scale and scope this review is a modest step in documenting what these cities are undertaking. But as such, it provides a resource

and foundation from which to further climate change adaptation for other cities and the country based on the richness of experience at the level where it counts the most: in communities where people live, work, pray, and play.

The goal of this project was to review and identify replicable models and strategies for engaging communities of color to build resilience to climate change. Focused on 15 major U.S. cities representing a range of geographic, population, and climate-related dynamics, this study coalesced leading research and local policies, programs, and perspectives on engaging and involving communities of color into climate change planning and adaptation.

Design and Methodology

We employed a mixed-methods approach to identify strategies, programs, and policies of a subset of major U.S. cities in advancing and building community resilience to climate change for diverse and vulnerable populations. To select the 15 cities, we utilized a commonly accepted framework for defining vulnerability in the context of three interactive components: exposure, sensitivity, and adaptive capacity. Measures examined included environmental metrics (daily fine particulate matter, projected heat-related deaths, number of drought impacts, and water stress), demographic characteristics (racial and ethnic diversity, primary language spoken, poverty, and unemployment) and policies and programs related to climate change (greenhouse gas emissions target and inventory and participation in highly visible sustainability initiatives). We also identified cities whose mayors were African American to add another dimension related to diversity. The final subset of selected cities is displayed in Figure 1.

Figure 1. 15 Cities Selected for this Study



Among these 15 cities, we reviewed local activities related to climate change, identifying and abstracting policies and programs with a focus on or implications for vulnerable populations—and in particular, low-income and people of color. In addition to a review of emerging city, county, and community-level programs, we reviewed climate action and adaptation plans, focusing on level of plan

development, mention of community resilience, and the extent to which plans incorporated communities of color. We also conducted semi-structured telephone-based key informant interviews with individuals knowledgeable on related priorities such as local city/county officials, planners, and academicians to elicit additional experience and perspective.

Study Findings

Our review of the literature, climate plans and local programs as well as interviews revealed that cities, as might be expected, are at varying levels of progress in establishing or implementing formal climate change adaptation plans (Table 1). Among the 15 cities, ten currently have climate change adaptation plans, three have plans in development and two do not have a formal plan (not in development or otherwise). The level at which these plans have been established also varies by city. For example, Chicago’s adaptation plan is part of its larger climate action plan, while other cities such as New York and Denver have separate adaptation plans. *See full report for profiles of each city’s adaptation efforts.*

We found that few cities have explicit plans or goals that intend to engage and integrate vulnerable communities of color into their planning and adaptation efforts. However, where local government has not taken the lead in planning for and incorporating communities of color, many nonprofits and philanthropic organizations have either partnered with cities and counties, or solely taken on this responsibility.

Table 1: Summary of City Climate Change Adaptation Plans and Equity Focus

City	% Population Below Poverty	% Non-White Population	Climate Change Adaptation Plan?	Plan Defines Community Resilience?	Plan Mentions Community Engagement?	Plan Mentions Communities of Color?
New York	20.9	66.9	Yes	Yes	Yes	Yes
Boston	23.2	54	Yes	Yes	Yes	Yes
Chicago	23.7	68.1	Yes	No	Yes	Yes
Phoenix	22.9	53.2	Yes	No	Yes	Yes
Baltimore	25.1	71.7	Yes	Yes	Yes	No
Miami	31.0	88.5	Yes	Yes	No	No
Oakland	21.0	74.7	Yes	Yes	Yes	No
Sacramento	23.0	68.1	Yes	Yes	Yes	No
Cleveland	34.3	64.9	Yes	No	Yes	No
Denver	18.4	47.5	Yes	No	Yes	No
Detroit	40.9	91.9	In progress	N/A	N/A	N/A
Las Vegas	19.4	54.5	In progress	N/A	N/A	N/A
Philadelphia	28.4	63.1	In progress	N/A	N/A	N/A
Atlanta	26.2	64.7	No	N/A	N/A	N/A
Dallas	25.3	71.4	No	N/A	N/A	N/A

Key Elements to Engaging Communities of Color and Building Community Resilience

Virtually all cities make mention of the need to engage or partner with communities in their adaptation or other climate plans. To this end, many have undertaken a common set of strategies:

- **Defining Vulnerability:** An important requisite for addressing the needs of communities of color in efforts to build their resilience to climate change is the explicit recognition that these populations are often vulnerable due to factors associated with race, ethnicity, and language (e.g., limited English proficiency, lack of trust shaped by cultural experiences, and racial segregation).
- **Risk and Need Assessments:** The identification of risk according to individual

and community vulnerabilities is important for establishing sound mitigation and adaptation strategies that include diverse population needs.

- **Community Engagement:** In the context of climate change, several sources suggest that community participation is key to building community resilience. While involving communities in planning, assessment and evaluation is important, equally critical is their participation and engagement in actual rollout of programs as well as any drills, trainings, and exercises.
- **Cross Sector Collaboration:** All informants detailed collaborations with other sectors to prepare for a changing climate. Many nonprofit sector and community organizations are playing critical, creative, and supportive roles, offering leadership and resources in many cities and localities to

build resilience for low-income, diverse, and vulnerable communities.

- **Job Creation and Building Other Economic Opportunities:** Some localities are beginning to incentivize members of communities to become involved in efforts to build resilience to climate change by offering unique opportunities, such as education and

training for community members to become leaders, spokespersons, or advocates on climate adaptation and mitigation actions within their local communities, as well as offering support or incentives for low-income, disadvantaged populations to enter “green jobs.”

Snapshot of City-Level Progress

Our review of the 15 cities revealed that they are generally at three levels of progress in engaging and planning for communities of color, from those “leading” in explicit efforts to those “moderately progressing” or “more slowly progressing” to address this priority. Cities “leading” in efforts were comparatively farther ahead along a combination of measures

such as having a visible champion on climate change, clearly delineated objectives for addressing needs of communities of color, strong support and involvement from the nonprofit sector, and a multi-sectoral approach. Those moderately or more slowly progressing exhibited only some of these characteristics. See Table 2.

Table 2. Characteristics and Examples of Cities Leading, Moderately Progressing, or More Slowly Progressing in Engaging and Planning for Communities of Color in Climate Change

Leading Cities	Moderately Progressing	More Slowly Progressing
<p>Characteristics:</p> <ul style="list-style-type: none"> • A visible leader to support and champion climate change adaptation. • Clearly delineated city-level goals for engaging vulnerable populations, such as in assessing risks and impacts for communities of color. • Strong support and engagement from community and advocacy organizations. • Working to address climate change across sectors and broader objectives—e.g., public health, economy, emergency management, and sustainability. <p>Examples of cities with these general characteristics: Baltimore, Boston, Chicago, New York, and Oakland</p>	<p>Characteristics:</p> <ul style="list-style-type: none"> • Moderate degree of climate change adaptation planning and progress. • Some or no explicit mention of need to engage communities of color as reflected in written plans, goals, or objectives. • Strong involvement from non-governmental organizations to engage diverse populations in climate change related initiatives. <p>Examples of cities with these general characteristics: Sacramento, Miami, Phoenix, Cleveland, Denver and Detroit</p>	<p>Characteristics:</p> <ul style="list-style-type: none"> • Slower overall progress in climate change adaptation, and as such no explicit plans for communities of color. • Lesser degree of involvement from community-based organizations or other nonprofit groups in developing and implementing local adaptation initiatives. <p>Examples of cities with these general characteristics: Philadelphia, Las Vegas, Atlanta, and Dallas</p>

Challenges to Engaging Communities of Color in Efforts to Build Resilience to Climate Change

While all cities to some degree are working to build community resilience to climate change, several identified a range of challenges for engaging communities of color in this process:

- **Funding and Resources.** There was unanimous agreement among key informants that funding and related resources generally, but especially targeted to engage communities, was the single greatest challenge.
- **Monitoring and Evaluation.** Key informants generally acknowledged the importance of measuring progress toward climate change goals. However, lack of resources to evaluate the efficacy and impact of programs and processes on vulnerable communities was a common challenge cited.
- **Climate change is not among top priorities for communities.** Key informants from all cities acknowledged that climate change is often not a priority for vulnerable and low-income communities of color given the range of many other day-to-day priorities—e.g., income, food, shelter, and safety.
- **Language and communication barriers.** Our review and interviews confirmed findings from past research which suggest that language—and in particular, limited English proficiency—can pose a considerable barrier to communities in their ability to understand and initiate efforts to build resilience to climate change.
- **Political and process concerns, and doubts about climate change.** Some key informants cited political challenges as well as shifting political priorities as barriers to achieving progress in city climate change adaptation efforts. A number also noted that skepticism about climate change among politicians and the population in general posed a significant

barrier to drawing and maintaining attention to climate change adaptation.

Recommendations

Many of these and other challenges facing the nation's cities in building resilience are not new. Most represent longstanding concerns around resources, priorities, and antipathy, as well as individual barriers. Nonetheless, building community resilience to climate change presents a unique opportunity to also invest in creating community capacity, and fostering champions and informing people of color so that they are grounded in the knowledge and tools to enable them to cope with, respond to, and recover from climate-related or other emergent threats. While cities are generally at various stages of addressing climate change adaptation, we identified a common set of priorities that all can consider as they work to build, renew, or improve their climate change adaptation plans to be more inclusive of vulnerable communities of color:

- **Integrate climate change priorities with broader community goals.** Conclusions from our review reinforced the contention that building community resilience to climate change for vulnerable communities of color will require integrated, concerted planning and actions. Cities that were making the greatest progress toward climate change adaptation with a focus on vulnerable populations emphasized the need to incorporate adaptation into broader plans or policies around sustainability, health, the economy, and related local objectives.
- **Partner with community-based organizations and other nonprofits representing communities of color.** Building resilience to climate change requires a recognition that communities are at the core of identifying and addressing their vulnerability and capacity, provided they are armed with information, resources and tools to do so. To this end—and as many of the leading cities are doing—establishing partnerships with nonprofit and community-based

organizations anchored in communities of color is important to assuring these communities are involved, represented, and reached through any effort to build resilience.

- **Engage low-income communities of color in climate adaptation by supporting economic opportunities.** Many leading cities have committed considerable resources to creating economic opportunities for low-income individuals in the green sector. These cities have recognized the two-pronged benefit of investing in green jobs: first, it brings financial vitality to communities, which is a critical backbone to building resilient communities; and secondly, it offers a sustainable means of advancing more environmentally-friendly practices in the community. These efforts, in particular, target young adults especially those who drop out from high school and those without a college education, creating medium- to long-term career-building opportunities that provide a pathway out of poverty for many historically disadvantaged individuals.
- **Identify overlap in climate adaptation goals with other city-level planning efforts.** Several key informants highlighted ways in which climate change adaptation planning could be made more efficient through recognizing common characteristics with other agency planning and programming efforts. A promising practice that emerged was to identify existing agency plans and create a spreadsheet of strategies to pinpoint areas of overlap.
- **Identify creative ways to leverage funds for climate change adaptation.** One of the greatest opportunities for addressing climate-related priorities for vulnerable communities, as described previously, is to take an integrated approach, identifying synergistic opportunities with other city and sector-specific priorities. Philanthropy has played, and will likely continue to play, an

important role in advancing efforts to address climate change for vulnerable populations, including communities of color, the elderly and pregnant women. Private foundations are also an important resource to support community engagement efforts in cities.

- **Assure climate change messages are clear, non-partisan, and culturally and linguistically appropriate.** Critical to effective messaging around climate change is a need to avoid technical language or jargon related to climate science in communicating with local politicians and with lay audiences. Also important—as leading cities have demonstrated—is providing culturally-appropriate and relevant translated information on ways individuals can participate in preparedness, mitigation, and adaptation.

Conclusion

While some cities are at earlier stages of integrating communities of color into their climate change plans, all have come to realize how their vulnerable (and most often) diverse communities are likely to suffer some of the greatest ill effects. And while they differ in how far they have come, individually and collectively they offer a wealth of experience, success, promise and continuing challenges for informing other urban areas across the country. Many of these cities are living examples of how those affected are coming to understand how any response of substance must be simultaneously broad and concerted in scope. In so doing these cities have worked to engage public and private sectors broadly and to link them to community priorities. These 15 cities have understood that engaging communities fully and effectively lies at the heart of any success. However, the considerable variation in integrating culturally and linguistically diverse residents and neighborhoods into plans and actions demonstrates the need for greater commitment of resources and initiatives that directly address their lives and their needs.

I. INTRODUCTION

A growing body of evidence suggests that low-income, communities of color are especially susceptible to the adverse effects of climate change, often facing greater morbidity and mortality than the general population. Our own research from 2012 suggests that these populations are at risk of facing the “perfect storm” as they are affected by a confluence of factors such as greater exposure to climate-related events including air pollution and extreme heat, lower socioeconomic status, poorer health and healthcare access, and cultural and linguistic barriers.¹ In addition our prior study identified serious gaps in climate change planning and programs for vulnerable communities of color. Building on these findings, with support from The Kresge Foundation, we reviewed and identified replicable models and strategies for engaging communities of color to build resilience to climate change.

Focused on 15 major U.S. cities representing a range of geographic, population, and climate-related dynamics, this study coalesced leading research and local policies, programs, and perspectives on integrating communities of color in climate change planning and adaptation especially to build community resilience. As such, the goal of this report is to offer content and perspective that contributes to climate change planning and adaptation in at least four concrete ways:

- Provide a snapshot of progress that a subset of major U.S. cities have made to build resilience to climate change in vulnerable communities of color, describing the nature and extent of progress they have made in related programs and policies;
- Offer experiences, lessons, replicable models, and best practices with respect to engaging communities of color to build resilience to climate change;
- Share common barriers and challenges that cities face to engaging diverse communities in climate change; and
- Present specific opportunities and practical recommendations for cities as they work to create, renew, or enhance efforts to build community resilience among vulnerable communities of color.

Findings from this research are intended to provide new information and analysis on how major cities across the country are working to educate, engage, and empower vulnerable communities of color to build resilience to climate change. To our knowledge, this is the first report of its kind to document urban level experiences and innovations in cities across the United States around building climate change resilience for diverse communities. As such, these “ground level” portraits offer a unique opportunity to inform local, state and national advocacy and policy efforts to more fully engage and integrate vulnerable populations—and in particular, communities of color—into climate change planning. This report is intended for a broad audience, including public health practitioners, local emergency preparedness and sustainability officials, policymakers, community-based organizations, advocates, and others explicitly working to advance the ability of vulnerable communities of color to prepare for, prevent, and cope with the effects of a changing climate.

II. SETTING THE CONTEXT

Community resilience is defined as “the ability to prepare and plan for, absorb, recover from, and successfully adapt to actual or potential adverse effects.”² The World Bank describes that “building long term resilience involves understanding the level of exposure and sensitivity to a given set of impacts, developing policies and investments that limit vulnerabilities, and enhancing adaptive capacity.”³ Other leading organizations suggest that building community resilience often involves a multi-pronged approach across adaptation, sustainability, and mitigation to reduce vulnerability to climate change.⁴ Understanding what goes into building resilience and engaging populations in this process, requires an understanding of key concepts in the climate change field.

Generally, over the years, there have been two key responses to climate change: **mitigation**, defined as human intervention to reduce greenhouse gas emissions and **adaptation**, defined as an adjustment in natural or human systems in response to actual or expected climate risk or its impacts to reduce harm.⁵ ⁶ Examples of mitigation include using fossil fuels more efficiently for industrial processes or electricity generation, greater use of solar energy or wind power, improving the insulation of buildings, and expanding forests and other processes to remove greater amounts of carbon dioxide from the atmosphere.⁷ Adaptation is greatly dependent on **adaptive capacity** or “adaptability of an affected system, region, or community to cope with the impacts and risks of climate change.” Communities’ adaptive capacity is largely determined by their socioeconomic characteristics. As one source states, “enhancement of adaptive capacity represents a practical means of coping with changes and uncertainties in climate, including variability and extremes. In this way, enhancement of adaptive capacity reduces vulnerabilities and promotes sustainable development.”⁸ Building on these two concepts, a third area of intervention has emerged to address climate change concerns: sustainability. Efforts to build **sustainability** intend to change the way resources are used or hazards are managed so that adverse impacts are reduced, particularly for subsequent generations.⁹ This often involves adjusting the level to which a locality or organization addresses mitigation versus adaptation.

While still a much debated topic, in recent years, efforts to address climate change have gained some ground in the United States as President Obama’s Administration has identified climate change among its top priorities. For example, since 2009, the Obama Administration has invested in the Partnership for Sustainable Communities—a collaboration of the Environmental Protection Agency, Department of Transportation, and Department of Housing and Urban Development—which helps communities become more sustainable by providing more housing choices, improving transportation systems in more efficient ways, protecting the environment and creating vibrant neighborhoods. This collaborative is focusing on communities that were hit especially hard by the recession. All 50 states have received funding through the Partnership for Sustainable Communities, and more than \$4 billion has been awarded to approximately 1,000 communities. In addition to funding, many of these communities have also received technical assistance targeted to leverage private and public resources to maximize investments made.¹⁰

In November 2013, President Obama issued an Executive Order, “Preparing the United States for the Impacts of Climate Change,” which created the Council on Climate Preparedness and Resilience as well as the State, Local, and Tribal Leaders Task Force on Climate Preparedness and Resilience. The order also called for modernizing federal programs to support climate resilient investment.¹¹ The Administration’s Climate Action Plan includes mitigation strategies which intend to limit carbon emissions from both new and existing power plants, improve energy efficiency in the buildings sector, and increase federal investments in more efficient energy sources, among other

actions. On May 6, 2014, the Third U.S. National Climate Assessment, a comprehensive scientific report detailing climate change impacts on U.S. regions and on the nation's economy was released. The report's findings highlighted impacts across 12 sectors including human health, infrastructure, agriculture, water supply, responses and others.

Despite this recent momentum in the United States, communities—and in particular those most vulnerable including communities of color—are often much less engaged or addressed in the national climate change conversation. Where there is some focus and attention to this priority, it is fragmented across the country in certain cities and localities. In contrast, many developed countries across the globe, such as Australia, United Kingdom, and Canada, are much farther along to educating and involving communities of color in efforts to plan for and respond to the effects of climate change, and much can be learned from these international communities, as well as cities within the United States that are leading in addressing this priority.^{12 13 14}

As much of the attention to climate change has focused primarily on national and international proposed actions and policies, with some state programs also drawing attention, only a few if any efforts have highlighted related initiatives to inform, engage and build community resilience among diverse, poor and other vulnerable populations at the local level within major cities in the US. The absence of “community voices” is acutely felt given the lack of progress in advancing top down approaches to address climate change. As such, growing interest has turned to “ground level” experiences, innovations and lessons learned that can serve to both inform efforts in other areas and provide new insight to guide state and national recommendations.

This report is the first of its kind to focus on and document actions taken by a select set of cities across the country to educate and engage vulnerable and, in particular, racially, ethnically and linguistically diverse communities in building, undertaking and sustaining efforts to address and redress the effects of climate change. This report focuses on this gap in knowledge and experience in the United States, and intends to offer a resource and guidance for cities and localities working to assure that those most vulnerable, particularly by race, culture, or language, are engaged and incorporated into climate change planning and programs to build community resilience. City-specific summaries and synthesis of their experiences and related research offer new perspective on public-private partnerships, specific community-centric programs, and where adaptive strategies work to involve vulnerable neighborhoods.

By its scale and scope this review is a modest step in documenting what these cities are undertaking. But as such it provides a resource and foundation from which to further climate change adaptation for other cities and the country based on the richness of experience at the level where it counts the most—in communities where people live, work, pray and play.

III. DESIGN & METHODOLOGY

We utilized a mixed-methods approach to identify the progress of a subset of major U.S. cities in advancing and building community resilience to climate change for diverse and vulnerable populations. The first phase of the project focused on setting criteria, analyzing data, and selecting 15 major U.S. cities for inclusion in this study. The second phase involved an in-depth review of literature, programs, and policies, as well as interviews with thought leaders in each of the 15 cities to identify progress, lessons, and replicable models and best practices for building community resilience across vulnerable and diverse communities. This section describes the study framework and methods in greater detail.

CITY SELECTION PROCESS

The city selection process is described in greater detail in the accompanying *Appendix: Research Design and Methodology for Selecting 15 Cities*. Building on the foundation of THI’s previous study with the Joint Center for Political and Economic Studies on climate and vulnerability, THI established criteria to assess 50 of the largest principal cities in the U.S. (as defined by the U.S. Census Bureau) in terms of their vulnerability and capacity to respond to climate change. To this end, we utilized a commonly accepted framework for defining vulnerability in the context of three interactive components: exposure, sensitivity, and adaptive capacity. These components and corresponding measures included in the study are summarized in Table 1.^{15,16}

Table 1: Measures for Selecting Cities

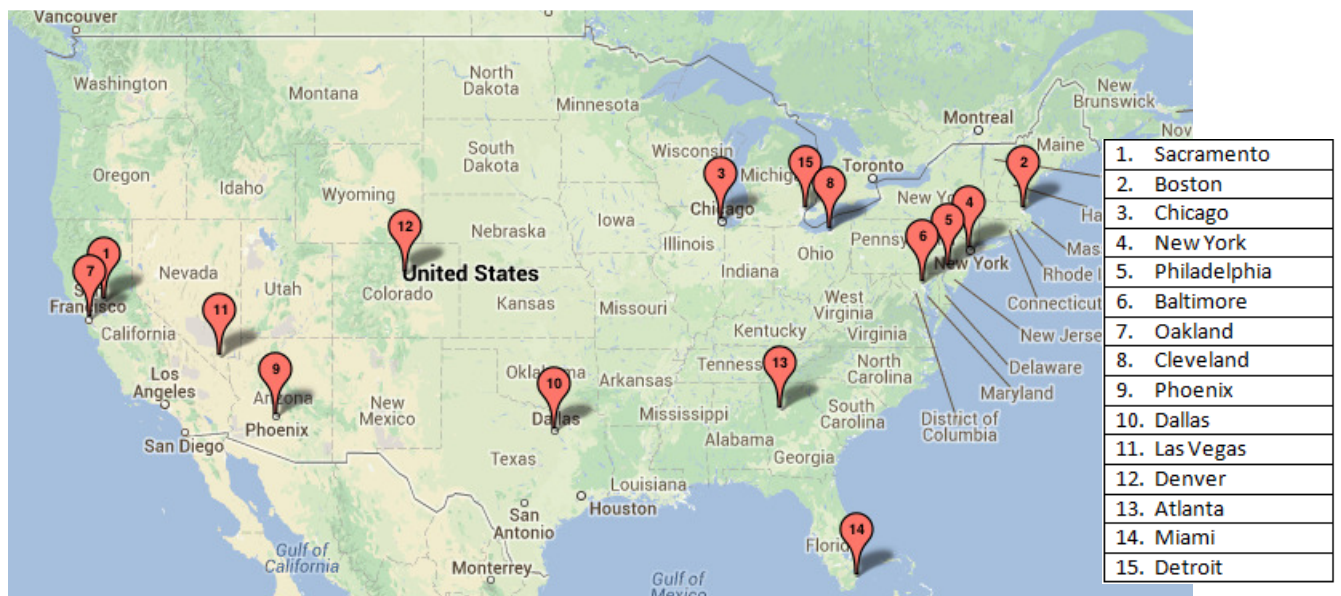
Component & Definition	Measures
<p>Exposure Degree of climate stress, represented as either long-term changes in climate conditions, or by changes in of magnitude and frequency of extreme events</p>	<ul style="list-style-type: none"> • Daily fine particulate matter • Projected heat related deaths • Number of drought impacts • Water stress
<p>Sensitivity Extent to which a system or population can absorb impacts based on factors such as health, socioeconomic status, and socio-cultural factors</p>	<ul style="list-style-type: none"> • Racial and ethnic diversity • Primary language spoken • Poverty • Unemployment
<p>Adaptive Capacity Potential of a system or population to modify or respond to change through, for example, policies and programs</p>	<ul style="list-style-type: none"> • Greenhouse gas emissions target • Greenhouse gas inventory • Participation in Urban Sustainability Directors Network • Participation in ICLEI Resilient Communities for America Campaign • Participation in ICLEI Mayor’s Climate Protection Agreement • Cities with Black Mayor

Following the selection of measures, we developed criteria and a scoring scheme for selecting 15 cities. Two scenarios were considered in scoring and selecting cities:

- **Scenario 1** placed greater emphasis on adaptive capacity measures with the aim of yielding cities leading in this area given our interest in tracking replicable models and best practices for building community resilience.
- **Scenario 2** placed greater emphasis on sensitivity measures in order to identify cities experiencing greater social vulnerability and related challenges.

While both adaptive capacity and social vulnerability measures were of great importance to this study, we ultimately selected cities under Scenario 1 (with a few caveats as described in the Appendix) to give us an opportunity to identify the experiences, lessons, and innovations of cities leading in efforts to integrate and plan for communities of color in climate change. **Figure 1** below maps the final selection of 15 cities for this study.

Figure 1. Final 15 City Selection for Study



As described in the Appendix, while our selection of cities overlaps with many other studies, our analysis is unique, differing from others in at least one major way. Our methodology, unlike those of previous studies—which have focused mainly on climate-related measures—also addresses factors measuring social, health, and environmental vulnerability. By including these variables from the start, we intended to add another dimension to the body of literature describing cities that are leading not only in terms of their climate action and adaptation plans, but also in efforts to engage vulnerable and diverse communities in this process, recognizing that for some cities addressing this priority must occur in the context of more relevant issues such as poverty, unemployment, and environmental health threats.

LITERATURE AND PROGRAM REVIEW

Following the selection of cities, we conducted a review of the literature (including peer-reviewed journal articles, white papers, government reports, and web-based programs) to identify leading practices, experiences, and lessons that have emerged in these cities to address climate change generally, and in particular for vulnerable and diverse communities. Following are three key research questions which framed our review:

- (a) To what extent have cities explicitly addressed and incorporated communities of color in their climate change action and adaptation efforts?
- (b) What specific plans, actions, and programs do these cities have in place to engage and build climate change resilience for communities of color?
- (c) What barriers, challenges, and lessons have they learned in this process?

Among the 15 cities, we reviewed local activities related to climate change, identifying and abstracting policies and programs with a focus on or implications for vulnerable populations—and in particular, low-income and people of color. To identify additional resources, we conducted internet searches with a combination of key terms addressing climate change related topics (e.g., climate, weather, sustainability, resilience, mitigation, adaptation, policy, programs, energy, water management, air quality, coastal, transportation, and public health) as well as communities of color (e.g., minorities, African Americans, Hispanics/Latinos, Asians, limited English proficiency, immigrant, race, ethnicity, language, diverse populations, among others).

REVIEW OF LOCAL ADAPTATION PLANS

In addition to a review of emerging city, county, and community-level programs, we reviewed climate action as well as adaptation plans for the 15 cities, focusing on the following questions:

- Does the city have a formal adaptation plan in place, and if so, at what level?
- Does the adaptation plan mention or address population health priorities?
- Does the adaptation plan mention and define community resilience, and if so, how?
- Does the adaptation plan mention community engagement?
- Does the adaptation plan mention or address communities of color?

In addition to seeking responses to these questions, we conducted a content review of climate action and adaptation plans to identify and distill examples of plans, protocols, or programs with mention of or relevance for vulnerable communities of color.

INTERVIEWS

We conducted 14 semi-structured telephone-based key informant interviews between February and June 2014 to fill any gaps in information from our literature and program review, as well as to elicit further information and perspective from local officials, planners, and academicians on:

- Leading climate change or environmental-related concerns affecting cities;
- Climate change-related vulnerabilities and experiences associated with communities of color;
- Local programs, innovations, and strategies for engaging communities of color in building community resiliency to climate change;
- Encountered barriers and lessons to working with communities of color around climate change priorities; and
- Future priorities or areas for improvement in better reaching and meeting the needs of communities of color.

Key informants were identified from recommendations made by our Research Advisory Group, as well as contacts we identified through a review of the field and recommendations that our interviewees suggested for follow up. Our intent was to identify and interview key informants in cities with relevant knowledge at two levels:

- Knowledge or experience related to key climate change adaptation issues affecting the city and progress toward creating a resilient community, including funded initiatives, policies, programs, job incentives, challenges and successes; and/or
- Knowledge and understanding of social vulnerability and climate change issues, particularly those affecting racially and ethnically diverse populations generally; and any actions, plans or progress toward addressing their needs in the region or state.

Fourteen individuals completed the interview process. Eight individuals were from various city offices including: departments of public health, environmental planning, environmental surveillance and policy, emergency management, and offices of sustainability. Five individuals represented non-profit or community-based organizations focusing on research, advocacy or education. We also interviewed an individual from a federal agency to lend a national health and environmental perspective on city-level progress for climate change planning and actions related to reaching and engaging communities of color.

A review of the literature guided the development of a semi-structured interview protocol. Each interview was transcribed, and qualitative data were manually analyzed for emerging trends and recurrent themes related to, for example:

- General climate change concerns;
- Formal city-level climate action and adaptation planning;
- Specific plans for building community resilience;
- Specific strategies in place for addressing communities of color in efforts to build resilience, including their involvement in initiatives such as: risk assessments; cross-sector partnerships; involvement in advisory capacity; community incentives; job creation; among others; and
- Key challenges and barriers to addressing resilience for communities of color.

IV. STUDY FINDINGS

Our review of the literature, climate action and adaptation plans, and local programs as well as interviews revealed that cities, as might be expected, are at varying levels of progress in terms of establishing or implementing formal climate change adaptation plans. **Table 2** summarizes each city’s plan highlighting those with a focus on equity or diverse populations. Among the 15 cities, ten currently have a climate change adaptation plan, three are in the process of developing one, and two do not have a formal plan (not in development or otherwise). The level at which these plans have been established also varies by city. For example, Chicago’s adaptation plan is part of its larger climate action plan, while other cities such as New York and Denver have separate adaptation plans and Phoenix has developed multiple adaptation plans on a sectoral basis, instead of one inclusive plan.

In reviewing which cities explicitly define and incorporate the concept of “community resilience” as a priority in their adaptation plans, we found that only six cities currently do so (Baltimore, Boston, Miami, New York, Oakland, and Sacramento). While some are specific to creating a community that is resilient to the effects of climate change, others take into account and make connections to larger issues. For example, Boston aims to “connect climate to broader concerns about health, quality of life, community well-being and civic resilience”¹⁷ while New York’s plan defines community resilience as more specific to climate: “a resilient city is one that is: first, protected by effective defenses and adapted to mitigate most climate impacts; and second, able to bounce back more quickly when those defenses are breached from time to time.”¹⁸

Table 2: Summary of City Climate Change Adaptation Plans and Equity Focus

City	% Population Below Poverty	% Non-White Population	Climate Change Adaptation Plan?	Plan Defines Community Resilience?	Plan Mentions Community Engagement?	Plan Mentions Communities of Color?
New York	20.9	66.9	Yes	Yes	Yes	Yes
Boston	23.2	54	Yes	Yes	Yes	Yes
Chicago	23.7	68.1	Yes	No	Yes	Yes
Phoenix	22.9	53.2	Yes	No	Yes	Yes
Baltimore	25.1	71.7	Yes	Yes	Yes	No
Miami	31.0	88.5	Yes	Yes	No	No
Oakland	21.0	74.7	Yes	Yes	Yes	No
Sacramento	23.0	68.1	Yes	Yes	Yes	No
Cleveland	34.3	64.9	Yes	No	Yes	No
Denver	18.4	47.5	Yes	No	Yes	No
Detroit	40.9	91.9	In progress	N/A	N/A	N/A
Las Vegas	19.4	54.5	In progress	N/A	N/A	N/A
Philadelphia	28.4	63.1	In progress	N/A	N/A	N/A
Atlanta	26.2	64.7	No	N/A	N/A	N/A
Dallas	25.3	71.4	No	N/A	N/A	N/A

In this section, we present case study findings from each city, describing their climate change adaptation plans, programs, and policies generally and around engaging vulnerable communities of color to build resilience. These case studies are organized into seven sub-sections as summarized below:

- **Snapshot:** Provides a brief historical context to each city, highlighting major infrastructural, economic, and climate related events.
- **Basic Demographics:** Offers a summary of basic demographic and socioeconomic characteristics for each city, including total population, percent non-white, percent with limited English proficiency, percent below the Federal Poverty Level, and percent unemployed.
- **Major Climate Change Concerns:** Provides a listing of major climate change concerns the city faces as identified through the literature and interviews.
- **Basic Climate Change Policies:** Summarizes major climate related policies in the city, including whether the city has greenhouse gas targets and a greenhouse gas inventory. Also included are reports on the extent to which cities are participating in broader and national climate and sustainability efforts, including Urban Sustainability Director’s Network, Resilient Communities for America, and Climate Protection Agreement.
- **Overview of Climate Change Planning:** Describes the level of climate change planning including if cities have a “climate action plan,” i.e., a formal document containing a strategy to address climate change and greenhouse gases. Some cities have developed documents called “sustainability plans” with similar goals. This section also summarizes climate change adaptation plans in each city, highlighting their overall goals and objectives. It describes whether cities’ climate action plans include specific strategies or recommendations for adaptation, i.e., actions that minimize or prevent negative community impacts of climate change. It also notes if cities have taken the next step to developing a separate climate change adaptation plan as a standalone document from the climate action plan. Some cities, as identified in these profiles, have “all hazards mitigation plans,” which are long-term plans to reduce disaster losses, with similar adaptation goals.
- **Emerging Programs and Lessons for Building Community Resilience:** Describes explicit programs, opportunities, and experience, including any lessons and challenges, of cities in engaging racially, ethnically, and linguistically diverse communities.
- **Promising Programs for Building Community Resilience:** Offers examples of promising community and nonprofit programs that are being leveraged to engage and advance the resilience of communities of color in climate change.

While the case studies are intended to provide a general portrait of emerging programs, best practices, and important lessons for advancing climate change adaptation and building resilience in vulnerable communities, we recognize that they may be limited in capturing all of the promising work taking place in these cities, especially efforts in nascent stages or those that may have little to no information available via the Web. Nonetheless, we acknowledge the value of these profiles in offering a general sense of where cities are individually, comparatively, and collectively, pointing to successes, lessons, as well as gaps that may require further attention and advocacy to assure that vulnerable communities of color are integrated in efforts to build climate resilience.

ATLANTA, GA

Snapshot

In 1837, Atlanta was established at the intersection of two railroad lines and today continues to be a vital transportation center for multiple methods of transit. Atlanta gained international recognition during the Civil Rights Movement during which its leaders used progressive strategies such as leveraging the role of churches, social organizations, businesses and colleges to mobilize black residents.¹⁹ Today, Atlanta's booming economy, one of the largest in the nation, centers around professional and business services, media operations and information technology. The city experienced significant revitalization as it hosted the Olympic Games in 1996. Atlanta is the fourth largest majority African American city in the U.S. In terms of its climate, the city has ample tree coverage and hills as well as abundant rainfall, however, major concerns center on the growing uncertainty and severity of storms.

Basic Demographics

- Total Population: 443,775
- % Non-White Population: 65
- % with Limited English Proficiency: 12
- % below Federal Poverty Level: 26
- % Unemployed: 7

Major Climate Change Concerns

- Increasing temperatures
- Severe heat waves
- More frequent severe storms
- Flooding
- Drought

Basic Climate Change Policies

- Have Greenhouse Gas Targets: Yes
- Have Greenhouse Gas Inventory: Yes
- Participating in Urban Sustainability Director's Network: Yes
- Participating in Resilience Communities for America: No
- Participating in Climate Protection Agreement: Yes

Promising Programs for Building Community Resilience

Sustainable Atlanta

www.sustainableatlanta.org

Works to advance the health, prosperity and quality of life for all people in metro Atlanta by nurturing a balance between environmental stewardship, economic development and social equity.

Grants to Green Initiative

<http://cfgreateratlanta.org/Community-Leadership/Current-Initiatives/Grants-to-Green.aspx>

Works with Atlanta nonprofits to improve efficiency of their buildings through grant programs and educational opportunities

The Community Foundation

<http://www.cfgreateratlanta.org/>

Is implementing the One Region Atlanta program which focuses on civic engagement and community building for local residents.

ATL Science Café on Climate Change and Sustainability

<http://shadow.eas.gatech.edu/~hsayani3/sciencecafe/>

An education initiative which focuses on presenting climate change and sustainability science in plain language.

Metro Atlanta Equity Atlas

<http://atlantaequityatlas.com/>

Intended to provide information and data on how to build a more equitable region. Tells the story of "spatial justice" through GIS, data and narrative.

Overview of Climate Change Planning

While the City of Atlanta does not have a formal climate action or adaptation plan, climate-related priorities are generally embedded in the city's broader sustainability efforts led by **Sustainable Atlanta**, a nonprofit organization established in 2007 to help build the City of Atlanta's sustainability initiative. Sustainable Atlanta's 2008-2009 report, *Our Path to Sustainability*, describes citywide plans and efforts to build a greener and healthier Atlanta focused on initiatives to assure the city's air is clean, waste is reduced, green space is abundant, green industry is thriving, and the overall quality of life is improved.²⁰ Explicitly cited in its sustainability vision is a commitment to assuring "solutions are equitable and inclusive." In addition, the report includes a section on "Energy & Climate Change," reflecting the city's vision and plan to advance the Mayor's Climate Protection Agreement to reduce greenhouse gas emissions through actions addressing three priorities: sustainable buildings and development; air quality; and transportation.

The **Atlanta Regional Commission**, the regional planning and intergovernmental coordination agency, has started to consider strategies for reducing greenhouse gas emissions and is evaluating the role these strategies might play in Plan 2040, a general development plan for Atlanta. The Commission "has not singled out climate adaptation planning as a specific activity, but has integrated elements of such planning into its long range transportation planning and other initiatives. Rather than 'adaptation' it prefers to employ the more inclusive concept of 'sustainability' as its operative term"²¹—as is reflected in related efforts led by Sustainable Atlanta.

Beyond these broader sustainability efforts which embed and integrate climate-related priorities, some academic researchers in Georgia have taken a lead in assessing the region's vulnerability to climate change. For example, a 2010 study, *A Climate Change Vulnerability and Risk Assessment for the City of Atlanta, Georgia*, sought to identify and describe vulnerability to climate change, framing it in the context of a three-part vulnerability assessment addressing risk, sensitivity, and climate adaptation. The study applied the vulnerability assessment to 24 planning areas across nine sectors in the city. Findings revealed that air quality, water quality, and energy assurance—areas that are crucial to the health and economic viability of the city—are most vulnerable, at-risk planning areas in Atlanta.²²

Emerging Programs and Lessons for Building Community Resilience

While the City of Atlanta does not have a formal climate action or adaptation plan issued by its local government, the city offers many opportunities for addressing and building community resilience through its various local nonprofit and private sector initiatives. Many of these efforts offer a promising opportunity to explicitly incorporate communities of color both in the city's broader sustainability efforts, as well as its more specific climate-targeted strategies.

Building relationships across nonprofits to develop knowledge and education opportunities around sustainability. Several of the cities' nonprofits are supporting and implementing sustainability and climate-related programs. For example, **The Community Foundation** is implementing the **One Region Atlanta** initiative, which is dedicated to building a more inclusive region by stressing civic engagement and community building opportunities to connect local residents of diverse cultural heritage and faith. Another program, **Grants to Green**, strengthens nonprofits through the provision of environmentally focused knowledge and funding opportunities. This collaboration with The Community Foundation gives Atlanta nonprofits the opportunity to renovate or build healthier workplaces that are energy, water, and environmentally efficient. The overarching goal is to improve nonprofit organizations' building structure to not only have less of

an environmental impact, but also to improve the cost-efficiency of operations. Through such financial actions, the group envisions that these non-profits will be better able to provide more services. Finally, education opportunities are provided through **ATL Science Café on Climate Change and Sustainability**. Initiated by *PBS* and *NOVA scienceNOW*, this program attempts to “demystify” climate change and explore feasible sustainability goals in Atlanta. Local scientists and engineers give short presentations in plain language and facilitate discussion on climate change or general sustainability needs. The presentations are open to the public.

Using data-based tools for climate change priorities. Online tools and related software are emerging across the country to identify and map community needs with climate change concerns. In Atlanta, *Metro Atlanta Equity Atlas* is an online data tool that collects and reports information on eight priorities—demographics, economic development, education, environment, health, housing, public safety and transportation—offering an opportunity to identify and map community risks, needs, and assets. The tool is intended to assist local policymakers, advocates, and community members in making decisions related to improving the health and wellbeing of communities. A key theme reinforced by The Atlas’ approximately 200 maps is that “place matters,” offering researchers and advocates the opportunity to explore the interplay of where populations reside, their characteristics, and their exposure to climate and environmental related risks, such as air pollution.²³

BALTIMORE, MD

Snapshot

Baltimore is located in central Maryland on an arm of the Chesapeake Bay. Also known as “the city of neighborhoods,” Baltimore has 72 designated historic districts. The city’s economy centers around science, technology and engineering and its top employers are Johns Hopkins Hospital and Johns Hopkins University. A large majority of the city’s population is African American. In terms of climate, the city has four distinct seasons and averages about 20 inches of snow each year. Previous efforts around climate change have identified the city’s most vulnerable populations as being those that live in low-income areas and have fewer resources to cope with extreme weather.

Basic Demographics

- Total Population: 621,342
- % Non-White Population: 72
- % with Limited English Proficiency: 8
- % below Federal Poverty Level: 25
- % Percent Unemployed: 8

Major Climate Change Concerns

- Urban Heat Islands
- Precipitation variability
- Increased coastal storm events

Basic Climate Change Policies

- Have Greenhouse Gas Targets: No
- Have Greenhouse Gas Inventory: Yes
- Participating in Urban Sustainability Director’s Network: Yes
- Participating in Resilience Communities for America: Yes
- Participating in Climate Protection Agreement: Yes

Overview of Climate Change Planning

The City of Baltimore officially adopted a Climate Action Plan in November 2012 through its Office of Sustainability with implementation beginning in 2013, to reduce greenhouse gas emissions by 15% by 2020. As with many cities, Baltimore has

Promising Programs for Building Community Resilience

Baltimore Office of Sustainability

<http://www.baltimoresustainability.org/>

Engages Baltimore communities in initiatives related to sustainability. The office also integrates sustainability into other city government operations and develops partnerships to advocate for social, environmental and economic improvements in the city.

Baltimore Energy Challenge

<https://www.baltimoreenergychallenge.org/>

Partners with area schools, neighborhoods and churches for education and instruction in energy reduction strategies.

Baltimore Climate Ambassadors

<http://www.cphabaltimore.org/2014/04/the-office-of-sustainability-presents-earth-day/>

An outreach program in which involved citizens work in communities to educate residents on climate change.

Blue Water Baltimore’s Community Greening program

<http://www.bluewaterbaltimore.org/programs/community-greening/>

An organization dedicated to improving forest canopy, air quality and quality of life through tree planting, pavement reduction, conservation landscaping among other strategies.

also adopted a multi-sectoral approach to addressing climate change. While the City's Climate Action Plan centers on reducing greenhouse gas emissions, in doing so, it also works to create healthier, safer, and more resilient communities. For example the plan promotes lower cost transportation options; creates safer and more walkable communities; promotes mixed-use and mixed-income neighborhoods; promotes local jobs; increases extent of tree canopy to slow storm water flow during heavy storms and decrease the heat island effect; and improves air quality. Unique to the city's Climate Action Plan has been its integration not only with broader sustainability efforts, as most cities have done, but also with the city's disaster preparedness efforts, including its All Hazards Mitigation Plan.²⁴ According to their unique approach, the key to building resilience is addressing current and historical hazards through the All Hazards Mitigation Plan and adapting to new and predicted climate conditions through the Climate Action Plan. As part of this effort, the city has been working to assess and identify programs that mutually address both priorities, taking a comprehensive and integrative approach with other sectors and community groups.

Emerging Programs and Lessons for Building Community Resilience

Baltimore's Climate Action Plan explicitly defines its objective for building community resilience as "a unified strategy for both hazard mitigation and climate change adaptation that supports Baltimore's sustainability and resilience."²⁵ The plan also explicitly mentions the importance of community engagement, and while strategies are not specified within the plan itself for engaging communities, the city has undertaken many education and outreach efforts for this very purpose.

Creating city-led partnerships for community outreach and engagement. The City of Baltimore has uniquely led efforts to build partnerships not only with other sectors, but with community-based and neighborhood organizations. For example, the city provides education and outreach regarding water conservation to members of communities; has a grants program targeting youth in 74 different schools to improve their schools' environmental performance; and has implemented the **Baltimore Energy Challenge** that promotes energy cost savings among low-income neighborhoods by distributing energy saving kits. The Baltimore Energy Challenge partners with neighborhoods, schools, churches and businesses throughout Baltimore to implement a grassroots, word-of-mouth campaign, working with **AmeriCorps Energy Educators** who provide instruction on how to change behavior to reduce energy use.²⁶ Also in efforts to reach communities around the Baltimore Energy Challenge, the Office of Sustainability developed the **Climate Ambassadors Program**, initiated in 2009 to train local community members and businesses to provide education to prepare and respond to a changing climate, and in particular extreme weather events. The city is also looking expand its Community Emergency Response Teams (CERT), to recruit and train highly motivated community and neighborhood members in educating their peers about climate change and disaster preparedness and response.

Building education and outreach opportunities in low-income neighborhoods. While Baltimore's Climate Action Plan does not specifically mention racial or ethnic equity, many of its efforts focus on the city's low-income neighborhoods—generally home to a more diverse population. In addition, the City of Baltimore's Sustainability Plan identifies "social equity" as core to building sustainability as it states that "Sustainability is often viewed as a three-legged stool, comprised of social equity (people), environmental stewardship (planet), and economic health (prosperity). These three "legs" work in concert to provide an even foundation for the quality of life for Baltimore citizens. All three need to be strong, and are essential to the decision making lens of sustainability." Beyond theory, however, the city's commitment to including communities of color in its efforts to build capacity and resilience to respond to climate change is evident in its various

programs and processes. For example, Baltimore’s Commission on Sustainability held its Annual Sustainability Town Hall²⁷ in east Baltimore, an area with high rates of poverty, violence, and infant mortality, to help lower-income families and individuals plan and prepare for extreme weather events. The theme of the event was: “Make a plan. Build a kit. Help each other.” To encourage attendance by individuals from all walks of life, and especially from other low-income and disadvantaged neighborhoods, free transportation was provided. As one report shared on the success of the event:

Hundreds of people turned out. Upon arrival, community members were asked to fill out a [family emergency plan](#). Attendees then visited various stations to learn how city partners are helping Baltimore prepare for disasters, and were given free items for emergency preparedness kits, including flashlights and batteries, crank-powered radios, fans, face masks, can openers, and signs to place in their windows during disasters indicating whether they are “[Safe](#)” or need “[Help](#).” The response was so positive that neighborhood groups have requested that the City repeat this event for their residents.²⁸

This and other communitywide efforts that work to build relationships between communities and public entities, and encourage social cohesion, offer promise for assuring that some of the most vulnerable communities and individuals—including people of color—are a part of any preparedness, planning, and response effort.

Actively involving community members to achieve climate-related goals. In addition to efforts at the city-level, other community programs are in place to address climate change adaptation among diverse populations by enhancing communities in ways that provide social and environmental benefits for residents. For example, ***Blue Water Baltimore’s Community Greening Program*** helps underserved communities improve property values by preserving and supporting community gardens, forest patches, pocket parks, and other community-managed open spaces. The organization is bolstering the city’s forest canopy and air quality as well as reducing polluted runoff and excessive pavement. Actions to realize this goal feature partnering with the communities themselves who invest “sweat equity” to enhance their neighborhoods.²⁹

BOSTON, MA

Snapshot

Boston is an old city, settled over 350 years ago, with much of its infrastructure dating to pre-WWII era.³⁰ A key focus of the city's resilience efforts have been on adapting existing buildings and educating populations to prepare for pending climate change impacts, particularly floods, heat, and storms. Boston also is a city with rich cultural and linguistic diversity. Among its most vulnerable are elderly, low-income, and limited English proficiency populations located in clusters throughout the city. In recent years, Boston has shown considerable progress, and is often considered among leading cities in the country working to advance community resilience for its vulnerable populations.

Basic Demographics

- Total Population: 636,479
- % Non-White Population: 54
- % With Limited English Proficiency: 37
- % Below Federal Poverty Level: 23
- % Unemployed: 7

Major Climate Change Concerns

- Sea level rise and coastal flooding
- Increased heat and heat waves
- Increased intensity and frequency of storms
- Effects on physical infrastructure and public health

Basic Climate Change Policies

- Have Greenhouse Gas Targets: Yes
- Have Greenhouse Gas Inventory: Yes
- Participating in Urban Sustainability Director's Network: Yes
- Participating in Resilience Communities for America: Yes
- Participating in Climate Protection Agreement: Yes

Overview of Climate Change Planning

The city of Boston's climate action plan was developed through collaboration between the

Promising Programs for Building Community Resilience

Boston Climate Action Network

www.bostoncan.org

A grassroots organization working with community members to develop equitable solutions to climate change.

Boston Blue Ribbon Commission

www.greenribboncommission.org

A cross sector-collaboration developed to provide advice and counsel to the city on the implementation of the Climate Action Plan.

Greenovate Boston

www.greenovateboston.org

A community-driven movement to reduce greenhouse gas emissions and encourage Boston residents to commit to five small new actions to reach the city's climate change goals.

Boston Harbor Association

<http://www.tbha.org/>

Involves East Boston communities in community workshops related to adaptation planning.

Green Justice Coalition

<http://massclu.org/green-justice-coalition>

A campaign to bring home energy efficiency upgrades and jobs to communities of color in Boston.

Boston Climate Action Leadership Committee and Community Advisory Committee, with its first report published in 2011. The plan consists of four main goals:

- Reducing community greenhouse gas emissions 25% by 2020 and 80% by 2050;
- Incorporating projected climate change into all formal planning and project review processes;
- Engaging all segments of the community in climate action and leadership; and
- Developing innovative businesses and workforce skills to take advantage of climate action opportunities.

Boston's climate action plan explicitly addresses adaptation, involving a range of players across sectors, including businesses, government agencies, disaster planning groups, and community groups. The former mayor, Thomas Menino, was a strong advocate for incorporating equity into proposed policies and initiatives, including those related to the environment. Among unique features of Boston's plan is an explicit focus on community—including vulnerable communities of color—as described below.

Emerging Programs and Lessons for Building Community Resilience

Boston's climate action plan explicitly defines community resilience as connecting climate to broader concerns about health, quality of life, community well-being, and civic resilience.³¹ It features five areas for building community resilience that span public works to employment. Strategies listed include encouraging hybrid vehicles, green job sector creation program and enforcement of green building standards.

Community engagement, health, and diverse populations are explicitly mentioned and described in city planning efforts. The plan recognizes that the cities' open spaces, trees, parks and green infrastructure are essential assets for a livable and healthy community. In addition, the city has a fairly comprehensive community engagement plan which explicitly lists racial, ethnic, and language groups among its targeted population. Following are examples of community engagement strategies the city is implementing to address climate change:

- A range of trainings and resources to build knowledge and encourage neighborhood, business, and community leaders to adopt new behaviors and influence their peers to better plan and respond to climate change.
- A high visibility city-level campaign that includes social media, public communications and news coverage, along with feedback loops to communicate successes or failures at the neighborhood level of various climate related actions.
- A similar campaign targeted at neighborhoods to strengthen or create networks to mobilize residents to share information, set local priorities and take action. The campaign includes block by block organizing and uses incentives to encourage collective action such as achieving "Gold Star Neighborhood" status. The community campaign focuses on greening highly visible community centers such as libraries and schools and utilizes such community center points as information access points.
- Obtaining community input on the city's ongoing climate action policies through efforts including: developing a website in plain language and format; encouraging storytelling as a means for community cohesion, using traditional and social media; and leveraging

partnerships with faith-based communities and neighborhoods differing by race, ethnicity and language.³²

Beyond city-led efforts, also core to the involvement of Boston's communities of color in climate change planning and adaptation has been the leading role of many nonprofit organizations as well as collaborative initiatives, as described below.

Private and nonprofit organizations engage communities of color in climate adaptation.

Many private and nonprofit organizations in Boston are addressing various facets of climate change adaptation, integrating in many cases concerns and needs of communities of color. For example, the ***Boston Harbor Association***, funded by the National Oceanic and Atmospheric Administration (NOAA) has been working with residents of East Boston, described as “a gateway for working class immigrants, ‘by turns, largely Irish, Jewish, and Italian...[and now] a growing Latino population.’”³³ Boston Harbor Association's research team has been working with lower-income Spanish-speaking Latino residents, through community workshops involving city officials and community organizations to understand the community's vulnerabilities, identify their adaptation incentives and obstacles, and strategize programs. A key finding from this work illuminated the fact that Latino communities are often not reached with reports and information on climate change. And while education helped to enhance their knowledge and interest in getting involved with adaptation, financial resources to plan and implement adaptation measures were identified as a significant barrier.

The ***Boston Climate Action Network*** also works to engage the city's communities of color in addressing climate change. The group is a grassroots organization that organizes and engages hundreds of households in carbon reduction projects, such as residential energy efficiency programs, Green Block events including Green Home Makeovers, and others. Boston Climate Action Network is a central part of the ***Green Justice Coalition*** campaign to make the state energy audit program more equitable. The group also conducts outreach to the Latino community, and has held two focus groups to discuss views on climate change within this population.

Leveraging cross-sector collaboration to make progress in climate planning. The ***Boston Blue Ribbon Commission*** is a cross-sector collaboration of business, institutional, and civic leaders who are developing common strategies for climate change adaptation and mitigation in alignment with the city's climate action plan. Few cities with climate action plans have created a similar group, which includes universities and hospitals, to endorse and support climate change planning. The ***Greenovate Boston*** initiative provides a framework developed to achieve the goals outlined in the city's climate action plan by engaging and motivating communities and individuals to make sustainable and healthy decisions as well as to generate empowerment to develop their own plans. The entity includes specific guidance for low-income families, offering information on weatherization assistance, heating systems updates, and related programs.

CHICAGO, IL

Snapshot

Chicago is the most populous Midwestern city and is located on the southwestern shore of Lake Michigan, which historically lent itself to a multitude of trading opportunities. Following the Great Chicago Fire of 1871, Chicago reinvented itself and transformed into a major commercial hub for the nation, witnessing a wave of immigrants who came to the city, attracted to a range of opportunities, including its factories and meatpacking plants. In terms of climate change, the city—more accustomed to addressing extreme winter and wind events—reached a turning point in July 1995, when over 700 heat-related deaths were reported in one week.³⁴ Regarded as “social disaster,” the event illuminated the social and economic disparities that were so intricately linked with the casualties and has largely refocused the City’s efforts to more fully engage vulnerable communities around climate and disaster preparedness.

Basic Demographics

- Total Population: 2.71 million
- % Non-White Population: 68
- % with Limited English Proficiency: 37
- % below Federal Poverty Level: 24
- % Unemployed: 8

Major Climate Change Concerns

- Extreme heat in the summer
- Increased frequency and severity of storms
- Growing flood risks

Basic Climate Change Policies

- Have Greenhouse Gas Targets: Yes
- Have Greenhouse Gas Inventory: Yes
- Participating in Urban Sustainability Director’s Network: Yes
- Participating in Resilience Communities for America: No
- Participating in Climate Protection Agreement: Yes

Promising Programs for Building Community Resilience

Engaging Chicago Communities in Climate Action

<http://www.fieldmuseum.org/exploration/department/ecco/engaging-chicago-communities-climate-action>

ECCo is working with partners to implement two local area plans: the Chicago Climate Action Plan focusing on the City and people, and the Climate Action Plan for Nature focusing on the natural environment

The Chicago Community Climate Action Toolkit

<http://climatechicago.fieldmuseum.org/>

This toolkit was developed as part of ECCo to help community organizations from diverse neighborhoods develop climate action programs that address climate change and local concerns at the same time.

Bronzeville Alliance

<http://www.bronzevillealliance.org/>

A group of residents and organizations working toward economic, social and cultural redevelopment in the community

The Auburn Gresham Portal

<http://www.auburngreshamportal.org/>

An online resource developed to coordinate neighborhood block clubs and other activities for the community of Auburn Gresham

Overview of Climate Change Planning

The City of Chicago has a formal plan to address climate change, known as the Chicago Climate Action Plan. Explicit to the plan is a focus on adaptation, within which the plan outlines nine strategies designed to help the City prepare and respond to its top climate challenges: extreme summertime heat and increased storm severity. These strategies focus in particular on ways to manage heat with response plans and cooling methods, including an emphasis on vulnerable populations. Other strategies address protecting air quality, managing stormwater, implementing green urban design and preserving plants and trees. Unique to Chicago's adaptation efforts is the explicit objective to not only engage the public, but to assure that adaptation related information and research be shared with "groups most affected." In doing so, the City has made available various climate-related resources targeting diverse populations in multiple languages, including Arabic, Polish, Spanish, Ukranian, and Urdu.³⁵ The plan also explicitly encourages individual and household level preparedness actions, citing that the City is to "help households to take their own steps to reduce flooding and manage heat waves, such as installing rain barrels and back-up power for sump pumps and planting shade trees." As with other cities who have outlined adaptation goals, Chicago is engaging multiple sectors—from businesses and environmental agencies to community action groups and city services—in the climate change effort.³⁶

Emerging Programs and Lessons for Building Community Resilience

Beyond adaptation, the Chicago Climate Action Plan also explicitly addresses "resilience," offering 35 strategies to create a "resilient city" ranging from constructing energy efficient buildings to establishing renewable energy sources. In efforts to build resilience, the City's plan also addresses community engagement, and in this context aims to explicitly work with racially and ethnically diverse communities to improve their education and achieve change. Following are specific approaches the City has adopted to explicitly engaging diverse populations in climate action.

Engaging diverse populations in climate action through participatory research methods. In 2008, *Engaging Chicago Communities in Climate Action (ECCo)*, an initiative led by *The Field Museum* and commissioned by the *City of Chicago Department of Environment*, was established to help engage diverse communities in the implementation of the Chicago Climate Action Plan. To this end, ECCo worked with nine communities—including communities predominantly comprised of Mexican, Polish, South Asian, and African American populations—to conduct rapid ethnographic inventories to identify community concerns and assets that can serve as a foundation for climate change adaptation actions.³⁷ A core component of this work was collaboration with community partners to facilitate community connections as well as to help design, conduct, analyze, and write up community-specific findings. The effort was further enhanced in 2010 to be more reflective of communities by adding a component that required working with community partners to collect and document "stories" about residents' environmentally-friendly practices, values, and traditions.³⁸ Since the release of these studies and stories, ECCo has been working to translate the "inventories to action," as described further below.

A focus on neighborhoods and culture to engage diverse populations. In efforts to translate the ethnographic research to climate action, The Field Museum has developed and tested the *Chicago Community Climate Action Toolkit* in four communities: South Chicago; Pilsen; Forest Glen; and Bronzeville. Funded by Boeing, and led by ECCo anthropologists, this effort is intended to result in a Web-based toolkit that can help community organizations understand how climate change relates to Chicago, identify their assets for climate action, and design and implement climate action

programs that are community-centric and driven. Early efforts in these four communities have yielded promising initiatives to engage diverse populations in climate action:

- In South Chicago, a predominantly African American (62%) and Latino (33%) community, The Field Museum has been working with youth organizations to develop an exhibit for the community that features local green practices. The toolkit facilitated the identification of several community concerns such as gentrification and health and pollution as well as the community's strengths such as affordable housing and a history of leadership with environmental activities;
- In Pilsen, a community where nearly 80% of the population is of Mexican origin or descent, community organizations are planting native gardens in vacant lots providing a shared community space where residents can learn about climate change. Community concerns identified through the toolkit were health and pollution and the need for green space. Community strengths were found like the tradition of outdoor socializing and strong community organizing;
- In Forest Glen, a predominantly Euro-American middle- and upper-class community, Boy Scout and Girl Scout troops are educating homeowners in conservation techniques and climate-friendly outdoor practices. Community concerns voiced by residents were health and pollution, economic development, and stormwater runoff. Community strengths identified included high rates of home ownership and strong youth development; and
- In Bronzeville, community organizations are building on the neighborhood's African American heritage and history to create culturally meaningful gardens, healthy vegan cooking events, and green tours. The community worked together to identify leading concerns and priorities, such as youth development, economic development and healthy cooking and eating as well as community assets which included public space and art and African American identity.³⁹ To achieve the goal of culturally meaningful gardens, local residents are working with the **Bronzeville Alliance**, a group that focuses on cultural redevelopment efforts in the community.⁴⁰

Building social cohesion as a means for advancing resilience in diverse communities. Other neighborhoods in Chicago are also taking innovative steps to plan for and respond to climate change. For example, Auburn Gresham, a Chicago neighborhood that is 90% African American, is addressing the priority through social cohesion, or efforts to bring members of a community together to work in unity to survive and prosper. The neighborhood of Auburn Gresham has created block clubs and community groups who organize to improve quality of life of the neighborhood as well as create opportunities for socializing at local venues such as churches, grocery stores, and diners. The **Auburn Gresham Portal** helps to coordinate and promote the neighborhood's block clubs.⁴¹ During the 1995 heat wave, these community block clubs and social groups were able to help community members in sharing information as well as checking on the health and safety of neighborhood's vulnerable citizens, especially the elderly and the sick.⁴² Many cities and localities across the country have built upon this promising effort to create strong relationships in economically struggling communities in efforts to build their resilience to extreme weather and climate events.

CLEVELAND, OH

Snapshot

Cleveland lies on the southern shore of Lake Erie. This waterfront location was advantageous for the city which began to grow rapidly after the Ohio and Erie Canal was completed. In 1967, Cleveland became the first city to elect a black mayor. Today the city is highly diverse, and a large majority of the city's population is African American. Following the city's historic unemployment crisis during the early 1980s recession, the city underwent a period of revitalization through economic investment in inner-city neighborhoods and school systems as well as enhancements of the city's infrastructure and of the arts. In terms of climate, the city faces severe thunderstorms in spring and early summer, which are often accompanied by significant hail, wind, or tornado events. In the winter, snowfall totals in some parts of Cleveland approach 100 inches.

Basic Demographics

- Total Population: 390,928
- % Non-White Population: 65
- % with Limited English Proficiency: 13
- % below Federal Poverty Level: 34
- % Unemployed: 11

Major Climate Change Concerns

- Rising temperatures
- More frequent heat waves
- Increased heavy downpours
- Snow and ice arriving later in fall and melting earlier in the spring

Basic Climate Change Policies

- Have Greenhouse Gas Targets: Yes
- Have Greenhouse Gas Inventory: Yes
- Participating in Urban Sustainability Director's Network: Yes
- Participating in Resilience Communities for America: No
- Participating in Climate Protection Agreement: Yes

Promising Programs for Building Community Resilience

Neighborhood Climate Action Toolkit

<http://www.sustainablecleveland.org/resources/climatetoolkit/>

Assists neighborhoods and residents to bring climate action steps to their community.

Vital Neighborhoods Working Group

<http://www.sustainablecleveland.org/working-groups/cross-cutting-groups/vital-neighborhoods>

The working group, initiated by Sustainable Cleveland 2019, hosts mini summits for community members to learn about sustainability strategies.

Skill Share Micro-Grant Opportunity

<http://www.sustainablecleveland.org/wpcontent/uploads/2014/02/Skill-Share-Application-Brochure.pdf>

Part of Sustainable Cleveland 2019, this micro grant program encourages community members to share valuable skills in building a resilient and sustainable community.

Neighborhood Connections

<http://neighborhoodgrants.org/>

Extends small grants to citizen-led projects as well as provides leadership training.

Overview of Climate Change Planning

In 2013, the Mayor's Office of Sustainability and a 50-member Climate Action Advisory Committee issued the *Cleveland Climate Action Plan: Building Thriving and Healthy Neighborhoods*, outlining both climate change adaptation and mitigation goals to address the city's pressing climate needs, including rising temperatures and heat waves as well as changing snow patterns.⁴³ The plan is part of the city's broader ***Sustainable Cleveland 2019***, a 10-year initiative that "engages everyone to work together to design and develop a thriving and resilient Cleveland that leverages its wealth of assets to build economic, social, and environmental well-being for all."⁴⁴

The Cleveland Climate Action Plan was established to focus on six key climate-related priorities: energy efficiency and green building; advanced and renewable energy; sustainable mobility; waste reduction and resource conservation; land use and clean water; and community engagement and public health. Outlined adaptation and mitigation goals are supported by recommended actions, and the plan also lists which sectors (home, work, and community) are most impacted by each action. The plan's engagement and public health focus stresses the importance of "people" and emphasizes empowerment and cooperation. It also explicitly advocates for a "whole system, citizen-centered approach" that aligns climate action with assets, capacity, and priorities of Cleveland residents and business owners. To this end, the plan describes a promising approach—Asset-Based Community Development (ABCD)—to support communities to discover their own assets; to identify the city's priorities for action; and to explore how they can work together to achieve goals. Partnerships with communities and engagement from various entities are crucial to Cleveland's climate change vision. For example, regional organizations and coalitions, universities, non-profits, community organizations, professional organizations, the faith based community, and the business community are all described as valued partners.

Emerging Programs and Lessons for Building Community Resilience

Cleveland's Climate Action Plan defines resilience as "a capability to anticipate, prepare for, respond to, and recover from significant multi-hazard threats with minimum damage to social well-being, the economy, and the environment." It also stresses the importance of partnerships in advancing resilience, suggesting that "partnerships can be leveraged to share resources and expertise, but also ensure that climate resiliency becomes part of the fabric of the community and not an effort dependent on a small handful of champions." In efforts to build resiliency, the plan recommends a multi-sectoral effort involving individuals, businesses, and the community at large to conduct climate change vulnerability assessments and integrate any projected impacts into existing plans. Among other strategies aimed at building community resiliency are: creating businesses that supply green technologies; advocating for energy efficiency and renewable energy standards; identifying sustainability champions; and developing a green guide and map for tourists and residents. These strategies are designed so that they strengthen the city's economy, improve the environment, and promote the health and wellness of community members. Other initiatives to plant trees, reduce waste and create healthier transportation options are intended to enhance both the livability of the city's neighborhoods and the overall quality of life of its residents.

City-led efforts for community engagement in climate change. Vulnerable populations are central to Cleveland's plan; however, the climate action plan does not specifically mention racial or ethnic populations. The plan explicitly addresses community engagement, offering a range of strategies, including: providing support services and training to the local workforce; collaborating with the arts and cultural institutions on performances and exhibits that incorporate sustainability; and partnering with education to integrate sustainability into pre-K through college curriculum.

Another notable strategy for engaging communities is the ***Neighborhood Climate Action Toolkit***, which is designed to further Cleveland’s climate action goals by assisting residents in taking actions to advance their neighborhood goals. The toolkit includes educational materials to help residents learn about the Cleveland Climate Action Plan and identify neighborhood assets and concerns in the context of climate change. It also assists communities to develop neighborhood climate action project ideas and climate action proposals.

Cleveland’s climate action plan includes equity in general as a necessary ongoing focus, as is reflected in the following statement from the plan: "While reducing GHG emissions is a driving force for many of these efforts, there are many other benefits to individuals, organizations, and Cleveland’s neighborhoods. In fact, even if climate change was not a factor, taking the actions laid out in this plan would still make sense from an economic, environmental, and equity perspective. The fact of climate change simply adds urgency to acting now."⁴⁵ To what extent this focus on “equity” encompasses “racial and ethnic equity” priorities is uncertain, although it is intimated given the city’s explicit and central focus on addressing and engaging a range of vulnerable populations.

The city has also spearheaded the ***Vital Neighborhoods Working Group***, a part of Sustainable Cleveland 2019. The working group is hosting a series of mini summits for Cleveland residents to both share and learn strategies for building a sustainable neighborhood. The group is led by local volunteers whose mission is to help residents become engaged, empowered, enlightened, resilient and self-reliant. Also part of the Sustainable Cleveland 2019 initiative, is the ***Skill Share Micro Grant Opportunity***. This program is designed to assist neighbors spread best practices in resilience with the Cleveland community. The funding opportunity encourages residents to share a skill, gift, story or talent with their fellow community members at their home, local library, community room, park or church. Grantees promote their “skill share” through the Vital Neighborhoods webpage as well as other local venues.

Community-driven initiatives to fund sustainability projects for local citizens and groups.

Outside of city efforts, community groups are involved in environmental projects and activities to promote community resiliency. In 2003, The Cleveland Foundation established ***Neighborhood Connections*** to empower local residents and foster community and city engagement. The organization funds small grants for citizen-led neighborhood initiatives. To date, Neighborhood Connections has funded almost \$7 million to over 1,700 grantees. The organization also works to build meaningful connections between its partners and civic leaders as well as creates opportunities for mentorship. The organization awarded ***The Neighborhood United Street Club*** \$3,000 for Cleveland’s Hough neighborhood, one of the city’s poorest, to continue free tool-lending services for low-income and senior residents, called the Beautification and Home Maintenance Tool Loan Program. It allows these community members to make home, yard, and garden improvements to their residences. Neighborhood Connections has also funded the ***East 177th Street Club Community Garden*** in the Lee Harvard Neighborhood in the amount of \$4,500 which will plant healthy food and be available to community members with poor access to transportation and supermarkets. The ***McGregor Seed to Feed Bioretention Project*** was awarded \$5,000 for their rain garden in East Cleveland and other grants have funded efforts to make gardening more sustainable.

DALLAS, TX

Snapshot

Dallas rose in importance following its booming oil and cotton industries as well as its position as a hub to several railroad lines. Currently, the city's economy revolves around numerous industries such as healthcare, energy, computer technology, banking and transportation. The city is highly diverse as a large majority of the population is Non-White, and two out of five residents are Hispanic. In the summer months, Dallas is one of the hottest regions in the U.S. Winters, however, tend to be mild save for strong and brief cold fronts known as "Blue Northers." Air pollution in the city—much of which is attributed to cars, trains, airplanes and construction equipment—is a noteworthy problem and ranks among the worst in the country.

Basic Demographics

- Total Population: 1.24 million
- % Non-White Population: 71
- % with Limited English Proficiency: 45
- % below Federal Poverty Level: 25
- % Unemployed: 6

Major Climate Change Concerns

- Increasing temperatures
- Poor air quality
- Drought

Basic Climate Change Policies

- Have Greenhouse Gas Targets: Yes
- Have Greenhouse Gas Inventory: Yes
- Participating in Urban Sustainability Director's Network: Yes
- Participating in Resilience Communities for America: No
- Participating in Climate Protection Agreement: Yes

Overview of Climate Change Planning

While the City of Dallas does not have a formal adaptation plan, it has established a Sustainability Plan that is broadly intended to protect the city's natural and built environments, contribute to

Promising Programs for Building Community Resilience

Revitalize South Dallas

<http://rsdc.us/>

An alliance of community groups that work to promote job creation and economic opportunity in South Dallas.

GreenDallas

<http://greendallas.net/>

A website maintained by the city's Office of Environmental Quality that provides educational information related to the environment, including among the following areas: air quality, energy, green buildings, land, recycling and composting, transportation and water.

Earth Day Dallas

<http://earthdaytx.org/>

An annual event that seeks to elevate environmental awareness. Diverse organizations showcase environmental initiatives, share ideas and perspectives, and promote community volunteer opportunities.

future economic viability, and help residents become prepared for the challenges and effects of drought, poor air quality, and rising temperatures. The Sustainability Plan, first released in 2012 by the City Council's Transportation and Environment Committee focused on five areas—air quality, land use, water quality, materials management, and energy.⁴⁶ In early 2014, a report was issued describing progress in achieving the Plan's goals.⁴⁷ Included in the report was progress on outreach and education activities to residents and local businesses on stormwater management techniques to reduce pollution. Also described were the city's efforts to explore and identify energy alternatives, including reduction in coal power, lighting retrofits in city buildings, and parks and streets with energy-efficient fixtures. Furthermore, Dallas has initiated Energy Performance Contracting programs which support the installation of more energy efficient equipment and improved building operations in existing city facilities. The city also intends to reduce vehicle emissions by purchasing biodiesel and hybrid vehicles. Other climate adaptation measures include a five-year strategic plan for water conservation, recycling efforts, and urban forest initiatives designed to mitigate the heat island effect.⁴⁸

Emerging Programs and Lessons for Building Community Resilience

Dallas' Sustainability Plan does not have a specific focus on vulnerable or diverse populations. However, the City will be working to update the Sustainability Plan 2014 to include "social equity, to capture and highlight the efforts and programs in place to protect our diversity, our history, and our cultures."⁴⁹ In addition, a range of climate-related outreach and education strategies are ongoing in Dallas that offer important opportunities for integrating vulnerable communities of color in related efforts. These include a website called **GreenDallas**, which provides environmental education, and is updated by the Office of Environmental Quality. Visitors can find information on water and air quality, energy, green building, land use, recycling and composting, transportation, and green buildings, Community Gardens, the Terracycle Brigades, an event calendar, and a link to Green Source Dallas/Fort Worth's event page. Residents, businesses or community groups in Dallas can utilize the site to request guest speakers at events and can obtain information from the site regarding environmental measures.

Building partnerships to enhance awareness around sustainability. The city has involved integral partners to foster environmental stewardship, build awareness for climate change and promote long-range sustainability. In particular, Dallas has built partnerships with surrounding municipalities, the U.S. Environmental Protection Agency, the North Central Texas Council of Governments as well as non-profit organizations. Through its partnerships, the city has hosted events like **Earth Day Dallas**, attended by nearly 60,000 residents. City departments provided educational information and helped to raise awareness for natural resource conservation and protection. Former First Lady, Laura Bush, was a speaker at the event. An estimated 4,500 downtown workers, residents and students also attended the fifth annual Dallas Green fest at Main Street Garden during Pollution Prevention Month. Almost 60 representatives, including informational, advocacy and service vendors were present to promote green initiatives to attendees.

Revitalize South Dallas Coalition is an alliance of community groups, businesses, neighborhood associations, churches, and individuals that support economic development and job creation in South Dallas/Fair Park, a region comprised largely of underserved neighborhoods. Revitalizing this part of the city has been crucial given South Dallas lost a third of its population between 1990 and 2000 with one-fifth of housing units being vacant and nearly half of its adult population having no high school diploma. The organization was formed to connect stakeholders with business partners to create new business, expand existing business, and create jobs in the South Dallas area. Other

efforts to revitalize the city have involved neighborhood gardening initiatives, small business grants and loans for coffee shops and related restaurants, among other economic investments. In addition, the coalition works in conjunction with various partners and resources to develop and update action plans that spur community-oriented, responsible growth. Also, among the coalition's core goals is embracing "cultural diversity," while also encouraging stakeholders to cohesively promote development, educate the community, promote and strengthen local businesses, and market South Dallas as an attractive place. The emerging emphasis—both at the city as well as private, nonprofit level—on community and cultural diversity create important opportunities for assuring that these principles remain central to efforts for building sustainability and resiliency. And in Dallas' case, a city without an explicit Climate Action Plan, such a focus sets an important precedence moving forward for assuring communities, diversity, and equity are also addressed in any future climate-related plans.

DENVER, CO

Snapshot

Denver lies 5,280 feet above sea level just east of the Rocky Mountains. Founded in the 19th century as a mining town, gold and silver booms and busts were central drivers of the city's economy. The city is now a pivotal trade point for the United States. Top climate concerns in Denver are diminished water resources and extreme temperatures. The city relies on runoff from the snowpack for its water supply, which has decreased in recent years. The city's most vulnerable residents include homeless populations, many of whom suffer without shelter during the city's frigid winters.

Basic Demographics

- Total Population: 634,265
- % Non-White Population: 48
- % with Limited English Proficiency: 28
- % below Federal Poverty Level: 18
- % Unemployed: 6

Major Climate Change Concerns

- Increased heat and heat waves
- Decreased water supply
- Increased intensity and frequency of storms

Basic Climate Change Policies

- Have Greenhouse Gas Targets: Yes
- Have Greenhouse Gas Inventory: Yes
- Participating in Urban Sustainability Director's Network: Yes
- Participating in Resilience Communities for America: Yes
- Participating in Climate Protection Agreement: Yes

Overview of Climate Change Planning

Denver has made considerable progress over the years in identifying strategies to both mitigate and adapt to top climate change concerns facing the city. Denver's climate action plan is titled *Greenprint Denver* and it focuses primarily on integrating sustainability into government operations. A major piece of the plan addresses greenhouse gas emission reductions. The city's

Promising Programs for Building Community Resilience

Groundwork Denver, the Green Team project

www.groundworkcolorado.org

A non-profit organization that is developing community-based partnerships and action to improve the physical environment and enhance neighborhood assets.

Climate Change Adaptation working group

<http://www.denvergov.org/LinkClick.aspx?fileticket=URN0Yf2lgAl%3d&tabid=444803&mid=514160>

A collaboration of city agencies working together to find solutions to salient climate change concerns.

Denver Water

www.denverwater.org

The city's public utility agency which is a local leader in planning for the effects of a climate change. Planning includes the need to adapt to water impacts such as earlier spring runoff and less streamflow in the summer and fall months.

Denver Road Home

www.denversroadhome.org

An organization that provides services for the city's homeless population such as permanent and transitional housing and prevention and supportive services.

greenhouse gas inventory revealed that the three main sectors with the highest emissions are transportation, residential-commercial-industrial energy use, and the use of key urban materials. *Greenprint Denver's* goal is to reduce these emissions by 25% by the year 2020.⁵⁰ In June 2014, the city released its climate adaptation plan,⁵¹ an effort led by the Department of Environmental Health. The comprehensive plan describes the city's current climate change resiliency programs, introduces its complex vulnerability assessment, and outlines short, medium, and long-term climate adaptation activities.

Emerging Programs and Lessons for Building Community Resilience

Greenprint Denver explicitly addresses resilience, outlining strategies that include the development of major business and residential outreach campaigns supporting the adoption of best practices related to energy conservation, enhancing recycling programs and energy efficiency standards in new buildings and remodels, and several others. *Greenprint Denver* also focuses on community engagement and highlights both short and long term tactics. Community engagement strategies identified include developing partnerships with a broad array of stakeholders—such as business, community and cultural leaders—in order to build capacity needed to encourage participation in the city's initiatives.

Prior to the release of the city's adaptation plan in 2014, the Department of Environmental Health convened the ***Climate Change Adaptation Working Group***, a group of representatives from city agencies that met throughout 2012 and 2013 to conduct a vulnerability assessment in which they identified top climate concerns as well as vulnerabilities associated with them. The group is also compiling response strategies and plans to utilize Denver's Environmental Management System to execute these strategies and evaluate their effectiveness. The city's climate change adaptation plan describes vulnerable populations as low-income residents, the elderly, children, and people with compromised or less developed immune systems. As of now, racially, ethnically, and linguistically diverse populations are not explicitly identified in the adaptation plan as "vulnerable," although there may be plans to do so in the future as is intimated in the following recent statement from the city's adaptation plan:

Similarly, the vulnerability analysis of this plan focused, for the most part, on built infrastructure and natural ecosystems within Denver, and modifications of the City's current abilities to respond to these systems. Less attention is paid to economic vulnerabilities, disparities for different social groups in the community, and the ability of community institutions and regional partners to cooperate and coordinate in response to vulnerabilities. Subsequent iterations of the plan will incorporate additional focus in these areas.⁵²

Nonprofit initiatives to support climate change engagement, outreach, and education. In addition to the city's adaptation planning, community-driven initiatives are beginning to build community resilience, with a focus on the city's vulnerable populations. A nonprofit, ***Groundwork Denver***, is fostering environmental justice through different mechanisms. Its focus is twofold: to create a new generation of environmentalists and to provide employment opportunities for low-income youth and young adults, a population that may not typically participate in service programs due to the need to supplement family income. One of Groundwork Denver's programs, the Green Team, involves diverse and low-income youth and young adults in environmental action, providing both competitive wages and valuable work experience through projects such as building community gardens, improving local parks, and providing community education on water quality. This diverse group of youth work together collaboratively, frequently bridging cultural divides as well as perform outreach and education to others within their own communities.⁵³

In addition, the city's water utility, **Denver Water**, is doing outreach and education to community members on climate change and adaptation. The organization has created educational materials for middle and high school students and during community events, frequently offers speakers on climate-related concerns such as water conservation and coping with climate change. Denver Water also performs vulnerability assessments to determine how the water system will be impacted and is collaborating with other groups to develop simulation models for streamflow. The agency encourages community members to use water wisely and engages in long-range planning strategies that include diversifying supply sources and preserving supply options.

Collaborative initiatives to build resilience among homeless populations. As homeless individuals are a vulnerable population group that Denver targets and supports in building resilience to climate change, there are promising collaborative initiatives emerging that could offer opportunities and lessons for other vulnerable groups. For example, **Denver's Road Home** is a collaboration between the City and County of Denver, Mile High United Way, service providers for the homeless as well as local foundations, businesses, faith-based organizations and the community members themselves. The group outlines a 10-year plan to assist the city's homeless population by providing permanent housing, shelters, and other services. To date, the organization has leveraged nearly \$63 million for this population, who are among the city's most vulnerable to climate change challenges, and has housed 2,275 individuals as well as worked to reduce homelessness through eviction prevention services.

DETROIT, MI

Snapshot

Detroit, known as the automotive capital of the world, played a vital role in the industrialization of America. The city is, at its core, racially and ethnically diverse, with large African American, Hispanic, and Arab American populations. The city serves as a major port on the Detroit River connecting the Great Lakes to the Saint Lawrence Seaway. Detroit has suffered major financial challenges and in 2013 filed for Chapter 9 bankruptcy, representing the largest municipal bankruptcy in American history. Given this challenge, the city has struggled to undertake cohesive climate change assessment and planning. Detroit's most vulnerable groups include the city's large number of low-income residents including those who live in close proximity to the city's many manufacturing or industrial plants.

Basic Demographics

- Total Population: 701,475
- % Non-White Population: 92
- % with Limited English Proficiency: 10
- % below Federal Poverty Level: 41
- % Unemployed: 14

Major Climate Change Concerns

- Impact of climate change on lake levels
- Increased heat and heat waves
- Increased precipitation
- Increased intensity and frequency of storms
- Effects on infrastructure and public health

Basic Climate Change Policies

- Have Greenhouse Gas Targets: No
- Have Greenhouse Gas Inventory: No
- Participating in Urban Sustainability Director's Network: Yes
- Participating in Resilience Communities for America: Yes
- Participating in Climate Protection Agreement: Yes

Promising Programs for Building Community Resilience

Detroiters Working for Environmental Justice (DWEJ)

www.dwej.org

A group dedicated to advancing environmental justice and sustainable redevelopment.

Data Driven Detroit

www.datadrivendetroit.org

A group providing community planning workshops based on data-based sustainability indicators.

Detroit Urban Sustainability Training (DUST)

www.detroiturbansustainabilitytraining.org

A group of community farmers and other organizations providing trainings in urban sustainability and community building.

Detroit Institute of Arts

<http://detroitk12.org/content/2014/05/16/detroit-institute-of-arts-showcases-student-art-exhibit-on-climate-change/>

Hosted climate-related arts projects from Detroit public school students in partnership with DWEJ.

Detroit Black Community Food Security Network

www.detroitblackfoodsecurity.org

Organizes members of Detroit's Black community to play an active role in local food security efforts.

Overview of Climate Change Planning

In the absence of a climate action plan, a non-profit organization, ***Detroiters Working for Environmental Justice (DWEJ)***, has been leading the city's efforts to establish a formal plan which would also include a focus on adaptation. The development of the plan is in progress and workgroups are underway working on its completion. The plan is considering short and long term methods to reduce greenhouse gas emissions and is developing strategies to educate Detroit residents about climate change. As with other cities, cross-sector collaboration is key, and several sectors are involved in the development of the plan. In the process of developing the plan, DWEJ has engaged stakeholders such as the municipal government, environmental representatives, academic organizations, nonprofits, businesses as well as other community organizations. DWEJ also created six workgroups to inform climate change planning efforts: home and neighborhoods; parks and public space; public health; solid waste; business and institution; and energy. Each was tasked with developing a framework for climate change adaptation.

Emerging Programs and Lessons for Building Community Resilience

Key informants familiar with the plan in development suggest that while it does not explicitly define “community resilience,” there is an emphasis on building “resilience” broadly. This includes creating a community-wide coalition to form a plan to address climate change in the following areas: energy, transportation, solid waste, water infrastructure, parks, public space, homes and neighborhoods, and public health.⁵⁴ DWEJ acknowledges that the full climate action plan will require extensive community engagement as well as research and analysis.

The city is unique among the 15 as it represents the only city where climate adaptation efforts are led by an organization, DWEJ, that is not affiliated directly with a city agency, but has a long history of reaching out to and engaging communities of color. Since 1994, DWEJ has been a voice for environmental justice in Michigan. The organization champions local and national collaboration to advance environmental justice and sustainable redevelopment. They promote clean, healthy and safe communities through innovative policy, education and workforce initiatives. The following section provides examples of DWEJ's education and economic efforts, as well as other programs emerging in the city to advance resilience and sustainability.

Partnering to engage, educate, and create economic opportunities for vulnerable communities. DWEJ has been working to engage vulnerable and underrepresented communities in the region in climate change related efforts. For example, the organization offers training and certificate programs for green and energy-related jobs that address environmental issues. Individuals without employment or low educational achievement and those with previous felony convictions or other criminal charges are being equipped to take on green jobs in areas such as clean energy, weatherization, deconstruction, vital remediation and lead and asbestos abatement. Once the climate action plan is released, there is hope that more jobs will be created, especially for water energy audits. In addition as part of the community engagement process, DWEJ has forged a partnership with the ***Detroit Institute of the Arts*** and is implementing education programs—such as creating art projects with a climate change theme— in Detroit's public middle and high schools. For example, students created footprints from clay and decorated them with artistic representations of strategies to reduce their carbon footprint, such as turning off the lights when not in use.

Building sustainability efforts through data, training, and policy development. One project focusing on the city's unique needs is ***Data Driven Detroit*** which aims to create a sustainability

index for Detroit by gathering and mapping data on sustainability in areas such as air quality, climate change, environmental justice, and transportation. A series of workshops will be given on using sustainability indicators and other data for community planning purposes. The project team is engaging neighborhood organizations, policymakers, and other local stakeholders to develop and carry out the workshops. Data Driven Detroit also collaborates with other local organizations to provide information and analysis on community factors. These collaborations involve providing data support such as demographic segmentation analysis to **Black Family Development Inc.**, an organization implementing positive youth development programs in the city as well as offering research and planning tools to **Building Sustainable Communities**, an initiative that is investing \$30 million to improve three Detroit neighborhoods.

Other local programs in Detroit are targeting food insecurity by promoting urban sustainability. For example, **Detroit Urban Sustainability Training (DUST)** has ongoing courses to enhance sustainability in the city's vulnerable urban areas. A 10-day course teaches concepts in urban sustainability and grassroots community building through visits to green businesses, green building projects, urban farms, and gardens. The goal of the program is to improve food security and overall landscape in the city. The initiative is facilitated by a collective of community farmers and organizers among others. A similar effort, **Detroit Black Community Food Security Network (DBCFSN)**, was developed to address food insecurity among the city's African American population. The group engages the Black community in the local urban agriculture movement with the goal of developing true community self-reliance. DBCFSN is also involved in policy development and has identified several actions needed to improve access to quality food in Detroit including increasing the number of culturally appropriate food outlets within walking distance in each of the city's neighborhoods.

LAS VEGAS, NV

Snapshot

Las Vegas, “The Entertainment Capital of the World,” is one of the leading tourist destinations in the world and is known for its many resorts, casinos, fine dining and other entertainment. These activities and attractions make up the foundation of the city’s economy. The city is growing rapidly in racial and ethnic diversity. Among the fastest growing groups are Hispanics and Latinos: whereas in 2000 they represented about 20% of the population, by 2010 they comprised 27%. Las Vegas lies in a basin in the Mojave Desert and is surrounded by mountains on all sides. Precipitation in Las Vegas is low with annual estimates being only 4.2 inches. As such, water is a scarce resource.

Basic Demographics

- Total Population: 596,424
- % Non-White Population: 55
- % with Limited English Proficiency: 35
- % below Federal Poverty Level: 19
- % Unemployed: 7

Major Climate Change Concerns

- Drought
- Extreme heat
- Extreme weather events (precipitation and wind)

Basic Climate Change Policies

- Have Greenhouse Gas Targets: Yes
- Have Greenhouse Gas Inventory: Yes
- Participating in Urban Sustainability Director’s Network: Yes
- Participating in Resilience Communities for America: No
- Participating in Climate Protection Agreement: Yes

Overview of Climate Change Planning

Las Vegas is especially vulnerable to climate conditions and change due in large part to its desert location, lack of water, and weather extremes. These eminent events and threats have

Promising Programs for Building Community Resilience

Green Chips

<http://greenchips.org/>

Green Chips’ mission is to strengthen and accelerate the implementation of sustainable community initiatives through strategic collaborations and public-private partnerships.

University of Nevada, Las Vegas Downtown Design Center

<http://www.unlvddc.org/>

The project builds upon a partnership of public, private, academic and non-profit entities who are guided by experts in technical adaptation and scenario planning. The overall goal is to create a unified and holistic approach to enhancing resiliency in the region.

University of Nevada, Las Vegas Urban Sustainability Initiative

<http://urban21.unlv.edu/>

A collaboration of university departments working together to build research support for a more sustainable Las Vegas.

Rebuilding Together Southern Nevada

<http://www.rtsnv.org/>

A nonprofit organization that organizes a coalition of volunteers to implement sustainable home renovations for low-income citizens.

prompted the development of a climate adaptation plan led by a multi-sector committee. The first phase of the plan is expected to be released in 2014, with a more in-depth analysis of vulnerable populations—aided by a GIS application focusing on neighborhoods, including those with racially and ethnically diverse populations—to follow subsequently.

In developing the adaptation plan, Las Vegas is drawing on experience and recommendations from partners in the **Western Adaptation Alliance**, a network of 13 cities in southwestern U.S. that face similar climate challenges. The Alliance is intended to provide a forum of support, education, and resource sharing for cities working to implement local-level adaptation programs. A primary area of focus of the Alliance is extreme heat and drought. The network also receives both guidance and support from the **Institute for Sustainable Communities (ISC)**, including technical assistance in priority areas identified by the community such as developing community engagement processes to garner broad support for adaptation goals.⁵⁵

Although no formal climate adaptation plan currently exists, Las Vegas has been working to implement several important climate-related actions, including those targeting greenhouse gas emissions. For example, in 2006, the city adopted the International Energy Conservation Code (IECC) standards which applied to additions, renovations, alterations and repairs. These standards increased the required energy efficiency for buildings by 15% and implemented a wind energy program. The Urban Forestry Initiative was also established to address the following three goals: (1) double the average tree canopy coverage to 20% by 2035; (2) work with existing partners to ensure that urban forestry remains a priority for the city and the Southern Nevada region; and (3) prepare an Urban Forest Management Plan. Finally, in a notable effort to reduce GHG emissions, in 2009 the city of Las Vegas converted more than 89% of its fleet to alternative vehicles, expanded ride share programs and constructed bicycle lanes.⁵⁶ The city has also worked to advance other green initiatives through collaborative efforts such as **Green Chips** (described below).

Emerging Programs and Lessons for Building Community Resilience

Energy conservation is a top priority for the Las Vegas, and in fact, in 2008 the City Council outlined a strategy to “help build a more sustainable community by investing in long-term strategies to conserve energy and increase energy from renewable resources.”⁵⁷ To advance this objective, a number of outreach initiatives are ongoing by the city, including efforts to engage the public in offering input on programs. For example, the city has convened various U.S. Green Building Council meetings where representatives from the city’s department of Planning and Development share information and progress around current programs.⁵⁸ In addition, the city has recognized that building partnerships, including their collaboration with the University of Nevada, Las Vegas (UNLV), is a vital avenue to both raise awareness for and support research on the city’s sustainability needs. Following are key efforts that have further advanced the city’s climate adaptation objectives.

The role of the university as an important city partner. Local universities are collaborating with the city to contribute to climate science research. For example UNLV’s **Urban Sustainability Initiative** supports interdisciplinary research teams who are studying priority areas for the region such as energy, water, transportation, and the built environment.⁵⁹ The city is collaborating with several departments within the university to support this initiative’s research projects and goals. Additionally, the city is partnering with UNLV’s **Downtown Design Center** which is focusing on plans to make the city more resilient and has a unique community engagement strategy. The Center uses “service learning,” a model where students partner with local communities to develop their design and architectural projects and utilize community input and conversation to brainstorm

potential solutions.⁶⁰ This center is also the project lead for ***Southern Nevada's Community Sustainability Atlas & Resilience Plan***. The goal of this Atlas is to provide citizens, planners, and elected officials current data on a variety of sustainability factors as well as details on how such information can aid in planning for future climate changes. The atlas will cover various systems such as water, energy, agriculture, transportation, ecosystem, and waste and pollution.

Community-based organizations responding to climate change. In addition to city-led efforts, there is substantial involvement from community organizations to address climate change challenges facing Las Vegas. For example, the nonprofit, ***Rebuilding Together Southern Nevada***, is an active city partner that engages volunteers and communities to renovate and rehabilitate homes for low-income residents.⁶¹ Sustainable practices such as energy and water efficiency as well as proper ventilation and mold elimination are incorporated into this organization's work. The city also partners with a nonprofit agency called ***Green Chips***, which uses Energy Efficiency and Conservation Block Grant money to start a revolving loan fund to perform energy audits and retrofits for low-income households. Green Chips is performing the majority of climate change outreach and engagement activities in the city. The organization is encouraging dialogue and collaboration among community partners, supporting energy efficiency and renewable energy sources, raising awareness in the community as well as making the case for sustainability. In partnership with various stakeholders, the organization leads the annual Regional Sustainability Summit called Convene for Green. This summit serves as a forum for local government, private and non-profit leaders to share ideas and best practices, to promote collaboration between organizations and to create a long-term regional sustainability plan. During one of the sessions titled "Walking Green: Social Sustainability through Community Engagement" several action steps were formulated by participants, including:

- Developing neighborhood outreach campaigns through known and trusted sources;
- Creating a green demonstration home or school;
- Creating sustainability materials and programs for use in schools, churches and places of employment; and
- Encouraging organizations to include sustainability in their strategic mission and vision statements.⁶²

MIAMI, FL

Snapshot

Miami is the home of a prominent international business community and is headquarters to numerous large companies as well as Spanish-language media—Univisión, Telemundo and Telefutera—with the majority of the population in Miami speaking Spanish. Tourism is also an important revenue-generator for the city as millions of visitors come to the city each year for its beaches and other attractions. Despite its strong economy, 31% of the population lives below the federal poverty level. The city has hot summers and warm and short winters. Miami is especially vulnerable to sea level rise due to its location on top of porous limestone which allows rising waters to immerse the city’s foundation and may contribute to saltwater intrusion on the drinking supply water.⁶³

Basic Demographics

- Total Population: 413,892
- % Non-White Population: 89
- % with Limited English Proficiency: 77
- % below Federal Poverty Level: 31
- % Unemployed: 7

Major Climate Change Concerns

- Sea level rise and storm surge
- Increased flooding
- Altered rainfall cycles
- Changes in atmospheric and water temperature

Basic Climate Change Policies

- Have Greenhouse Gas Targets: Yes
- Have Greenhouse Gas Inventory: Yes
- Participating in Urban Sustainability Director’s Network: Yes
- Participating in Resilience Communities for America: Yes
- Participating in Climate Protection Agreement: Yes

Promising Programs for Building Community Resilience

Climate Change Community Toolbox

www.sfrpc.com/climatechange.htm
Assists communities in South Florida develop practical planning solutions to carry out adaptation planning.

Miami-Dade Climate Change Advisory Task Force

www.sfrpc.com/climatechange.htm
Identifies potential future climate change impacts and provides mitigation and adaptation recommendations to address them.

Resilient Miami

www.resilientmiami.com
Building partnerships with the city’s diverse communities to address extreme storms and sea level rise caused by climate change.

GreenPrint

www.miamidade.gov/greenprint/
Miami-Dade County created this initiative to implement recommendations in the county’s climate action plan.

Citizens for a Better South Florida

www.abettersouthflorida.org
Community-based organization providing multilingual environmental education.

Overview of Climate Change Plan

Miami faces historic and recent acute climate threats including an extended shoreline that makes it especially susceptible to flooding; hurricanes and tropical storms that can deluge the city; and heat that is likely to affect the most vulnerable. Climate change planning in the area has occurred at the city and county level, and in fact, climate action plans to reduce greenhouse gases have been developed by both the City of Miami and Miami-Dade County. However, our review revealed that county efforts have been more visible than city efforts, especially as the county continues to work on implementation of goals and initiatives to reduce greenhouse gas emissions.

The city's climate action plan, also known as MiPlan, released in June 2008, reflects the city's top climate concerns but places them in the context of broader urban sustainability priorities. As such, MiPlan focuses on five areas of sustainability: 1) reducing greenhouse gases through improvements in energy efficiency in new and existing buildings; 2) creating cleaner fuel sources of electricity and increasing use of renewable energy; 3) shifting means of transportation to more efficient methods; 4) developing a land use strategy to include pedestrian-friendly urban planning; and 5) beginning to plan for future climate change impacts by developing adaptation strategies.⁶⁴ Many sectors are involved, including transportation, businesses, health care facilities, universities, municipal and federal agencies, and law enforcement. The plan also seeks to mitigate the effects of climate change on households and individuals, especially those vulnerable to health risks attributable to rising global temperatures such as low-income households and the elderly.

While Miami has created a distinct roadmap and resource to address its urban priorities, broader strategies have also been developed and implemented by Miami-Dade County. The ***Miami-Dade Climate Change Advisory Task Force*** was established by the Board of County Commissioners in 2006 to continue greenhouse gas reduction activities and lead climate change adaptation planning in the region. The task force completed its task of identifying potential future climate change impacts and providing mitigation and adaptation recommendations to address these needs. Implementation of these recommendations is being led by Miami-Dade County's ***GreenPrint*** initiative.⁶⁵ GreenPrint is designed to serve as a framework for the county to develop and implement goals around climate change mitigation and adaptation. Greenprint's goal is to avoid 3.1 million metric tons of greenhouse gas emissions, and most of the outlined strategies are designed to meet this goal over a five-year period.⁶⁶

In addition, surrounding counties have developed comprehensive climate change plans. For example, Broward County's climate action plan, released in 2010, is made up of 126 recommended short, medium, and long-term actions that work to mitigate the causes and consequences associated with climate change.⁶⁷ The recommendations stress the importance of potential community partners, estimating resources required, and identifying performance measures, among others. Examples of related initiatives include encouraging urban reforestation by building private-public partnerships with the green industry; and collaborating with professional groups to build partnerships that will connect scientific research with its practical applications.

Emerging Programs and Lessons for Building Community Resilience

While Miami has made significant progress in assessing climate change needs and convening stakeholders for a common mission, implementing these actions over the years has been more challenging. Multiple assessments and plans have recently been undertaken, however, actionable steps, documented progress and measurable outcomes are limited. Harvey Ruvin, Miami-Dade

County's clerk of courts and chairman of the Sea Level Rise Task Force, has stated, "We've all heard enough to know we need a plan. But we've got inertia."⁶⁸

The city's climate action plan addresses adaptation broadly, with actions described fairly generally. According to the city's plan (MiPlan), Action 5-1 is "Begin process of planning for climate change impacts" and specific actions include: "Incorporate climate change into long-term planning, including the likely impacts of sea level rise on current and future infrastructure, flood mitigation, water supply risk, and health impacts of increased temperatures." The city's stated goal was to develop an implementation plan for climate actions in the year following its release, including timelines, financing strategies, and staffing needs.⁶⁹ The level of progress made to date to meet this goal is unclear. Miami-Dade County's plan is somewhat more comprehensive than MiPlan, and describes three broad adaptation strategies which include tracking local and regional climate indicators such as sea level rise and temperature; developing local and regional scenario maps to depict different climate change impacts; and integrating future climate change impacts into organizational decision-making such as examining the impact of sea level rise on vulnerable facilities.⁷⁰ Following are ways in which the County and local nonprofits are working to advance efforts to integrate diverse and vulnerable communities.

Outreach and education materials designed for racially and ethnically diverse communities.

Miami-Dade County has included race/ethnicity as an important factor to consider when assessing vulnerability to climate change. In particular, its *Roadmap for Adapting to Coastal Risk* includes directions on how to analyze demographics in conjunction with other factors such as employment, economic conditions, and housing to identify vulnerable populations. It also outlines the priority to increase and expand outreach efforts to hard-to-reach populations with culturally competent outreach materials.⁷¹ At the request of the Miami-Dade Climate Change Advisory Task Force, the South Florida Regional Planning Council developed a ***Climate Change Community Toolbox*** to help local officials plan for and adapt to climate change.⁷² The Toolbox is intended to help decision makers in the adaptation planning process by setting the climate threat context in facts and figures, offering information to guide actions and identifying initiatives that can assist neighborhood and city-wide efforts. Examples of items included in the Toolbox include:

- Fact sheets on likely climate effects on Miami-Dade's economy, environment, and community. These are created as public information pieces and are both in plain language and visually interesting.
- Inundation maps or atlas with different sea level rise scenarios. These maps allow residents to understand which county areas are more vulnerable to sea level rise.
- Links to national and international sources on adaptation planning. These resources contain current examples, strategies, processes, and best practices which can be drawn from when developing local programs.

Nonprofit community role and actions. Community organizations in the city have been working to engage stakeholders and community members in dialogue and action related to climate change especially among communities of color. For example, ***Resilient Miami*** is working to create a more resilient city by building relationships with its diverse communities. Its goal is to improve response to Miami's dire climate challenges such as extreme storms and sea level rise. For example, the organization partnered with ***CLEO Institute*** and ***Los Allies Unidos of Public Allies Miami*** for a roundtable discussion on climate change and how it will affect the residents of Little Havana. In addition, ***Citizens for a Better South Florida*** is a community-based organization that provides

multilingual environmental education focused on hands-on learning and citizen-led change. Among its organizational goals are to target diverse and underserved communities as well as to incorporate and respect cultural differences. Program activities have included curriculum development and training, environmental field trips, and presentations at local schools, among others.⁷³

NEW YORK, NY

Snapshot

New York is one of the most populous cities in the world and represents a key cultural and financial hub. Historically, the city has been a key port of entry for immigrants. As such, great racial, ethnic, and linguistic diversity define and describe the city, where over 800 languages are spoken. While hurricanes tend to be rare in the city, 2012's Hurricane Sandy brought severe flooding, accompanied by power outages in several parts of the city. Since then, more focus and attention has been placed on planning for climate change and environmental disasters.

Basic Demographics

- Total Population: 8.34 million
- % Non-White Population: 67
- % with Limited English Proficiency: 49
- % below Federal Poverty Level: 21
- % Unemployed: 6

Major Climate Change Concerns

- Coastal flooding
- Sea level rise
- Heat waves
- Heavy downpours

Basic Climate Change Policies

- Have Greenhouse Gas Targets: Yes
- Have Greenhouse Gas Inventory: Yes
- Participating in Urban Sustainability Director's Network: Yes
- Participating in Resilience Communities for America: No
- Participating in Climate Protection Agreement: Yes

Overview of Climate Change Planning

Hurricane Sandy brought home the tragic consequences of severe climate-related events and their potential consequences for the future of New York City's residents and infrastructure. In 2012, Mayor Michael Bloomberg formed the Special Initiative for Rebuilding and Resiliency, a group charged with developing a comprehensive plan to

Promising Programs for Building Community Resilience

Climate Smart Communities

<http://www.dec.ny.gov/energy/50845.html>

A state-local partnership that provides resources to communities to prepare and plan for a changing climate.

Resilient Neighborhoods

http://www.nyc.gov/html/dcp/html/resilient_neighborhoods/index.shtml

New York City's department of city planning partners with communities to build resiliency to climate events.

Sustainable Communities

Climate Resilience Studies

http://www.nyc.gov/html/dcp/html/sustainable_communities/sustain_com4.shtml

The city produced two studies to help improve resilience to coastal flood risks and promote livable, sustainable neighborhoods.

STRIVE

<http://striveinternational.org/strive-new-york/>

Provides employment and youth programs for underserved communities in East Harlem.

BrownfieldWorks!

<http://www.nyc.gov/html/oer/html/resources/brownfield-works.shtml>

Works to develop a well-qualified environmental workforce through job training programs.

protect citizens and infrastructure from future climate change events. The city of New York's climate adaptation plan, titled "A Stronger, More Resilient New York" and released in 2013, reflects the response to recent and potential future threats, focusing on disaster mitigation and recovery in key infrastructure areas.⁷⁴ The plan addresses citywide infrastructure and the built environment, coastal protection including buildings, insurance, utilities, liquid fuels, community preparedness and response, telecommunications, transportation, parks, environmental protection and remediation, water and wastewater, and critical networks such as food supply. At the same time, the plan proposes actions that recognize distinct characteristics and challenges facing each of New York City's five boroughs. And as with other cities, New York's strategies acknowledge the need to engage multiple sectors including private businesses, community-based organizations, environmental agencies, and universities.

Emerging Programs and Lessons for Building Community Resilience

New York's plan defines community resiliency as "first, protected by effective defenses and adapted to mitigate most climate impacts; and second, able to bounce back more quickly when those defenses are breached from time to time."⁷⁵ Its proposed initiatives explicitly work to both prevent catastrophic consequences from weather-related events and promote community-based programs to enhance quality of life, including: retrofitting buildings to be wind and flood resistant; continuing energy efficiency measures; implementing the Greenstreets program to convert unused road areas into green spaces that improve air quality; reducing air temperatures; calming traffic; and improving storm water capturing techniques. The plan also explicitly works to engage communities, both broadly as well as more specifically around equity priorities. For example, in efforts to target the needs of low-income residents, the plan outlines a range of assistance programs such as support to adapt public housing with greater exposure to floods, providing insurance plans, and continuing to promote women and minority-owned businesses in attaining contracts to upgrade their buildings to better protect against disasters.

Among other important ways the city has worked to advance climate change priorities in vulnerable communities include research or assessments to document risk and solutions, partnerships to promote community engagement, and nonprofit efforts to promote "green jobs" training, as described below.

Research to assess community risk and response. The city has conducted significant research to better understand New York City's unique opportunities for climate change planning and is incorporating findings into its overall design for a more resilient city. One study, *Designing for Flood Risk*, identifies key principles to guide the design of new buildings in flood zones and promote construction that can withstand coastal flood events. Other completed research such as *Urban Waterfront Adaptive Strategies*, offers an assessment of the city's coastal flood hazards; surveys coastal adaptation strategies that may be suitable for different shoreline and neighborhoods; and provides a framework for evaluating coastal protection alternatives. Another study assessed public awareness of heat warnings and prevention behaviors among vulnerable populations—defined as those with poor access to air conditioning, the elderly and those with poor health. The study found that many of the city's residents own an air conditioning system, but are prohibited by high electricity costs from using it consistently during heat waves. Recommendations for protecting the most vulnerable during hot weather include improving access to air conditioning for these high risk populations as well as to improve risk communications for vulnerable groups who may be aware of heat warnings but do not perceive themselves to be at risk.⁷⁶ Other research has documented lessons learned from 2012's Superstorm Sandy and compiled indicators of health vulnerability for urban coastal areas. Communities of color and linguistically diverse communities

were found to be at higher risk across several different hazard areas such as long-term displacement, exposure to storms, and power outages.⁷⁷

Partnerships to promote community engagement. New York’s efforts to mitigate climate change effects depend in large part on successful collaborations that integrate communities into the process and programs. The city’s *Resilient Neighborhoods* initiative is connecting New York City’s department of city planning with communities to identify changes to zoning and land use and other actions that support the vitality of neighborhoods and intend to help residents and businesses withstand and recover quickly from future storms and other climate events. Other important collaborations include the *Climate Smart Communities Program*, a state-local partnership to meet the economic, social and environmental challenges that climate change poses for New York’s local governments. To help local governments reduce greenhouse gas emissions and increase community resiliency to climate change, the program provides community coordinators, a listserv, webinars and a local action guide. The local action guide is organized around 10 priority areas—such as decreasing community energy use and enhancing community resilience—that are designed to minimize the risks of climate change. Climate Smart Community task forces are local representatives from diverse backgrounds such as government staff and citizen volunteers and are ideally positioned to lead local climate adaptation programs. Task forces carry out activities such as assessing land use plans, gathering information on available funding sources and educating residents and businesses on climate change.

Nonprofit efforts to promote “green jobs” training. Several nonprofit programs have developed programs to prepare a workforce to address climate change. *STRIVE*, whose mission is to implement youth and employment programs, focuses on job training and placement for New York’s low-income populations. The STRIVE model focuses on high standards of accountability as well as client empowerment to achieve success. In 2013, two-thirds of program participants were placed in employment and over 70% of graduates retained their jobs. STRIVE also partners with local and national corporations to provide employment opportunities and training. For example, the Walmart Skills Initiative trained 200 participants for office administration jobs. Other trainings offered through STRIVE include specific skills for high-growth industries including green construction. Job training is free for individuals who have completed STRIVE’s Attitudinal and Job Readiness Workshop. *BrownfieldWorks! Job Training Program*, a partnership between the city’s Office of Environmental Remediation and the NYC Human Resources Administration, aims to create qualified workers who can conduct brownfield site investigation and cleanup. Brownfields are properties that may have a hazardous substance, pollutant, or contaminant present. The program provides job training opportunities on brownfield projects and encourages contractors in the New York City area to hire graduates of the city’s workforce development programs. One Brownfield job training project was implemented in Brooklyn in partnership with a local nonprofit workforce development program, Williamsburg Works. The two groups developed a curriculum tailored to both the needs of local residents and their potential employers. The result was a combination of “life skills” training and innovative environmental remediation training which successfully prepared graduates for jobs in the environmental waste management industry. BrownfieldWorks! meets the needs of local community in several ways: through cleaning up brownfields, spurring economic development and providing a pool of qualified environmental workers who are prepared to meet the demands of the environmental cleanup industry.

OAKLAND, CA

Snapshot

Oakland lies directly across the bay from San Francisco and serves as a major trade center for the Bay Area. The city is home to many popular sports teams as well as booming technology, computer, and manufacturing industries. Over one quarter of the city is African American, and due to a steady stream of immigrants arriving during the 20th century, its great diversity has only increased and like other cities such as New York and Detroit, has come to define and describe it. The city has made gains in reducing high crime rates and is now known as a popular travel destination due to its many entertainment options and acclaimed restaurants. Oakland has a Mediterranean climate with dry and warm summers and mild and damp winters. The city's climate-related concerns stem from sea level rise and increased wildfires.

Basic Demographics

- Total Population: 400,740
- % Non-White Population: 75
- % with Limited English Proficiency: 39
- % below Federal Poverty Level: 21
- % Unemployed: 7

Major Climate Change Concerns

- Sea level rise
- Increased flooding
- Extreme heat events
- Shrinking Sierra snowpack
- Increased fire danger

Basic Climate Change Planning Policies

- Have Greenhouse Gas Targets: Yes
- Have Greenhouse Gas Inventory: Yes
- Participating in Urban Sustainability Director's Network: Yes
- Participating in Resilience Communities for America: Yes
- Participating in Climate Protection Agreement: Yes

Promising Programs for Building Community Resilience

Bay Localize

www.baylocalize.org

This organization supports Bay Area residents in building equitable, resilient communities. Bay Localize recognizes challenges such as climate instability, rising energy costs, and recession.

Oakland Climate Action Coalition (OCAC)

<http://ellabakercenter.org/green-collar-jobs/oakland-climate-action-coalition>

A coalition of more than 50 organizational members that developed "A Toolkit to Create Climate Action in Your Community."

Bay Area Climate & Energy Resilience Project

<http://www.abag.ca.gov/jointpolicy/projects.html>

This organization is a collaborative of more than 100 public, private and non-profit stakeholders. Their mission is to support and enhance climate change adaptation efforts among Bay Area localities and other organizations.

Overview of Climate Change Planning

As with many other coastal cities in California, Oakland has recognized the threats that climate change poses to its location by sea, shifting weather patterns, and pollution. To address these current and future challenges, the city has created a climate adaptation plan, the Oakland Energy and Climate Action Plan (ECAP), with a primary objective of identifying and prioritizing actions that the city can take to reduce energy consumption and greenhouse gas emissions. The plan proposes to confront these and other identified threats by projecting most significant consequences and working to inform and develop community capacity. As such the ECAP ten-year plan highlights three key adaptation strategies:

- Study potential local climate effects;
- Communicate climate impacts to the community; and
- Identify and act on opportunities to improve resilience.

The initiative reflects both the concerns and these points of focus to include water conservation and urban forestry preservation, as well as seawater and coastal-focused strategies. As with other cities, Oakland has concluded that success will require collaboration across sectors that affect where people work and live. As a result ECAP sector engagement is broad in scope and involves transportation and land use, building energy use, material consumption and waste, health and others.

Emerging Programs and Lessons for Building Community Resilience

The ECAP definition of community resiliency is, “to identify and act on opportunities to improve resilience in city plans and policies, embeds the importance of building neighborhood and urban capacity into its vision,”⁷⁸ It identifies specific assessment, structural, management, architectural and efficiency strategies to meet this goal:

- 1) Considering vulnerability to flood events during the project approval process
- 2) Storm/sewer infrastructure design criteria and upgrades in major projects;
- 3) Design requirements for new buildings in flood prone areas
- 4) Water efficiency and conservation indoors and outdoors;
- 5) Requirements for highly effective surfaces where feasible (e.g. rooftops, pavement) and urban forest management strategies to reduce urban heat island effects;
- 6) Sea walls to guard against sea level rise and flood events;
- 7) Preparedness systems for vulnerable residents;
- 8) Development of buffer zone wetlands.

Working to assure that its residents are informed and committed to these goals, the plan lists several community engagement strategies. These include expanding outreach on energy and climate issues through partnerships with local organizations, convening community climate forums, and supporting local green job training programs that are intended to offer living wage job opportunities and career pathways for the city’s residents. ECAP implementation, while stressing the importance of neighborhoods, does not explicitly mention racial or ethnic equity related priorities. However, the plan states that it will be updated every three years and “future updates will also be informed by consideration of how social equity issues are impacted by ECAP implementation, both with respect to adaptation and mitigation.”

Non-profit and community based efforts to address climate change. One of the main players in climate change adaptation is the *Oakland Climate Action Coalition (OCAC)*. Started by more than

30 community, environmental, and labor groups, the organization's main objective is to incorporate community priorities into the ECAP and to ensure it is both effective and equitable. OCAC has hosted dozens of community events reaching out to and involving more than 1,000 low-income residents and residents of color in the city's climate change planning process. The group has developed recommendations to include equity goals into current adaptation strategies:

- City should provide free shuttle services from neighborhoods with highly vulnerable residents to cooling centers.
- Neighborhoods should be supported to create communication networks to promote awareness of the centers as well as to provide directions and coordinate transportation.
- Local agencies should work closely with community-based organizations to find the most appropriate locations for cooling centers.
- Culturally-appropriate messaging campaigns should be implemented for community members.
- Outreach activities should be performed for local residents.

The Coalition has worked to foster community resilience by creating neighborhood collaboratives and strengthening social networks. They have also developed block-by-block emergency preparedness networks to connect communities to needed resources to manage climate change effects at the local level.

Finally, other important area programs are promoting and supporting broader regional and cross sector efforts while remaining focused on communities. For example, ***Bay Localize***, a community-based organization, is working to address the region's climate challenges by enhancing the region's capacity through local leaders with flexible tools, models, and policies to strengthen their communities and support community resiliency. The ***Bay Area Climate and Energy Resilience Project***, a collaboration of more than 100 stakeholders including public, private, and nonprofit partners, completed a climate change needs assessment and a proposed action plan for the area. Additionally, this group is exploring strategies to create near-term green jobs in renewable power.

PHILADELPHIA, PA

Snapshot

Founded in 1682 as the capital of Pennsylvania Colony, Philadelphia was a centerpiece of American history. Much of the city's architecture dates back to the colonial era: many of the city's houses, including the well-known Philadelphia row houses, have existed since the early 20th century or older. In terms of demographics, Philadelphia has the third largest African American population in the country, after New York and Chicago. The city is also home to other various ethnic communities including large Italian, Irish, and Asian populations. A primary climate-related concern for the city has been winter precipitation, which varies greatly as some years only light snow occurs while in other years the city faces severe storms, such as the 1996 snowstorm that brought nearly 31 inches of snow.

Basic Demographics

- Total Population: 1.55 million
- % Non-White Population: 63
- % with Limited English Proficiency: 21
- % below Federal Poverty Level: 28
- % Unemployed: 8

Major Climate Change Concerns

- Increasing heat waves
- Increasing intensity in precipitation
- Sea level rise

Basic Climate Change Policies

- Have Greenhouse Gas Targets: Yes
- Have Greenhouse Gas Inventory: Yes
- Participating in Urban Sustainability Director's Network: Yes
- Participating in Resilience Communities for America: No
- Participating in Climate Protection Agreement: Yes

Overview of Climate Change Planning

As a coastal city with threats from rising waters and with increasing extremes in temperatures and precipitation, Philadelphia is recognizing that its adaptation strategies will need to span across a

Promising Programs for Building Community Resilience

The Sustainable 19125/19134

sustainable19125and19134.org

This initiative aims to create the greenest zip codes in Philadelphia by promoting sustainability as a tool to improve quality of life, beautify, and support one's community.

Philly CUSP

www.cuspproject.org

The Climate & Urban Systems Partnership (CUSP) developed a model for climate change education and is made up of a four city partnership.

Philadelphia's Citizens Planning Institute

www.citizensplanninginstitute.org

With grants from private foundations and planning commissions, this organization is providing outreach and education through citizen planning events.

Passyunk Avenue Revitalization Corporation

www.passyarc.com

A non-profit public space maintenance and enhancement organization that has provided matching funds to neighborhood organizations involved in greening programs.

range of programs and services throughout the city. As such, its climate adaptation plan, which is currently in development,⁷⁹ is engaging many sectors in the planning process, including the Municipal Energy Office, Streets Department, the Philadelphia airport, the water department, and other community groups. Intensive planning sessions occurred in the summer of 2013 and the formal adaptation plan is expected to be released in fall of 2014. Nonetheless, the city does have a climate action plan, *GreenWorks*, which was first released in 2009 and has been updated most recently in 2014.⁸⁰

Emerging Programs and Lessons for Building Community Resilience

While the city has not yet released its formal adaptation plan, there are several adaptation initiatives in progress that reflect the climate concerns and need for strategies that assist residents where they live and their economic interests. These initiatives include:

- ***Green City, Clean Waters***, a 25-year plan started by the Philadelphia Water Department to protect the city's watersheds, develops green stormwater infrastructure for the city, a practice that has social benefits such as enhanced recreation. Green stormwater infrastructure could also help to reduce poverty by creating jobs for low-income and unemployed individuals as these jobs are often low-skill and require minimal, if any, previous experience.⁸¹
- Expanding low-income housing weatherization programs, building energy efficiency guidelines and requirements for low-income housing.
- Creating farmer's markets in underserved areas, and tree planting in high-crime districts.

In support of these and related efforts, the city received more ***Pathways Out of Poverty*** grants than any other city in the country during 2010, and Philadelphia was the first large city in the United States to replace all traffic signal lamps with LED lights. And although current city efforts in adaptation and sustainability do not specifically mention racial and ethnic equity, these and other initiatives, if effective, will work directly to prepare and improve the lives of the Philadelphia's diverse and disadvantaged neighborhoods and residents.

One of the more significant city-wide efforts is the ***Climate & Urban Systems Partnership (CUSP)*** project. Supported by the ***National Science Foundation*** this program has designed partnerships in Philadelphia, New York, Pittsburgh and Washington, DC to create a joint model of climate change education for use in their cities and other cities across the country. The goal is to engage urban audiences in community-wide issues related to climate change through local partnerships. The education program is city-specific, concrete, focused on communities, and is intended to be motivational so that learners become more involved and informed about local climate change issues.

Community-based organizations and climate change efforts. Several community organizations are furthering goals in sustainability through financial assistance to community groups, actions to empower and promote community development and encouraging public-private partnerships. Three current initiatives offer examples of these strategies. The ***Passyunk Avenue Revitalization Corporation*** has provided smaller assistance matching grants (\$2,500) to four community groups and civic organizations who have raised funds for neighborhood greening activities such as tree planting and community gardens. Funded community groups include Passyunk Square Civic Association, East Passyunk Avenue Business Improvement District, Lower Moyamensing Civic

Association and the East Passyunk Crossing Civic Association. **Philadelphia's Citizens Planning Institute** equips citizen planners to take an active role in community development by: 1) identifying community assets, assessing needs, and shaping positive changes; 2) understanding how zoning code reform will improve the process of community development projects; 3) identifying tools to protect a community's assets and promote good development; and 4) understanding how planning will improve the likelihood of improvements to quality of life.

The **Sustainable 19125 & 19134** is a resident-driven initiative that was started by **New Kensington Community Development Corporation**, a nonprofit, with support from the **Pennsylvania Horticultural Society**. In 2009, New Kensington Community Development Corporation joined with local residents, businesses, and other government, nonprofit, and for-profit partners to "green" three neighborhoods in Philadelphia. Sustainable 19125 & 19134 was formed to bring together and expand upon sustainability work those residents, businesses, and partners had initiated as well as to elevate their efforts by making connections with larger-scale green infrastructure and planning projects in the city.

Academic-initiated interventions. Rebuilding Together Philadelphia is a group started by the **Wharton School of the University of Pennsylvania**. It mobilizes volunteers to improve homes of low-income Philadelphia residents and is working to play a key role in revitalizing Philadelphia's neighborhoods. Rebuilding Together Philadelphia works with low-income residents, many of whom live in homes that were built over 70 years ago and may be in need of repairs or maintenance. Among the services offered are energy efficiency upgrades and weatherization. In many cases after energy efficient upgrades, a homeowner can save on monthly utilities and spend disposable income on other necessities. Volunteers also contribute to the Healthy Homes project, which remediates environmental concerns like lead paint, radon, asthma triggers and other household hazards. While targeted at the general low-income population, these efforts offer significant opportunity to empower and improve the living conditions and resilience of many poor, African-American and other racial and ethnic communities in the city.

PHOENIX, AZ

Snapshot

Phoenix is located in the Sonoran Desert and became a farming community following the development of its canal system which led to economically-important crops such as citrus, cotton, and hay. In more recent history, Phoenix's economy relies heavily on the high tech industry which has a large presence in the city. In terms of climate, Phoenix faces hot summers, with high temperatures reaching 110 degrees Fahrenheit on an average of 18 days per year. Rainfall is sparse throughout the year. Both drought and the urban heat island effect are prominent environmental concerns for the city.

Basic Demographics

- Total Population: 1,488,750
- % Non-White Population: 53
- % with Limited English Proficiency: 36
- % below Federal Poverty Level: 23
- % Unemployed: 6

Major Climate Change Concerns

- Rising temperature
- Urban heat islands
- Drought
- Increased forest fires

Basic Climate Change Policies

- Have Greenhouse Gas Targets: Yes
- Have Greenhouse Gas Inventory: Yes
- Participating in Urban Sustainability Director's Network: Yes
- Participating in Resilience Communities for America: No
- Participating in Climate Protection Agreement: Yes

Overview of Climate Change Planning

Notwithstanding the unusual 2014 floods in Maricopa County, Phoenix's climate adaptation plan has focused generally on the historic patterns and threats associated with heat and drought. The direction and goals of this plan and its distinct subparts explicitly reflect these

Promising Programs for Building Community Resilience

Phoenix Revitalization Corporation, Leadership Academy Program

<http://www.phxrevitalization.org/>

The academy provides capacity building, training and support to a group of leaders of mixed races, ethnicities, and ages.

Sustainable Communities Collaborative

<http://www.sustainablecommunitiescollaborative.com/>

A collaborative of more than 20 partners who are working together to promote economic development along the Valley Metro light rail to encourage transit-oriented development

Communities for all Ages Coalition

www.communitiesforallages.org

A nonprofit whose goal is to build strong relationships between residents, businesses, providers, and government entities to result in unified efforts to benefit the community.

Arizona State University

<http://www.asu.edu/>

The University School of Sustainability is conducting research across different departments such as environmental justice and natural resource management to better understand and plan for effects of climate change.

significant and chronic concerns. At the same time the city's approach emphasizes that if their vision is to become a reality they must be successful on many fronts. As such, they have adopted multiple points of focus that include: water resource planning and conservation; a tree and shade master plan; greenhouse gas reductions; and a heat relief campaign. Their strategies—for example, ensuring sustainable water supplies, protecting vulnerable populations in extreme heat events, and developing land use designs that minimize the impact of urban heat island effects—clearly reflect these priorities. Phoenix's climate adaptation plan is unique in that it is not unified and inclusive, but rather there are separate plans in place that target the overall goal of climate adaptation.

The Phoenix Action Plan for Government Operations, the city's climate action plan to reduce greenhouse gases, recognizes that much of their success will by necessity require coordinated, concerted efforts. To that end they have identified and engaged five local government sectors which contribute to greenhouse gas emissions: building and facilities energy use; city vehicles; solid waste (landfills); employee commute; and wastewater treatment.⁸²

Emerging Programs and Lessons for Building Community Resilience

The city's adaptation plan reflects the need to engage the community in their overall approach and in recognizing the importance of building resilience among its most vulnerable. Actions to advance these goals include organizing a coalition of stakeholders including residents, non-profits, institutions and real estate owners as well as promoting public engagement strategies in transit planning that also afford opportunities to include low-income and limited English speaking residents.⁸³

Phoenix's intended actions appear to reflect an understanding that to be successful in engaging communities and building resilience they must make a priority and address issues of greatest concern and potential value to their constituents, including their vulnerable communities. And so they have targeted building an effective residential recycling program, developing new light rail services, mitigating heat island effects, wetlands habitat restoration, implementing aquifer recharge projects, and codifying pedestrian-friendly zoning.

Private and nonprofit actions for vulnerable and diverse communities. While the city has set a vision, goals, and specific strategies for its residents generally, Phoenix-based organizations are working to prepare diverse populations for environmental and climate hazards in ways that emphasize community development and empowerment. These private and nonprofit entities have focused their efforts on initiatives to educate, inform, and actively involve area residents. For example:

- ***Phoenix Revitalization Corporation*** offers a leadership academy that focuses on increasing residents' awareness of community resources as well as how to use evidence-based strategies to generate community change. Twenty-six academy classes have trained 223 residents of ages 12-72.
- ***Communities for all Ages Coalition***, whose mission is to improve quality of life through resident-driven processes and has a diverse representation from 13 area neighborhoods, works to put in place a well-connected and cohesive network to support community resilience and economic development.
- ***Sustainable Communities Collaborative***, a non-profit partnership supported by a privately financed fund in Arizona and the three cities' mayors, is working to implement Transit-

Oriented Development (TOD) to strengthen community resilience. The group focuses on policies related to housing, public health, community development, financial tools, and transportation and invests in developments that are along the Valley Metro light rail.

Integrating climate change goals into broader efforts to improve quality of life. Directly south of downtown Phoenix is Central City South (CCS), an area comprised of highly diverse neighborhoods. Area residents, in partnership with **Phoenix Revitalization Corporation**, worked to create a Quality of Life Plan to improve the health and safety of communities. The report's findings and recommendations are intended for use by community members and stakeholders as a roadmap for creating thriving neighborhoods. Many identified strategies—such as building community gardens to promote both socialization and education on healthy eating—hold promise for building community resiliency and social cohesion while also advancing climate change related goals. Other recommendations include creating a bi-monthly TV show, in partnership with Arizona State University's Department of Journalism or a local radio station as well as forming neighborhood associations, to inform area residents. Specific proposals also include installing lighted marquees for community announcement in strategic locations. Finally, the plan describes partnering with City of Phoenix's **Neighborhood Services Department** to improve the area's housing and ensure livable conditions. A community "fix it" team will assist low-income residents and seniors with minor repairs on their homes. The community is engaging local businesses by creating volunteer opportunities to participate in such projects.⁸⁴

Academic partnerships to address climate change. The involvement and role of **Arizona State University** in actions to address identified priorities that include communities of color is an example of a unique opportunity for advancing climate change research. The University has a **School of Sustainability** with faculty from resource governance, natural resource management, ecosystem services, climate change impacts, sustainability science, vulnerability and environmental justice. Many research projects, such as those examining heat island effects in the inner-city,⁸⁵ are partnering with Phoenix communities to measure risk or implement programs to build upon climate change adaptation priorities.

SACRAMENTO, CA

Snapshot

Sacramento sits at the confluence of the Sacramento and American rivers in California's Central Valley. In the mid-19th Century, the city had a strategic location as the terminal point of several key transportation and communication systems: the Pony Express, critical wagon stations and eventually the First Transcontinental Railroad. Today, the city's economy revolves around state government operations, the healthcare industry, including academic medical centers and technology companies. In 2002, *Time* magazine featured an article recognizing Sacramento as "America's Most Diverse City."⁸⁶ The city's climate is characterized by mild winters and hot, dry summers.

Basic Demographics

- Total Population: 475,516
- % Non-White Population: 68
- % with Limited English Proficiency: 40
- % below Federal Poverty Level: 23
- % Unemployed: 8

Major Climate Change Concerns

- Increased flood risk
- Reduced water supply
- Increased wildfires
- Increased public health impacts
- Critical infrastructure impacts

Basic Climate Change Policies

- Have Greenhouse Gas Targets: Yes
- Have Greenhouse Gas Inventory: Yes
- Participating in Urban Sustainability Director's Network: Yes
- Participating in Resilience Communities for America: Yes
- Participating in Climate Protection Agreement: Yes

Overview of Climate Change Planning

Sacramento has created an adaptation plan at the city level that is part of a general climate action plan reflecting and recognizing the wide-ranging

Promising Programs for Building Community Resilience

Resilient Sacramento

resilientsacramento.org

This organization represents a collaboration of local and regional partners to create communities that, are both resilient and economically viable.

Greenwise Joint Venture

<http://greenwisejv.org/>

This organization focuses on economic, energy and engagement strategies and solutions to develop a sustainable and more resilient Sacramento.

Ubuntu Green

www.ubuntugreen.org

A nonprofit committed to promoting healthy, sustainable, and equitable communities through advocacy, education, community development, and empowerment.

Valley Vision

<http://valleyvision.org/>

A non-profit consulting group that supports economic, environmental and social issues in Sacramento.

consequences of climate and environmental threats. The goals of the adaptation plan encompass a broad spectrum of related public health, environmental, economic priorities such as: preserving water sources and protecting ecosystems and migration routes; preparing for increased average temperatures; addressing energy needs and responding to potential effects on the city's public infrastructure, including public works and transportation; and recognizing and protecting the public from safety hazards and health risks. Related goals also acknowledge and support the need to create an economy that can withstand climate and environmental changes. In implementing its vision, the city's plan recognizes that buy-in must actively involve agencies and organizations that represent diverse agendas. As such, plan development has engaged Parks and Recreation, health and safety agencies, emergency agencies, water conservation, energy partners, universities, and businesses, among others. Continuing this cross-sector collaboration will likely be central to advancing and achieving targets and goals.

Emerging Programs and Lessons for Building Community Resilience

Sacramento's adaptation plan has specifically cited community engagement among its priorities, although it is less clear on directly referring to diverse populations in its strategies. Sacramento's plan stresses the need to create a climate change-resilient community and lists several strategies that also parallel and reinforce its overall goals such as mitigating urban heat island effects that threaten public health. Other strategies work to engage communities to counter the effects of poor air quality and address energy demand. Recognizing the importance of having an informed public Sacramento has undertaken a pilot project to educate neighborhoods on how to garden and grow their own food. Related initiatives include working with community partners to develop a **Green Lease Toolkit** that promotes partnership between building owners and tenants to contribute to efficient building operation. As noted above, recognizing how effective collaboration is central to success, city agencies, nonprofits, and other organizations are working in concert toward climate adaptation goals.

Integrating climate change with economic development. Sacramento's vision has also understood that economic wellbeing of communities, the city, and the region go hand-in-hand with meeting and mitigating climate and environmental threats. Furthering the importance of collaboration to achieve concerted goals is **Greenwise Joint Venture**. This Sacramento-based nonprofit coordinates green economy and economic development initiatives and activities in the region. Greenwise Joint Venture stresses that effectively engaging citizens, business/corporate leadership, and other stakeholders is central to improving awareness and understanding of climate change and its challenges. The group is also working with **Sacramento Tree Foundation**, **WALK Sacramento** and other organizations to implement a series of initiatives to reduce greenhouse emissions and encourage green transportation. It is creating a business leadership council with its board members and is working with **Business Environmental Resource Center** to certify 10,000 businesses as "Greenwise Businesses."⁸⁷

In 2011, the Greenwise Joint Venture established the **Sacramento Greenworks Program**, which is modeled after successful initiatives in Seattle and Portland. Its goals are to save energy, create jobs and improve social equity. The program ensures that high quality employment is available for those in the community who have historically been left out of new economic opportunities. To that end they have set "Green Jobs" goals to hire a significant proportion of new employees from disadvantaged populations. Those hired will be drawn from the local workforce, will receive a living wage and be locally trained.

In addition to Greenwise Joint Venture, **Resilient Sacramento** is working to create stronger, sustainable and more economically viable communities through coordination and collaboration with other stakeholders at the local and regional levels. Resilient Sacramento's network of stakeholders also serves as a forum to host discussion and share best practices among organizations implementing resilience activities as well as those just beginning their programs

Promoting community capacity through local nonprofits. In addition to city and business-based efforts, local nonprofits with a social justice mission have undertaken programs to develop capacity of communities to respond to climate change. For example, **Ubuntu Green** is a nonprofit committed to promoting healthy, sustainable, and equitable communities through advocacy, education, community development, and empowerment. Promoting and advancing social justice is at the heart of Ubuntu Green's initiatives, reflected in the organization's explicit objective to promote sustainability and climate related policies that assure equal opportunities for low-income communities and communities of color. Among its many innovative programs is the Edible Home Garden Campaign which aims to build 350 gardens in the Sacramento Region in collaboration with community organizations, individuals, youth groups, businesses, schools, and affordable housing developers to encourage active community engagement and youth employment opportunities, provide low-income and communities of color with healthy food access options, and reduce the region's carbon footprint.⁸⁸ Ubuntu Green also convenes a policy-oriented working group, **Sacramento Environmental Justice Working Group**, which met for the first time in February 2014, to advance an environmental justice policy agenda for the Sacramento Region.⁸⁹ As the President of Ubuntu Green, Charles Mason, Jr., has emphasized:

...putting social justice at the core of the green movement can empower and uplift all residents of the region and fuel our economy.⁹⁰

Also important to promoting community capacity to respond and adapt to climate change is an understanding of communities—who they are, where they are located, and what defines their unique needs and circumstances. **Valley Vision**, a non-profit group in Sacramento, is also leading efforts to address increased resiliency for area residents by undertaking community health needs assessments to identify unmet health needs among vulnerable residents, hosting a series of forums for regional leaders to learn about the Bay Delta Conservation Plan, and developing a blueprint for regional transportation investment that promotes a better jobs-housing balance.

VI. DISCUSSION

We found that cities, as might be expected, are at various stages of planning and adaptation for climate change. Whereas the vast majority has an action plan in place which addresses climate change broadly, some cities have also progressed in developing plans to help their city and population prepare for and adapt to climate change. Few cities, however, have explicit plans or goals that intend to engage and integrate vulnerable communities of color into their planning and adaptation efforts. In cities where local government has not taken the lead in reaching communities of color, many nonprofits and philanthropic organizations have either partnered with or solely taken on this responsibility.

While ranking cities was beyond the scope of this project, our study did reveal at least three clusters of cities in terms of the progress they have made in planning for and advancing resilience for vulnerable communities of color. In this section, we reflect on where cities are *now*—i.e., leading in efforts, moderately progressing, or slowly progressing. Following this status report is a discussion of what emerged as promising practices across all cities (whether leading or not) in terms of common actions for advancing efforts to build resilience of communities of color. In this context we also consider experiences, lessons, and factors which have facilitated or inhibited progress across cities.

STATUS AND PROGRESS IN ADVANCING RESILIENCE FOR COMMUNITIES OF COLOR

Cities leading in promoting community resiliency to climate change. Cities emerging as leading in climate change resiliency efforts for vulnerable communities of color in our study included Baltimore, Boston, Chicago, New York, and Oakland. These cities generally shared common elements constituting their success:

- A visible leader or champion to support and advance climate change efforts;
- Strong support and engagement from community organizations and advocacy groups;
- Clearly delineated goals for engaging vulnerable populations in climate action and adaptation plans or implementation of related programs; and
- Recognition that addressing climate change is a priority that permeates across broader objectives such as assuring the economic vitality, health, and sustainability of communities.

Cities demonstrating comparatively moderate progress in preparing vulnerable populations for climate change. Many cities have progressed in planning for climate change and adaptation generally, but with little to no explicit mention or emphasis on engaging and integrating communities of color into their written plans. Nonetheless, these cities have moderately progressed in addressing the needs of diverse communities in climate change, mainly through a robust non-profit sector that has been involved with, if not leading, efforts to engage communities in climate conversations. Included in this cluster are Sacramento, Miami, Phoenix, Cleveland, Denver and Detroit. These cities tended to share the following characteristics:

- Moderate degree of climate change adaptation planning and progress by city or community-based organizations;
- Strong involvement from non-governmental groups to engage diverse populations in climate change or sustainability initiatives; and
- Moderate efforts to systematically assess and identify community vulnerabilities especially among communities of color.

Cities at comparatively earlier stages in preparing vulnerable populations for climate change. Finally, relative to other urban areas, some cities have not progressed as far in addressing climate change, and to that end have demonstrated less integration of diverse and vulnerable communities into this priority. Reasons vary but may be related to maintaining a broader, less population-specific approach. Our review also suggested that these cities have comparatively less involvement from community-based organizations or other non-profit groups in developing and implementing adaptation activities at the local level. Examples of cities included in this cluster are Philadelphia, Las Vegas, Atlanta, and Dallas. In general, these cities shared a number of common points of needed focus:

- More fully developed, comprehensive climate change adaptation planning at the city level;
- Greater engagement with community organizations to address climate concerns and to prepare for a changing climate; and
- Additional promising opportunities for involvement from community groups or other non-profit/community-based organizations to incorporate diverse populations into climate change efforts.

KEY ELEMENTS TO BUILDING RESILIENCE

Most cities—regardless of where they are in efforts to reach vulnerable communities of color—have undertaken at least some action to assure that communities are reflected in their climate change planning and action. This is evident in the fact that virtually all cities make mention of the need to engage or partner with communities in their adaptation or other climate plans. To this end, many have undertaken a common set of strategies that we describe here as promising for building the resilience of communities of color for two reasons: (a) they have already worked to successfully integrate and engage communities of color in climate change adaptation; and/or (b) they represent broader community efforts, that if applied and targeted to communities of color, hold significant potential for engaging and building their resilience to climate change.

Important Strategies for Integrating Communities of Color in Efforts to Build Resilience to Climate Change

1. Assuring that race, ethnicity, and language are considered among other factors defining vulnerability.
2. Partnering with community-based organizations and other nonprofits representing, anchored in, and trusted by communities of color.
3. Identifying common ground, between ways to engage and impact communities in climate change adaptation and other sectors—e.g., housing, environment, education, and transportation.
4. Identifying creative ways to leverage funding for climate change priorities, seeking opportunities in other sectors such as public health, emergency management, and housing.
5. Using non-partisan, clear, plain, and culturally and linguistically appropriate language to communicate climate-related messages, especially to engage and prepare communities.
6. Identifying and working with respected and influential champions to advance related programs and policies.

Defining Vulnerability

An important requisite for addressing the needs of communities of color in efforts to build their resilience to climate change is the explicit recognition that these populations are often vulnerable due to factors associated with race, ethnicity, and language (e.g., limited English proficiency, lack of trust shaped by cultural experiences, and racial segregation). In this context an explicit objective of our review was to document how climate change adaptation plans define vulnerability and the extent to which they consider people of color among the vulnerable. To this end, we asked key informants to define key vulnerable populations they target in their plans.

Common definitions of vulnerability. The most commonly identified vulnerable groups were “low-income individuals and families” or those with few resources, followed by older adults and those with pre-existing health conditions. Other at-risk populations mentioned were those without air conditioning, homeless, and individuals residing in high-crime areas who fear leaving their home to go to a cooling center. In Chicago, one informant described social connectedness as a key indicator of vulnerability. For example, individuals with poor connectedness to the outside world—e.g., those who feel uncomfortable answering the door or walking in the neighborhood—are likely to have high vulnerability in the event of a disaster or climate event.

Defining race and ethnicity as measures of vulnerability. Our review of adaptation plans also revealed that while there are a range of definitions for vulnerable populations in climate change adaptation plans, they often address socioeconomic status, age, physical and mental mobility, and health. In fact, we found that only three cities explicitly include people of color in their definition of vulnerable populations (Boston, Chicago, and New York City). Boston, for example, explicitly cites racial, ethnic, and language groups in their targeted list for community engagement. Their plan also targets adult Asian American populations for Green Jobs training—such as green facilities maintenance technicians—through an Empowerment Grant.

Chicago has undertaken several activities to engage communities of color in climate change action. For example, the **Field Museum**, through the **Engaging Chicago Communities in Climate Action** program, conducted ethnographic research (in English and Spanish) to address diverse community needs and concerns in their planning. Project staff used qualitative and quantitative research methods, including individual interviews, community meetings, focus groups, and social network surveys. The city also hosted “Green Hall” events to bring citizens from these communities (150 Chicagoans) together to talk about the action plan, explore community action, and provide ways for residents to get involved. This work has offered a unique opportunity to establish partnerships with ethnically diverse community groups and integrate feedback into planning.

New York City has also undertaken innovative equity-specific strategies, such as a program to engage and assist minority-owned businesses to address climate change and build disaster response capability. In addition, the city is targeting education, outreach, and resilience efforts in

An important requisite for addressing the needs of communities of color in efforts to build their resilience to climate change is the explicit recognition that these populations are often vulnerable due to factors associated with race, ethnicity, and language.

low-income and diverse neighborhoods such as South Bronx, northern Manhattan and East Harlem. These neighborhoods not only have higher rates of poverty (including poor access to air conditioning), but also greater health risks such as diabetes, asthma and cardiovascular disease as well as higher environmental hazards like high surface temperatures and less vegetative cover.

While we only identified three cities with an explicit mention of communities of color in their climate change adaptation plans, our interviews revealed that other cities are strategically working to reach diverse populations (while not formally written in their broader plans). For example, in Denver, neighborhoods with high percentages of Hispanic residents (about 70%) were identified as vulnerable as they were more likely to have fewer resources. The city's environmental public health program is partnering with *Denver Water*, a water utility agency currently undertaking outreach and education with area residents, to target these vulnerable populations. In Detroit, pollution is a concern as the city is home to five of the most polluted zip codes in the U.S. Individuals, including many low-income residents, who are exposed to harmful pollutants due to living in close proximity to environmental hazards and manufacturing plants are considered most vulnerable as poor health conditions may be exacerbated by climate change. These examples suggest that specific mention of diverse communities in plans, perhaps not explicit, may be evident given a city's vulnerable population demographics.

Risk and Impact Assessments

The identification of risks and impacts according to individual and community vulnerabilities is important for establishing sound mitigation and adaptation strategies that include diverse population needs.⁹¹ Central to this action is understanding how localities define vulnerability (as described in the previous section) and assess risk, and assuring the inclusion of at-risk populations—such as racial and ethnic minorities, those with limited English proficiency and immigrants among others—that are often absent from this description and related actions. Also important, as the World Bank and others discuss, is

Questions to Consider in Risk and Impact Assessments for Communities of Color

- Who is defined as vulnerable, and does the definition include vulnerable communities of color?
- Where are vulnerable groups located?
- How much and what type of land do they occupy?
- What is the climate-related risk or threat related to where they live?
- What are their cultural practices, livelihoods, and beliefs generally, and in the context of climate change?
- What is their level of climate-related knowledge or education?
- What is their language proficiency?
- What languages other than English will they need assistance in?
- What are community assets that can serve as trusted venues for outreach and education—e.g., faith-based or civic organizations, health centers, libraries, schools, among others?
- Who are trusted messengers in the community—e.g., faith leaders, health care providers, others?
- What barriers do they face to understanding or preparing for climate change?

taking into consideration: where vulnerable groups are located; how much and what type of land they occupy; risk related to their geographic area; their daily cultural practices and livelihoods; their climate-related knowledge or education levels; and sources of support and social capital, among other key questions. For example, the **California Department of Health** has recommended that local health officials identify vulnerable communities by targeting zip codes where 20% or more of the population lives below poverty in order to implement heat-related adaptation strategies such as cooling centers and first aid for heat illness.⁹²

Community need and asset assessment and mapping. Our review found that cities are performing ongoing community and climate risk assessments in a variety of ways—from quantitative and qualitative methods to mapping of vulnerability, impacts, and assets. For example, the City of Boston maps areas where they expect flooding to increase, in conjunction with the Boston Public Health Commission, which maps where vulnerable populations reside along with community assets. Risk assessments currently focus primarily on flooding and heat, although also involve specific projects, such as the Boston Water and Sewer Commission. The health department in New York City received a CDC grant to implement **Building Resilience Against Climate Effects (BRACE)**, a unique framework designed to help cities and states forecast climate change impacts, assess vulnerabilities and develop a plan to help enhance adaptive capacity in the region. This data-driven assessment helped New York recognize the crucial role of air conditioning in protecting the most vulnerable populations. Lessons have been incorporated in developing messages for the communities and advocating for funding subsidies for air conditioning for these populations. And **Cleveland’s Neighborhood Action Climate Toolkit** assists community members in identifying neighborhood assets, opportunities and concerns. In addition, the initiative instructs communities on how to leverage such assets to target climate change adaptation action.

There is no “one-size-fits-all” approach or formula to risk assessment.

Community-based participatory and qualitative methods. Our review further found that community-based participatory methods can yield valuable information on community perspectives that may not be uncovered by traditional data sources. Such approaches may improve understanding of local climate change effects on hard-to-reach or otherwise isolated communities. Our review suggests that undertaking an assessment that combines both quantitative analysis with community perspectives, experience, and priorities is preferred.⁹³ For example, New York City’s BRACE initiative incorporates qualitative component to its risk assessments to better understand vulnerable communities’ beliefs, practices, and challenges that may not surface in quantitatively-driven assessments. To this end, New York City held focus groups with diverse community members which revealed common barriers among the city’s large population of immigrants. This outreach is especially critical among certain immigrant communities since air conditioning may not be conventional in their native countries, which may encumber efforts to understand the importance of their use in New York City where a dangerous combination exists: the urban heat island effect coupled with infrastructures that were not built to endure high temperatures.

No one-size-fits-all approach to assessments. Our review affirmed that there is no “one-size-fits-all” approach or formula to risk assessment. Cities vary greatly in population demographics, climate, environmental risks and hazards, existing city planning resources and baseline capacity as well as economic conditions. One interviewee relates frustration in trying to use a pre-developed methodology to assess the city’s climate risk:

We spent a lot of time looking at risk assessment methodologies and figuring out the approach we would use. We spent a lot of time fitting a square peg into a round hole. We were trying to get hard numbers but we failed to realize that it wouldn't help us reach the goal of getting the city more resilient. We made the change from "spreadsheets" to being clear about the end goal: to push needle on being less vulnerable. Everyone assumes you need a ranked list. But it's not actually the first step. It's not getting us to reduced vulnerability.

In some cases, working to collect quantitative data from city agencies to complete ranked risk assessments is unrealistic. One informant stated that sustainability officials collecting information realized, "No one has the answer to this. We wanted to initially do a numeric ranking of risk, but we later figured out that is not how a city works." Instead, the department shifted strategies and is currently building capacity with the agencies to foster understanding about climate change and resiliency concepts and actions.

Community Engagement

Community engagement is defined as "the process of working collaboratively with and through groups of people affiliated by geographic proximity, special interest, or similar situations to address issues affecting the well-being of those people. It is a powerful vehicle for bringing about environmental and behavioral changes that will improve the health of the community and its members."⁹⁴ Community engagement can occur both directly with members of the community, or indirectly, in partnership with representative organizations or leaders—such as faith-based institutions or leaders, ethnic or cultural organizations, tribal entities, community clinics, advocacy and activist groups, community health workers, neighborhood associations, and other trusted community-based organizations.

Community participation is key to building community resilience.

In the context of climate change, several sources suggest that "community participation is key" to building community resilience. As one resource reiterated:

Bringing people together, including business, industry and education, along with children, planners, civic leaders, environmental groups and community associations, allows the vision to capture the values and interests of a broad constituency. Brainstorming ideas from the entire community results in a synergistic effect which can bring out a myriad of ideas that reflect the values and interests of the community as a whole.⁹⁵

While involving communities in planning, assessment, and evaluation is important, equally critical is their participation and engagement in actual rollout of programs as well as any drills, trainings, and exercises. The large majority of climate change adaptation plans currently in place or in development cite and address community engagement as a priority. This theme was also echoed in our interviews with city officials who highlighted a range of engagement strategies to establish a two-way dialogue with communities both to inform the planning process as well as to educate and reach those most vulnerable.

Engaging communities to inform planning. To inform planning, many cities are explicitly working with community members to identify their needs and help tailor initiatives (as described more fully in the previous section on assessments). In Detroit, for example, a series of sector-based

meetings and larger community focus groups were held to engage stakeholders in the climate change planning process. The community plans to review and vet the proposed climate action plan and *Detroiters Working for Environmental Justice*, the non-profit developing the climate plan, intends to incorporate community input into subsequent revisions. New York, through its new *Office of Long-Term Planning and Sustainability*, also developed a thorough community engagement process to integrate input from the public into its adaptation plan with the goal of enabling quick and seamless implementation upon release of the plan. In other cities, such as Miami, community involvement and input has been less direct. *Miami-Dade County's Science Committee*—part of a larger county climate change advisory task force—developed research priorities based on input from area residents, university students, businesses and other engaged stakeholders. While community members themselves were not directly solicited for development and feedback of these priorities, the committee did intend to ensure the direction of research was consistent with the needs of vulnerable populations.

Engaging communities in outreach and education. Many cities are also engaging communities in outreach and education through a range of venues and strategies, from education forums to peer-to-peer programs, and involvement of Community Emergency Response Teams (CERT), and other efforts. For example, Baltimore has implemented a series of programs including peer-to-peer education, CERT teams providing education, and climate ambassadors serving as educators and leaders in communities on climate change. Philadelphia is working with an organization, *Climate and Urban Systems Partnership (CUSP)*, which is conducting public outreach education. The goal is to provide a model that engages urban audiences in community-wide issues related to climate change through local partnerships. The education program is city-specific, concrete, focused on communities, and is intended to be motivational so that learners become more involved and informed about local climate change issues. In Boston, community workshops were held in five neighborhoods throughout the city and in Baltimore town hall events were cited as an effective strategy to educate and engage communities of color. In New York, community groups banded together to form the *Campaign for New York's Future* to engage community members and to assist in implementation of the city's adaptation plan. This coalition of community groups received funding from various foundations in the area and helped to educate the public and politicians on central topics related to climate change.

Also in New York City, *Climate Smart Communities* is helping local governments to increase community resiliency to climate change by providing communities with a range of resources including community coordinators, a listserv, webinars and a local action guide in an effort to reach out to and educate community members. *Bay Localize*, a community group in the San Francisco Bay Area, also works to implement community-led resilience education. A report from the group states, "in communities that have historically experienced tense relationships with local government, community organizations may be more trusted sources of information. They may also be more effective at employing culturally relevant arts-based forms of public education, for example the youth *Eco Rap Festival* organized by *Breakthrough Communities* to educate young people of color about ecological issues."⁹⁶

Offering direct assistance to communities. Another way of incorporating communities into the climate conversation has been direct assistance to support individuals and families to participate in adaptation and mitigation behaviors. For example, Denver has a *Sustainable Neighborhoods Program* within the Department of Environmental Health, in which primarily low-income communities of color are eligible to receive insulation in their homes and other energy conservation upgrades.

Climate-change related community engagement tends to be “top-down.” Community partnerships are intended to build capacity and empower community members to take charge and participate in local activities such as building resilience. However, our review found that community partnership in climate change is often a “top-down” initiative, driven more by organizations and agencies concerned with climate change, and less so by communities themselves. For example, some programs have a community engagement component intended mainly to solicit community input, but these communities are for the most part not directly involved with implementation of strategies. However, **Engaging Chicago Communities in Climate Action** stood out as it is helping to engage communities of color in the implementation of the Chicago Climate Action Plan. Nonetheless these experiences suggest opportunities for greater “ground level” involvement and community-based leadership in plans and actions.

Cross Sector Collaboration

Many resources emphasize the importance of collaboration at all levels and across jurisdictions, sectors, organizations, experts, and communities to assess community needs and vulnerabilities to climate change, as well as to collaboratively plan for, engage in, and evaluate resilience practices. Among questions explored in the literature and through interviews on collaboration were: How are cities and local governments working with the private sector to increase resilience? How are city governments connecting with each other to foster political momentum? How are cities coordinating community actions and programs across sectors? How is resilience being tied into near-term priorities for cities and localities? And what kinds of formal and informal collaborations are occurring to address climate change in communities?

Collaborating with other governmental sectors. All informants detailed collaborations with other sectors to prepare for a changing climate. Most city representatives described some degree of collaboration with environmental or sustainability offices, with some also describing important partnerships with offices of emergency management to coordinate information distributed in preparing for and responding to disasters. For example, the city of Boston aims to further the preparedness education process by teaching community members on how climate change will affect disasters such as flooding. Other areas of government also involved in climate-related efforts in cities include water, transportation, forestry, housing, energy, and planning departments as well as city health departments. Many cities are also a part of regional collaborations, such as the Urban Sustainability Directors Network and the Western Adaptation Alliance.

The nonprofit sector and community organizations are playing a key—if not central—role in many cities and localities to build resilience in low-income, diverse, and vulnerable communities.

Collaborating with private and nonprofit sector. The nonprofit sector and community organizations are playing a key—if not central—role in many cities and localities to build resilience in low-income, diverse, and vulnerable communities. For example, the ***Boston Climate Action Network*** held focus groups with the Latino community to discuss views on climate change, while in Oakland, the ***Pacific Institute***, in collaboration with the ***Oakland Climate Action Coalition***, other community-based organizations and resident leaders, worked to analyze potential climate change impacts and implement equitable solutions at the community level.⁹⁷ In some cases, nonprofit organizations are taking the lead in collaborating with other sectors to jointly address

climate change. For example, the **Big Green Block** initiative in Philadelphia brought together local residents, businesses, and numerous government, nonprofit, and for-profit partners to enhance sustainability among local communities.

Formal and informal collaborative efforts. Cities are undertaking both formal and informal collaborative efforts, all with the primary objective of cultivating trust among players involved and an ongoing working partnership for building resilience. Formal collaborations are often built on a “Memorandum of Understanding” with written and agreed upon objectives, roles, and deliverables for each player involved. More informal arrangements may involve voluntary participation of different organizations and sectors in an advisory capacity. Both have their own set of advantages. For example, more formally established arrangements may offer greater specificity in mutually agreed goals and have a greater potential to increase accountability in achieving specific process and outcome goals. On the other hand, informal arrangements may encourage organizations with little history of working together to explore collaborative efforts, while also offering opportunities for less-resourced organizations to take part.

Explicitly partnering with the public health sector to draw on a foundation of experience in working with communities. Many examples of cross-sector collaboration are outlined in the literature and several emphasize the importance of ensuring the inclusion of expertise of different organizations and disciplines. In particular, there is general consensus that public health researchers, practitioners, and organizations can offer considerable guidance in developing community resilience, building on a foundation of programs, frameworks, and successes in public health preparedness and behavioral health such as the “Diffusion of Innovation” model, among others.

According to key informants, public health agencies are essential partners in efforts to build capacity and resilience to respond to climate change, especially as they are increasingly involved in efforts to better prepare communities for public health emergencies and mitigate the health effects of various weather-related events. For example, in New York, the health department led an effort to develop information materials on heat in multiple languages, educating community members on how to protect themselves when dangerously rising temperatures occur. The city’s Office of Emergency Management collaborates with the health department to perform outreach to vulnerable citizens on climate and related disaster preparedness priorities.

Health departments are also especially important because in most circumstances they have a history of working to identify and perform outreach to vulnerable communities and address health disparities that pre-dates climate change. One key informant eloquently describes the complex dynamic of community resilience which is not limited to one sector or agency:

Health departments are crucial partners because in most circumstances, they have a history of working to identify and perform outreach to vulnerable communities and address health disparities that pre-dates climate change.

Community resilience can't just be focused on emergencies, it has a lot to do with pre-event functioning of a community, community social systems and community organization capacity and that capacity is what gets mobilized when a disaster strikes.

Job Creation and Building Other Economic Opportunities

Some localities are beginning to incentivize members of communities to become involved in efforts to build resilience to climate change by offering innovative career-building training and employment opportunities. These have ranged from providing educational and training opportunities for community members to be leaders, spokespersons, or advocates on climate adaptation and mitigation actions within their local communities, as well as offering support or incentives for low-income, disadvantaged populations to enter “green jobs.”

Building climate change leadership among young adults. Some localities are focusing broadly on building leadership among low-income young adults, who through incentivized education programs are taught job and leadership skills to engage and advocate for policies and programs for their own communities. For example, **YouthBuild USA** has announced that 300 low-income students in California will benefit from a new plan designed to expand YouthBuild’s leadership development program in states across the country.⁹⁸ The YouthBuild program targets low-income young individuals ages 16-24 who while working toward their GEDs or high school diplomas learn job skills by building affordable—and increasingly green—housing in their communities and preparing for postsecondary success.

Engaging low-income communities in “Green Jobs” sector. In several cities reviewed, local level adaptation planning has contributed to green level job creation. In Boston, for example, the city is implementing various programs that help to green the city and create jobs, although they may not be climate-focused specifically. Some of these encourage commercially viable farms on abandoned lots in Boston or rooftop farming to reduce storm water runoff and help cool the city. Cleveland’s climate action plan makes a business case for addressing climate change concerns. Among the local benefits is job creation and economic development. The plan states, “In Cleveland, where manufacturing and professional/technical trades account for nearly 25% of the GDP, an investment such as this is really a reinvestment in the long-term stability of the City’s existing economic infrastructure.” Oakland’s climate action plan also lists supporting local green jobs programs as a priority action. New local green jobs created by the plan include green building construction, solar panel installation, recycling service provision, water-efficient landscaping installation, and new bikeway creation among others.

Several leading cities reviewed are providing incentives and jobs for low-income communities. **Groundwork Denver**, for example, is implementing the Green Team project, an initiative that is aimed at promoting environmentalism among youth as well as providing employment for low-income adolescents and young adults. **Detroiters Working for Environmental Justice** is training underrepresented groups in green jobs, including those focused on: energy, weatherization, deconstruction, vital remediation, and lead and asbestos abatement. Other initiatives describe their capacity to finance and sustain programs, such as **Baltimore’s First Climate-Resilient Block**, a program that has received philanthropic support to promote sustainability at the community level.

CHALLENGES TO IMPROVING RESILIENCE FOR COMMUNITIES OF COLOR

While all cities are actively working to address community resilience to climate change, several identified a range of challenges for engaging communities of color in this process. The most commonly cited organizational challenges were funding, capacity, and evaluation; whereas city planners and officials also reflected on other barriers specific to communities of color—e.g., other more pressing priorities than climate change, trust in working with these communities, and communication and language barriers.

Organizational Barriers

Funding and Resources. There was unanimous agreement among key informants that funding and related resources were the single, greatest challenge to addressing climate change for communities of color. While all informants from city departments cited internal/city funding as the primary source of support for community resiliency efforts, they suggested that even when funding is available there is often limited dedicated staff or capacity to engage and work with communities. One informant reported, “there are only a few of us in this office, and only a couple involved in the climate piece. We work nights to do these [outreach] events.” An interviewee from Philadelphia asks, “how can we justify some of these costs, when our city government can barely be solvent. How can we convince you to spend money on something that is hypothetical and not immediate?” Contacts in Baltimore, Boston, Phoenix, Chicago and Denver described the important role that foundations are playing to support staffing and related programs for community engagement efforts. Cities such as Philadelphia, Las Vegas, Denver and Baltimore cited important support they were receiving from federal grants or initiatives. However, one informant described specific funding challenges associated with FEMA, which specifies that cities are required to re-build what was there before the disaster occurred, a paradoxical concept in terms of sustainability and developing a resilient community.

Monitoring and Evaluation. Important to building resilience among communities is engaging them in the process of identifying not only needs and assets, but also evaluating the efficacy and impact of programs and processes on vulnerable communities. Several cities documented challenges with evaluation, including often limited resources and funding to do so as well as narrow timelines. For example, one city official stressed that when it comes to measuring progress toward climate change goals, three years is not sufficient time to demonstrate significant improvement. For this reason, as this official cited, most assessments being undertaken are considered process evaluation. For example, evaluation plans described by Boston and Baltimore intend to measure progress toward goals such as number of trees planted, number of people attending meetings and number of emergency kits created. Denver discussed their evaluation efforts that build on an existing system of processes and procedures from the Environmental Management System (EMS) to track progress toward adaptation goals. In addition, many cities discussed the very challenge of defining how to measure progress in advancing or achieving resilience. As one informant stated, “we don’t have a standard definition of what resilience and vulnerability are, and no real collective agreement on what is resilience. How can we measure anything when we don’t have consensus on what the concepts mean?” Despite these challenges, however, there was a general recognition of the importance of beginning to move to develop common measures to monitor impact and outcomes of various resiliency programs for communities of color. Perhaps a potential starting point for many cities may lie in drawing on promising international tools, such as the Participatory Monitoring and Evaluation, Reflection, and Learning (PMERL) Manual, produced jointly by the International Institute for Environment and Development and CARE International Poverty, Environment and

Climate Change Network, which aims to facilitate the evaluation process, providing guidance on how to develop and integrate community-based participatory practices.⁹⁹

Individual Barriers

Climate change is not among top priorities for communities. Key informants from all cities acknowledged that climate change is often not a priority for vulnerable and low-income communities of color given the range of many other day-to-day priorities that take precedence—e.g., making a financial living, safety, violence, among others. One key informant described the difficulty in convincing individuals who face dire needs in the present to plan for future events such as climate change. Another informant echoed this sentiment and stated:

It's hard to go into a community (scrambling for what they'll have for dinner) and tell them to get flashlight with batteries, not to throw trash into drain, when they are trying to survive on a day to day basis. That is a difficult thing to stomach. We provide opportunities to give them materials they need or require them to do it on their own – in the meantime, their lives will improve if we do it all together and build their community to make it more sustainable and more resilient.

Outreach and communication is difficult among communities who may not have access to cell phone or the internet, so face-to-face education and training become key.

Informants also shared that the uncertain nature of climate change and its impacts also made it more difficult for individuals, businesses, and communities to grasp its importance. As one individual stated: “Getting people to think ahead and make that short-term investment to plan for emergencies [is a challenge].”

Language and communication barriers. Our review and interviews confirmed findings from past research which suggest that language—and in particular, limited English proficiency—can pose a considerable barrier to communities in their ability to understand and initiate efforts to build resilience to climate change. In the context of building a communities’ capacity to respond to heat waves, a recent study summarized challenges associated with language:¹⁰⁰

Members of ethnic minority language groups can be doubly vulnerable through poor living conditions and exclusion from access to English-based media and health messages. The linguistic barrier faced by those who are not proficient in the main language of the country can affect their ability to follow weather reports and instructions from government organisations and service providers, including information aimed to increase awareness and reduce the impact of excessive heat. Accordingly, this can hinder understanding of heat warnings, potentially leading to reduced uptake of adaptive behaviour messages and greater risk of heat distress.

Cities in our study with large multi-ethnic and immigrant communities reinforced this contention, citing the importance of targeted efforts that engage community representatives, ethnic media outlets, and other ethnic entities to identify needs, languages spoken, and framing of climate change in appropriate cultural and linguistic contexts. In addition to English language proficiency, our interviews revealed a second dimension of communication that is key to reaching communities of color—and that is the channel or means by which messages are communicated. In particular, many

stressed that outreach and communication is difficult among communities who may not have access to cell phones or the internet, in which case they emphasized the need to invest in face-to-face education and training.

Other Challenges

Many other challenges to addressing climate change resilience in communities of color were identified in our review. For example, skepticism toward climate change in general was identified as a salient barrier. In addition, at least three informants cited political challenges, such as “getting people on the same page” as well as shifting political priorities as barriers to achieving progress in city climate change adaptation efforts. Other representatives stressed the challenges associated with continuously and actively engaging community members and local stakeholders in the lengthy process of climate change planning. Finally, as some key informants suggested and as is discussed in the literature, a lack of permanence for climate change initiatives also complicates efforts. While task forces and advisory groups are developed to put a climate action plan in place, they commonly fail to continue convening once the plan is released.

“Perhaps the most common shortcoming was the immediate disbanding of advisory task forces and coalitions once the plan was developed. This lack of continuity and failure to create explicit and participatory structures within city governance for the development and facilitation of implementation strategies often resulted in poor or non-existent implementation of climate action plans. Furthermore, lack of resources, poor prioritization of actions, and failure to engage and capitalize on existing city activities led to inaction upon the completion of the planning process.”¹⁰¹

VII. RECOMMENDATIONS

Addressing community resilience to climate change is a unique opportunity to also invest in building community capacity and create communities with individuals who are armed with necessary knowledge and tools to enable them to cope with, respond to, and recover from climate-related or other emergent threats. While cities are generally at various stages of addressing climate change adaptation, there are at least a common set of priorities that all can consider as they work to build, renew, or improve their climate change adaptation plans to be more inclusive of vulnerable communities of color—especially those most susceptible, but often less engaged and explicitly integrated in efforts to prepare for and respond to a changing climate.

The following recommendations build on the experience and promising work of cities included in this study, as well as knowledge and experience drawn from other fields, in particular public health and emergency management—both of which are inextricably linked to efforts for building community resilience to climate change. In addition, these recommendations emphasize that targeting climate change goals alone, without including or integrating it into other city-level programs or priorities may inhibit engagement and positive action. Establishing a “home” for climate change planning and programming within more encompassing initiatives is likely central to success.

Integrate climate change priorities with broader community goals. Conclusions from our review reinforced the contention that building community resilience to climate change for vulnerable communities of color will require integrated, concerted planning and actions. Cities that were making the greatest progress toward climate change adaptation with a focus on vulnerable populations emphasized the need to incorporate adaptation into broader plans or policies around sustainability, health, economic viability, and related local objectives. This is an especially tactful way of addressing a controversial priority in more conservative quarters, while also an avenue for addressing climate change as part of more fully funded, supported, or developed initiatives. For example, as one city official shared:

It’s helpful to put the climate preparedness concerns in a broader context of community health and community resilience. It gives us another framework to look at it. We are starting to think more about indicators for measuring what climate resilience is. Maybe one way to think about climate resilience is to think about overall health of residents of our city. Healthier populations can meet with extreme conditions to bounce back.

Another interviewee echoed this sentiment and described that her city was framing climate change concerns and actions in the context of her community’s most pressing priority: the safety and well-being of youth. In this way, the city has worked to build greener and safer environments for the next generation, as is described in this city official’s remarks:

In our city there is a huge focus on safety and education which are very essential to a healthy city. Those take priority over the climate-related work that we’re doing. We see a more holistic system, one in which we can provide educational opportunities, get kids outdoors, make spaces better, enhance education and enhance greater resilience and sustainability.

Another concrete opportunity for localities is to frame resiliency in the context of broader emergency preparedness and management efforts, as cities such as Baltimore and Oakland have done, to build on lessons learned as well as existing programs and funding. Following Hurricane Katrina in 2005, for example, which disproportionately affected impoverished African American and other diverse communities, governmental agencies and committed organizations made

considerable progress to explicitly address and advance the integration of communities of color in preparedness planning. In particular, a national initiative emerged known as the **National Consensus Panel on Emergency Preparedness and Cultural Diversity**, supported by the federal Office of Minority Health, which issued a national consensus statement stressing the importance and urgency of integrating the needs of diverse communities in emergency planning and response. The statement was also featured in the Institute of Medicine's 2009 **Guidance on Crisis Standards of Care for Use in Disaster Situations**:

Integration of racially and ethnically diverse communities into public health emergency preparedness is essential to a comprehensive, coordinated federal, state, tribal, territorial, and local strategy to protect the health and safety of all persons in the United States. Such a strategy must recognize and emphasize the importance of distinctive individual and community characteristics such as culture, language, literacy, and trust, and promote the active involvement and engagement of diverse communities to influence understanding of, participation in, and adherence to public health emergency preparedness.¹⁰²

Following the statement, the Panel issued eight guiding principles and toolkit, emphasizing the role and importance of engaging communities of color in planning, education and training, risk assessment, communication, and evaluation, among other priorities.¹⁰³ Since then, many other efforts spearheaded by public health or emergency management agencies have emerged that may offer a direct opportunity to tap into resources, experience, and support for action around climate change.^{104, 105}

Other informants described initiatives that build on existing successful city-level programs and work to integrate goals related to climate change adaptation. For example, one city official shared his city's efforts to encourage commercially viable farms on abandoned lots and rooftop farming. While these initiatives are not specifically climate programs, they help to green the city and contribute to reducing storm water runoff, and cooling local temperatures as well as create jobs and economic opportunities. These broad-based goals are described by multiple interviewees:

My goal is not to have a climate adaptation plan because I want it to be so integrated that we don't need a separate plan.

Some of the effort is to try to understand what makes communities different, what makes them more or less resilient. And need to focus on community improvement in a broader way.

Understanding vulnerability is critical to everything we do, not just in terms of climate, but public health and understanding disparities

Partner with community-based organizations and other nonprofits representing communities of color. Building resilience to climate change requires a recognition that communities are at the core of identifying and addressing their vulnerability and capacity, provided they are armed with information, resources, and tools to do so. To this end—and as many of the leading cities are doing—establishing partnerships with non-profit and community-based organizations anchored in communities of color is important to assuring these communities are involved, reflected, and reached through any effort to build resilience. Doing so requires not only identifying potential, trusted partners but also recognizing that their involvement will be ongoing, and

By performing outreach to community groups, faith institutions and local ethnic media, cities can disseminate messages and build community capacity through trusted resources.

thus charting opportunities to support and engage them from planning and implementation through evaluation.

Community organizations make critical partners in working to address climate and other priorities as they are often anchored in communities as well as recognized and trusted for their efforts over the years. In some communities, such groups and organizations have a long-term presence, a deeper understanding of high priority community needs and how to address them as well as a sophisticated understanding of science and technical issues. In New York, an environmental justice organization, ***WE ACT for Environmental Justice***, has a strong history of working with not only the communities themselves, but also academic organizations and the health department to advocate for the needs of vulnerable populations. Adding climate change resilience goals to their repertoire is a natural extension of their work. Key informants emphasized that building effective community partnerships is more likely to lead to success if these efforts start by targeting *their* priorities—whether it be teen pregnancy, youth violence, asthma, or others—understanding that building these partnerships, and working with organizations that have a history of addressing such priorities with vulnerable populations takes time.

Recognizing the central role of community partners, some cities are considering making “partnering” a required, if not strongly desired, deliverable. In Oakland, for example, the ***Oakland Climate Action Coalition*** highlighted that local agencies, and in particular those in emergency preparedness and disaster response, are encouraged to establish relationships with community organizations to identify neighborhood needs through assessments, evaluate capacity to respond to climate change and disaster effects at the neighborhood level, and connect various city players to build capacity.¹⁰⁶ We also found that critical to establishing successful, ongoing, and trusted partnerships and community collaboratives is leadership support including an influential and respected voice. As one key informant shared:

Under our new mayor, these issues are pervasive. We are all aware of the notion of gathering diverse input and representation, and we integrate it into what we’re doing. We are working hard and take seriously the need to involve all sectors of the community. It’s a theme of what we do.

Identify overlap in climate adaptation goals with other city-level planning efforts. Our review revealed significant city-level challenges related to funding, baseline capacity and resources. Almost all cities indicated some level of difficulty with implementing adaptation planning and implementation efforts based on limited financial support, inadequate technical expertise or experience or lack of staff to carry out such endeavors. Several key informants highlighted ways in which climate change adaptation planning could be made more efficient through recognizing common characteristics with other agency planning and programming efforts. A best practice that emerged was to identify existing agency plans and create a spreadsheet of strategies to pinpoint areas of overlap. One key informant described her department’s progress in ensuring that adaptation planning goals are integrated and streamlined with other city-level plans in place:

There are so many plans in different city agencies and they often are siloed. Our department is working to identify overlap, bring them together to meet goals of various plans as well as connect with lead agencies and lead stakeholders. We are doing so in a comprehensive manner so that we’re not doing it 25 times.

Many cities identified integrating climate change adaptation planning with ***All Hazards Mitigation Plans***, which is mandated nationwide. Doing so allows multiple uses for the required needs assessment which can be tailored under the framework of both hazards mitigation and climate

change adaptation. According to one report, climate change adaptation should be a multi-stakeholder process involving city agencies responsible for:

- “1) developing, assessing, and repairing public infrastructure that could improve community resilience to climate change;
- 2) providing key services during climate-related emergencies; and
- 3) managing municipal budgets for City programs and projects.”¹⁰⁷

In addition, cities can engage local agencies in working with vulnerable communities to recognize how their current public works programs can begin to incorporate climate change adaptation goals. For example, in the context of sea level rise, public works and utility departments can undertake activities such as undergrounding of electrical lines, and sewer maintenance to mitigate the impact of this climate change concern. The city’s CERT programs can train vulnerable communities to respond to recurrent extreme weather events such as flooding and droughts. Furthermore, the city, in partnership with community groups, can work with lead agencies responsible for these programs and projects to tailor their planning documents to account for the expected climate change impact among local communities.

Engage low-income communities of color in climate adaptation by supporting economic opportunities. Many cities in our study leading in efforts to advance climate change adaptation have committed considerable resources to creating economic opportunities in the green sector. These cities have recognized the two-pronged benefit of investing in the green sector: first, it brings financial vitality to communities, which is a critical backbone to building resilient communities; and secondly, it offers a sustainable means of advancing more environmentally-friendly practices in the community. Green jobs are defined by the Bureau of Labor Statistics as “jobs in businesses that produce goods and provide services that benefit the environment or conserve natural resources.”¹⁰⁸ This includes jobs in renewable energy, energy efficiency, pollution reduction and removal, greenhouse gas reduction, organic agriculture and recycling. Over 3 million jobs in the U.S. in 2010 were considered “green,” with the greatest growth taking place in the nation’s 100 largest metropolitan centers, now accounting for over two-thirds of green jobs.¹⁰⁹

Following the recent economic recession, many cities ramped up their green sector to create new economic opportunities for some of the hardest hit communities. In fact, the Brookings Institute reported that five urban centers, including three also included in our study—New York, Chicago, and Philadelphia—that have shown greatest green economy growth also have significant Black and Latino populations.¹¹⁰ The same study reported that 41% of these jobs offer upward mobility, or medium- to long-term career building and training opportunities that provide a pathway out of poverty for many historically underserved communities.

Building a commitment to creating such economic opportunities in the green economy will need to start early—as many cities in our study have done—targeting young adults, especially those who drop out from high school and those without a college education. For example, in the western suburbs of Chicago (a community with 83% African Americans, 37% population below federal poverty level, and high rates of food insecurity) the **Cook County Green Corps** provided a 5-month green job training program to 30 African American young adults (18-24 years) to build related knowledge, skills, and participation.¹¹¹ The program provided experiential education (both hands-on and classroom-based) in environmental coursework, garden work, farm work, and community outreach “to help young adults enter green collar jobs, build awareness of social justice issues, and support positive community development.”¹¹² Outcomes from an evaluation of the program

suggested considerable success in the ability of trained participants to engage their community around climate-related actions, as is reflected in the following statement from the study:

Trainees discussed the positive affect the program had on the community and their engagement with their neighbors. They described the program as being an opportunity to inform and educate parents and children about sustainability and urban environmental issues.¹¹³

The private sector, including the green economy itself, philanthropy and other government-based agencies all could play an important role in investing in programs like the Cook County Green Corps to create educational and economic opportunities that have a lasting effect—both on individuals and their families as well as in efforts to engage community members around climate priorities.

Identify creative ways to leverage funds for climate adaptation. Financial support to plan for and implement climate change adaptation efforts, especially in terms of focusing on vulnerable communities, was a top challenge identified in our review. Perhaps one of the greatest opportunities for addressing climate-related priorities for vulnerable communities, as described previously, is to take an integrated approach, identifying synergistic opportunities with other city and sector-specific priorities. For example, educating communities and building their resilience to withstand the effects of extreme heat may be addressed in the context of funding opportunities for public health. Creating community gardens as a way to build greener communities may be seen as part of an approach to address not only a climate-related priority but also to create healthier communities and to ameliorate concerns around food deserts. Representatives across leading cities described various strategies to use financial support and resources to achieve climate adaptation goals:

A good strategy for climate resilience funding is to try to leverage that work – it takes a lot to engage with the community around any public health issues, and there is increasing awareness that addressing health disparities also involves looking at underlying community conditions such as walking environments, physical activity, healthy food access. This presents an opportunity to incorporate climate work into these other public health efforts. Funding for diabetes management, for example, you could look at why people with diabetes may be at increased risk for health effects of heat.

Many people have been kind and donated services to this process. We didn't have the resources or expertise to develop any new tools. We used the greenhouse gas tool developed by the EPA for the municipal and community level. Our group also partnered with our local university where students used the greenhouse gas tool as part of the project.

In addition, philanthropy has played—and will likely continue to play—an important role in advancing efforts to address climate change for vulnerable populations, including communities of color, the elderly and pregnant women. However, one resource cautioned that garnering philanthropic funding for grants can often be a lengthy process as developing relationships with funders in order to gain a positive response to a proposal can take six months to a year.¹¹⁴ Nonetheless, such a commitment of time and resources may be necessary as some research has suggested that even modest philanthropic support for communities' adaptation efforts can lead to long-term significant impact. Private foundations in particular are an important resource to support community engagement efforts in cities. In Boston, community engagement was supported by the **Barr Foundation** and the **The Boston Foundation**. In Chicago a committee made up of non-profit leaders, foundation representatives and interested businesses was developed to work toward adaptation planning with support from the **Legacy Fund**.

As our review and interviews suggest, new and continuing support for climate change and community resilience might be targeted for the following priorities:

- Local science by scientists in communities of concern;
- Investing in neutral conveners;
- Supporting community advocacy for change;
- Building the field to share adaptation strategies; and
- Reframing the dialogue around people and social benefits.¹¹⁵

Finally, our resource review suggests that local governments should identify areas where residents may be willing to donate time or resources in the form of recording meetings, copying and advertising among other tasks when funds for such activities are very limited.¹¹⁶

Assure climate change messages are clear, non-partisan, and culturally and linguistically appropriate. Research documents that effective strategies for educating and communicating with communities of color requires tailoring information to reflect and address regional, financial, cultural, and linguistic circumstances.¹¹⁷ Several programs that directly address culture and language are already emerging in some localities. Generally, these programs offer support to provide culturally-appropriate and relevant translated information on ways individuals can participate in preparedness, mitigation, and adaptation—e.g., reducing individual carbon consumption, knowing where cooling centers are located during extreme heat, planting trees, weatherization, recycling, among other topics.^{118 119}

Also important, as many key informants reflected, is the need for clear communication to advance climate change adaptation, and in particular, in efforts to involve diverse communities. Recommendations stress the need to avoid technical language or jargon related to climate science in communicating with local politicians or with lay community members. One city representative noted the importance of non-partisan wording and unbiased language as critical to gaining support for initiatives that may be unpopular among some officials. In another city, recommendations from the climate change advisory committee also emphasized the need to avoid overuse of acronyms or confusing language. Clear communication is paramount when engaging with local community members, including using phrases other than “climate change” where possible. For example, in conducting outreach and town hall events among local community representatives, several straightforward questions were posed, such as: “how did this storm impact your house?” and “did your power go out?” The city representative stressed that simple questions more effectively engage some audiences and encourage participants to volunteer information. Discussion on climate change is framed under larger topics such as health, safety or economic vitality which allows most community members to relate more easily to proposed goals or strategies. The key informant states:

Avoid overuse of acronyms or confusing language. Clear communication when engaging with local community members is suggested, and often the words “climate change” are not used.

It's a lot easier to say we are going to see more of these storms and they are getting worse. Let's brainstorm together how we can make it better. It's a more effective way to allow them to frame conversation in a way that is more important to them.

Community-level advocates in Oakland agreed with this concept. According to one report, "prevailing ways of talking about climate change by scientists and the media were too technical and future-oriented to seem relevant to people's everyday lives [...] They also stressed the importance of popularizing technical information about local climate impacts and adaptation options to make it more accessible to community residents. For example, drawing on people's experiences with past events like heat waves and flooding can contextualize information about what climate change means in terms of increased frequency or intensity of these events and help convey the relevance of adaptation planning to their lives."¹²⁰

VIII. CONCLUSION

Without exception, the cities we have portrayed have recognized the threat climate change presents to their residents, economy and way of life. While some are at earlier stages of integrating their diverse populations into their plans, all have also come to realize how their vulnerable (and most often) diverse communities are likely to suffer some of the greatest ill effects. And while they differ in how far they have come, individually and collectively they offer a wealth of experience, success, promise and continuing challenges for informing other urban areas and regions across the country. Of equal value is that they document “ground level” efforts of potentially significant value to national and international discussions on climate change effect and response where it matters most—in communities and where people live and work.

Many of these cities are living examples of how those affected are coming to understand not only the severity of these threats, but also how any response of substance must be broad and concerted in scope. As such, many initiatives extend far beyond reacting to concerns but reinforcing the “foundations” of these communities—education, by working with schools and directly with community based organizations, employment by creating “green jobs,” and the economy by encouraging energy conservation and alternative energy sources for example. In so doing these cities, without exception, have worked to engage public and private sectors broadly and to link them to community priorities.

Finally, these cities have understood or are coming to realize that engaging communities fully and effectively lies at the heart of any success. However, in doing so, the considerable variation in integrating culturally and linguistically diverse residents and neighborhoods into plans and actions demonstrates the need for greater commitment of resources and initiatives that directly address their lives and their needs. In a nation built on the richness of its great and growing diversity, doing so is not an option but where we must succeed in adapting to our changing climate.

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