

# Looking Forward



## Accountability and Next Steps

Successful implementation of this Columbus Climate Adaptation Plan (CCAP) hinges on accountability. While it is outside the scope of this plan to assign actions or estimate costs, a number of suggested practices include: (1) assigning a responsible department to address each action, (2) requiring that departmental leadership report on progress annually, (3) providing an annual public summary of progress, and (4) providing a budgetary allocation to fund climate adaptation actions outlined in this document.

CCAP was drafted with the intent to provide a reasonable number of mission-related initiatives to each city department. Proper implementation of the actions described in this report necessitates specific technical knowledge inherent to various city departments. Thus, these departments should assume leadership roles in project planning, assigning duties, and executing actions. For each action, the lead department should assemble a timeline with intermediary targets and performance indicators to guide their efforts. Development of these targets and indicators will help measure progress and articulate budgetary, resource, and staffing needs. To achieve timely action, departments should assume responsibility for developing intermediary targets and performance indicators by 2020, and these items should be collected and added to the CCAP as a supplement.

Efforts should be reported annually in departmental progress reports. These reports could then be consolidated into a larger Columbus sustainability report, published each year, that could map the completion status for each action. This process would create consistent, updated, department-wide communication of progress, while also keeping City leadership and Columbus residents informed. The existing *Sustainable Columbus*

website could serve as the repository for these reports.<sup>1</sup>

For initiatives, such as the many educational campaigns outlined in the CCAP, Sustainable Columbus could also provide consistent guidelines for programs that are led by individual departments but fall under the umbrella of climate adaptation. For efforts that involve collaborations between departments, the City sustainability staff that comprise Sustainable Columbus could also serve as discussion facilitators. With access to deep knowledge of the issues and collaborators outside of city government, Sustainable Columbus is best positioned to navigate the many voices at the table through changes in policies and operations.

To assume the additional workload, the City could allocate funds related to climate adaptation for departments to utilize. Funds should be allocated for sufficient staff to assemble the annual reports and facilitate inter-departmental collaboration around climate adaptation.

The annual sustainability report should include a table documenting progress toward completion of each action item, in addition to a brief summary of accomplishments over the current year. As action items are completed, they will no longer need to be addressed in the annual updates; rather, content regarding completed actions could be collected on the Sustainable Columbus website. This website can provide the public with access to the full list of action items and progress toward each action's completion. Much of this evidence will exist on department-level websites in the form of reports and planning documents, education curricula, online training, and supporting materials. Combined, the annual sustainability report and Sustainable Columbus website could serve as a publicly-available progress report to the electorate. Cities such as *San Francisco* serve as an example.<sup>2</sup> A well-designed website provides visually appealing

information, highlights particular programs when desired, and allows users to query content in diverse ways.

The City may wish to periodically employ an independent third party to provide an assessment of climate adaptation progress. Such a third party provides an external voice to city government that may authenticate progress. The City's reporting through the **CDOP** might sufficiently fulfill this objective.<sup>3</sup>

Implementing the actions contained in this report will involve a financial investment from city government with additional support from key partners. While some actions can be achieved by building on programs already in place, others will require expansion of existing programs or the creation of novel programs. It is important to put this investment in context by remembering that failure to adapt to climate change is likely to result in significant costs borne by both the public and private sectors. Thus, investment costs for climate adaptation should not be compared with those of inaction (a cost of \$0), but rather future costs to be incurred by both the public and private sectors for responding to climate impacts for which we have not adapted. These are likely to be considerably more expensive than the adaptation costs themselves.<sup>4</sup>

### **Scanning the Federal and State Landscape**

Over the last decade, federal and state policies have failed to take aggressive measures to reduce greenhouse gas emissions. Some actions taken at the federal and state levels in recent years have been undermined or are facing threat of repeal.<sup>5, 6, 7</sup> Likewise, some climate research efforts and programs that support climate adaptation have become targets for budget cuts.<sup>8</sup> While economic forces are beginning to move the energy economy toward greater efficiency and renewables, our current emissions

trajectory is projected to remain significantly too high to avoid serious climate impacts.<sup>9, 10</sup> Thus, Columbus and other communities across the country face the need to plan for climate impacts with great uncertainty of the regulatory tools, potential resources, and data and research infrastructure that will be available to both mitigate and adapt to climate change. At the same time, insurance and financial institutions are beginning to factor climate resilience into calculations that impact the availability and costs of risk-reduction tools and loans.<sup>11, 12</sup>

City governments are often the first line of defense for vulnerable populations and are likely to receive significant animus from citizens that identify city response to disasters as inadequate. Unfortunately, failures of planning are often not fully realized until after a disaster occurs. The City of Columbus, through its commitment to the Global Covenant of Mayors and by signing the We Are Still In Declaration, has declared that it intends to be a leader related to Climate Change initiatives. The City should continue to engage other municipal and regional governments, non-profit organizations, businesses, and residents on climate change initiatives. Lastly, the City should continue to share climate related information with citizens to improve the public awareness of climate threats, and so that they can understand why budget dollars are being allocated toward climate adaptation.

### **Development Within the City**

Regional planning documents, such as **insight2050**, provide projections of growth in Central Ohio by 2050. By that year, an additional 1 million people are anticipated to move into the region.<sup>13</sup> Insight2050 provides a continuum of scenario options for how development may proceed. It ranges from expansive, regional growth primarily utilizing undeveloped land to dense growth in existing urban areas through

infill of previously-developed land. Scenario A: Past Trends focuses on “suburban and rural, auto-oriented development” and would result in greater land consumption and resource investment. On the other end of the continuum, Scenario D: Maximum Infill would result in the least land consumption, least building energy use, least building water use, and lowest greenhouse gas emissions. This scenario is the least expensive to construct, operate, and maintain; has the lowest associated public health costs; and has the lowest household costs associated with vehicles and residential energy and water use.

Moving forward, the City will need to holistically weigh the costs and benefits of the development practices that it elects to pursue, including the impacts on natural systems. Scenario D on the continuum proposes a less expensive route that is more aligned with the actions articulated in the CCAP. Planning will require the City to mitigate the negative water quality, air quality, and urban heat effects new development has the potential to cause. Likewise, regional conversations will be necessary, as the actions of each community impact its neighbors. Scenario D represents a departure from past practices, which more closely align with Scenario A, and will require some paradigm shifts in how development is approached by professionals at all levels if it is pursued.

Besides pursuing development more aligned with Scenario D, the City could consider creating a technical advisory board to help inform overall development principles or review specific projects. Such an advisory board might include key individuals from the departments of public utilities, public health, public safety, recreation and parks, and neighborhoods. Each would have a specific lens through which to review principles or projects, informed by the work of their professional training and department’s responsibilities.

## Considerations for the Future

The CCAP serves to inform decisions made in the immediate future but will need to be periodically updated to remain relevant over the longer term. For instance, the National Climate Assessment, a document written at the federal level with contributions from innumerable technical experts, is required by Congress to be updated every four years. The City should determine a regular schedule by which to re-examine the city’s climatology and climate change impacts, and revisit risks, vulnerabilities, and recommended actions.

As with most communities that have developed similar documents, this plan will likely serve as the first time that many individuals in local government have considered the local impacts of climate change. By the time that this document is next updated, consideration of climate impacts will hopefully become common practice for city departments. Likewise, to be most successful in making Columbus climate resilient, this knowledge needs to be accessible to and inform actions of business owners, non-profit organizations, and residents.

There are a number of climate change impacts on the horizon that could be relevant to Columbus, but the details are poorly understood at this time. Each are complex issues intertwined with forces well outside of direct City control. Therefore, it is important that the City monitor these additional risks while taking the specific actions outlined in the CCAP.

### *Migration*

With sea level increasing at an accelerating rate, coastal communities along the eastern U.S. are experiencing greater inundation and erosion. In other areas of the country (e.g., the western U.S.) drought is becoming an increasingly common occurrence, resulting in groundwater depletion and water resource shortages. With plentiful

water, a temperate climate, and relatively fewer natural hazards, the Midwest could be an attractive location for individuals and businesses to relocate under future climate scenarios. Important considerations will need to be made well in advance to comfortably accommodate these climate migrants. Without taking into account this potential influx of people, MORPC has estimated population growth of Central Ohio by 2050 to be 1 million. This is an increase from three years ago when MORPC estimated growth of 500,000 people.<sup>13</sup>

*Food Production*

Columbus is dependent on a food system that is intricately linked to locations outside of its borders. Climate change impairs food production and distribution through phenomena, including

but not limited to, droughts, intense rainfall events, and floods. These events impact both residents of the city and businesses located throughout the region. Likewise, shocks to the food system (e.g., sudden lack of supply) could increase prices, exacerbating food insecurity that is already a challenge for some of the city’s most vulnerable populations.

*Pests*

Climate change is adjusting the growing ranges and extending the growing season of pests that impact ecosystems, agriculture, and people. For example, climate change has already contributed to significant damage to ecosystems, as we have seen in western U.S. forests with the bark beetle and aquatic systems in the midwestern U.S. with algal blooms. Humans have been directly

**Adaptation Process**



**Figure 5.** Climate adaptation depicted as an ongoing effort involving continued stakeholder engagement.<sup>14</sup>

impacted by expanded cases of vector-borne infections including Lyme Disease, dengue, chikungunya and Zika. Experts generally agree that future climate change impacts will bring new pest threats to ecosystems, agriculture, and people.

#### *Social and Intergenerational Justice*

Any development that causes damage to a public “commons”, negatively impacts existing private or public infrastructure, or necessitates future costs by the city to mitigate long-term damage it creates, can breed resentment among community members. A situation such

as this has arisen in Findlay, Ohio surrounding a plan to mitigate flooding from the Blanchard River.<sup>15</sup> Intense rainfall events that have become more frequent and severe with climate change, combined with recent development throughout the watershed, have created multiple flooding events in downtown Findlay. Addressing the flooding issue has pitted different members of the community against one another as they decide how best to resolve the problem. Thus, development practices today can create questions of social and intergenerational justice well into the future, some which may be exacerbated by climate change.

# References

- <sup>1</sup> City of Columbus. “Sustainable Columbus.” City of Columbus. <https://www.columbus.gov/sustainable/>. (Accessed Oct. 2018).
- <sup>2</sup> City of San Francisco. “Climate Plans & Reports.” San Francisco Department of the Environment. <https://sfenvironment.org/climate-plans-reports>. (Accessed Aug. 2018).
- <sup>3</sup> “Home.” CDP. <https://www.cdp.net/en>. (Accessed Oct. 2018).
- <sup>4</sup> Ricke, K., L. Drouet, K. Caldeira, and M. Tavoni. “Country-level social cost of carbon.” *Nature Climate Change* (2018): 1. <https://www.nature.com/articles/s41558-018-0282-y>. (Accessed Oct. 2018).
- <sup>5</sup> Nathan Rott. “Trump Moves To Let States Regulate Coal Plant Emissions.” National Public Radio. Aug. 21, 2018. <https://www.npr.org/2018/08/21/639396683/trump-moves-to-let-states-regulate-coal-plant-emissions>. (Accessed Oct. 2018).
- <sup>6</sup> Coral Davenport. “Trump Administration Unveils Its Plan to Relax Car Pollution Rules.” New York Times. Aug. 2, 2018. <https://www.npr.org/2018/08/21/639396683/trump-moves-to-let-states-regulate-coal-plant-emissions>. (Accessed Oct. 2018).
- <sup>7</sup> Camila Domonoske. “Trump Rolls Back Obama-Era Flood Standards For Infrastructure Projects.” National Public Radio. Aug. 16, 2017. <https://www.npr.org/sections/thetwo-way/2017/08/16/543712263/trump-rolls-back-obama-era-flood-standards-for>
- <sup>8</sup> *infrastructure-projects*. Accessed Oct 2018. Paul Voosen. “Trump White House quietly cancels NASA research verifying greenhouse gas cuts.” *Science*. May 9, 2018. <https://www.sciencemag.org/news/2018/05/trump-white-house-quietly-cancels-nasa-research-verifying-greenhouse-gas-cuts>. (Accessed Oct. 2018).
- <sup>9</sup> Figueres, Christiana, Hans Joachim Schellnhuber, Gail Whiteman, Johan Rockström, Anthony Hopley, and Stefan Rahmstorf. “Three years to safeguard our climate.” *Nature News* 546, no. 7660 (2017): 593. DOI:10.1038/546593a.
- <sup>10</sup> Intergovernmental Panel on Climate Change. “Global warming of 1.5°C. An IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.” IPCC. <http://www.ipcc.ch/report/sr15/>. (Accessed Oct. 2018).
- <sup>11</sup> United States Government Accountability Office. *Climate change: financial risks to federal and private insurers in coming decades are potentially significant*. Washington, D.C.: U.S. Govt. Accountability Office, 2007. <https://www.gao.gov/new.items/d07285.pdf>. (Accessed Oct. 2018).
- <sup>12</sup> Moody’s Investors Service. “Climate change is forecast to heighten US exposure to economic loss placing short- and long-term credit pressure on US states and local governments.” Moody’s. Nov. 28, 2017. [https://www.moody.com/research/Moodys-Climate-change-is-forecast-to-heighten-US-exposure-to-PR\\_376056](https://www.moody.com/research/Moodys-Climate-change-is-forecast-to-heighten-US-exposure-to-PR_376056). (Accessed Oct. 2018).

<sup>13</sup> Calthorpe Associates, MORPC, Columbus District Council of the Urban Land Institute, and Columbus 2020. “The Report.” insight2050. <https://getinsight2050.org/the-report/>. (Accessed Aug. 2018).

<sup>14</sup> Melillo, J. M., T.C. Richmond, and G. W. Yohe. *Climate Change Impacts in the United States: The Third National Climate Assessment*. U.S. Global Change Research Program. 2018. 841 pp. doi:10.7930/JOZ31WJ2.

<sup>15</sup> Nolan Rosenkrans. “Plans to end flooding divide region.” The Blade. May 30, 2017. <https://www.toledoblade.com/local/2017/05/30/Plans-to-end-Blanchard-River-flooding-divide-region.html>. (Accessed Oct. 2018).