Weathering the Future: Charting a Course for Fiscal and Climate Sustainability

PICA Pennsylvania Intergovernmental Cooperation Authority

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In this Report

INTRODUCTION

The last year brought the impacts of climate change to the forefront as people across the United States battled wildfires in California and Hawaii, smoke sweeping in from Canada,[1] a Mississippi River saltwater breach that put access to clean drinking water at risk in Louisiana,[2] and flooding across the East Coast in the wake of Hurricane Ophelia.[3] People around the globe are bracing for climate emergencies, and these extreme events are expected to only get more frequent and more disastrous in the future. Assessing the total cost of needed climate investments is complex and more research is needed to fully understand the extensiveness of the issue.

One study from the Center for Climate Integrity estimates that Philadelphia will have to spend $3.3 billion on infrastructure by 2040 to adapt to climate change. That comes out to about $190 million per year, most of which ($110 million) would be dedicated to increasing storm drainage capacity to protect Philadelphians from flooding.[4] For comparison, the entire FY24 new borrowing authorization for all new General Obligation capital investments was $214 million and the Philadelphia Water Department's was $695 million. Municipal governments, like the City of Philadelphia, are on the front lines of responding to climate events, yet face tension due to their limited resources: invest in climate mitigation and resilience now or put it off for the future?

The Government Finance Officers Association (GFOA) identifies climate disasters as a risk to local governments' financial security, and FEMA has found that local governments can see 5-6% decreases in revenue and lower bond ratings as a result.[5] Investing in climate mitigation and resilience is an issue of long-term fiscal stability. Cities that prepare for the oncoming challenges of climate change may see long-term cost savings on energy usage, infrastructure resilience, emergency management, and more while increasing city desirability by making climate investments that result in health and safety improvements for residents. These investments work as a form of insurance against future climate catastrophes, lessening future damages and costs. Some of the approaches municipal governments are taking to fund climate readiness include:

1. **Climate budgeting**
2. **Creating climate funds through sales and other taxes**
3. **Issuing bonds for climate investments**

Funding strategies explored

Climate readiness is emerging as integral to fiscal stability. The City of Philadelphia is already taking steps to prepare for climate change, including switching to renewable energy sources, expanding its urban forest through the Philly Tree Plan, creating a Climate Change Adaptation Program to minimize the impacts of climate change on Philadelphia's water systems, and engaging sustainability and resilience recommendations in Capital Program planning. This report explores how varied approaches are setting municipal governments up for long-term success, and what the City of Philadelphia can learn from its peers.

Promising practices from municipalities leading in climate preparedness include:

- **Adding a climate-related scoring matrix to the annual budget process similar to the racial equity scoring already utilized by the City of Philadelphia.**
- **Implementing the climate scoring matrix through either a centralized model that embeds staff within a single department, such as the Budget Office, to coordinate climate-related budgeting requests or a robust decentralized model in which officers in specific departments use the matrix to evaluate requests.**
- **Creating new revenue streams for climate-related investments while being mindful of placing a larger tax burden on Philadelphia taxpayers, particularly vulnerable populations.**
- **Maintaining an adequate fund balance as a safety net for climate-related emergency costs that are later reimbursed by FEMA and extreme weather events that do not qualify for FEMA assistance.**
- **When appropriate, issuing additional bonds for dedicated climate investments. Evaluate on a case-by-case basis whether to pursue Environemental, Social, and Governance (ESG) designation to attract additional investors.**

SECTION 1

Why is PICA concerned with climate sustainability?

As a financial oversight board, the Pennsylvania Intergovernmental Cooperation Authority's (PICA) responsibilities include the ongoing monitoring of the City of Philadelphia's fiscal planning and stability. PICA supports the City of Philadelphia in allocating money in ways that are efficient, prudent, and future-oriented and considering how policy choices and budget priorities today impact the years to come. In cooperation with PICA, the City of Philadelphia has undertaken more long-term financial planning enabling improved credit ratings and higher fund balances.[6]

The PICA Act, which created the Authority in 1991 and was updated in 2022, states that it is PICA's responsibility to "foster the fiscal integrity of cities of the first class to assure that these cities provide for the health, safety and welfare of their citizens,"[7] among other things. Part of planning for long-term fiscal integrity is the ability to anticipate and prepare for future fiscal challenges when possible, knowing that these challenges pose risks to the health, safety, and welfare of Philadelphians. The effects of climate change are already being experienced in the city, with temperatures rising and extreme events becoming more frequent. This pattern is expected to continue. Philadelphia will face water supply challenges, neighborhood displacement, more health issues, less access to fresh food, diminished services, and infrastructure damage.[8] These events can be prepared for, prevented, and mitigated with efficient planning.

Climate Sustainability for Fiscal Sustainability

The GFOA identifies climate events as a significant risk to fiscal stability that municipal governments ought to prepare for with adequate reserves. Numerous climate-related events do not qualify as an "emergency" eligible for FEMA assistance, and, even when FEMA resources are available, it can take months or even years for assistance to arrive and costs to be reimbursed.[9] Even when emergency declarations are issued and funds are eventually allocated, they often do not address all unfulfilled needs. The increase in the number of natural disasters in recent years has contributed to more fiscal volatility. After a natural disaster, local government revenue may decrease by 5-6% and bond ratings may drop.[10] These economic costs are in addition to the immeasurable costs to human life and suffering brought on by climate change.

Apart from climate preparedness being essential to fiscal risk management, climate investments made today have proven returns in the long run. Examples include:

- **For every dollar spent on environmental disaster mitigation, six dollars are saved.[11] This increases to seven dollars saved for every dollar spent on preemptive mitigation in riverine flood-prone areas.[12]**
- **There's a 4:1 benefit ratio to mitigation construction that goes beyond code requirements.[13]**
- **Retrofitting existing buildings and updating utilities for climate mitigation saves four dollars for every dollar spent.[14]**
- **Thriving wetlands prevented an additional $625 million in losses from Hurricane Sandy.[15]**
- **It is estimated that for every 1-degree Fahrenheit temperature increase during the summers, state-level growth is slowed by 0.2%, which compounds over time.[16]**

These financial benefits add to the considerable benefits that Philadelphians would receive in terms of quality of life, health, and security that come from climate preparation. Other cities have experienced positive economic impacts from their climate investments, focused on two areas crucial for

fiscal stability: long-term cost savings and city desirability. First, municipal governments justify budget costs for climate investments now with savings later, whether it be from installing energy-efficient LED streetlights or from resilience capital projects that mitigate and prevent future flood-related disasters to prevent the worst outcomes. Second, climate investments increase city desirability, something at the forefront of budget considerations. When making investment decisions, budget offices are concerned with making sure their city is a place where people want to live and work. Without residents, cities lose their tax base. If climate risks are not planned for and mitigated, a city will no longer be safe and livable for residents.

Climate investments today mean cost savings and a more desirable city tomorrow.

Further, the GFOA highlights how environmental, social, and governance (ESG) factors affect a city's credit profile and, thus, its ability to issue bonds. According to GFOA, "The increase in the number of extreme weather events in recent years has raised public awareness about climate change. Investors and rating analysts are not just looking to see if risks are present, but also want information regarding what plans a government has to address these risks."[17] The GFOA released a set of best practices for governments to consider. Action steps are:

1. Identify environmental risks
2. Consider how risks could impact government operations and its financial position
3. Disclose considerations
4. Provide information on mitigation or adaptation efforts[18]

While climate investments have proven returns and contribute to long-term fiscal stability, it is important to recognize the opportunity costs inherent in municipal budgeting. The City of Philadelphia, like any other municipal government, has limited resources and must make difficult decisions about what programs and services to fund. Contributing more resources to climate mitigation, adaptation, and resilience means that there are fewer resources available to invest in other policy priorities. All Philadelphians, and especially those most vulnerable to climate change, would benefit from climate investments, but, likewise, all, and especially those most vulnerable, would feel the effects of scaling back other programs and services to afford these investments. Climate investments can also be more difficult to allocate resources for as they may not seem like the most pressing or immediate needs like, for example, public safety and anti-poverty priorities. It is for this reason that exploring various funding and budgeting options is important so that the City can find solutions most fitted to its unique situation.

What is the City of Philadelphia already doing?

The City of Philadelphia has already taken steps to lessen the impacts of climate change. Some recent climate-related investments include the Philly Streetlight Improvement Project, which cuts carbon emissions by upgrading streetlights to more energy-efficient LEDs and is funded by sustainability bonds (bonds whose proceeds are pledged toward green projects), and Adams Solar,[19] a solar energy farm acquired in 2018 that may begin producing electricity for the City by the end of the year.[20] Through the annual budget process and Capital Program planning, the Budget Office, Office of Sustainability (OOS), and Department of Planning and Development work with other departments to allocate climate-related funding.

Office of the Director of Finance

The City has performance metrics with targets, some of which are sustainability and climate-related, which it keeps track of and publishes in its Budget Detail, Five-Year Plan, and Quarterly City Managers Report. Climate-related initiatives and investments are vetted through the annual budget process. The Office of Sustainability supports the Budget Office review of departments' annual budget testimonies, which include responses to climate resilience risks and mitigation efforts. In addition, the Office of the Director of Finance ensures that the City follows GFOA's best practices for disclosing ESG risks, considerations, and efforts.

The City also pursues climate-related federal funding initiatives, like those available under the Inflation Reduction Act and a grant allocation of a $163M Hurricane Ida Community Development Block Grant- Disaster Recovery from the U.S. Department of Housing and Urban Development, as well as state Guaranteed Energy Savings Act (GESA) projects to reduce utility spending where feasible. Savings from GESA projects help pay debt service for borrowings that fund climate initiatives.[21] The Office of Sustainability also pursues federal and state grants and philanthropy opportunities. In recent years, the City has received:

- FEMA Technical Assistance Grant for grant application development

- $450K Flood Mitigation Assistance grant
- $80K FEMA Cooperating Technical Partners grant
- $1M EPA Environmental Justice Government to Government grant
- $500K from the William Penn Foundation for the Lower-Schuylkill Place-based Resilience work
- $100K from the William Penn Foundation for a green stormwater infrastructure cooling benefits analysis
- $30K Bloomberg Justice 40 Fund for an Eastwick Ambassadors program
- ULI Technical Assistance Panel to workshop the Eastwick land swap concept[22]

Office of Sustainability

Source: OOS logo

The Office of Sustainability partners with government agencies and organizations citywide to improve the quality of life in Philadelphia neighborhoods through addressing environmental justice, reducing the city's carbon emissions, and preparing Philadelphia for a hotter and wetter future. It is made up of four teams:

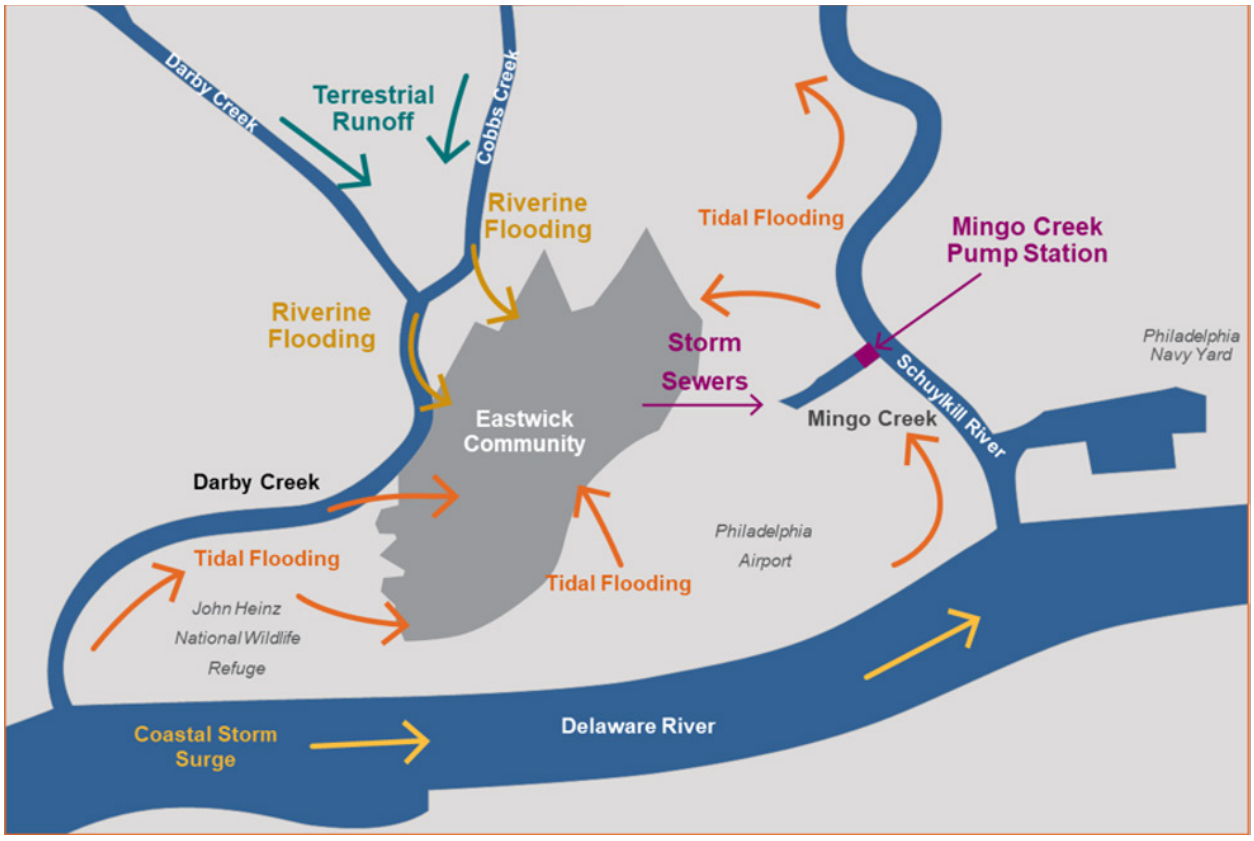
1. The **Environmental Justice team** advances environmental justice through education, policy advising, directly resourcing frontline communities, and supporting the resident-led Environmental Justice Advisory Commission.
2. The **Climate Solutions team** advances Philadelphia's citywide equitable clean energy transition to meet climate goals through building energy benchmarking and performance policies and is developing an energy poverty alleviation strategy through philanthropic support and Inflation Reduction Act funding opportunities.
3. The **Municipal Energy Office** reduces the City's carbon footprint through strategic management of its energy portfolio by reducing energy use, using smart procurement, and increasing the use of renewable sources.
4. The **Office of Climate Resilience** communicates climate risk and develops programs, policies, and place-based strategies that reduce risk, protect residents, address historic injustice, and improve quality of life.[23]

Three teams within the OOS aid in climate preparation. The Climate Solutions team and Municipal Energy Office seek to reduce Philadelphia's carbon footprint. The Climate Solutions team leads the City's clean energy transition by building energy benchmarking and performance measures.

The Municipal Energy Office accomplishes this by managing the City's energy portfolio to reduce energy use, utilize smart procurement, and increase the use of renewable sources.[24] The Office of Climate Resilience aims to build resilience to climate change and advance environmental justice by understanding and communicating climate risk and developing programs, plans, policies, and place-based strategies that reduce risk, protect residents, address historic injustice, and improve quality of life. It engages in citywide resilience planning, including a Citywide Climate Vulnerability Assessment, and is updating the resilience plan.[25]

The Office of Sustainability also works with City agencies on their climate mitigation and resilience budget requests. To help City departments embed resilience into projects and operations, the Office of Sustainability is updating the City's climate science and application guidance and conducting a high-level climate vulnerability assessment.[26] Another part of its work is to engage in projects designed to reduce City agencies' energy costs and consumption and provide utility usage projections for the budget year and Five-Year Plan.[27]

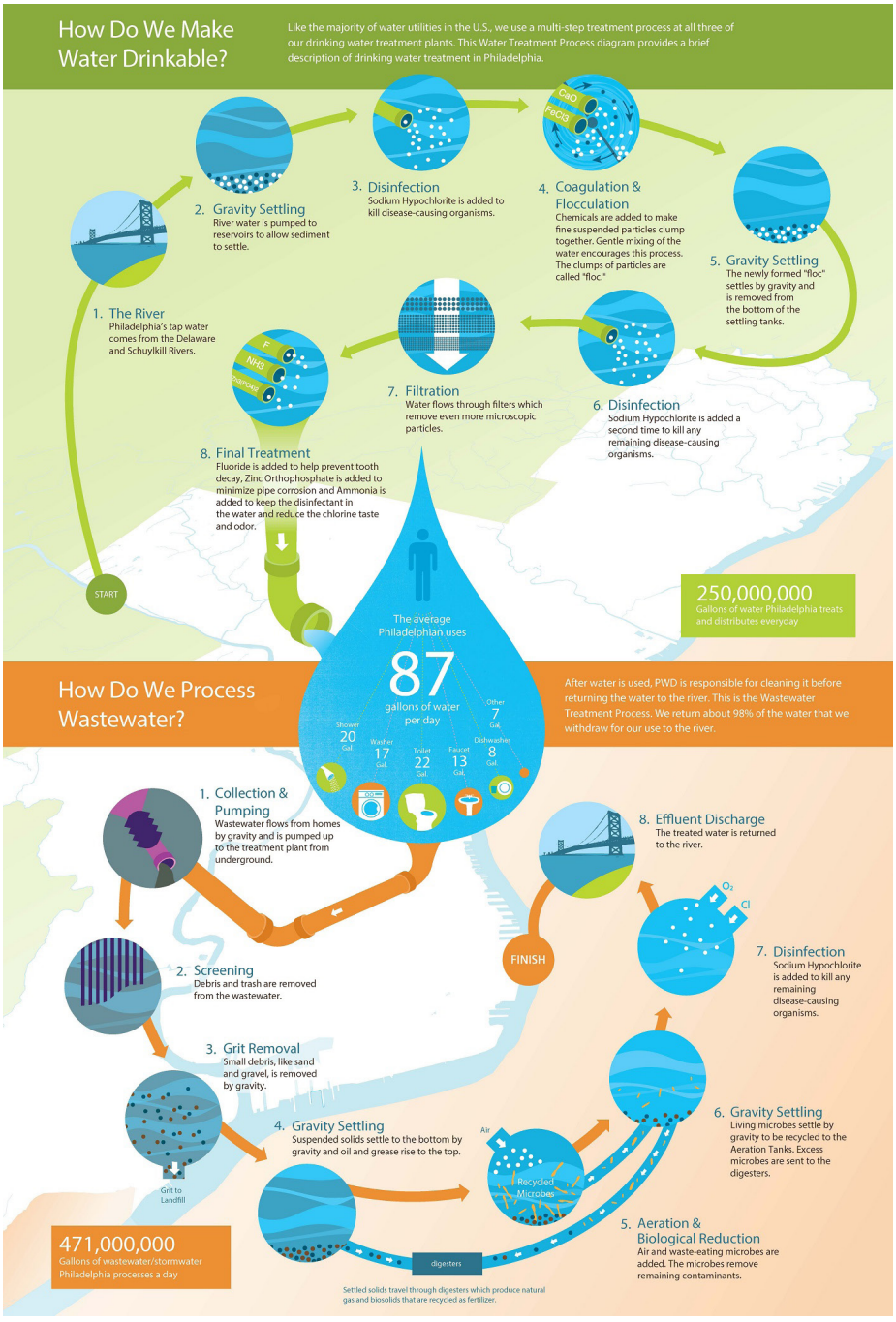
The Office of Sustainability has identified pressing needs for the City. OOS reports that coordinated Citywide resilience plans, programs, projects, and policies that specifically address climate change have largely not occurred. Another key need is the development of a comprehensive flood resilience plan for the Eastwick neighborhood. OOS heads the *Eastwick: From Recovery to Resilience* initiative, a location-specific resilience program. This initiative collaborates extensively with various City departments, residents, stakeholders, and multiple governmental partners including FEMA, EPA, Fish and Wildlife, PEMA, Delaware County, and others, to tackle flooding issues. Recently, the City secured a $450,000 Flood Mitigation Grant to create this comprehensive flood resilience strategy.



Source: https://www.phila.gov/2023-10-12-city-releases-rfp-for-eastwick-flood-resilience-strategy/

Philadelphia Water Department

The Philadelphia Water Department (PWD) is an integral department in the City's fight against climate change. PWD takes a proactive approach in preparing for and mitigating climate change impacts by: 1) reducing dependence on fossil fuels by utilizing renewable energy, increasing efficiency and employing resource recovery strategies; 2) studying climate science and performing comprehensive risk assessments to understand how these impacts will affect drinking water, wastewater and stormwater systems; and 3) adapting to the expected changes by implementing proactive, cost-effective strategies. PWD focuses on enhancing its stormwater drainage systems to manage increased rainfall by utilizing climate change projections to inform standard sewer designs and through implementation of drainage system projects that reduce localized flooding risks and combined sewer overflows (CSOs). The department prepares for climate changes, like extreme weather events and drought, by developing robust emergency response plans that ensure the security of the city's water supply. It also invests in green infrastructure like rain gardens, green roofs, and permeable pavements and implements energy-efficient technologies and renewable energy sources to reduce greenhouse gas emissions. PWD also conducts research to understand the impacts of climate change on Philadelphia's water systems and engages with the community through education programs about water conservation, stormwater management, and the impacts of climate change on water resources.



Source: https://water.phila.gov/drinking-water/sourcewater-issues/

To respond to the City's growing climate risks, PWD established its Climate Change Adaptation Program (CCAP) in 2014. This program aims to understand and mitigate the risks and costs that

climate change poses to PWD, focusing on the city's drinking water, wastewater, and stormwater systems. CCAP actively stays updated with the latest scientific findings, regularly consults climate experts, and conducts thorough assessments to create cost-effective adaptation strategies, integrating them into existing programs and processes. A key objective of CCAP is to incorporate climate change considerations into every aspect of infrastructure planning, design, and operations. To achieve this, CCAP introduced Climate-Resilient Planning and Design Guidance, which provides resilient design flood levels and practical tools for assessing risks from sea level rise, storm surges, increased precipitation, and higher air temperatures on PWD's systems. In 2022, PWD made it a department-wide policy to apply this Guidance in the planning, design, and construction of all its projects, where feasible. By embedding climate information into PWD's planning and design practices, the department aims to ensure its long-term investments remain functional and cost-effective in the face of climate change impacts.[28]

Other Departments

Numerous departments beyond OOS, PWD, and the Office of the Director of Finance are involved in climate mitigation and resilience planning. For example:

- **The Office of Emergency Management released an All-Hazard Mitigation Plan in 2022 which represents the City's plan to mitigate the impacts of natural and human-caused disasters and threats to public safety.[29]**
- **The Department of Public Health maps heat vulnerability throughout the city.**
- **The Parks and Recreation Department invests in equitably growing Philadelphia's urban forest, which improves air quality for residents while combatting climate change-induced heat and flooding issues, through the Philly Tree Plan.**
- **The City has several committees, including the Environmental Justice and Climate Resilience Committee, Flood Risk Management Task Force, Air Pollution Control Board, Excessive Heat Steering Committee, and Hazard Mitigation Plan Steering Committee, that involve representatives from several departments to meet regularly to mitigate risk, build resilience to climate change, and handle climate emergencies.[30]**

These efforts demonstrate that climate investments exist throughout the City's budget making it challenging to calculate the City's climate-related investments as they are embedded in an array of programs and departments.

City of Philadelphia climate resilience publications include:

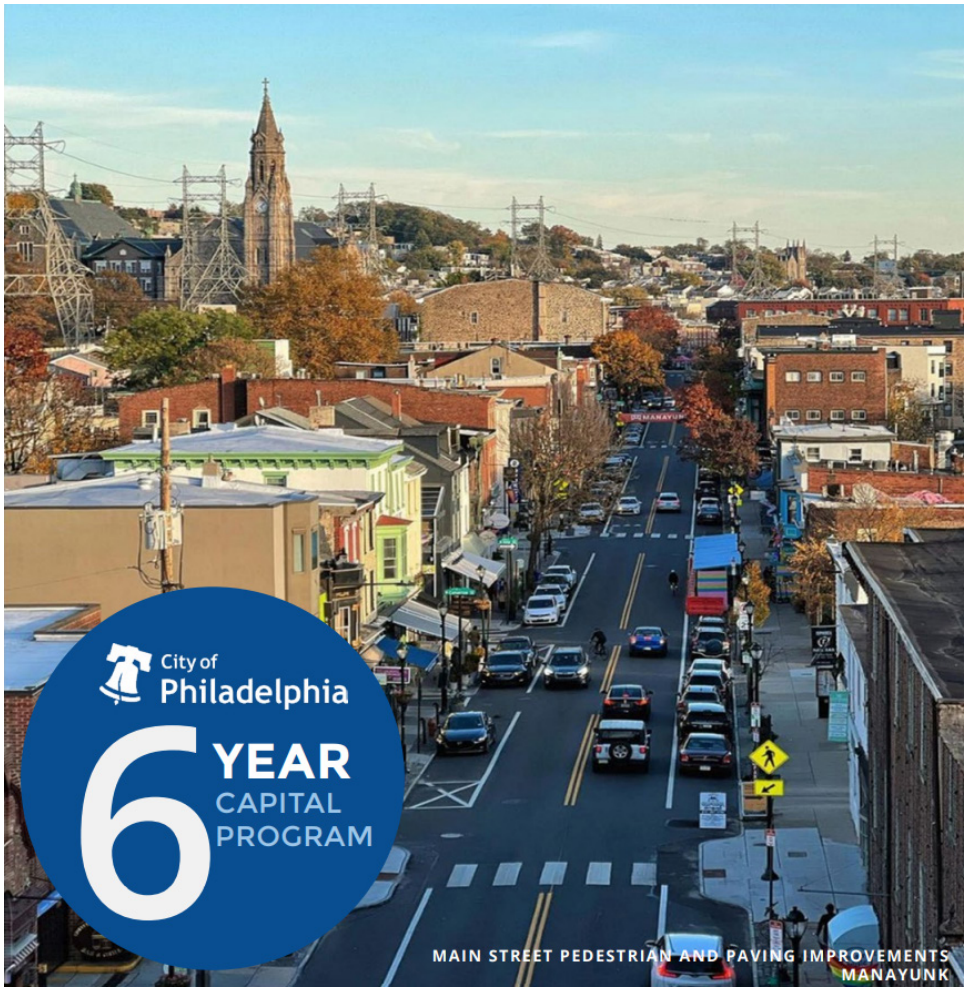
Hazard Mitigation Plan
Describes environmental hazards that affect Philadelphia and City projects that can mitigate their impact.

Climate Action Playbook
Outlines the City's climate goals and what it's doing to meet them.

Climate Change Adaptation Program
Provides an overview of how this program is protecting Philadelphia's water systems.

Capital Program

In addition to the General Fund budget, climate resilience is considered in the City's capital budget development and allocations. The Philadelphia City Planning Commission (PCPC) uses the capital budget as a tool for advancing sustainability, climate mitigation, and climate adaptation by educating departments about project-specific climate needs, funding opportunities, and planning strategies. In the FY25-30 Capital Program process, PCPC and the Budget Office provided instructions and resources for departments to comply with climate resilience regulations and practices. PCPC recommended that departments conduct risk assessments using climate projections of capital project requests. The Office of Sustainability and the Philadelphia Water Department regularly participate in yearly departmental capital request meetings. Their role is to provide resources and pinpoint projects that are susceptible to climate-related risks. In terms of development, PCPC promotes sustainable and resilient design practices. They recommend specific land-use and building performance standards for zoning appeals to the Zoning Board of Adjustment, particularly for properties in areas prone to flooding. Additionally, PCPC oversees the enforcement of updated landscaping and tree regulations, offers support letters for climate-related grant applications, and engages in various steering and working groups focusing on climate adaptation and hazard mitigation. They also champion the integration of resilience strategies in both community and comprehensive planning efforts.[31]



Source: https://www.phila.gov/media/20230802133249/Capital-Program-FY2024-2029-and-Capital-Budget-FY2024.pdf

What do other cities do?

Cities are increasingly recognizing the urgency of climate change and adopting innovative financial strategies to address their climate-related needs. To effectively combat climate change, cities are not only identifying key areas for environmental investment but also implementing new financial tools to fund these initiatives. This report explores three distinct approaches that cities are taking to finance their climate action plans: climate budgeting, climate taxes, and issuing bonds for climate investments.

Climate budgeting is a strategic approach in which cities incorporate climate considerations into their fiscal planning. This method involves setting specific climate targets, often aligned with global standards like the Paris Agreement, and integrating these targets into the city's annual budgeting process. By doing so, cities ensure that their spending contributes to long-term climate goals, such as integrating resilience guidelines in new capital construction, transitioning to clean energy sources, and creating green jobs. This approach mandates cross-departmental collaboration within municipal governments and increases transparency and accountability in climate-related expenditures. Examples of cities adopting this approach, like Pittsburgh and New York City, realign city resources with sustainability and resilience objectives.

A **climate tax** is a tool for climate funding. It involves imposing additional taxes, often sales taxes, or surcharges to generate funds specifically earmarked for climate-related projects. These projects often focus on renewable energy, energy efficiency, and fostering climate justice. This strategy not only helps in reducing carbon emissions but also plays a vital role in funding the transition towards a sustainable future. It can also emphasize social equity by redistributing funds towards community resilience and sustainable practices. Cities like Denver and Portland serve as examples of this approach, having successfully established dedicated climate funds through new sales taxes, guided by principles of environmental justice.

Lastly, **bonds** are another financing method cities can use to fund climate investments. They allow cities to raise capital for projects that address the aftermath of climate catastrophes, prevent such events from occurring, or significantly reduce a city's carbon footprint. This approach offers a dual benefit: providing immediate funding for necessary climate projects while offering a return on investment to bondholders through debt service. Cities have utilized this approach to fund wide-ranging initiatives, like LED streetlight conversions in Philadelphia to sea-level rise mitigation projects in Miami, demonstrating the versatility and effectiveness of bonds in climate action financing.

Each of these approaches—climate budgeting, climate taxes, and bonds for climate investments—reflects the growing trend of cities taking proactive and innovative steps to finance their fight against climate change. By adopting these strategies, cities not only work towards mitigating climate risks but also set examples for others to follow in their journey towards sustainability and resilience.

Approach 1: Climate Budget

Climate budgeting is a process that puts climate concerns at the forefront of municipal decision-making.[32] It is "a process that incorporates science-based climate considerations into the city's budget decision making process by evaluating how actions and spending today contribute to meeting longer-term climate targets."[33] Cities engaged in climate budgeting develop a Climate Action Plan that lays out specific climate targets; for example, reducing greenhouse gas emissions by a certain percentage, updating infrastructure for climate resilience, or providing a certain number of jobs in the clean energy sector. These targets are then integrated into the annual budgeting process by allocating funds sufficient to achieve the targets. Typically, the climate targets within the city's budget set up short-term actions that lead to the long-term goals set out in a Climate Action Plan. Responsibility for implementing and monitoring climate targets is then shared across the municipal government by integrating climate targets across departments. By instituting climate budgeting, the city government is also held accountable for meeting or deviating from its climate goals, effectively increasing transparency. When the city reports quarterly or annually on its fiscal and performance measures, it also reports on its climate targets.[34]

| *Pittsburgh* |

In the City of Pittsburgh, the idea of a climate budget emerged following participation in the American Cities Climate Challenge, a Bloomberg Philanthropies initiative that provided resources and support to twenty-five U.S. mayors to accelerate climate action.[35] As a part of this initiative, Pittsburgh began setting ambitious climate goals for itself, including zero-waste operations and fossil-free fleet services. However, as sustainability experts had conversations with the city finance and budget offices, it became clear that funding these goals would be a challenge. This challenge highlights a tension between new municipal climate action ideas and legacy budgeting priorities. Pittsburgh's former Chief Resilience Officer participated in an Energy and Circular Economy Exchange where ten cities learned how Stockholm integrates climate work within the budgeting process. As part of the climate action initiative, Pittsburgh contracted with an outside priority-based budgeting (PBB) organization to reform its budget so that it aligned with updated budget priorities, including funding the city's climate goals.

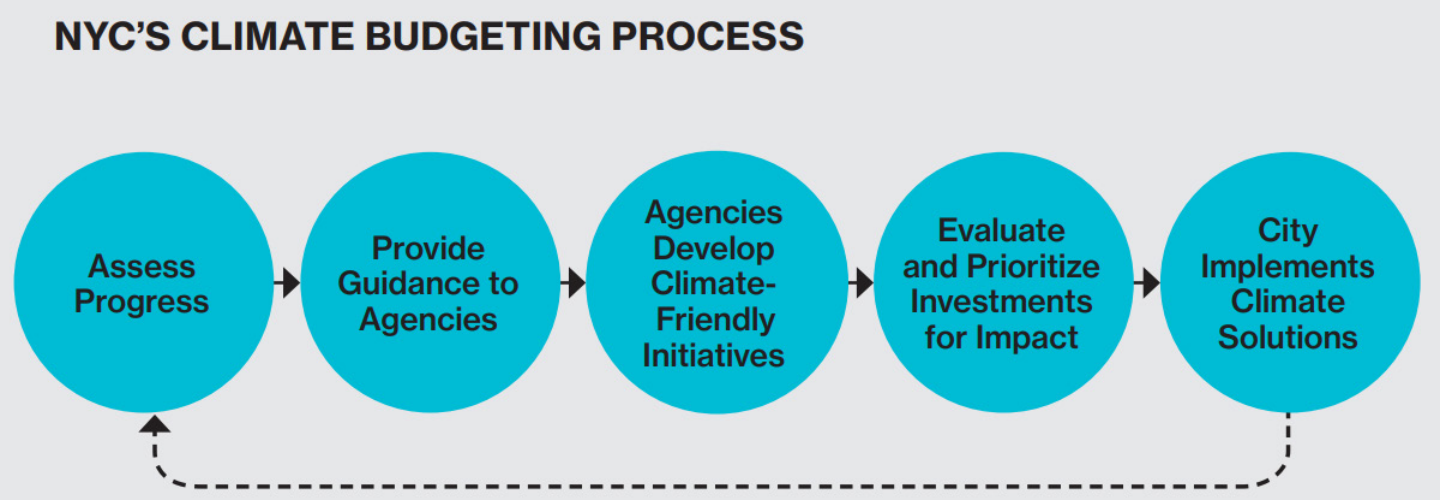
Source: https://budget.pittsburghpa.gov/

The City of Pittsburgh worked with its vendor to track every budgeted dollar to see how it aligned with climate and equity priorities. Over fifty representatives across participating city departments met for a series of workshops to present ideas to cut costs, increase revenue, and re-invest the money toward climate goals.[36] Through budget reform and a climate-first approach, Pittsburgh identified $23 million to reallocate and an additional $18 million in new revenues that can be dedicated to Pittsburgh's climate and equity goals. This was done by identifying outdated

programs and services, uncovering ways to be more efficient, sharing costs with partners, applying fees or charges for some programs, and finding new key opportunities for investment.[37] Through these processes, City officials were able to engage staff across departments and involved Pittsburgh residents in their budget engagement by offering GIS mapping so that residents can report capital needs that arise, including those related to climate. The City of Pittsburgh also conducted community surveys to identify climate risks and high-priority needs.[38]

Using this new approach, Pittsburgh can see exactly how many dollars are spent on each of its priorities.[39] This streamlined process has opened the door for more investments that combat climate risk while also aligning the City of Pittsburgh's budget with its stated priorities. Pittsburgh continues to contract with the PBB organization. New budget and planning requests are evaluated using a climate scoring matrix that the Pittsburgh Office of Sustainability & Resilience created to understand if new requests align with Pittsburgh's Climate Action Plan and, if so, which part of the plan it addresses. Pittsburgh also hired a full-time employee to manage the climate portfolio and evaluate new planning requests.[40] Overall, the City of Pittsburgh has increased transparency while also thinking about its budget more holistically.[41]

| *New York City* |

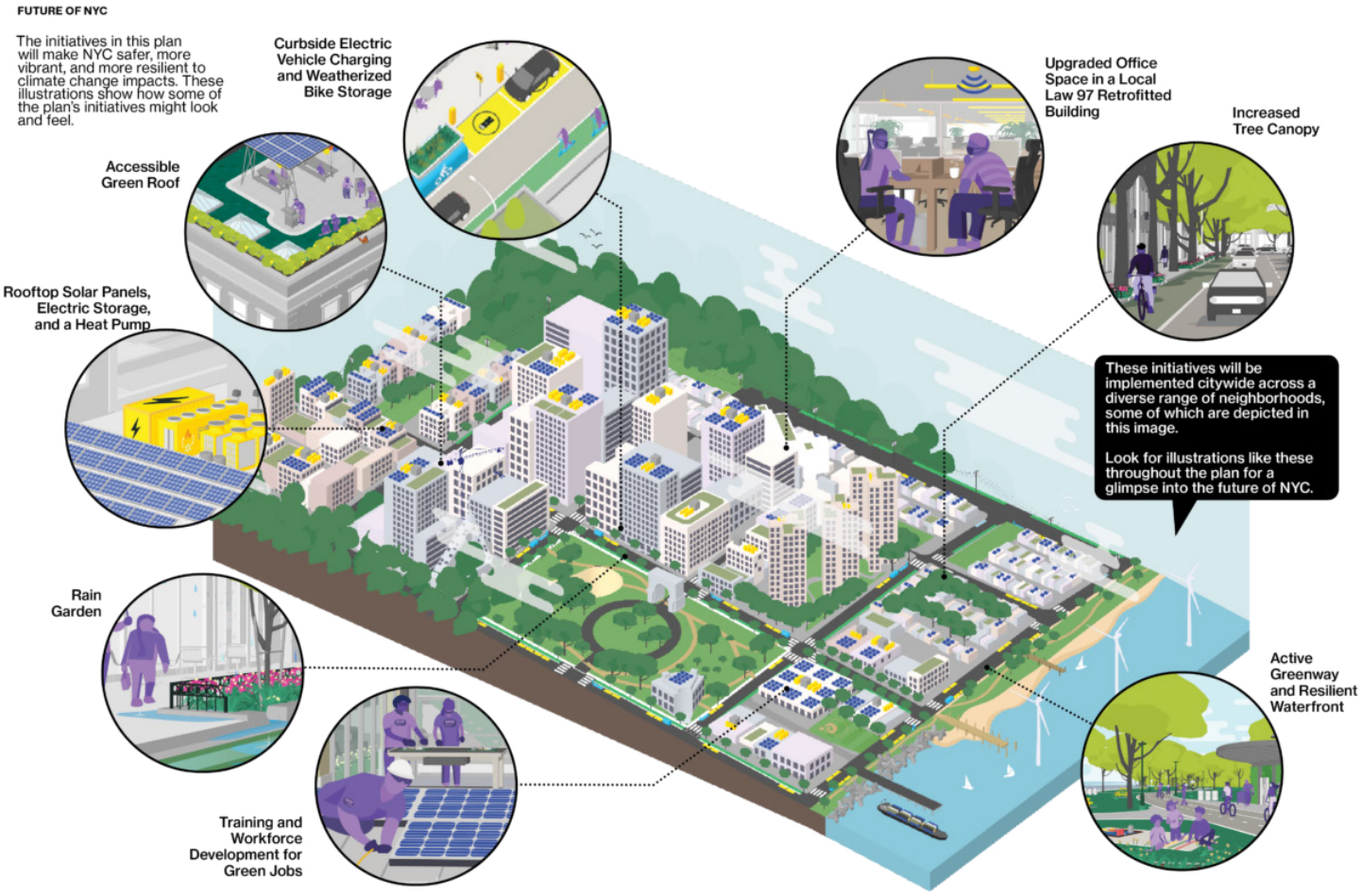


Source: https://climate.cityofnewyork.us/initiatives/planyc-getting-sustainability-done/

New York City has taken a similar approach, integrating a climate-first budgeting approach. In 2024, NYC will be passing its first dedicated climate budget. This initiative came about in the wake of Hurricane Ida, which caused heavy precipitation and flooding across the city. The City of New York's Mayor's Office wanted to do more to mitigate environmental disasters and look at the issue of climate change more holistically.[42] The City of New York has engaged in extensive work to prepare for the changes that climate change will bring, publishing PlaNYC, a strategic planning initiative that outlines the City's overall goals and action steps to achieve these goals. The adoption of a climate budget is one of the nine guiding principles of the plan. The climate budgeting approach currently underway will align the City of New York's resources with its sustainability and resilience goals.

In the upcoming NYC Budget, every capital project will be examined as it pertains to stated climate goals. Spearheading this new approach is the Environmental Sustainability and Resiliency Task Force within the Mayor's Office of Management and Budget (OMB). By creating this Task Force, climate experts are embedded within OMB to evaluate budget requests and hold NYC

accountable to its climate goals. Starting in 2024, NYC will begin to release an annual climate budget document that details progress towards aligning its budget with its climate goals.[43] The new climate budget document will showcase NYC's investments and detail the projected impacts of these investments on its long-term climate goals.[44] The cyclical climate budgeting process will include assessing and communicating NYC's progress toward its goals, developing climate-friendly initiatives, evaluating and prioritizing investments for impact, and implementing climate solutions.[45] The Task Force has worked with agencies to signal the types of projects that align with the Administration's climate goals. During budget decisions, it will be the Task Force's duty to highlight each departmental request's climate impact. The Task Force works interdepartmentally to track investments and work within the existing budget process to consider the climate implications of every project. They are also in the process of compiling an inventory of climate-related needs to evaluate and prioritize the most impactful potential actions for potential funding in the future. The Task Force will also work with Chief Decarbonization Officers placed in various agencies to speed up decarbonization efforts.[46]



Source: https://climate.cityofnewyork.us/initiatives/planyc-getting-sustainability-done/

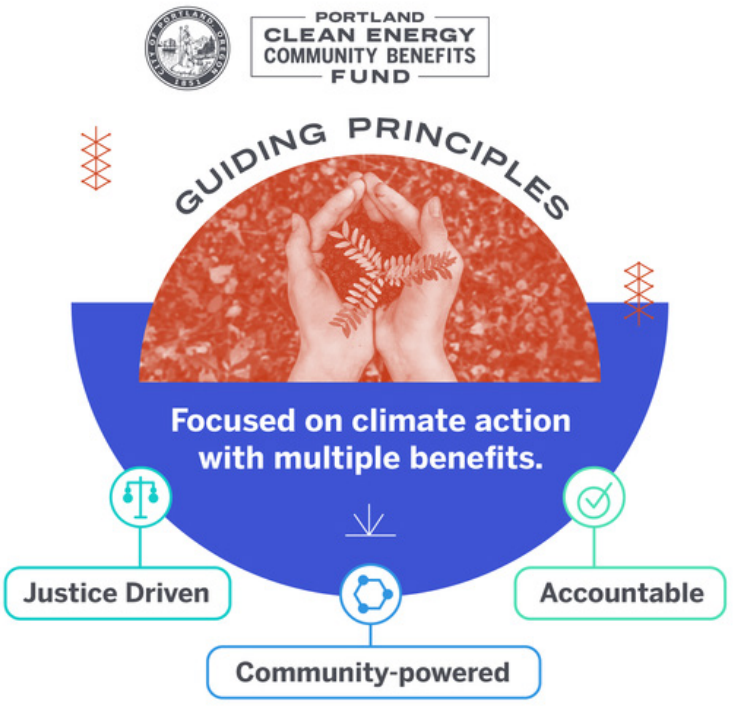
Approach 2: Climate Tax

Climate taxes are a second tool cities are using in the fight against climate change. These taxes, often implemented as surcharges or increased sales taxes, target businesses and consumers to generate revenue specifically for environmental projects. The primary objective is to fund renewable energy, energy efficiency, and climate justice projects while simultaneously driving down carbon emissions. By tapping into the financial resources of both the private and public sectors, climate taxes aim to redistribute funds towards sustainable practices, often with a focus on social equity and community resilience. Denver, Colorado and Portland, Oregon have embraced this approach and both generated first-year revenues that surpassed projections. Both cities have adopted new sales taxes through ballot measures, establishing dedicated climate funds governed by principles of environmental justice.

One difficulty with this approach is that its success is population-dependent. The cities of Denver and Portland have higher median incomes and lower poverty rates than Philadelphia. Residents of these cities are more likely to support higher tax rates for programs and services that align with their values and priorities.[47] Philadelphia would face an additional challenge in that any climate tax enacted would need to be consistent with the Pennsylvania Constitution's Uniformity Clause.

| *Portland* |

In 2018, Portland voted to create the Clean Energy Community Benefits Fund Initiative, funded by instituting a 1% Clean Energy Surcharge on large companies with $1 billion in national revenue and $500,00 in revenue in Portland— "1% from the 1%."[48] The tax is on retail sales but excludes groceries, medicine, and health care services.[49] The money generated through this tax is put into the Portland Clean Energy Community Benefits Fund (PCEF), which awards competitive grants and contracts for projects that support local clean energy, energy efficiency, and climate justice projects.[50] Its goals include reducing the harmful impacts of the climate crisis on Portland residents, creating workforce development and job opportunities, and reducing Portland's carbon emissions.[51] The PCEF generates over $100 million annually and has been used to fund green workforce programs, agriculture and resilience projects, and energy efficiency projects in the city. PCEF is not only a climate change mitigation fund, but also a community and economic development driver.[52] In 2023, an overhaul of the fund resulted in the publishing of five-year plans to ensure transparency, accountability, and the fund's future stability.[53] The current plan projects investments totaling $750 million towards in community-led clean energy projects and climate solutions, like extreme heat preparation and tree planting.[54] More recently, PCEF is playing a more critical role in Portland's financial planning as it is directly funding several climate-related programs across Portland bureaus.[55]



Source: https://www.portland.gov/bps/cleanenergy/about

| *Denver* |

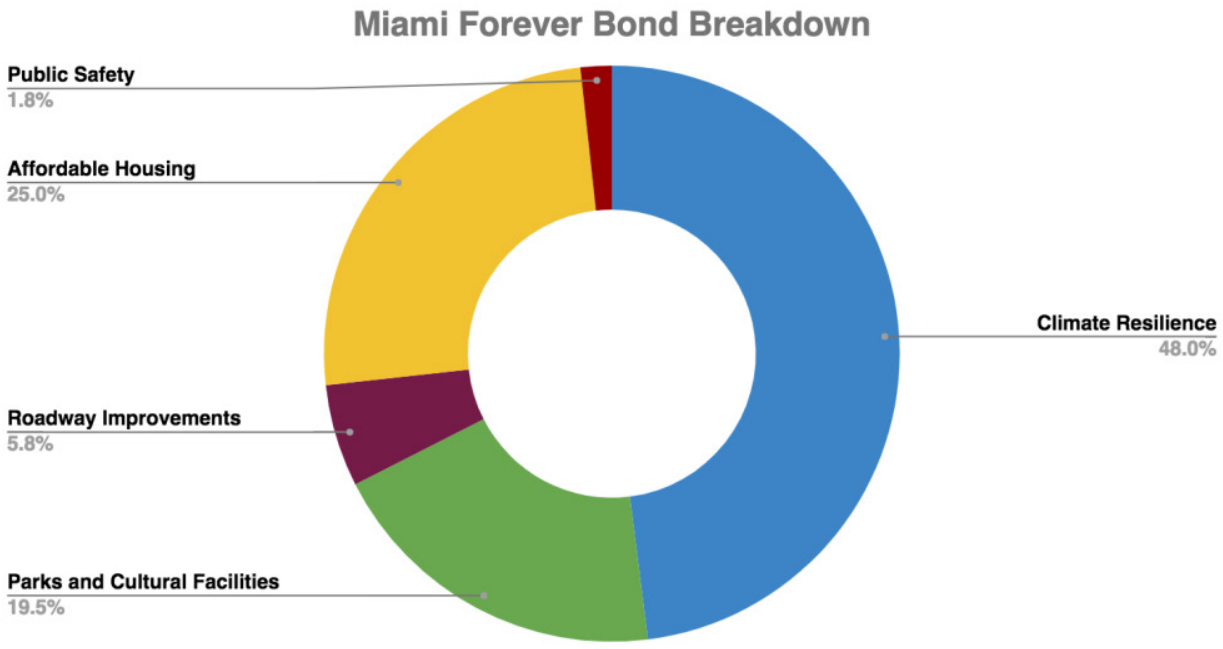
Denver voters approved a 0.25% sales tax increase in 2020 for the Denver Climate Protection Fund (CPF). The purpose of the fund is to address urgent climate mitigation needs with a focus on equity by contributing over half of CPF funds to communities most impacted by climate change. Denver leaders decided to put forward the sales tax increase as a means of revenue partly because food, water, fuel, medical supplies, and feminine hygiene products are exempt from this tax and because about 70% of sales taxes are paid by non-residents. Therefore, creating the fund through a sales tax increase was found to mitigate the impact on Denver residents.[56] In its first year, the fund outperformed expectations by generating $41 million (the projection was $40 million), committing funds to e-bike libraries (public spaces that lend out e-bikes and hold community events), green job workforce development, and community solar installations.[57] Denver also published a five-year plan for the Climate Protection Fund in 2021. The plan outlines the six allowable use categories that fund dollars can be spent on: job creation for under-resourced individuals in clean energy technology and management of natural resources, solar power and renewable energy technology, neighborhood climate justice programs, adaptation and resiliency programs that help vulnerable communities prepare for climate change, affordable and clean transportation, and energy-efficient building upgrades that reduce carbon footprints and air pollution.[58] The earlier years of the plan prioritize large-scale, high-level carbon reduction projects and climate mitigation.

The creation of the CPF has provided a stable, dedicated funding source for implementing climate change solutions. Its creation has enabled the Denver Office of Climate Action, Sustainability, and Resiliency to budget for climate-related projects over multiple years. This non-lapsing fund has created a significant advantage in terms of program delivery and project implementation over the standard one-year general fund appropriation cycle. This has benefited the City's long-term financial stability by creating dedicated funding for climate-related projects while putting less pressure for this work on the City of Denver's general fund. By creating a separate fund, climate work is prioritized and funded, and the general fund budget appropriation cycle can focus on funding Denver's other priorities.[59]

Source: https://sustainability.dpsk12.org/2021/11/05/denvers-climate-protection-fund-five-year-plan/

Approach 3: Dedicated Bonds for Climate Mitigation and Adaptation

The issuing of bonds provides another avenue cities are taking to finance climate investments. When a city issues bonds, investors can buy them, thus loaning money to the city to make necessary investments. This can be done in various ways using different types of bonds. Miami set an example in resilience financing by issuing the transformative Miami Forever General Obligation bond with huge investments in climate adaptation. Similarly, Philadelphia issued Sustainability-designated bonds for the Philly Streetlight Improvement Project. Bonds dedicated to climate needs provide funding that can both help cities after experiencing a climate catastrophe and fund projects that can prevent these catastrophes in the first place.[60] In this way, both climate risk and climate resilience can be analyzed on a dollar amount, cost-benefit basis.



Source: https://www.miami.gov/My-Government/Departments/Office-of-Capital-Improvhttps://miami-grid.com/2017/11/03/miami-forever-bond/

| *Miami* |

Miami issued Miami Forever Bonds, a type of General Obligation bond, overseen by the Office of Capital Improvements and an advisory board. The issuance was approved by voters in November 2017 and seeks to build a stronger, more resilient future. Popular support for the ballot initiative grew in the aftermath of the devastation Hurricane Irma caused.[61] The Miami Forever Bond is specifically for climate resilience investments. Nearly half of the $400 million in bonds issued ($192 million) will support sea-level rise mitigation and flood prevention. Other investments include roadway improvements, parks and cultural facilities, public safety, and affordable housing. Climate resilience is integrated into all the investments. For example, roadway improvements take into account resiliency and the restoration of parks and cultural facilities help with stormwater runoff and improve air quality.[62] The repayment of the bond (plus interest) happens through an existing 3% property tax.[63] The capital projection selection and prioritization process is based on five factors: safety, wellness and quality of life, equity, economic return, and modernizing Miami into a future-oriented "smart" city. There are three phases to Miami Forever Bond project implementation: immediate impacts, gaining momentum, and long-term solutions. The goal is to set up an effective, efficient, and sustainable practice of climate resilience investment.

| *Philadelphia* |

This approach is like one that Philadelphia undertook for the first time in the summer of 2023. It issued its first sustainability bonds to fund a $91 million project to convert 130,000 streetlights to high-efficiency LED fixtures and upgrade the entire lighting system to a smart lighting management system. The issuance was done through the Philadelphia Energy Authority and was the first externally verified sustainability transaction for the City. This project is part of the City's broader Municipal Energy Master Plan. The Sustainability Bond-funded Philly Streetlight Improvement Project (PSIP) recently won two awards:

- The Green Building United's Groundbreaker Award for Sustainable Design & Planning that celebrates major advances in sustainable design and planning for new construction, renovation, sites, and communities.

- The Alliance to Save Energy awarded the City of Philadelphia and its contractor the Energy Efficiency Award for Transportation Infrastructure, a recognition for both outstanding commitment to saving energy and inspiring industry-wide change.

Sustainability bonds are used to finance projects with both Green and Social components. Sustainability bonds require more steps for issuance and more administrative oversight because of their Sustainability designation but can help garner additional demand from investors when pricing bonds. They also serve as a way of attracting new investors looking specifically for ESG-designated bonds.

Conclusion

There is an urgent need for cities, including Philadelphia, to more proactively address climate change through strategic fiscal planning and innovative financing strategies. The devastating effects of climate change, manifested in wildfires, floods, and rising temperatures, have heightened the need for immediate and effective action. Investing in climate mitigation and resilience is not only a matter of environmental responsibility but also a critical component of long-term fiscal stability and prosperity.

Philadelphia's current efforts, such as the Philly Streetlight Improvement Project and the acquisition of the Adams Solar farm, illustrate the City's commitment to sustainability. Philadelphia can learn from comprehensive and integrated approaches being used to combat the growing climate crisis. Climate budgeting, climate taxes, and bonds for climate investments offer promising practices for Philadelphia to explore to enhance its climate readiness. These approaches, successfully implemented in other cities, have shown significant benefits in terms of both fiscal savings and improved quality of life for residents. Based on our conversations with cities that are leading on climate investment, PICA has identified promising practices the City of Philadelphia can explore:

- **Adding a climate-related scoring matrix to the annual budget process similar to the racial equity scoring already utilized by the City of Philadelphia.**
- **Implementing the climate scoring matrix through either a centralized model that embeds staff within a single department, such as the Budget Office, to coordinate climate-related budgeting requests or a robust decentralized model in which officers in specific departments use the matrix to evaluate requests.**
- **Creating new revenue streams for climate-related investments while being mindful of placing a larger tax burden on Philadelphia taxpayers, particularly vulnerable populations.**
- **Maintaining an adequate fund balance as a safety net for climate-related emergency costs that are later reimbursed by FEMA and extreme weather events that do not qualify for FEMA assistance.**
- **When appropriate, issuing additional bonds for dedicated climate investments. Evaluate on a case-by-case basis whether to pursue ESG designation to attract additional investors.**

By incorporating these strategies, Philadelphia can fortify its resilience against future climate threats while fostering a sustainable and financially stable environment for its residents. However, climate mitigation and building resilience is an immense undertaking that requires more effort and resources than municipal governments have to address their growing climate needs. Because these investments are so crucial and benefit a wide range of actors, the federal and state governments, private sector, and public need to meaningfully contribute to achieve a more sustainable future.

With the escalating frequency and severity of climate-related disasters, investing in climate needs is not just an environmental issue but a crucial aspect of ensuring long-term fiscal stability and community well-being. Governments can proactively manage the fiscal risks posed by climate events through adequate preparation and investments, which not only mitigate the immediate financial impacts of natural disasters but also offer long-term economic returns and societal benefits, enhancing the quality of life and safety of residents. However, such decisions require careful consideration of opportunity costs within municipal budgeting, balancing immediate needs against long-term mitigation and adaptation strategies. Climate sustainability is an investment in the future health, safety, and welfare of Philadelphians. Through careful planning and innovative funding approaches, Philadelphia can work towards a safer, more prosperous future for all.

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