Implementing Bethlehem's Climate Action Plan

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Alliance for Sustainable Communities *lehigh valley*

it's 3:23 in the morning

and I'm awake

because my great great grandchildren

won't let me sleep

my great great grandchildren

ask me in dreams

what did you do while the Planet was plundered?

what did you do when the Earth was unravelling?

surely you did something

when the seasons started failing?

as the mammals, reptiles, birds were all dying?….

did you fill the streets with protest

when democracy was stolen?

as the mammals, reptiles, birds were all dying?….

what did you do

once

you

knew?"

*— excerpt from 'hieroglyphic stairway' by [Drew Dellinger](.)*

Introduction

Climate change is destroying civilization as we know it. Temperatures, precipitation, flooding, and other extreme weather events are increasing in number and severity. A consensus of climate scientists recently warned that we are reaching irreversible changes in temperature, species extinction, and sea level rise. On our current track, we are not even close to meeting the UN's goal of staying under the 1.5 degree threshold[1] that would minimize the worst impacts of climate change. Each year we fail to act, the level of difficulty and cost to reduce emissions goes up. The UNEP's Emissions Gap Report[2] shows that every year of inaction means that the changes that need to happen before 2030 become more radical. Inaction will cost more—not only in dollars, but in human lives.

Climate Justice

Globally and locally, the people with the least representation and the smallest environmental impact are those who are most affected by climate change. The climate crisis reflects the same power dynamics that reinforce racism, white supremacy, and class struggle. So, climate change affects different people within our community differently. Climate action and intersects with issues of class, race, age, and ethnicity. We need to acknowledge the socio-economic and generational injustices with our responses. Though we need to act now, we also need to consider environmental/climate justice conflicts.

Low-income communities and developing nations feel the effects of climate change disproportionately. We can see this unfairness in our own community—low-income residents and residents of color live in the areas that are most vulnerable to the effects of climate change, like South Bethlehem. Since pavement and most buildings absorb and re-emit heat from the sun, a heat island effect occurs in urban areas with dense development and insufficient greenery. Excess heat causes respiratory distress, heatstroke, and heat exhaustion. Low-income residents also are less financially able to adapt to the effects of climate change, which may cause houses to flood and increase heating and cooling costs.

Our children and future generations will bear the worst burdens[3] of global warming—a future with more "natural" disasters, worse air quality, a climate refugee crisis, extreme heat, and food scarcity. They will have to deal with problems that can no longer be mitigated, but only adapted to. They do not have voices in the political process to represent them. A large majority of the politicians and lobbyists who make the decisions will not feel the effects of their inaction. Failing to take action, or prioritizing short-term profits over long-term climate action disproportionately puts the brunt of climate effects on the people who are too young to stand up for themselves or who are yet to be born. A main tenet of the 'American Dream' is for our children to have a better life than we and the generations before us did. Unless we act swiftly, essentials such as clean air and water, will be hard to come by. We need to act now.

1 in 4 people in Bethlehem are under the age of 19
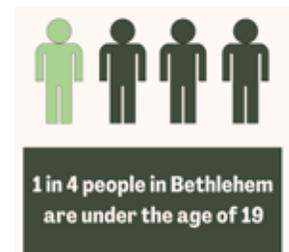
If we're not careful, critical environmentally-conscious options—such as organic food, zero-emission vehicles, and net-zero buildings—will be available only to the privileged. These are important to balance when the need for change is so urgent. Failing to take action, or prioritizing short-term profits over long-term climate action, puts a disproportionate burden on the people who can't stand up for themselves. What will your children and grandchildren think if you chose to prioritize a quick buck over their survival?

Implementing the Plan

Bethlehem's Climate Action Plan is a call for the city to take action. The purpose of this document is to highlight measures to help implement the plan. Inaction creates even graver consequences for the future.

We are calling for actions to mitigate climate change, to adapt to the predictable consequences of years of inaction, and to build resilience.

Mitigation deals with reducing greenhouse gas emissions through reducing driving, switching to renewable energy, and cutting unsustainable levels of consumption. *Adaptation* is not a substitute for mitigation—it means preparing for the predictable consequences of global warming and the climate emergency, such as heat waves, flooding, and extreme weather events by measures such as designating cooling centers for residents without air conditioning and updating the stormwater system to help prevent flooding. *Resilience* is the capacity to handle unforeseen aspects of the climate crisis, a system that has the capacity to act quickly and flexibly. Some forms of climate action both mitigate and adapt. Green space, for example, acts as a carbon sink and reduces the heat island effect, but it also creates more permeable land in the event of flooding and severe weather.

Because of the urgency of the climate crisis, we all need to work for mitigation, adaptation, and resilience simultaneously—starting right now. This cannot wait, because the effects of climate change are already reaching levels scientists didn't expect to be a reality for another 30 years. The past is not a good guide—our failure to act in the past jeopardizes the survival of future generations. Our community needs to wholly reorganize its priorities to focus on climate action.

Recommendations

Build a Solid Foundation

- **Adopt the Climate Action Plan (CAP) and GHG Reduction Targets** in accord with the City's commitment under the Global Covenant of Mayors. [CAP, pg 12]

- **Establish and staff an Office of Sustainability** to coordinate among city departments and community organizations to reduce carbon emissions, improve the quality of life of the community, and prepare the city for climate change by working to develop city-wide understanding that a healthy climate is essential for a healthy community. Focus on collaboration and including some projects that already have strong support. [M3.1]

- **Assert the primacy of the City's responsibility to protect the people who live, work, and attend school here** by adopting a Right to Healthy Climate Ordinance to prioritize Article I, §27 of the Pennsylvania Constitution. [M3.5]

- **Establish an Environmental Justice Council** to guide integration of EJ considerations into every aspect of municipal operations and planning, including all city authorities, boards, and commissions, as well as CAP implementation. [EJ1.2]

- **Enforce current ordinances that protect the health, safety, and resilience of the community**, such as requiring source separation by residents, businesses, and institutions, and prohibiting emission of dust, fumes, gases… that cause any damage to human or animal health or to vegetation.

- **Explore ways to complete the assessments, studies, and plans called for in the CAP** [page 187]. The CAP identifies areas that are vulnerable to extreme heat, pollution, and flooding, but we need additional in-depth assessments as called for in the plan.

COMMUNITY RIGHTS

Communities can take action to safeguard their primary responsibility: to protect the health and safety of their residents. Despite clear Constitutional protection, the state legislature often pre-empts municipalites from fulfilling their duties.

For example, after being targeted for disposal of fracking waste, Grant Township, PA the township worked with the Community Environmental Legal Defense Fund (CELDF) to create a community rights ordinance that bans activities such as operating injection wells.

See *National Law Review* article: 'A Fundamental Right to a Healthy Environment'

- **Work with the EAC to pass a single-use plastics ban** to reduce GHG, litter, and the micro-plastic pollution in our food and water. Ban single-use plastics and mandate that businesses and food service providers use biodegradable food packaging and offer reusable takeout containers. [FW1.1]

- **Recognize that natural gas is a major source of the GHG that cause climate change**. While there are renewable forms of gas—such as landfill gas and biogas—they are not generally available here. It is important to promote their development instead of fossil-fuel gas.

Buildings

- **Require building owners to calculate and report Energy Use Intensity** [B1.1–3].

  ☐ In Philadelphia, large commercial and multi-family buildings must file annual energy and water usage reports, allowing comparison to other buildings of similar age and size. This helps raise awareness about building efficiency and also encourages owners of less-efficient buildings to improve their buildings. [2019 Benchmarking Report]

- **Incorporate green building standards in all incentive programs for developers**—provide incentives only for buildings that meet standards for LEED Gold or better, Living Building Challenge, or Net-Zero. [B3.2]. See Architecture 2030's Zero Code, the first net-zero code standard for new commercial, institutional, and mid- to high-rise residential buildings.

- **Promote climate-healthy development by requiring sustainability assessments as part of all planning and zoning applications**.

  ☐ Several years ago, Easton updated their SALDO & zoning ordinances to require owners and developers to include a sustainability impact assessment in their proposals. It requires an analysis of adverse or beneficial impacts on health and the environment, including factors such as land cover, stormwater, historic structures and natural heritage areas, electromagnetic radiation, community and infrastructure needs, and possible alternatives.

- **Expedite approval for plans that include net-zero emissions development and renewable energy initiatives.**

- **Incentivize green roofs** using stormwater fees. [L4.1] Green roofs also help buildings mitigate both the urban heat island effect and increase resilience to flooding. See Susquehanna Township, PA.

Electricity Sourcing

- **Coordinate with the EAC to expedite solar approvals** by eliminating barriers to installing solar panels, such as the requirement that "solar devices should not be visible from the street." [E2.2]

  ☐ The Delaware Valley Planning Commission's 'Renewable Energy Ordinance Framework' provides strong rationale and guidelines for Pennsylvania municipalities to zone for solar power.

- **Increase transparency of carbon impact of electricity sources** – require all suppliers that sell electrical power to buildings and/or customers in the city to disclose carbon impact emissions factors and report it on customer invoices. Also use city website and open data portal to publicize. [E1.2].

- **Reduce barriers to installing renewable-fuel heating systems by reducing permit fees** for green or renewable fuel heating appliances. [E3.5] See 'California cities Lead the Way to a Gas-Free Future'.

- **Work with counties and school district to create a property tax exemption for solar.** [E1.4, E2.2].

- **Ask Pennsylvania legislators to support community solar.** [E4.1]

Transportation and Mobility

- **Provide a safer environment for pedestrians and bicyclists by adopting a "complete streets" approach**, including bike lanes, safe sidewalks, and access to public transit. [T1.3]

  ☐ With 'Complete Streets', good design creates a safer environment for all. They reduce inequities faced by the elderly, people with disabilities, people who do not own a car, and in underinvested communities where walking is sometimes less safe. More information

- **Provide free parking for electric or zero emission vehicle**s at all city-owned parking meters, lots, and garages. Cincinnati, OH provides a good model. [T2.2] Also consider raising other parking fees, as Ithaca, NY did.

- **Partner with community organizations to bring a car-share service to Bethlehem to reduce commuter traffic**. These services incentivize using a car only when necessary, an advantage for those who cannot afford to own their own car. [T1.7]

  ☐ Ithaca Carshare, a local nonprofit, enhances community access to transportation, reduces negative environmental and economic impacts of car use, and saves money. More information

- **Call on LANTA and the state to enhance public transportation**, as other locations have done, by making the overall experience more attractive to people who now drive their own vehicles. [T1.1]

Land Use and Green Space

- **Improve climate resilience through green infrastructure and native vegetation.** Prioritize, when possible, planting native, climate resistant, and healthy plants instead of using anti-erosion meshes or fabrics that may contribute to micro-plastics in soils and waterways. [L6.3].

- **Prioritize and promote native and climate-resistant species of plants and trees**, but also consider species' effects on asthma. If a tree can't be replaced on-site, place in urban heat islands and areas that lack green space. [L3.1]

  ☐ See Sustainable Landscaping model ordinance developed in York County, PA.

- **Recover vacant properties for green space to help with both mitigation and adaptation**. In areas lacking greenery, prioritize using vacant properties for green space to help with climate mitigation, stormwater management, and the heat island effect. [L4.2]

Local Food and Waste

- **Adopt Pay-As-You-Throw trash program with fees based on the volume of trash from each property**. (Similar to how utility bills work.) [FW1.2].

  ☐ In West Whiteland Township, residents pay a set fee per bag of trash. Compared to other municipalities in the region, they enjoy the lowest cost per resident and have a higher percentage of recycling. More information

- **Require restaurants and stores to work with local shelters to donate food waste**. Set a food waste threshold to define what level of waste that must be donated or composted. (Also reduces costs with a "Pay as You Throw" initiative.) [FW2.4]

- **Develop a curbside food-waste composting program** to divert waste from the landfill. [FW2.1]

  ☐ Curbside composting pickup in Media now includes food waste (in addition to yard waste). They provide buckets and pick up the food waste every week. The program diverts approximately 30% of residential waste. More information

- **Adopt a refundable permit fee to incentivize developers and contractors to reduce, reuse, and recycle construction waste** and requiring them to demonstrate most waste went to an appropriate recovery facility. [FW1.5] More information

- **Adopt a zero-waste goal** for festivals and events in the City. [FW1.3] and extend this goal throughout the city.

  ☐ See 'Zero by Fifty' plan in Missoula, MT.

Public Engagement

- **Translate CAP into Spanish** to raise awareness among Spanish-speakers.

- **Work with the Environmental Justice Council to form partnerships with local groups and schools to raise awareness about climate change and climate action**. [PE1.5]

- **Create campaigns and signage to raise awareness of climate change as a public health threat.**

- **Publicize sustainability-related programs throughout the community** in Bethlehem's newsletter and, when applicable, on the City's open data portal. [PE1.6]

- **Dedicate a highly-visible section of the City website for the Sustainability Office** to publicize sustainability initiatives and programs, including the recycling and composting centers. [PE1]

Large Organizations/Institutions

- **Call on all larger institutions and organizations to develop a culture of sustainability** by creating an office of sustainability, demanding their suppliers reduce packaging waste, encouraging local food purchasing, and setting energy-efficient temperatures in their buildings — and through smaller measures such as reducing waste, in-office composting bins, sustainability education seminars, eliminating single-use plastics, and turning off the lights when a space is not in use.

- **Ask all larger institutions and organizations to actively encourage ride-sharing and appropriate transportation** such as walking, biking, and public transit among all staff and workers, and incentivize this by providing preferential scheduling; sheltered, secure bicycle parking; and free public transit use by providing bus passes or making an arrangement for LANTA to accept their employee ID cards. Encourage them to partner with CAT — the Coalition for Appropriate transportation.

- **Call on college and university education departments to prepare teachers to teach climate change, to develop sample lesson plans, and to provide in-service training programming for K-12 schools.**

See following pages for recaps of CAP Mitigation & Adaptation Strategies and key ordinances

Endnotes

1   IPCC. (2018). *Summary for Policymakers*. Global Warming of 1.5 C Summary for Policymakers. https://www.ipcc.ch/sr15/chapter/spm/
2   UNEP. (2019). *2019 Emissions Gap Report - UNEP-WCMC*. UNEP-WCMC's Official Website - 2019 Emissions Gap Report. https://www.unep-wcmc.org/news/2019-emissions-gap-report
3   Figueres, C., & Rivett-Carnac, T. (2020, April 22). What the World Will Look Like in 2050 If We Don't Cut Carbon Emissions in Half. Time Magazine. https://time.com/5824295/climate-change-future-possibilities/com/5824295/climate-change-future-possibilities/

About the Alliance and the 2021 Summer Internship Project on Climate Action Planning

The Alliance for Sustainable Communities–Lehigh Valley is a nonprofit organization that focuses on a wide variety of environmental and social justice issues that contribute to more-sustainable communities. Based in Bethlehem, PA, the Alliance has been active since 2003 and offers summer, fall, and spring internships to college students in the area to work on projects with the aim of creating a more sustainable Lehigh Valley.

In previous years, we've tackled Campus Sustainability, Sustainability in Healthcare, Interdisciplinary Teaching on Climate and Sustainability, Brewing Sustainability (sustainability for the craft brewing industry), and Sustainability for Independent Cafés and Restaurants, and Climate Action Planning for the Lehigh Valley.

This summer, Devon Jewell (Moravian Academy '23), Harrison Kim (Parkland High School '22), Alexandra Ludman, (University of Delaware '21), Margaux Petruska (Lehigh University '21), and Isaac Weber (Dartmouth College '22) researched and developed priorities for implementing the Bethlehem Climate Action Plan.

Acknowledgments

Project Reports:
· Implementing Bethlehem's CAP
· Build Sustainably — for Business Success and a Livable Future
· Climate Change Education

Project email: climate-action@sustainlv.org.

See following pages for recaps of CAP Mitigation & Adaptation Strategies and key ordinances

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Bethlehem CAP – Mitigation Strategies

Environmental Justice and Equity	
CAP ref.	**Strategy**
EJ.1.1/65	Create a Bethlehem Climate and EJ Plan
EJ1.2/65	Create a Bethlehem Climate and EJ Council
EJ1.3/65	Codify EJ considerations into city ordinances and planning/zoning decisions
EJ2.1/67	Evaluate Strategies in this CAP for their benefits to frontline communities
EJ2.2/67	Incorporate the financial cost of health impacts from pollution and climate-related impacts into budget and policy analyses
EJ2.3/67	Create a Climate Action Apprenticeship Program
EJ2.4/67	Measure local environmental burdens to inform neighborhood-level investments

Municipal Operations	
CAP ref.	**Strategy**
M1.1/75	Continue to Purchase 100% renewable electricity for all municipal operations going forward
M1.2/75	Continue to invest in energy efficiency projects to reduce residual emissions and the amount of electricity that must be purchased by the city
M1.3/76	Increase energy efficiency standards of city government buildings
M1.4/76	Actively evaluate opportunities for electric and other low-emission vehicles and convert the municipal fleet where feasible
M2.1/77	Generate carbon removal credits or invest in offset projects to reach net zero emissions
M3.1/78	Create an Office of Sustainability with a city Director of Sustainability
M3.2/79	Update the city's GHG emissions inventory
M3.3/79	Lead by example and provide a testing ground for strategies that can be scaled to the rest of the community
M3.4/80	Coordinate working groups of key stakeholders to initiate implementation of each CAP section
M3.5/80	Ensure local legal framework is in place to implement CAP strategies
M3.6/81	Engage municipal authorities to adopt GHG targets and reduce emissions

Buildings	
CAP ref.	**Strategies**
B1.1/84	Benchmarking requirement for commercial buildings
B1.2/85	Benchmarking requirement for government buildings
B1.3/85	Benchmarking requirement for multifamily buildings
B1.4/85	Require disclosure of energy performance for purchase of homes
B1.5/86	Require energy audits for building permit approval
B2.1/86	Fuel switching requirement for new boilers in commercial buildings
B2.2/87	Establish a building retrofit program to replace appliances and systems with electric, renewable natural gas, or other low-carbon fuel options in residential and commercial buildings
B3.1/88	Develop a program to replace appliances and systems with high-efficiency options
B3.2/88	Implement net-zero emissions (NZE) building standards for substantial renovations of existing buildings
B3.3/89	Require retro-commissioning for large commercial and residential buildings
B3.4/90	Promote implementation of Commercial Property-Assessed Clean Energy(C-PACE) financing
B3.5/90	Support Residential Property Assessed Clean Energy(R-PACE) in Pennsylvania
B3.6/91	Require cost-effective energy-saving measures on large buildings to help mitigate urban heat island effect
B3.7/91	Initiate or expand upon residential energy efficiency programs, especially those serving low-income communities

B3.8/92	Encourage existing multi-tenant building owners to submeter their buildings to support increased energy conservation
B3.9/92	Partner with utilities to increase awareness of opportunities for energy audits, incentives for energy efficiency improvements, and other energy-saving measures
B4.1/93	Encourage multi-tenant building developers to submeter their buildings to support increased energy conservation
B4.2/94	Implement net-zero emissions (NZE) building standards for new buildings

Electricity Sourcing

CAP ref.	Strategies
E1.1/98	Educate the community and local businesses on the benefits of renewable energy
E1.2/99	Increase transparency of generation sources and carbon impact for electricity supply sources
E1.3/100	Demonstrate the benefits of renewable energy through city projects
E1.4/100	Promote existing incentives for renewable energy installation and drive creation of new incentives
E1.5/101	Increase knowledge of renewable energy options in additions to electrical
E2.1/101	Implement a recognition program to incentivize transparency and adoption of renewable energy use
E2.2/102	Promote adoption of on-site solar
E3.1/102	Ensure a robust net metering program continues to be available to all electricity customers
E3.2/103	Streamline permitting and zoning considerations for installation of on-site renewable energy systems
E3.3/103	Require and incentivize renewable energy integration in new development, construction, and renovation projects
E3.4/104	Promote evaluation of renewable energy feasibility for existing large industrial and commercial properties
E3.5/104	Promote evaluation of fuel switching options for any on-site energy plant system that is fossil fuel-based
E3.6/105	Explore alternative energy technologies available to the city
E3.7/105	Develop low-cost, local retail renewable electricity options
E4.1/106	Support Community Choice Aggregation (CCA) and community renewables
E4.2/106	Support policies that expand access to renewable energy for consumers

Transportation and Mobility

CAP ref.	Strategies
T1.1/111	Enhance LANTA Bus Service
T1.2/112	Improve bike mobility and safety
T1.3/113	Provide "safe routes" for pedestrians in and around town
T1.4/114	Enhance bike-to-work initiatives, events, resources, and benefits
T1.5/114	Educate to build a bicycling traffic culture of patience and respect among all road users
T1.6/115	Develop "vehicle free" zones and new pedestrian hub
T1.7/115	Implement a car-sharing program
T1.8/116	Encourage alternative transportation methods to people who drive cars
T1.9/116	Revise building codes and development zoning
T2.1/117	Pass and enforce no-idling laws
T2.2/118	Decrease parking, provide parking discounts, and eliminate minimum parking requirements
T3.1/119	Increase electric vehicle infrastructure in the city
T3.2/120	Adjust city codes and zoning to expedite EV infrastructure
T3.3/120	Encourage public and private vehicle fleets to convert to all-electric or ZEVs
T3.4/121	Incentivize residential use of EVs and ZEVs
T4.1/121	Improve transportation sector VMT data quality and leverage regional initiatives to reduce emissions
T4.2/122	Develop goals, metrics, and data for tracking process

Land Use and Green Space

CAP ref.	Strategies
L1.1/127	Review and update land use ordinance and zoning to encourage land-use patterns that mitigate climate change impacts
L1.2/127	Integrate land use and transportation to reduce trip lengths and promote multiple modes of travel, including public transit
L1.3/128	Review new developments through the lens of sustainability via a recommending body
L2.1/129	Expand the inventory of Bethlehem's trees and ecosystem services
L2.2/130	Develop an Urban Forest Master Plan
L2.3/130	Prioritize green space development in underserved areas
L2.4/131	Expand and create new greenways
L2.5/132	Update tree ordinances to protect tree root systems and large legacy trees
L2.6/132	Partner with community organizations to promote tree planting efforts
L2.7/133	Engage and incentivize residents and businesses on options and benefits of conserving their own land
L2.8/133	Preserve land with valuable natural resources in perpetuity using 3rd party conservation easements
L2.9/134	Prior to sales of existing green spaces, open spaces, and urban forest owned by the City of Bethlehem, evaluate and align impacts of sale with the goals of Bethlehem's CAP
L3.1/135	Update tree ordinances and other applicable regulation/zoning ordinances to prioritize and preserve native species
L3.2/136	Establish and effectively manage native-habitat corridors and areas
L3.3/136	Improve urban soil conditions and carbon sequestration using compost and biomass material
L3.4/137	Species diversification/invasive species removal
L3.5/137	Reduce pesticide (insecticides and herbicides) and chemical fertilizer use
L3.6/138	Develop a citywide carbon credits program to quantify and monetize sequestered carbon in urban trees and other natural carbon sinks
L3.7/138	Create education materials to help residents maintain their landscaping and avoid synthetic fertilizers and pesticides to maximize carbon sequestration and healthy soil
L4.1/139	Promote Green Roofs
L4.2/140	Recover vacant spaces and brownfields for vegetation or urban agriculture
L5.1/141	Develop a plan to improve access to diverse recreational opportunities for all residents
L5.2/141	Conduct analysis of urban island effect
L5.3/142	Increase opportunities for voluntary community maintenance of land
L5.4/142	Support sustainability in park design, development, maintenance, and management
L6.1/143	Develop a green infrastructure plan to manage stormwater, filter pollutants, and improve public health
L6.2/144	Restore the riparian corridor along the south side of the Lehigh River
L6.3/144	Create and expand permeable parking lots and driveways

Local Food and Waste

CAP ref.	Strategies
FW1.1/149	Phase out single-use plastics
FW1.2/149	Study "Save as You Throw" incentive program for waste reduction and diversion
FW1.3/150	Implement Zero Waste practices at Bethlehem's large festivals and events
FW1.4/150	Increase standards and enforcement for minimizing construction and demolition waste
FW1.5/151	Encourage and prioritize preservation, reuse, repurpose, and retrofit of existing structures
FW1.6/151	Develop materials markets and encourage reuse of consumer products
FW1.7/152	Conduct a public education campaign to improve waste management practices
FW2.1/153	Create curbside composting program
FW2.2/154	Establish a curbside textile recycling program
FW2.3/154	Develop an anaerobic digestion program

FW2.4/155	Require large institutions and businesses to donate, reduce, reuse, or compost their unsold food
FW2.5/155	Encourage repair cafes for residents to get broken items fixed instead of throwing away and buying new
FW2.6/156	Responsible waste management recognition program for local businesses
FW2.7/156	Make recycling easier via education and new resources
FW2.8/157	Enforce existing waste and recycling policies
FW3.1/157	Develop better understanding of the city's current waste streams
FW3.2/158	Improve the waste section of the city's greenhouse gas inventory
FW3.3/159	Create tracking system for waste carried by private haulers
FW3.4/159	Provide waste audits to businesses
FW4.1/160	Convert waste-hauling fleets from diesel-powered vehicles to low- or no-emission vehicles
FW4.2/160	Reduce waste-hauling truck traffic via route optimization
FW4.3/161	Encourage best practices for waste management at local transfer stations and landfills
FW4.4/161	Expand options to ensure proper disposal of refrigerants and other high global-warming potential (GWP) gases
FW4.5/162	Reduce impacts from wastewater treatment
FW5.1/162	Work with schools to promote healthy eating
FW5.2/163	Support local gardens and urban farms
FW5.3/164	Increase institutional purchase of local foods
FW5.4/165	Expand education on local and low-impact food options
FW5.5/166	Eliminate food insecurity and inequity in food access

Public Engagement

CAP ref.	Strategies
PE1.1/170	Initiate a 'Bethlehem Climate Challenge' public outreach/educational program about the importance of mitigating GHG emissions and creating a resilient community
PE1.2/171	Develop a 'Bethlehem Climate Challenges' recognition program
PE1.3/171	Develop a 'Bethlehem Climate Challenge' funding mechanism that raises awareness about the climate issue
PE1.4/172	Consolidate public outreach and education responsibilities within city government
PE1.5/173	Develop education campaigns and resources to ensure that they reduce inequity and increase opportunities for Bethlehem's most vulnerable communities
PE1.6/173	Use the City of Bethlehem newsletter to regularly highlight sustainability-related information on the city's website
PE1.7/174	Encourage the expansion of environmental education in K-12 curricula
PE1.8/174	Request and support business groups to develop campaigns and programs to engage local business owners on sustainability

Large Organizations and Institutions

CAP ref.	Strategies
LOI1.1	Bethlehem Green Ribbon Commission
LOI1.2	Bethlehem Carbon Challenge

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Bethlehem CAP – Adaptation and Resilience Strategies

CAP ref.	Strategies
AP1 / 191	Develop a strategy to retrofit critical buildings with aging electrical wiring that cannot absorb the air conditioning load
AP2 / 191	For areas already prone to flooding, consider purchasing property on floodplain to remain underdeveloped or other approaches to ban development
AP3 / 191	Establish cooling centers citywide
AP4 / 192	Assess zoning and building codes to identify ways to improve resilience and incorporate green building standards (resilience: reduce impervious surfaces, reduce development in floodplains, incentivize elevation of private property / / green strategies: energy efficiency, water conservation, native landscaping, light-colored roofing materials)
AP5 / 192	Improve building energy, cooling system, and manufacturing efficiencies and demand response capabilities (e.g. smart grid) possibly through the administration of community grants
AP6 / 192	Review energy backup supply plan for grid interruptions
AP7 / 193	Develop a working group to establish coordination between communications companies, utilizes, and the city to facilitate cooperation for climate adaptation efforts
AP8 / 193	Develop energy strategies to (1) diversify energy supply chain with renewable sources that are not water-dependent and to evaluate dry / hybrid cooling technologies, and (2) improve reliability of grid systems and reduce dependence on regional grid through backup power supply, intelligent controls, and distributed generation
AP9 / 193	Review and enhance emergency response plans and coordination to deal with events of a severity that have not been seen before locally
AP10 / 194	Develop a strategy to increase shade across the city using tree species capable of withstanding future climatic conditions
AP11 / 194	Update strategy to clean and maintain culverts to make sure they are functioning properly and can handle increased flows
AP12 / 194	Enhance forest management near drinking water supply to reduce the risk of wildfires and runoff-induced sediment / debris that may occur after wildfire and storm events
AP13 / 194	Develop ways to encourage and require greater use of graywater systems to reduce demand for treated water
AP14 / 194	Enhance water treatment capabilities to address-term changes to source water quality (e.g. stormwater runoff surges during heavy precipitation events / turbidity)
AP15 / 194	Practice water conservation and demand management through water metering, rebates for water-conserving appliances / toilets, and / or rainwater harvesting tanks, which may involve updating the existing drought management plan administered by WSR
AP16 / 195	Review whether regional water connections can be expanded to allow for water trading in times of service disruption or shortage
AP17 / 195	Establish a city-issues grant program to provide capital to property owners to retrofit private properties
AP18 / 195	Set aside land to support potential future flood proofing needs (e.g. berms, dikes, and retractable gates)
AP19 / 195	Adjust landscape maintenance plans to require less maintenance, such as reduced water use and use species capable of withstanding future climate conditions and landscape with a goal of stormwater management
AP20 / 196	Identify transit stops that would benefit from the installation of protective shelters for extreme heat and / or heavy precipitation
AP21 / 196	Develop a strategy to pre-position equipment, materials, and other resources to respond to a disruption and / or support recovery
AP22 / 196	Conduct preventative maintenance, including vegetation management, on power lines and other essential system infrastructure
AP23 / 196	Develop relationships between the city and prominent community groups that engage with Black and brown communities to facilitate meaningful engagement
AP24 / 196	Install battery-backup technologies or other energy-storage systems, such as solar PV link to battery, in publicly owned housing complexes to support air conditioning usage on high-demand days
AP25 / 196	Consider providing / generating funding for electric energy efficiency and conservation measures for private property owners

City of Bethlehem Ordinances Related to Climate Action Plan

Ordinance	Detail
342	Local Economic Revitalization Tax Assistance Contains the economic incentives Bethlehem has in place to incentivize developers to improve deteriorated property. CAP link: B3.2
349	Economic Development Incentive Reporting and Evaluation Contains the economic incentives the city offers businesses and describes the evaluation process Bethlehem undertakes to ensure its programs are effective. CAP link: B3.7,B3.4, B3.5, E1.4, E4.1
910	Trees and Shrubs Describes the permit process for tree and shrub planting, restricts where they can be planted and details the responsibilities of the property owner and the city in taking care of the plants. CAP links: L3.1
911	Water Regulations Regulates water usage, quality, and city water services. CAP link: FW4.5, AA4
923	Disposal and Discharge of Industrial Waste Regulations Contains the rules surrounding industrial waste and enforcement mechanisms in place for infractions. CAP link: FW3.1
929	Stormwater User Fee Credits and Appealing Stormwater Fee Determinations Explains the use and necessity of a stormwater fund, and how developers can get stormwater user fees waived. CAP links: L2.7, L4.1
933	Recycling Details the city's recycling regulations and services. The city offers recycling as a public service and runs recycling collection and disposal directly. CAP links: FW2.2, FW2.7, FW2.8
1162	Solid Waste Collection and Enforcement Describes the city's waste collection services. The city hires privately-contracted haulers to handle non-recycling waste collection and disposal. CAP link: FW2.1, FW2.8, FW3.3, FW4.2, FW4.3
1318	General Regulations Contains the rules regulating development in Bethlehem by district. CAP links: B3.6, B4.2
1324	Administration, Permits and Penalties Describes penalties developers face for failing to hit LEED standards and developing over the maximum build limit.
1341	Subdivision and Land Development Ordinance Stipulates what land a developer can use, how much land they can develop, and what the developer must do to keep the land healthy and safe to live on. CAP link: L6.1, L6.3
1501.2	Solid Fuel Heating Appliances, Permits Contains the permit process and regulations surrounding fuel sales and use. CAP links: B2.1, B2.2, B3.1
2017-34	Establishing an open data portal to provide access to government information on a freely accessible database (not currently running). CAP links: FW3.1, EJ2.3, E1.2