DELCO SUSTAINABILITY

SUSTAIN DELCO

A Sustainability Plan for Delaware County

AUGUST 2023

CONTENTS

[COVER] **Sustainable bio-stream on Swarthmore College Campus absorbs and filters rainwater using native plants.** PHOTO: DCPD

[THIS PAGE] **Black Swallowtail butterfly feeds on Zinnia in Bethel Township, PA.** *PHOTO: Chris and Merrilee DeMuth*
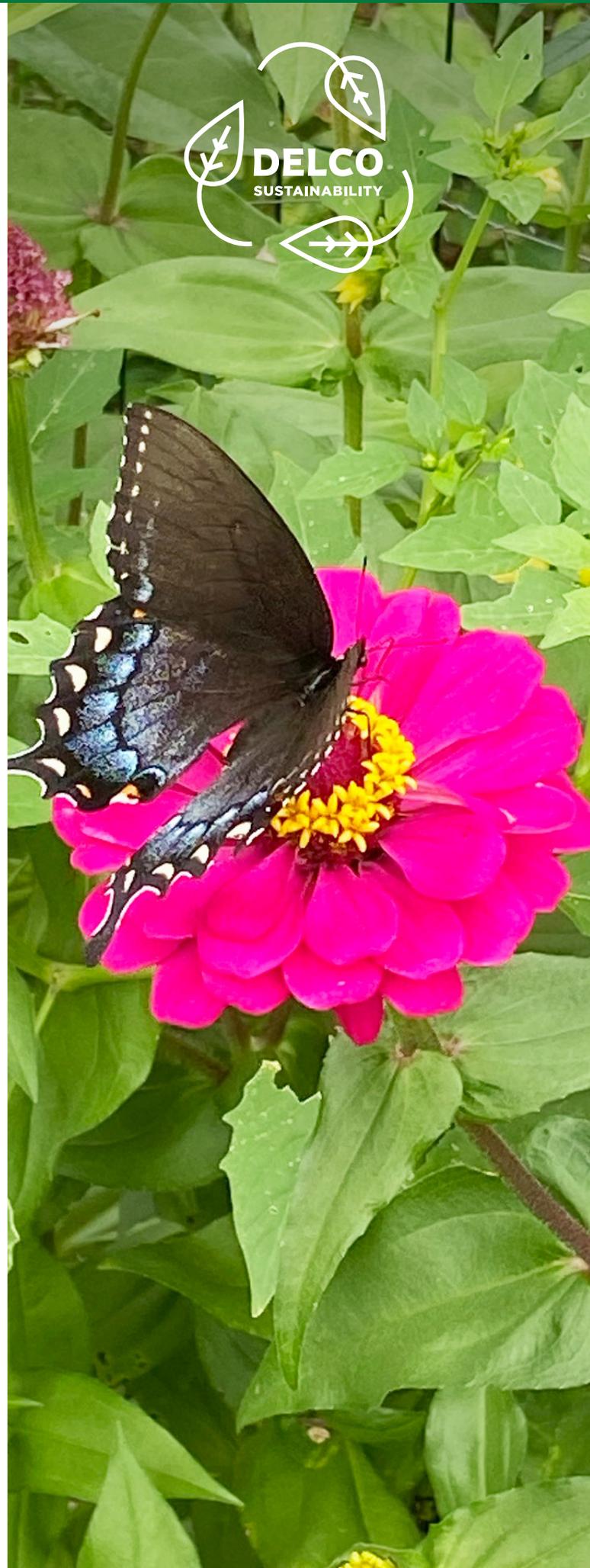
Dear Friends,

Delaware County is excited to share with you the release of its first ever sustainability plan, Sustain Delco! As members of the County Council, Sustainability Commission, and staff, we have always placed a high priority in making sustainability a guiding value and this is echoed by the community we serve. In the wake of a changing climate, we are committed to taking action to maintain Delaware County as an exceptional place to live, work, and play.

Sustain, by definition, means "cause to continue for an extended period or without interruption." In creating a Sustainability and Climate Action Plan for Delaware County, the County is taking steps to improve our environment and community today, so all may have a safe, healthy, and enjoyable place to live without interruption for generations to come. Sustain Delco: A Sustainability Plan for Delaware County seeks to "green" county operations while also promoting positive changes in all 49 of Delaware County's municipalities.

This Plan was developed in consultation with a wide range of stakeholders and recognizes a shared responsibility to build and operate a government that contributes to the well-being of every member of the community. This is our vision for the future, and we invite everyone to join us so that we can work together to turn this vision into a reality.

Sincerely,

Dr. Monica Taylor
County Council Chair

Carol Martsolf
Sustainability Commission Chair

Francine Locke
Chief Sustainability Officer

Delaware County Courthouse in Media Borough.

EXECUTIVE SUMMARY

ECONOMIC SUSTAINABILITY	EDUCATION	GOVERNANCE	EQUITY, INCLUSION, AND JUSTICE

The Delaware County Sustainability Plan's vision is to create a sustainable and resilient Delaware County that protects the most vulnerable residents from the impacts of climate change. In alignment with the pillars of sustainability, this Plan also supports a robust green economy while protecting and preserving natural resources.

Four guiding principles were identified as the central values of this Plan, including: economic sustainability, education, governance, and equity, inclusion, and justice. The Plan has six sections discussing topics of sustainability, including: climate resiliency, natural resources, energy and efficiencies, transportation, Zero Waste, and health and wellness. There are over 200 actions in the Plan that align with the targets and goals for each focus area.

Over the next five years, Delaware County will work with stakeholders to implement the actions of this Plan. The Office of Sustainability will serve as the administrator of this Plan, overseeing annual progress and implementation. Annual reports will share the status of actions and targets of the work that will bring the Plan to life.

FOCUS AREAS

Climate Resiliency

Natural Resources

Transportation

Energy & Efficiencies

Zero Waste

Health & Wellness
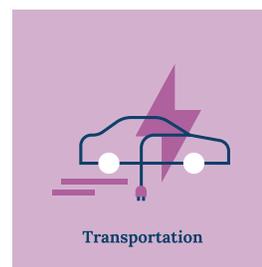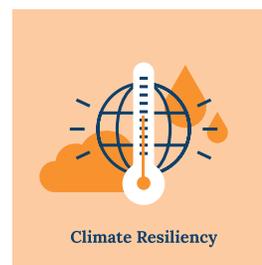
SNAPSHOT
OF DELAWARE COUNTY

Delaware County, colloquially known as Delco, is located in southeastern Pennsylvania (PA) between the City of Philadelphia, PA and the City of Wilmington, Delaware (DE). With a rich history of indigenous residents and early colonial settlements, Delaware County has played an important role in shaping America's history over the past 300 years. Consisting of nearly 184 square miles, Delaware County is home to roughly 576,000 residents,[1] making it the second most densely populated county in Pennsylvania with nearly 3,138 residents per square mile.[2]

Delaware County comprises primarily urban and suburban neighborhoods, with some developing suburbs maintaining the rural character. While the most significant development booms occurred at the turn of the 19th century, post-World War I and II, and at the turn of the 21st century, Delaware County has continued to grow around 3% over the past decade. While this growth has contributed to a landscape defined by mature neighborhoods, charming main streets, and bustling communities, it has also led to continued development pressure placing remaining open spaces and natural resources at risk.

Delaware County is divided into 49 municipalities with the most populous being Upper Darby Township. Municipalities include 29 Boroughs, 21 Townships, and one 3rd Class City, each with its own distinct culture and identity. Much like its unique municipalities, the County is home to a diverse population with around 35% of residents identifying as Black (23%), Hispanic (5%), or Asian (7%), compared to 25% across the Commonwealth. Roughly 40.5% of Delaware County residents have a bachelor's degree or higher contributing to a median household income of around $80,398.[3] While these figures are higher than state averages, wealth distribution varies across the County, with many riverfront and eastern Delaware County communities falling below average with higher rates of poverty, while western municipalities have above average household median incomes.

Delaware County's diverse population and landscape make Delco a vibrant place to live, work, and play. Sustain Delco, the Plan, seeks to acknowledge the unique character of the County and to identify solutions to ensure all residents are prepared to adapt to our changing climate.

4

Delaware County Class of Municipality

- **BOROUGH**
- **CITY**
- **CLASS 1 TOWNSHIP**
- **CLASS 2 TOWNSHIP**
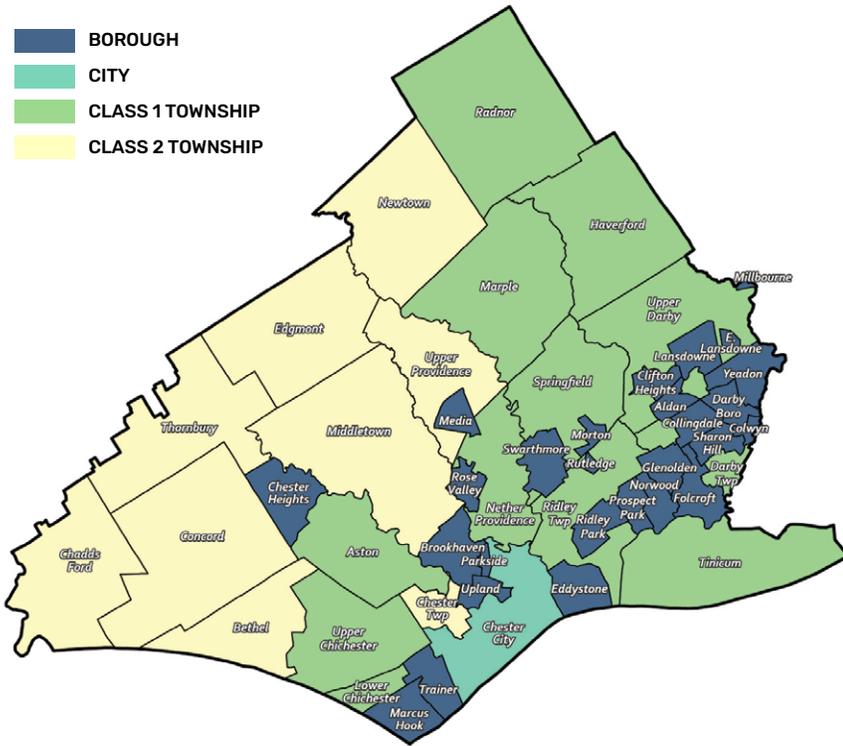
Delaware County Environmental Justice Areas
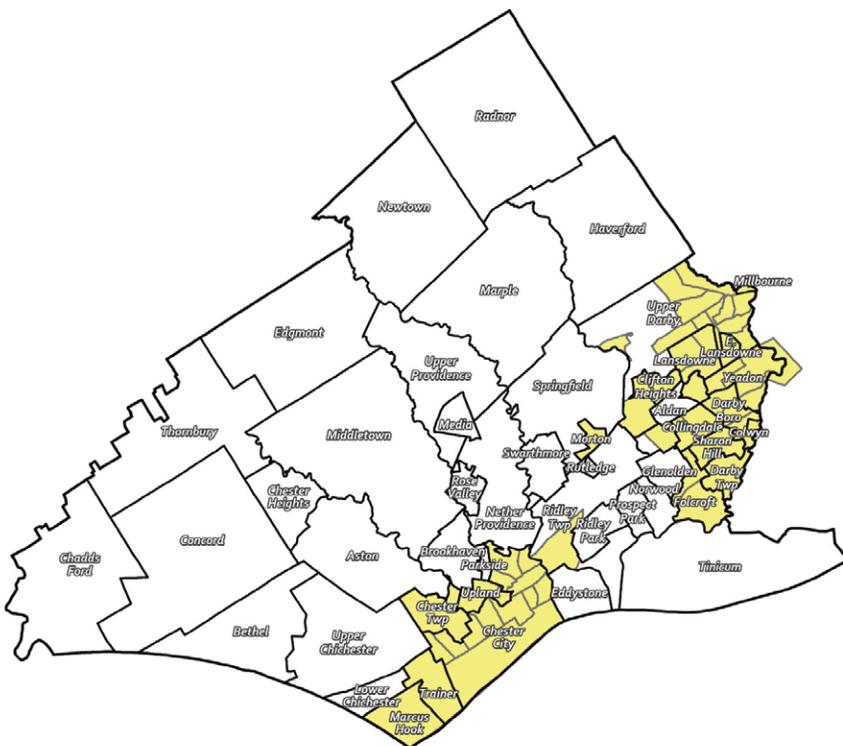
Other Important Facts/Infographics:

575,182
POPULATION

184
SQUARE MILES

14
PRINCIPAL ARTERIAL HIGHWAYS

1846+
LINEAR MILES OF ROADS

27
COLLEGES AND UNIVERSITIES

12
WATERSHEDS

385+
MILES OF STREAMS

12
MILES OF COAST ON THE DELAWARE RIVER

1640
HOME TO THE OLDEST STANDING BUILDING IN PENNSYLVANIA (LOWER SWEDISH CABIN, DREXEL HILL)

17
COUNTY-OWNED PARKS AND TRAILS

Swarthmore Borough Town Center. PHOTO: DCPD

INTRODUCTION

The climate is changing. While some global warming is considered natural, air emissions from burning fossil fuels, agriculture, landfills and incineration, vehicle exhaust, and other industry, are causing these changes to occur much more rapidly. The reduction of mature forests and other green spaces which serve as natural carbon sinks are also accelerating this crisis. Medical and public health experts have declared that climate change is the greatest threat of our time to public health.[4] Globally, poor air quality, hotter and more humid weather, and harsher storms are disproportionately impacting the world's most vulnerable communities. Delaware County is experiencing these impacts first-hand.

Delaware County has undertaken the creation of its first-ever Sustainability Plan to mitigate the causes of climate change, while also preparing its residents, businesses, and institutions to adapt for a more resilient and sustainable future. Taking a "systems-wide" approach, the Plan addresses both internal County operations and the Delaware County community as a whole. Goals in this Plan have been separated topically by Focus Area, but sustainability is a multifaceted discipline which cannot be neatly defined by singular solutions. Much like the three pillars of sustainability, people, profit, and planet, the Focus Areas throughout this Plan have meaningful overlap to paint a holistic strategy for a sustainable future.

Delaware County recognizes that there are certain elements within the County's control, including County facilities and parks, over 3,000 employees, and property taxes, to name a few. There are other areas in which the County can influence change or provide education. Goals, targets, and actions set forth in this Plan seek to address all three of these spheres of influence, recognizing that the entire system must adapt and participate for meaningful change.

This Plan is a living document intended to articulate Delaware County's vision to create a sustainable and resilient community. This first iteration of the Plan will lay the foundation for future sustainability work in Delaware County and will evolve as new technologies and innovations are developed. This Plan will ensure that Delaware County remains a vibrant place to live, work, play, and thrive, for generations to come.

[RIGHT] Children playing in Governor Printz Park (Tinicum Township).
PHOTO: DCPD

PLAN CREATION
AND THE PATH TO SUSTAINABILITY

In 2019, the newly elected Delaware County Council created transition teams made up of community stakeholders to identify County priorities and to assist in mapping a future for the County. Of the many recommendations identified through this process, the Natural Resources Transition Team identified the need for a comprehensive plan for a more sustainable future. This recommendation planted the seed for sustainability work in Delaware County.

In February 2020, by resolution, Delaware County Council created the Delaware County Sustainability Commission (the Commission), comprised of eight members of County senior management and nine members of the public. The Commission was charged with providing further reviews and recommendations to County staff and Council for the preservation of the natural and cultural environment. Additionally, the Commission was charged with creating, reviewing, and participating in implementing a County Sustainability Plan. To kick off this effort, the Commission created an internal team to review the recommendations of the Transition Team and identify plan priorities and guiding principles.

In 2021, the Delaware County Office of Sustainability (DCOS) was created with the hiring of Chief Sustainability Officer (CSO), Francine Locke. The CSO was charged with overseeing the development of the County Sustainability Plan and overseeing the operation of six County Departments: Public Works, Planning, Parks and Recreation, Facilities, Fleet/Motor Vehicle Management, and the Conservation District. In September 2021, Delaware County joined the Pennsylvania Department of Environmental Protection's (PA DEP) Local Climate Action Planning program (LCAP), which is detailed in the Greenhouse Gas (GHG) section of this Plan. In concurrence with the LCAP program, a community survey confirmed the Commission's priorities, to be known as Focus Areas, and guiding principles for the Sustainability Plan.

In 2022, the newly hired Sustainability and Resilience Manager, Rebecca Yurkovich, was tasked with coordinating community stakeholders and the Commission for the creation of the Sustainability Plan. Six subcommittees comprising community advocates, partners, and experts were created for each of the Focus Areas to identify the goals, targets, and actions for the Plan. The subcommittee members were nominated by the Commission and others were brought in as the Plan's development started to flourish. Ranging between 10 and 20 members in each group, the subcommittees met first bi-weekly, then monthly, from August 2022 to March 2023.

In tandem with this process, DCOS' staff met with internal County Departments and external community groups to identify areas of partnership and opportunities to elevate existing initiatives and programs. The information gathered from these meetings was taken back to the subcommittees to inform actions in the Plan. In total, the subcommittees had 89 participants in over 63 hours of active meetings, creating the goals, subgoals, targets, and actions outlined within this Plan. In addition to identifying the pathway to sustainability, many partner organizations and groups showed their dedication and commitment to the actions of this Plan by agreeing to serve as the lead organization for implementation.

Following the drafting of the goals, targets, and actions, four public open houses were held between March and April of 2023 to share the drafted Plan with members of the public. Comments from the public outreach were then consolidated and incorporated into a final draft. In total over 840 community members dedicated their time, expertise, and passion to this project, paving the way for a more sustainable Delaware County.

[TOP] **Focus area subcommittee members volunteer at Sustainability Plan Open House in Chester City.**

[BOTTOM] **Sustainability Commission members attend the 1st Annual Sustainability Conference at Subaru Park in Chester City.**

HOW TO NAVIGATE
THE PLAN

The Delaware County Sustainability Plan is designed to provide readers with inspiration, information and the tools and resources needed to make the County government and its municipalities, residents, and businesses more sustainable and resilient to the effects of climate change.

PLAN COMPONENTS

GUIDING PRINCIPLES:

There are four guiding principles infused into the body of the Plan. These principles were chosen by the Sustainability Commission, County staff, and members of the community to represent the most important values of this Plan. All components of this Plan were created and vetted to reflect these principles.

Economic Sustainability – Ensuring that Delaware County is making smart economic decisions without placing undue financial burden or compromising the health of the environment or community.

Education – Ensuring that Delaware County is not only being a thought and practice leader, but is providing the residents, municipalities, and community members of Delaware County with the educational tools needed to grow and thrive in the wake of climate change.

Equity, Inclusion, and Justice – Ensuring that all community members of Delaware County are equitably getting a seat at the table and receiving the benefits of this Plan while also addressing the barriers that have historically prohibited marginalized communities* from having equitable access.

In Delaware County, 94,157 people live in communities located in Justice40 designated areas. These are disadvantaged communities that have been historically marginalized and overburdened by pollution and underinvestment in housing, transportation, water and wastewater infrastructure, and health care.[5] These communities are particularly vulnerable to climate change, experiencing disproportionate impacts from other communities. To see which municipalities contain Environmental Justice communities, please see the map on page 5.

Governance – Ensuring that the structure and processes for creating and implementing this Plan are done ethically, transparently, and inclusively with the highest intention of improving the health, safety, and welfare of the residents of Delaware County.

FOCUS AREAS:

This Plan is organized into six sections, otherwise known as Focus Areas. The Focus Areas of this Plan were identified by the Sustainability Commission and confirmed by the community as the topics of the utmost importance for a sustainable Delaware County.

Climate Resiliency – This section focuses on promoting climate resiliency by effectively responding to climate hazards and building strong economic and public infrastructure.

Natural Resources – This section promotes the conservation and stewardship of the natural environment in Delaware County.

Transportation – This section evaluates how people and goods move from one place to another in Delaware County and identifies alternatives to the current system.

Energy & Efficiencies – This section evaluates consumption and efficiency of energy and water throughout County operations and the Delaware County community.

Zero Waste – This section focuses on the waste stream in Delaware County with a goal of moving to Zero Waste.

Health & Wellness – This section considers the foundations of human life, air, water, and food, and how existing conditions may be improved for overall health and wellbeing.

ACTION PLAN COMPONENTS

FOCUS AREA 04
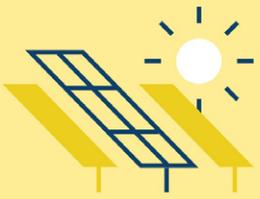
ENERGY & EFFICIENCIES

GOAL

Reduce water and energy consumption in buildings and properties in Delaware County and transition to combustion-free renewable energy.

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Climate Resiliency

SUBGOALS

Climate Hazards

Delaware County to be prepared to combat extreme weather events.

Economy

To grow and diversify the green economy.

Infrastructure

To ensure infrastructure is properly constructed and maintained to withstand climate hazards through informed decisions by municipalities and residents.

TARGETS

All 49 municipalities will adopt and implement resiliency practices to adapt to, prepare for, and respond to climate hazards over the next 5 years.

Increase the number of green jobs/businesses in Delaware County by 5% over the next 5 years.

Increase awareness and understanding of sustainable infrastructure engaging all municipalities and residents over the next 5 years.

FOCUS AREA 01

A Sustainability Plan for Delaware County 21

1. Primary Goal: The primary goal is the overarching pathway towards accomplishing the elements of the Focus Area. Each Focus Area has one primary goal in which all subgoals, targets, and actions seek to achieve.

2. Subgoal: In some cases, a Focus Area within the Plan branches into subgoals which offer more specific targets and actions toward achieving the primary goal. For example, the Climate Resiliency Focus Area has three subgoals: Natural Hazards, Economy, and Infrastructure. These subgoals have their own targets and actions which create a succinct strategy for meeting the primary goal of the Focus Area.

3. Targets: There is at least one target for each goal in the Plan. This target is a measurable unit over a specific timeframe that can be reported out annually to reflect the progress of the Plan.

4. Actions: This Plan contains over 200 actions that align with the goals and targets of each Focus Area. These actions provide step-by-step guidance toward achieving the specific goals and targets. Each action identifies a project lead, necessary partner organizations, a rough time frame for completion (designated as either Short (1-3 years), Medium (3-5 years), Long (5-10 years), or Ongoing), and applicability, or a listing of other industries that could duplicate the action within their own organizations. Each action serves as an opportunity for community collaboration, partnership, and public and private investment.

5. Sustainability Spotlights: Each Focus Area has two case studies, or articles, that share a descriptive story that supports the section of the Plan. These sustainability success stories highlight both County and community innovations that are meant to serve as inspiration for new ideas and local examples that can be replicated.

GREENHOUSE GAS EMISSIONS INVENTORY

In the Fall of 2021, Delaware County partnered with the Pennsylvania Department of Environmental Protection (PA DEP) to participate in its Local Climate Action Program (LCAP). Through this program, Delaware County was paired with Bryn Mawr College's Praxis Program to utilize assistance from local student interns to develop a Local Climate Action Plan (LCAP). The LCAP would include a Greenhouse Gas (GHG) inventory for both the community and County operations, as well as mitigation strategies identified through student research. To generate the GHG inventory reports, the ICLEI-USA framework and ClearPath tool were utilized to model emission equivalents from 2019 PECO data. These reports reflect emissions data in metric tons of CO_2e, otherwise known as carbon dioxide equivalents. While there were some limitations in data compilation for the GHG inventory, this process serves as a necessary starting point for identifying future emissions mitigation action in the County.

Community Emissions

In the community GHG inventory, it was found that Delaware County generates over 4.5 million metric tons of CO_2e each year. CO_2e is the measurement of global warming impact, calculated by summing the global warming potential of three gases, methane (CH_4), nitrous oxide (N_2O), and carbon dioxide (CO_2). The largest source of GHG emissions was found to be commercial/industrial energy usage, followed by transportation, and finally residential energy. When evaluating commercial/industrial energy usage, businesses classified as Large C&I (commercial and industrial), such as factories, manufacturing plants, or medical facilities, were among the largest energy users and GHG emitters, accounting for approximately 56% of all C&I emissions. When evaluating transportation, non-diesel on-road transportation sources contributed 73% of emissions, while diesel on-road transportation contributed 17%. Finally, when evaluating residential energy emissions, electricity was the largest generator followed closely by heating natural gas. With nearly 576,000 residents in Delaware County, residential energy figures reflect just under 3 metric tons GHG per resident in 2019.

County Operations

Similar to the community GHG inventory, energy from County facilities was the largest contributor to emissions, with almost 90% of the total emissions in County operations, in 2019. When evaluating the energy use across County-owned buildings, the seven largest facilities were considered. The Fair Acres Campus had the highest emissions among the evaluated facilities, utilizing 57% of the total energy across all County facilities. Fair Acres Campus is composed of 18 buildings, with the largest being a skilled-nursing facility housing up to 774 residents. The 24/7 operational schedule and specialty medical care equipment may contribute to the high emissions at this facility. The George W. Hill Correctional Facility had the second highest emissions, and finally, the Delaware County Courthouse Complex was the third.

County Fleet

Delaware County has over 320 vehicles in its fleet, serving a variety of needs such as transporting mail or equipment, incarcerated individuals, and county employees, investigating crimes, performing park maintenance, among many other uses. When evaluating the County fleet, vehicles fall into three main categories: passenger vehicles, light trucks, and heavy trucks. Approximately, 74% of emissions were generated by passenger vehicles, as the County only had 15 electric vehicles at the time of the LCAP. The progress of electrifying the County's fleet is further detailed in the Transportation section of this Plan.

Solid Waste

During the creation of the GHG inventory, detailed waste tonnages from County facilities were not specified; therefore, standardized estimates for waste generation were utilized. The County is currently evaluating hauler contracts to gather detailed tonnage and diversion figures. Additional information can be found in the Zero Waste section of this Plan.

Integration into the Sustainability Plan

The completed Delaware County LCAP was used as an essential guiding document for the creation of this

DELAWARE COUNTY, PENNSYLVANIA
CLIMATE ACTION PLAN
August 31, 2022
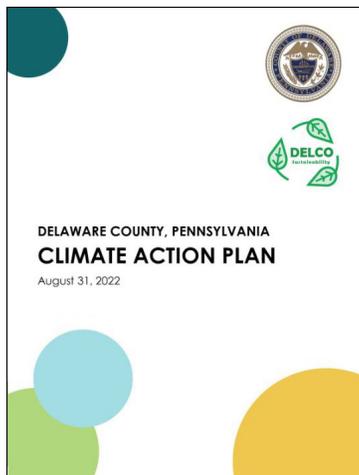
Sustainability Plan. GHG baselines informed the creation of the Plan's Focus Areas and goals, and the identified mitigation strategies served as the basis for many of the actions in this Plan. A consolidated summary of the findings from the LCAP GHG inventory can be found to the right.

Delaware County Community GHG Emissions (2019)

(2019 Baseline) Measured in CO2e

37.1%

29.3%

33.6%

- **RESIDENTIAL ENERGY**
- **TRANSPORTATION AND MOBILE SOURCES**
- **COMMERCIAL ENERGY**
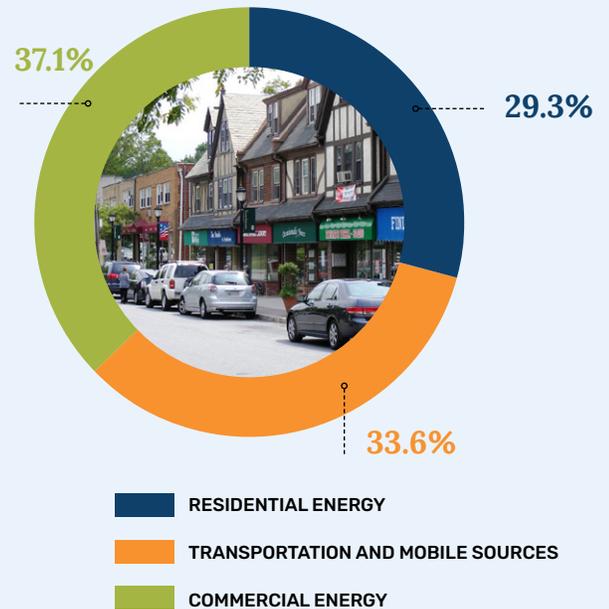
Delaware County Operational GHG Emissions (2019)

(2019 Baseline) Measured in CO2e

8.0%

2.1%

89.8%

- **BUILDINGS AND FACILITIES**
- **VEHICLE FLEET**
- **SOLID WASTE GENERATION***
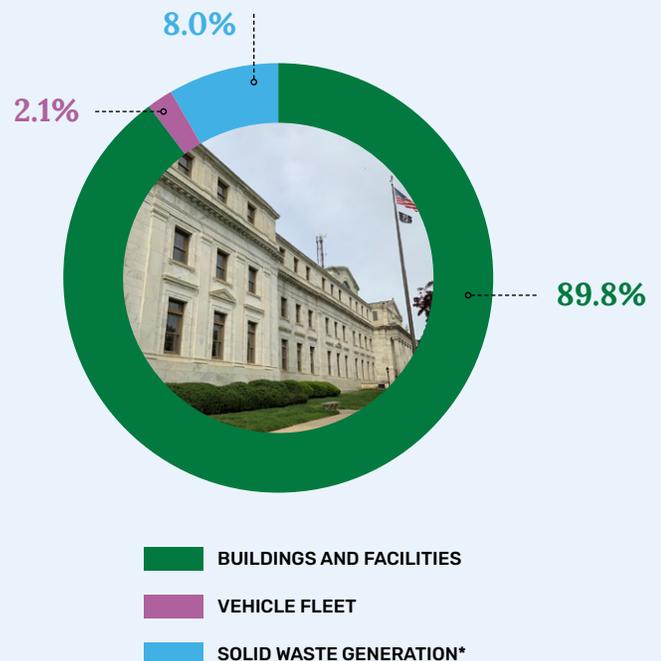
* During the creation of the GHG inventory, detailed waste tonnages were not available; therefore, standardized estimates were utilized.

CLIMATE PROJECTIONS
FOR DELAWARE COUNTY

Pennsylvania is located in a humid continental climate zone, meaning it typically has wide seasonal fluctuations in temperature, being very cold in the winters and very hot in the summers.[6] While daily average temperatures have historically remained temperate across a 12 month average, remaining in the low 50's, this number has begun to rise over the past several decades and is expected to accelerate.[7] Current levels of GHG emissions are outpacing the earth's ability to absorb these gases, leading to an overabundance of heat-trapping gases in the atmosphere. Globally, average temperatures are increasing, bringing about rising sea levels due to melting glaciers and ice caps, and thermal expansion.[8] These changes are not only expected to have global impacts, but regional significance as well.

When evaluating both high and low emission projections, Delaware County is expected to face significant changes. When evaluating temperature, Delaware County is expected to see an average daily temperature increase between 3 - 8 degrees Fahrenheit above current temperatures.[9] The County is expected to see an additional 36 - 38 days above 90 degrees Fahrenheit each year between now and 2044.[10]

Average Temperatures Over the Past Century

Delaware County, Pennsylvania Average Temperature
October-September
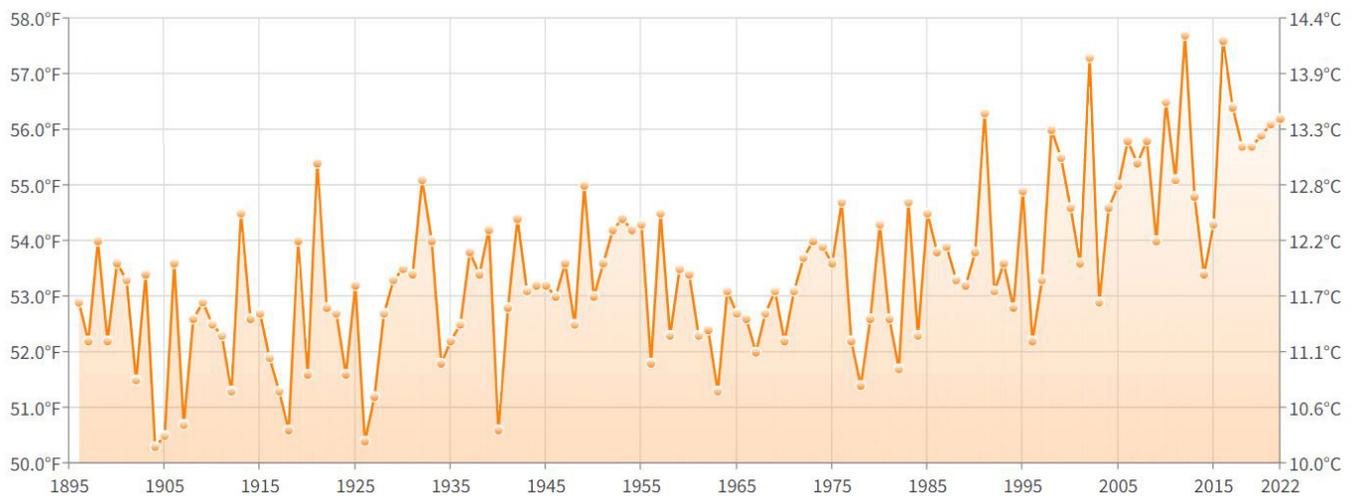
SOURCE: National Oceanic and Atmospheric Administration

2100 Projection of Areas with Persistent Flooding (Chronic Inundation)

PRESENT DAY HIGH TIDE

PRESENT CHRONIC INUNDATION

2100 HIGH-EMISSIONS CHRONIC INUNDATION
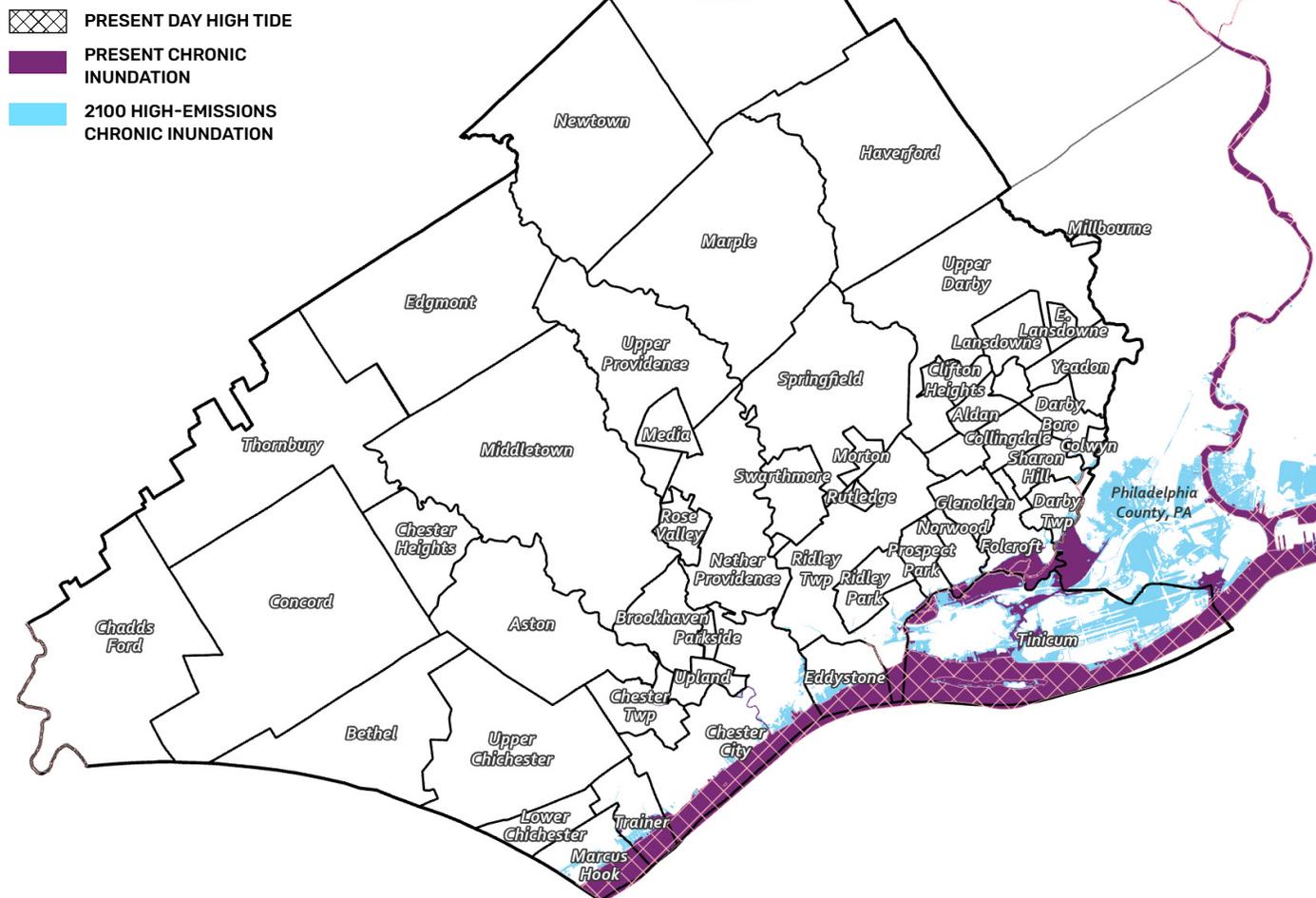
In addition to increasing temperatures, both low and high emission scenarios predict increased precipitation in Delaware County. Projections show that annual rainfall will likely increase by an average of 2 - 3 inches above the 1990-2019 averages by 2050.[11] Increased precipitation paired with an expected sea level rise of around 1.4 feet over the 2000 levels, would lead to chronic inundation in nearly all communities along the Delaware River.[12]

A changing climate not only applies additional stress to the natural and built environment, but it also has tremendous impacts on human health. Heatwaves place higher risk individuals such as children, pregnant women, lower-income residents, and older adults at greater risk of distress. Warmer winters and increased flooding also increase breeding conditions and disease incubation periods in mosquitoes and ticks, leading to potential increases in vector borne diseases.

Climate change is necessitating swift and decisive action before it is too late. This Plan outlines strategies not only mitigating harmful emissions, but also identifying strategies to help Delaware County residents to adapt and be resilient to these changes.

High floodwaters trap multiple vehicles in Darby Borough.
PHOTO: *Folcroft Fire Company Station 1*

CLIMATE RESILIENCY

GOAL

Prepare Delaware County to adapt, withstand, and recover quickly from the effects of climate change.

INTRODUCTION

Climate Resiliency

The climate is not only shifting in terms of annual temperature and precipitation averages, but weather is also becoming more extreme. While some areas of the country are seeing increased incidences of wildfire and mudslides caused by drought followed by heavy precipitation, the East Coast is seeing harsher storms. Increased moisture absorption combined with warmer air and water currents has caused a noticeable increase in storm intensity over the past 20 years. Of the top ten costliest tropical storms in U.S. history, five have occurred within the past five years, with nine of ten occurring in the last 20 years.[13] Despite these trends, Delaware County envisions a resilient future. The County has identified actions allowing it to successfully adapt and recover quickly while preventing impacts from getting worse.

[ABOVE] Trees block road after a tornado moves through Thornbury Township. PHOTO: DCEMA

48

Municipalities participating in National Flood Insurance Program (NFIP)[14]

1

Municipalities participating in the NFIP Community Rating System (CRS) Program[15]

Climate Resiliency

SUBGOALS

Climate Hazards

To equip Delaware County to be more prepared to combat extreme weather events.

Economy

To grow and diversify the green economy.

Infrastructure

To ensure infrastructure is properly constructed and maintained to withstand climate hazards through informed decisions by municipalities and residents.

TARGETS

All 49 municipalities will adopt and implement resiliency practices to adapt to, prepare for, and respond to climate hazards over the next 5 years.

Increase the number of green jobs/businesses in Delaware County by 5% over the next 5 years.

Increase awareness and understanding of sustainable infrastructure by engaging all 49 municipalities and their residents over the next 5 years.

Climate Change and the Built Environment

A changing climate not only applies additional stress to the natural environment, but it also places stress on the built environment. Delaware County is located in one of only two coastal zones in Pennsylvania. Rising sea levels can cause low-lying coastal areas, like Delaware County, to become permanently flooded while areas at slightly higher elevations may face chronic inundations with changing tides. Sea level projections for 2050 show approximately $430 million in property value at risk of inundation due to a 1.4-foot increase in flood height in the Delaware River.[16] Sea level rise of this magnitude would place sites like Little Tinicum Island and many other parcels along the riverfront completely underwater. With the average dwelling in Delaware County being 64 years old,[17] increased flooding and inundation cause serious concern for structural integrity, mold, and occupant safety.

In addition to flooding, increased temperatures and heat waves can also place stress on buildings and structures. According to the National Oceanic and Atmospheric Administration (NOAA), Delaware County is the 3rd hottest county in Pennsylvania.[18] Much of this heat can be attributed to the heat island effect. Heat islands are urbanized areas that experience higher temperatures than outlying areas due to structures, such as buildings, roads, and other infrastructure absorbing and re-emitting the sun's heat.[19] While natural resources, such as a robust tree canopy, can counteract the heat island effect, daytime temperatures in urban areas typically average between 1 - 7 degrees Fahrenheit higher than outlying areas. These factors not only cause stress on infrastructure, requiring more energy for cooling and warping or fading materials more quickly, but it also places a heavy burden on the most vulnerable residents and communities.

Delaware County Pennsylvania Heat Vulnerability Index By Census Tract

Legend:
- 8 (Most vulnerable)
- 7
- 6
- 5
- 4
- 3
- 2
- 1
- 0 (Least vulnerable)
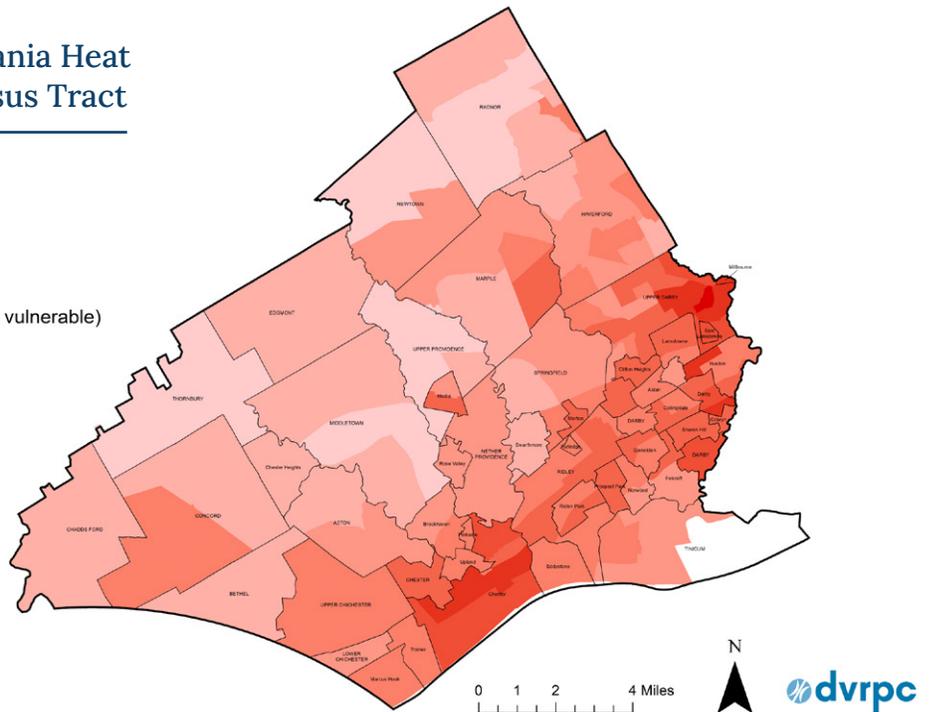
SOURCE: Delaware Valley Regional Planning Commission

SUSTAINABILITY SPOTLIGHT

Climate Resiliency in the Community: Sustainable Buildings LEEDing the Way

Buildings are responsible for over 40% of global energy usage and over one third of global greenhouse gas emissions.[20] In addition to negatively contributing to climate change, buildings and infrastructure are also extremely vulnerable to climate hazards. In 2022 alone, the United States experienced over 18 separate weather and climate disasters costing at least $1 billion each in property and infrastructure damage.[21]

To mitigate these impacts, sustainable design standards are becoming increasingly popular. Sustainable design standards address a variety of factors including indoor environmental quality, emissions from energy, water consumption, natural lighting, indoor and outdoor green features, and resilience to extreme weather and climate change. The United States Green Building Council (USGBC) was the first to establish a certification system for sustainable design standards called LEED (Leadership in Energy and Environmental Design).[22] This system evaluates the environmental performance of both newly constructed and renovated buildings and awards four levels of certifications based on point values through the evaluation process.

In Delaware County, 63 buildings have achieved LEED certification showing their commitment to sustainable design, construction, and operation.[23] Examples include the Penn Medicine Outpatient Building in Radnor Township and Widener University's Founders Hall in the City of Chester, among others. While LEED is the most widely used green building rating system, other programs such as Fitwel, Passive House, BREEAM (Building Research Establishment Environmental Assessment Methodology), and Energy Star also promote the construction and renovation of buildings for a more sustainable future.

Founder's Hall of Widener University has achieved Green-level LEED Certification (Chester City). PHOTO: *Widener University*

The Penn Medicine Campus in Radnor Township has achieved Gold-level LEED Certification. PHOTO: *Penn Medicine*

SUSTAINABILITY SPOTLIGHT

Climate Resiliency in the County: Delaware County Citizen Corps

Delaware County Citizen Corps volunteers enjoy appreciation picnic (Upper Providence Township). PHOTO: DCEMA

Delaware County Citizen Corps volunteers host vaccination clinic during the COVID-19 Pandemic (Marple Township). PHOTO: DCEMA

During times of disaster while many are hankering down to wait out the storm, members of the Delaware County Citizen Corps (The Corps) can be found putting on their blue vests and heading out to where help is needed most. The Delaware County Citizen Corps is a volunteer organization overseen by the Delaware County Emergency Services Department. The Corps brings together faith-based and non-government organizations, business partners, and local volunteers to improve the emergency preparedness, health, and safety of the residents of Delaware County.

During the COVID-19 Pandemic, membership of the Delaware County Citizen Corps swelled from under 500 to over 2,200 volunteers.[24] These volunteers jumped into action by assisting emergency management staff and first responders to deploy vaccination clinics throughout the County. Delaware County Department of Emergency Services Director Tim Boyce spoke highly of the Corps volunteers stating, "Our volunteers exemplify what makes Delco great; they not only give their time and talents, but their heart and soul to helping others".[25] Members of the Corps can serve as general volunteers or participate in four specialized volunteer units including the Medical Reserve Corps (MRC), Delaware County Animal Response Team (DelCART), Amateur Radio Emergency Service (ARES), and Emergency Behavior Health Team (formally DCORT).

In the first four months of 2023 alone, over 900 volunteer hours have been completed by the Corps. As extreme weather and harsher storms become more prevalent with climate change, volunteer groups like the Delaware County Citizen Corps which not only respond in times of need, but also provide preparedness training in the community will become increasingly important. To sign up to volunteer for the Citizen Corps of Delaware County or find an upcoming resilience training near you, visit their website at **delcocitizencorps.org**.

[TOP] **Flooding at the Brandywine River Museum in Chadds Ford Township.** *PHOTO: DCEMA*

[BOTTOM] **Vehicle hits downed tree on Providence Road after powerful storm (Edgmont Township).** *PHOTO: DCEMA*

Taking Action to Sustain Delco

The International Panel on Climate Change (IPCC) recognizes that climate resiliency requires a wide range of actions to transform the way we live and put human society on a path of sustainable development.[26] IPCC recommends five major changes to build more resilient communities, two of which include changing the way cities and infrastructure are planned, built, organized, and governed and how our economies and industries function. Delaware County recognizes that in order to adapt and thrive amongst climate change, improvement in these areas must be addressed.

The County recognizes the need to not only improve and enhance existing infrastructure, but also build new structures more sustainably. Additionally, it is understood that residents with stable and well-paying jobs will be better suited to adapt to the changing climate. The goals described above and actions shown on page 76 in the Implementation Matrix have been established to improve the resilience of Delaware County. This includes having a well-organized and immediate response in the wake of climate hazards, improving infrastructure to better withstand projected conditions, and fostering a green economy to bolster financial stability within the community.

Interior forest at the former Don Guanella site in Marple Township.
PHOTO: DCOS

NATURAL RESOURCES

GOAL

To protect, conserve, and restore natural resources in Delaware County.

INTRODUCTION

Delaware County, aptly named after its riverine boundary, is widely known for its mature neighborhoods, established main streets, and urban character; however, the County is also home to a variety of natural resources. These include woodlands, tidal wetlands, floodplains, and abundant wildlife. When evaluating the ecological value of these resources, Delaware County is home to 37 natural heritage areas, or high-quality natural communities, which are considered uncommon and among the best of their type within the state. When ranked among the Commonwealth's 67 counties, Delaware County is number 19 for the most individual occurrences of endangered, threatened, or rare species, with 215.[27] Increasing temperatures, additional precipitation, and harsher storms due to climate change put these valuable resources at risk of both potential habitat degradation and species extinction. Community stewardship and calculated intervention will be required to ensure the protection of these resources in perpetuity.

[ABOVE] Turtle enjoys pond in Glen Providence Park (Upper Providence Township).

Natural Resources

BASELINE DATA

14,065
Acres of Protected Open Space[28]

21,076
Acres of Non-Protected Open Space[29]

385
Miles of Streams[30]

97.8%
Percentage of Impaired Stream Miles[31]

7,451
Acreage of Wetlands[32]

1
Number of Municipalities that have Completed a Brownfield Survey

Natural Resources

SUBGOALS

Open Space

Increase the amount of and accessibility to open space.

TARGETS

Increase the number of acres of protected open space by 10% over the next 5 years.

Increase the number of Delaware County residents with access to open space within a half mile walk by 10% over the next 5 years.

Tree Canopy and Plantings

To increase native trees, tree canopy, and natural plantings.

Increase the total tree canopy area by 10% over the next 5 years.

Restore and enhance 250 acres with native plantings over the next 5 years.

Watershed Quality

To improve the quality of watersheds throughout Delaware County.

TARGETS

Install 25 Best Management Practices (BMPs) across the County in the next 5 years.

Brownfield Remediation

Identify brownfields in Delaware County and increase remediation efforts.

Conduct a brownfield inventory in all 49 municipalities over the next 5 years.

EXISTING CONDITIONS

As the second most densely populated county in the Commonwealth, development has placed a constant pressure on the County's natural resources. In recognizing these threats, residents of Delaware County have been outspoken about the need to protect and restore the remaining open spaces and natural resources. As of 2021, over 14,065 acres of Delaware County were protected open space held by federal, state, county, and municipal governments and nonprofit organizations.[33] While this is a significant achievement, a 2020 survey by the Delaware Valley Regional Planning Commission (DVRPC) found that Delaware County was behind its neighboring counties of Bucks, Chester, Montgomery and Philadelphia, with only 12.31% of its total land area dedicated to protected open space.[34] Protected open spaces serve a variety of ecosystem services such as wildlife habitat conservation, air pollution removal, carbon sequestration from trees, replenishment of the water supply, water quality filtration, and flood mitigation. The Delaware County Return on Environment Study found the provision of these ecosystem services from protected open space in Delaware County equate to around $14.1 million in value each year. Additionally, these open spaces provide over $142.6 million in annual recreational benefits and an additional $689 million of added value to housing stock within a half mile.[35] Protected open spaces composed of native plants and trees serve to not only enhance environmental quality, but also quality of life for the people who live near them.

Delaware County Major Watersheds

The County boasts approximately 385 miles of streams, draining into 12 sub-watersheds which lead to the Delaware River. While these vast water resources have served to draw both settlers and industry to the area for the past three centuries, nearly 98% of stream miles in Delaware County are currently designated as "impaired", meaning they are not meeting water quality regulations as set by the Pennsylvania Department of Environmental Protection (PA DEP).[36] As a downstream community with over 12 miles of shoreline directly on the Delaware River, water flowing through Delaware County carries the pollutants, trash, and sediment from its upstream neighbors. Degraded riparian buffers, loss of native plantings, abundant impervious surfaces, and contamination from brownfields within the County have also served to contribute to the historically poor water quality. As precipitation and flooding are expected to increase with climate change, Delaware County is committed to improving these conditions to ensure the health of its residents, wildlife, and ecosystems served by these resources.

SUSTAINABILITY SPOTLIGHT

Natural Resources in the Community: Haverford Township's Use of Native Plants to Improve Local Watershed Quality

Volunteers install a rain garden on Weller Avenue in Haverford Township. PHOTO: *Haverford Township EAC*

Downspout planter installed by the Eastern Delaware County Stormwater Collaborative. PHOTO: *Eastern Delaware County Stormwater Collaborative*

Haverford Township is enlisting help from native plants to keep the Darby and Cobbs Creeks clean.

The Haverford Township Environmental Advisory Committee (EAC) sponsors the "Hav-a-Rain Garden" Program which aims to improve water quality by installing rain gardens. Through this program, ten residents or small businesses are selected each year to have a rain garden installed free of charge.[37] Property owners are responsible for maintaining the gardens, but installation is covered by the program's dedicated volunteers. Since its founding in 2019, over 50 gardens have been installed, including those at Bailey Park, Merwood Park, and the Oakmont Parking lot.

In 2022, the Township was awarded $50,000 by Pennsylvania Department of Conservation and Natural Resources (PA DCNR) Community Conservation Partnerships Program to enhance riparian areas on Township properties.[38] Specifically, the Township will remove invasive species, plant over 750 trees and shrubs, and install over 300 "live stakes". Township Manager David Burman recognized the importance of this work sharing, "this project promotes biodiversity by offering food and habitat to wildlife, reducing flooding and erosion, improving water quality and providing access to high-quality natural space in our community."[39] Haverford Township is also a member of the Eastern Delaware County Stormwater Collaborative (EDCSC), a partnership of 11 municipalities in the Darby Creek watershed working together for a more efficient way of complying with their Pennsylvania Municipal Separate Storm Sewer System (MS4) Permits and to improve local water quality.[40] The EDCSC has installed rain gardens, implemented pollution reduction measures, and held educational workshops showing residents how to build downspout planters with native plants as a natural filter. Together, Haverford Township and the rest of the EDCSC are showing how community partnerships can lead to lasting change.

SUSTAINABILITY SPOTLIGHT

Natural Resources in the County: Delaware County Gets Its First New Park in Nearly 30 Years

Overhead view of the new County Park at the former Don Guanella Site in Marple Township. *PHOTO: DCOS*

Meadow in the center of the New County Park in Marple Township. *PHOTO: DCOS*

After years of fierce development pressure and community calls to "Save Marple Greenspace", in June 2021, Delaware County acquired the former Don Guanella School in Maple Township through eminent domain.[41] The 213-acre site is now the largest County-owned park in Delaware County history. The front 30 acres of the property holds several buildings, which served as a school for boys and young men with disabilities from 1960 to 2013. The remaining acreage comprises diverse natural landscapes including grasslands, wetlands, two tributaries of Darby Creek, and one of the last stands of old-growth forest in Delaware County.

Since the acquisition, the County has begun a robust planning process to transform the site into a destination park that will attract visitors from near and far while also preserving the unique environmental features. A Master Plan Advisory Committee made up of 15 community leaders has worked with County employees and the consulting team to provide necessary background information and generate ideas for the Plan.[42] A survey, several pop-up events, and a large-scale open house were also used to gather feedback from community members to identify needs and preferences for the new park. Public input is the cornerstone of the Plan, which is set to be completed by the end of 2023.

The acquisition of the former Don Guanella site reinforces Delaware County's commitment to protecting open space. In addition to enhancing air quality and providing important wildlife habitat, Delaware County Council Vice Chair Elaine Schaefer reminded, "Public space [like the new County park in Marple Township] doesn't just protect our environment and create economic value, it builds strong communities and will help Delaware County remain a place where people want to live, work, and raise a family."[43]

Taking Action to Sustain Delco

Seeing the tremendous need for the preservation and investment in the County's remaining open spaces and natural resources, in 2019, Delaware County Council created the Green Ways Grant Program as a means of providing financial assistance to municipalities to conserve, enhance, and connect green spaces in Delaware County. Across the three rounds to-date, this program has awarded over $16.9 million to 44 municipalities and three non-profits to elevate the County's parks and open space system as a unified whole.

In addition to the acquisition and investment in open space, innovative projects, educational programming, and community-based clean ups have served to maintain natural resources throughout the County. While a variety of community groups and non-profits focus on localized natural resource needs, the County has set goals and identified actions, shown on page 79 in the Implementation Matrix, to increase collaboration and provide County-wide solutions to ensure that all residents and communities may have access to and benefit from enhanced open spaces within their communities.

[TOP] **The 20-Acre Shaffer Property was acquired utilizing funding from the Green Ways Grant Program (Bethel Township).** *PHOTO: DCPD*

[BOTTOM] **Christmas trees are installed in Glen Providence Park to prevent streambank erosion (Upper Providence Township).** *PHOTO: Delaware County Conservation District*

Cyclists ride through Wallingford on their way to the Chester Creek Trail (Nether Providence Township).
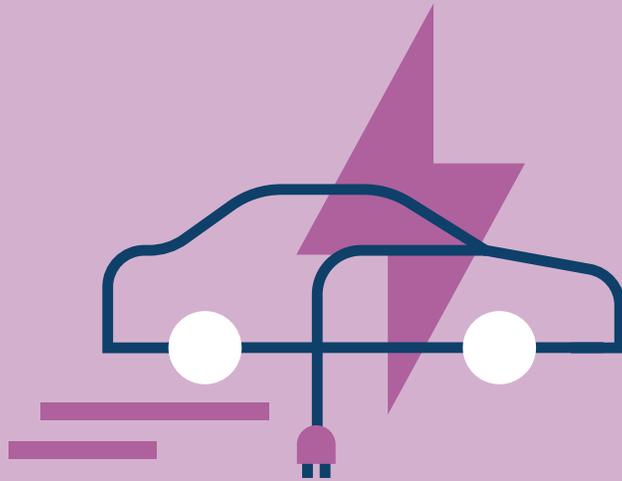
PHOTO: *Bicycle Coalition of Greater Philadelphia*

TRANSPORTATION

GOAL

Increase accessibility to safe, active, and multimodal transportation as alternatives to single-occupant motor vehicles.
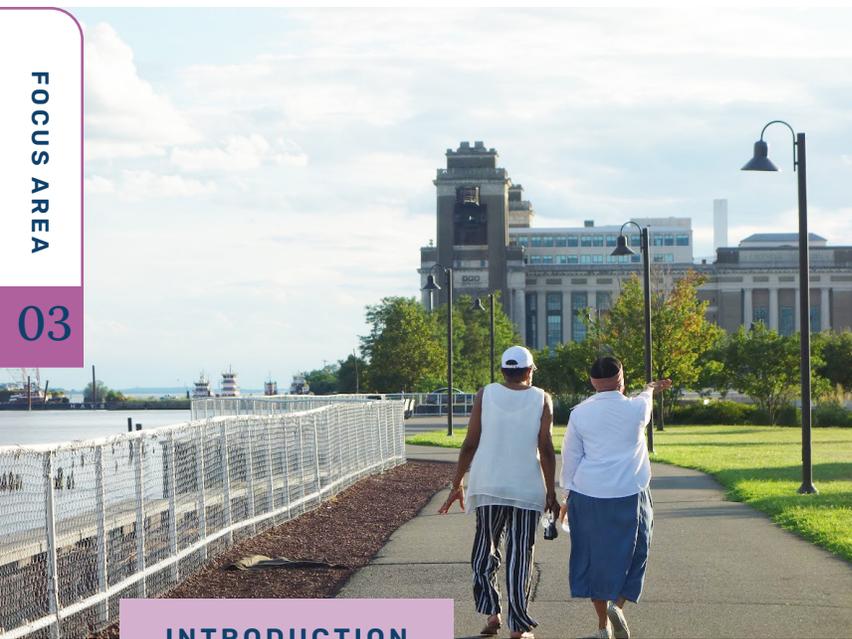
INTRODUCTION

"Transportation is the center of the world! It is the glue of our daily lives. When it goes well, we don't see it. When it goes wrong, it negatively colors our day...[and] curtails our possibilities."[44] Transportation impacts every part of life, from getting to work, to accessing healthcare and religious institutions, to accessing education and even food. While transportation is a necessity of modern life allowing for the movement of people and products between communities, poor design, heavy traffic, and inaccessibility can serve to further divide and burden marginalized and underserved communities. Transportation impacts the environment, economy, health, and overall quality of life.

[ABOVE] **Women stroll the East Coast Greenway along the Delaware Riverfront in Chester City.** PHOTO: East Coast Greenway Alliance

Transportation

BASELINE DATA

1,899
Miles of Sidewalks[45]

200.3
Miles of Trails[46]

46,491
Average Daily Passenger Activity (Transit Ridership)[47]

37
Public Charging Stations[48]

12
County Charging Stations

2,584
Electric Vehicles Registered[49]

44
County Electric Vehicles

Transportation

SUBGOALS	TARGETS
Walking Increase walking as a form of active transportation in Delaware County.	Increase miles of sidewalk and trails by 5% over 5 years.
Biking Increase biking as a form of active transportation in Delaware County.	Increase miles of bike lanes, safe bike routes, and trails by 5% over 5 years.
Public Transit Increase transit ridership in Delaware County	Increase transit ridership in Delaware County by 20% over 5 years. Provide education to all 49 Delaware County municipalities on the benefits and availability of biking, walking, and use of public transit over 5 years.
Electric Vehicles Support access to and adoption of Electric Vehicles (EV) and EV infrastructure.	Increase the number of public and county-owned charging stations throughout Delaware County by 50% over the next 5 years. Increase the number of electric vehicles in Delaware County by 400% over the next 5 years. Electrify 25% of the County Fleet over the next 5 years.
Emissions Reduce emissions in Delaware County.	Reduce County emissions by 20% from the 2019 baseline over the next 5 years.

EXISTING CONDITIONS

Driving in Delaware County

As an urban/suburban County sandwiched between two large cities, Delaware County has a vast network of over 1,846 linear miles of state and local roads and 14 principal arterial highways, including interstates I-95 and I-476, among others. In Delaware County, cars and other passenger vehicles remain the primary choice of transportation. Nearly 75% of residents drive alone to work for an average commute time of 27 minutes.[50] Despite this percentage being lower than neighboring Bucks, Chester, and Montgomery counties, these commuting habits equate to approximately 222,768 single-occupant vehicles on Delaware County roadways each day.[51] With many of the roadways in Delaware County built during development booms prior to 1970, congestion, traffic, and idling are very common due to the increased population density. These transportation patterns lead to tremendous amounts of GHG emissions being spewed into neighborhoods every day.

While these emissions accelerate global warming, they are associated with disproportionate health impacts to communities such as asthma, cancer, and cardiovascular disease. This is particularly the case for communities burdened with heavy traffic. The greatest example of this disparity can be found in one of Delaware County's most heavily traveled roads, Interstate 95. The construction of I-95 in the 1960's split many historically BIPOC neighborhoods directly in two, leading to an immediate drop in property values, community separation from the Delaware Riverfront, and an increased burden of heavy traffic, noise, and emissions.[52] The impacts from this development can still be seen in the local neighborhoods more than 60 years later.

While the entire road network of Delaware County cannot be replaced, harmful ground-level emissions can be reduced through the use of electric vehicles (EV). Projections from the National Resources Defense Council estimate that the electrification of the transportation sector will show a 48% decrease in emissions by 2050 in the "business as usual" GHG scenario and a 70% reduction in a low-GHG scenario.[53] One of the largest benefits of utilizing EVs is the reduction in particulate matter (PM) associated with tailpipe emissions. PM can penetrate deep in your lungs and is known to decrease lung function, increase respiratory symptoms, cause irregular heartbeat, and can cause premature death in people with heart or lung disease.[54] The elimination of PM from tailpipes would have an immediate benefit to community health. In seeing the harmful effects of the current transportation system on both the environment and human health, Delaware County is seeking to implement meaningful solutions to mitigate harm while offering equitable and accessible alternatives to all communities.

Delaware County Vehicle Registration by Type

	GAS	DIESEL	ELECTRIC	HYBRID	PROPANE	OTHER*	TOTAL
2022	370,662	6,830	2,584	3,982	42	2,545	**386,751**
2021	374,619	6,627	1,367	2,096	71	1,180	**385,960**
2020	370,673	6,308	907	1,545	48	1,162	**380,641**
2019	368,708	6,238	678	1,348	37	1,075	**378,074**
2018	373,435	6,268	506	1,230	21	1,004	**382,464**

Other includes, but is not limited to, Natural Gas, Compressed Gas, Flex Fuel

SOURCE: Pennsylvania Department of Transportation

SUSTAINABILITY SPOTLIGHT

Sustainable Transportation in the Community: Blazing the Trail with the East Coast Greenway

What if you could safely bike from Maine to Florida while visiting major cities along the way? That's exactly what the East Coast Greenway (ECG) is aiming to do! The East Coast Greenway is a walking and biking route stretching 3,000 miles from Maine to Florida, connecting the Nation's most populated corridor.[55] For nearly three decades, the nonprofit East Coast Greenway Alliance (ECGA) has been leading development of the trail network by working with local governments and community partners. Mid-Atlantic Manager for the ECGA Daniel Paschall shared, "The ECG in Delaware County has long been planned to create an off-road walking and biking trail connecting Southwest Philadelphia and the John Heinz National Wildlife Refuge through six municipalities parallel to the Delaware River. The route is co-aligned with the September 11th National Memorial Trail and PA Bicycle Route E".

To date, the ECG through Delaware County consists of on-road segments through Marcus Hook and Trainer Boroughs and off-road segments on the Industrial Heritage Trail in Tinicum Township, the Riverfront Trail in Chester City, and through John Heinz National Wildlife Refuge. The ECG provides many benefits including connecting many underserved communities that have not historically had access to recreational trails, providing residents with direct access to the Delaware Riverfront, and bringing new visitors to the area generating additional traffic for local businesses.

Multiple organizations have worked together over the last twenty years to fund and plan for this trail. Daniel Paschall added, "Thanks to the leadership of Delaware County and its municipalities, many trail segments have recently been advanced into the planning and design stages, so that in the coming years, residents and visitors alike will be able to walk, roll, and bike along a continuous Greenway to safely access local destinations and outdoor recreation along the Delaware River."
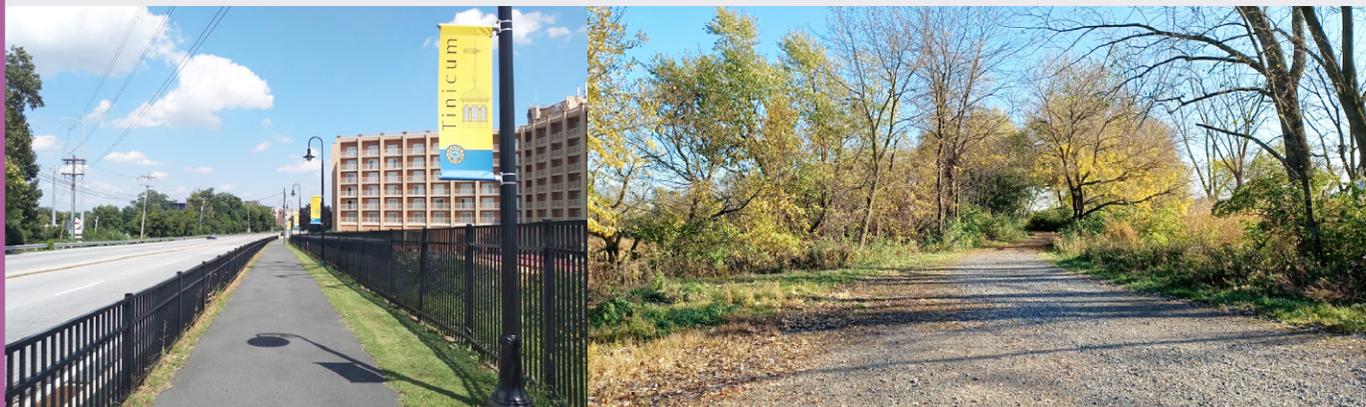
The East Coast Greenway along Route 291 in Tinicum Township. PHOTO: *East Coast Greenway Alliance*

An unpaved section of the East Coast Greenway in John Heinz National Wildlife Refuge (Tinicum Township). PHOTO: *East Coast Greenway Alliance*

Public Transit

In addition to an expansive road network, the County also boasts the most robust public transportation network among the suburban counties in southeastern Pennsylvania, offering regional rail, light and heavy rail (trolley and high speed/elevated lines), and bus service operated by the Southeastern Pennsylvania Transportation Authority (SEPTA). SEPTA offers three transportation centers in Delaware County: The 69th Street Transportation Center in Upper Darby; The Darby Transportation Center in Darby Borough; and the Chester Transportation Center in the City of Chester. While approximately 10% of all trips Delaware County residents took between 2011-2015 were utilizing public transit,[56] ridership dropped nearly 20% between 2013 and 2019, then dropped another 50% during the COVID-19 pandemic.[57] To combat the decrease in ridership, SEPTA is currently undergoing Bus Revolution and Trolley Modernization projects to align routes and stops with demand. These modernizations are the first of their kind for SEPTA and aim to make rides more efficient and reliable. The annual carbon footprint of a typical American household would be reduced by 8.1% if just one driver per household switched to taking public transportation for a daily commute to work. This equates to about 4,627 pounds of CO_2 each year.[58] In partnership with SEPTA, Delaware County hopes to increase public transit as an effective way of combating GHG emissions.

Biking and Walking in Delaware County

In addition to the road networks and public transit facilities, local infrastructure such as sidewalks, bike lanes, and trails serve to connect communities in Delaware County; however, the availability of these resources vary greatly from one municipality to the next. Mature neighborhoods in eastern and southern Delaware County tend to have more sidewalks and walkability than growing suburbs in the western part of the County.[59] In a community survey for the Delaware County Transportation Plan, 20% of respondents stated that they walk to destinations at least three times a week. Nearly 50% said they would walk more frequently if there were more sidewalks.[60]

In addition to sidewalks, trails provide important connectors for both walking and biking within the community. As of 2021, Delaware County had 200.3 miles of multi-use trails, many of which serve as the main spokes of the Primary Trail Network (PTN). The Primary Trail Network is a vision for Delaware County which includes a series of 25 trails forming a network of interconnected, non-motorized travel and recreation connections across all corners of Delaware County.[61] Envisioned and under construction since 2015, the PTN will not only provide non-motorized transportation corridors within the County, but it will also connect users to the Circuit Trail network, a regional trail network connecting over 300 miles of off-road trails across the 9-county Philadelphia Region. Off-road trails fill necessary gaps for active transportation, as the County is lacking in both on-road and protected bike lanes. This kind of infrastructure is incredibly important for improving safety conditions as 24 bicyclists were killed and more than 750 injured in Pennsylvania due to vehicle crashes in 2021.[62]

[LEFT] **SEPTA trolley at 69th Street Station in Upper Darby.** PHOTO: DCPD

Active modes of transportation, such as walking and biking, not only reduce GHG emissions, but they also provide important health benefits. Communities that have access to biking, walking and other active modes of transportation have lower rates of health issues such as obesity and diabetes.[63] Increasing infrastructure for active transportation is necessary to combat climate change and to ensure the safety and health of Delaware County residents.

County Employees Walk along the East Coast Greenway in Chester City near the Commodore Barry Bridge. *PHOTO: DCPD*

Delaware County Primary Trail Network
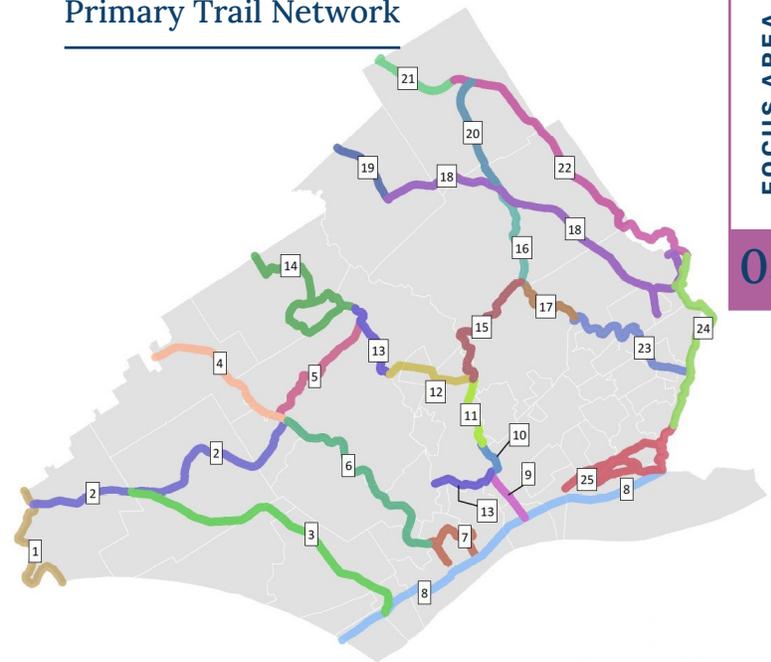
1 - Brandywine Creek Greenway
2 - Octoraro Rail Trail
3 - PECO Right-of-Way Trail
4 - Chester Creek Trail - North Extension
5 - Rocky Run Trail
6 - Chester Creek Trail
7 - Chester Creek Trail - East Coast Greenway (ECG) Connector
8 - East Coast Greenway
9 - Blue Route Bikeway - East Coast Greenway (ECG) Connector
10 - Blue Route Bikeway - Leiper to Kinder Connector
11 - Blue Route Bikeway - Leiper-Smedley Trail
12 - Media-Smedley Connector Trail
13 - Ridley Creek Greenway (North & South Sections)
14 - Ridley Creek State Park Trails
15 - Blue Route Bikeway - Smedley to Darby Creek
16 - Darby Creek Trail - Haverford Township
17 - Darby Creek Trail - Drexel Hill Connector
18 - Newtown Square Branch Rail Trail
19 - Route 252 Bicycle Route
20 - Blue Route Bikeway - Ithan-Darby Creek Valley
21 - Radnor Trail
22 - Forge to Refuge Trail
23 - Darby Creek Stream Valley Park Trail
24 - Cobbs Creek Trail
25 - Heinz Refuge Trails

SOURCE: DCPD

SUSTAINABILITY SPOTLIGHT

Sustainable Transportation in the County: For the Delaware County Fleet, It's Electric!
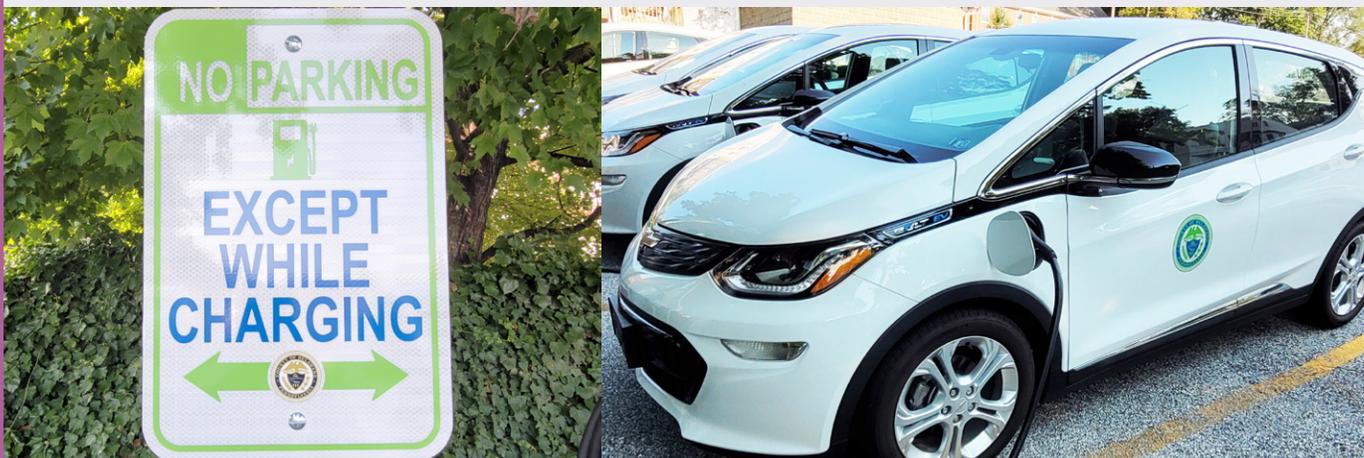
Delaware County has an entire parking lot dedicated to charging Its fleet of EVs (Media Borough). PHOTO: DCOS

Delaware County's EV Chevy Bolt's can be found charging in Amber Street parking lot (Media Borough). PHOTO: DCOS

Delaware County has a fleet of 320 vehicles used by the nearly 3,000 employees across 62 departments. County vehicles are used for a variety of tasks including transporting employees, conducting investigations, moving heavy equipment, performing park maintenance, and transporting incarcerated individuals, to name a few.

In 2021, Delaware County was approached by the Eastern Pennsylvania Alliance for Clean Transportation (EP-ACT) with the proposal of electrifying the County fleet. The County saw this as an opportunity to upgrade vehicles that needed to be replaced while also reducing fossil fuel usage and ground-level emissions. With assistance from EP-ACT, the County applied for two Alternative Fuel Incentive Grants (AFIG) through the Pennsylvania Department of Environmental Protection (PA DEP) to purchase 15 Chevy Bolts and four level-2 dual charging stations. The applications were awarded in the amount of $148,240, allowing the County to deploy electric vehicles (EVs) in the Department of Human Services, Public Works, Office of Sustainability, Mailroom, Planning Department, and in the Department of Motor Vehicle Management for "pool" vehicles. Employees in the pilot reported that the EVs provided a positive experience while meeting their needs.

Following the success of the pilot, Delaware County applied for two additional grants from the PA DEP AFIG program, in 2022, to further expand the fleet and charging infrastructure. An astounding $600,000 was awarded in support of the expansion, marking PA DEP's largest grant award in the program's history. $300,000 was awarded to purchase 69 additional EVs and the remaining $300,000 was awarded for the installation of 22 level-2 charging stations. To date, 29 of the 69 EVs have been delivered and deployed for use in Delaware County's new Health Department. As of April 2023, the County fleet had 44 EVs, displacing approximately 198 metric tons of CO_2 per year.

A group of dedicated cyclists navigate a busy intersection in Nether Providence Township. *PHOTO: Bicycle Coalition of Greater Philadelphia*

Taking Action to Sustain Delco

While Delaware County does not own any roads, it is committed to making the transportation safer and more accessible for the residents and visitors. In 2022, Delaware County received a $150,000 grant from the Transportation and Community Development Initiative (TCDI) to complete a road safety study along Route 291 in Ridley Township, Eddystone Borough, and the City of Chester. Route 291 is a regionally significant thoroughfare that provides access to residential, commercial, and industrial areas. The current design of Route 291 has many deficiencies and has led to unsafe conditions for all users. Between 2015 and 2019, there were 355 crashes along 291, of which, 10 were fatal, 8 involved pedestrians, and 3 involved bicyclists.[64] This study will identify safety interventions that improve road conditions, positively impact economic development opportunities, and provide multimodal connections to the East Coast Greenway.

This Plan identifies different strategies for increasing accessibility to safe, active, and multimodal transportation as alternatives to single occupant motor vehicles. Targets and actions, shown on page 82 in the Implementation Matrix, seek to increase infrastructure for transportation alternatives such as walking, biking, and EVs, while also shifting individual behavior and culture away from cars.

Solar installation on the roof of the Delaware County Courthouse (Media Borough).
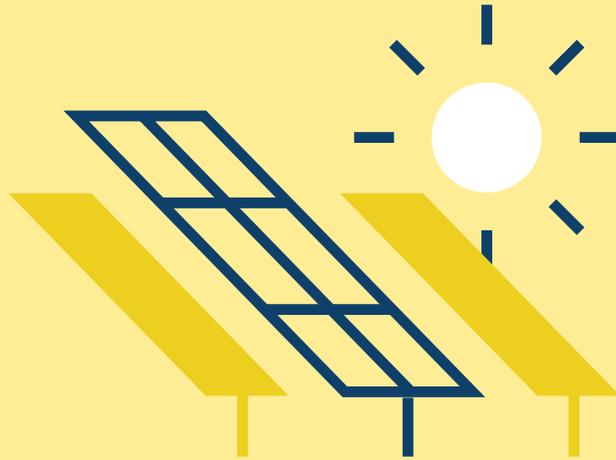
ENERGY & EFFICIENCIES

GOAL

Reduce water and energy consumption in buildings and properties in Delaware County and transition to combustion-free renewable energy.
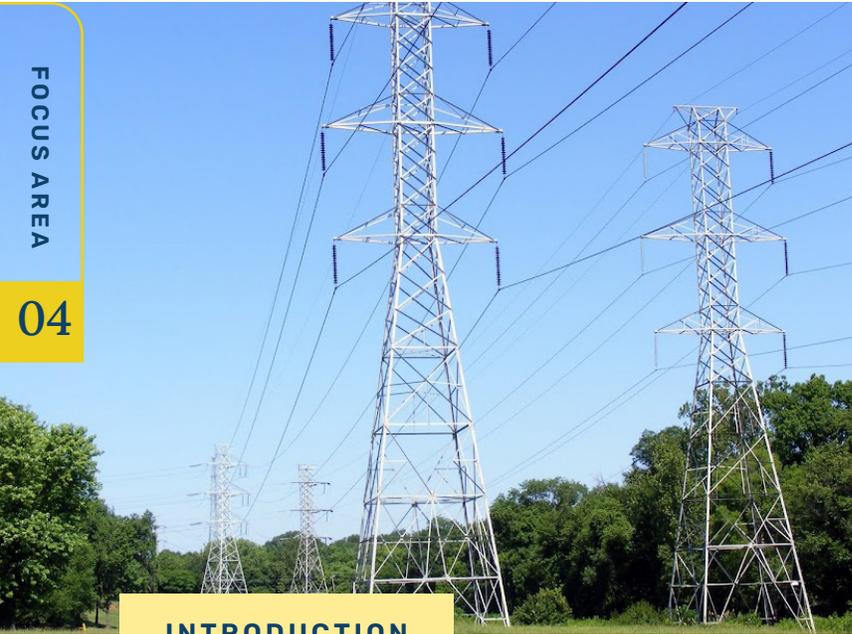
INTRODUCTION

Pennsylvania is the second-largest net supplier of domestic energy in the United States.[65] Energy is essential both in maintaining the economy and quality of life in the Commonwealth. Historically centered around coal and natural gas industries, Pennsylvania has seen the economic advantages of being an energy leader in the United States; however, acid mine drainage, poor air quality ratings, and polluted water sources now have left Pennsylvanians looking for more sustainable options. Large industrial facilities and fossil fuel refineries along the Delaware riverfront both in Delaware County and adjacent Philadelphia County have served as the catalysts for amplifying the need for an energy transition across the region.

[ABOVE] Transmission lines carry electricity through Trainer Borough.
PHOTO: DCPD

BASELINE DATA

259,827,323
kWh of Energy consumption in County buildings[66]

1,795
installations/

15.34 MW
Locally sourced renewable energy infrastructure in Delaware County[67]

3,013,009
Metric tons of GHG emissions produced from energy and buildings (Community)[68]

16,878
Metric tons of Scope 1 and 2 emissions produced from energy and buildings (County)[69]

Energy & Efficiencies

SUBGOALS

Energy

Reduce energy consumption in buildings and properties in Delaware County.

Water

Reduce water consumption in buildings and properties in Delaware County

TARGETS

Reduce energy consumption in County buildings (EUI — kBTU/Sqft) by 20% over the next 5 years.

Reduce energy consumption in residential and commercial buildings by 20% over the next 5 years.

To reduce water consumption in County buildings by 20% over the next 5 years.

Reduce water consumption in residential, commercial, and industrial buildings by 20% over the next 5 years.

Renewable Energy

Increase availability and use of renewable energy sources

Emissions

Reduce emissions in Delaware County.

TARGETS

Increase availability and use of combustion-free locally sourced renewable energy sources in County buildings by 10% over the next 5 years.

Increase availability and use of combustion-free locally sourced renewable energy sources in residential, commercial, and industrial properties by 10% over the next 5 years.

Reduce County emissions by 20% from the 2019 baseline over the next 5 years.

EXISTING CONDITIONS

In Delaware County, electricity is provided directly to residents from PECO, a local retail distribution company that services nearly 1.6 million electricity customers across Bucks, Chester, Delaware, Montgomery, and Philadelphia Counties. PECO also provides service to another 500,000 natural gas customers in the Greater Philadelphia region. PECO purchases its electricity from a regional transmission organization, PJM Interconnection (PJM), based in Montgomery County, Pennsylvania. PJM works directly with generators and resellers to transmit wholesale energy through the grid for local distribution in Pennsylvania, as well as 12 other states.[70] In Pennsylvania, grid energy is generated from natural gas, nuclear, hydroelectric, as well as other sources. For a complete breakdown of Pennsylvania's grid energy, please see the corresponding pie chart.

Grid Energy Breakdown (Pennsylvania)

NUCLEAR 31.4%	**PETROLEUM** 0.1%	**SOLAR - PV** 0.1%
COAL 12.1%	**HYDROELECTRIC** 0.8%	**WIND** 1.5%
NATURAL GAS 52.7%	**GEOTHERMAL** 0.0%	**BIOMASS AND OTHER** 1.4%
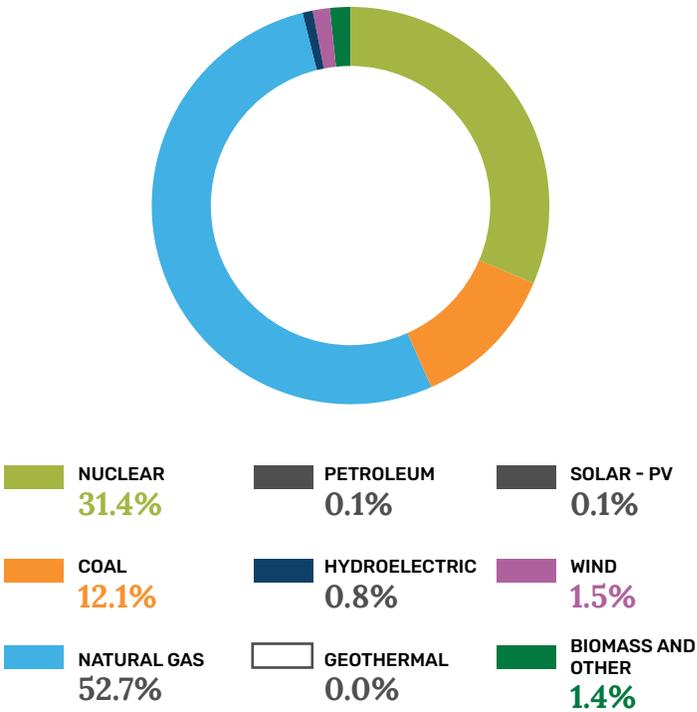
SOURCE: Provident Energy

Due to limited options for renewables through the grid and outdated infrastructure, electricity from buildings serves as one of the largest contributors of GHG emissions in Pennsylvania. In 2019, Delaware County residential and commercial energy usage contributed over 3 million metric tons of emissions;[71] the equivalent of burning over 3.3 billion pounds of coal in a single year.[72] In residential buildings alone, over 1.5 million metric tons of CO2e were generated, equating to just under 3 metric tons per Delaware County resident.[73] County operations mirrored this trend with over 90% of its emissions coming from buildings, with the largest generators being the Fair Acres and George W. Hill Correctional Facility Campuses. As energy demands continue to grow with new development and increased electrification, innovation and efficiency will be required to reduce emissions while providing reliable power to meet the needs of the County.

Delaware County is seeking to improve these conditions by not only improving building efficiency, but also increasing local renewable energy sources. Many community groups and non-profits such as Solarize Delco, The Clean Energy Co-op, and the Sustainable Energy Fund have been actively working to increase solar energy in the region for many decades; however, they still face many constraints within local communities. Delaware County is seeking to assist in removing barriers to local renewable energy by providing additional education, concerting community efforts, fostering partnerships, and providing guidance regarding funding sources for implementing local projects.

Overview of the Electricity Grid

Regional Transmission Organizations, such as PJM Interconnection, trade and move wholesale electricity across wide geographic regions

End Customers receive electricity at market rates

WHOLESALE

RETAIL

Generators produce electricity

Local Distribution Companies, such as PECO, "step down" voltage of electricity to make it safe for retail distribution to its end customers
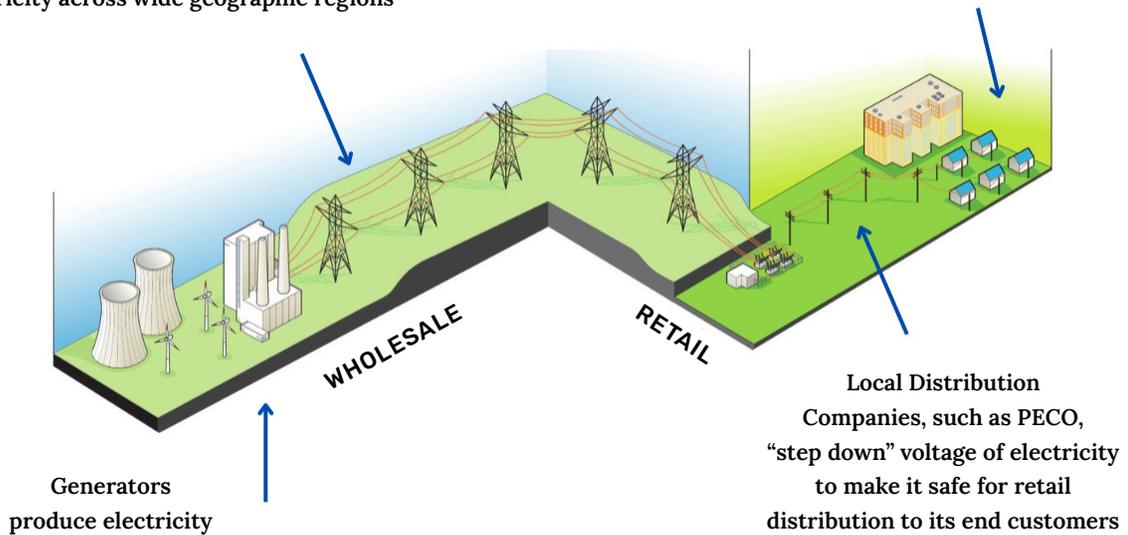
SOURCE: PJM

Delaware County Electric/Natural Gas Usage, 2018 – 2022
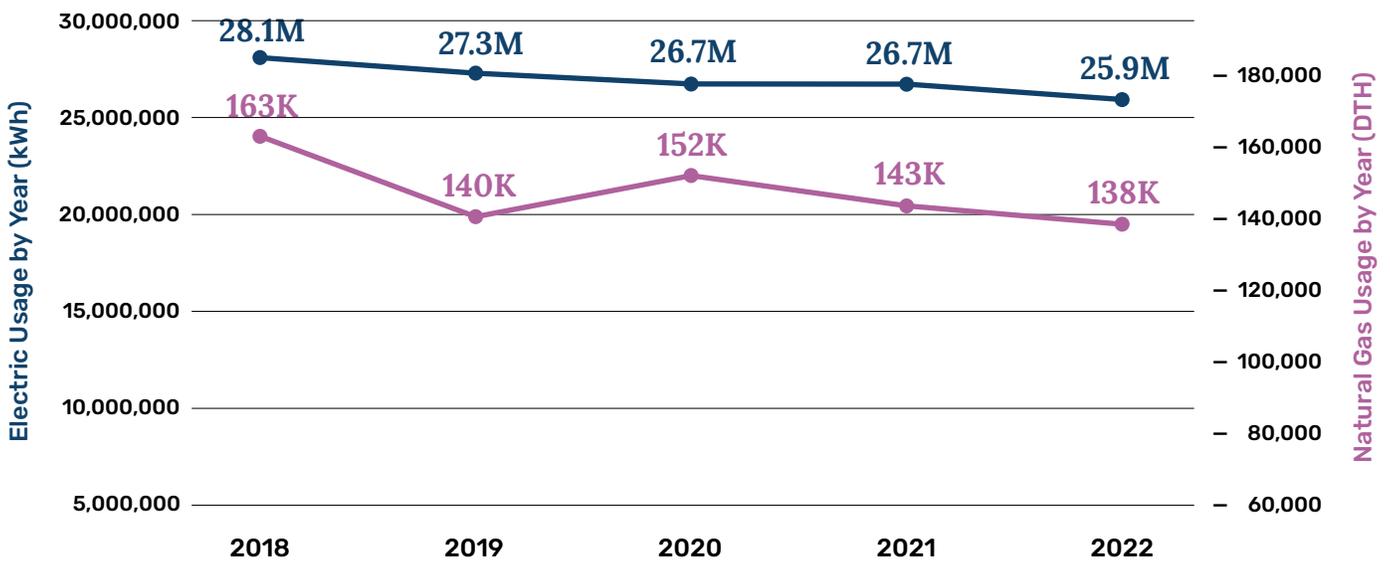
SOURCE: Provident Energy

Water

Much like energy, as the demand for clean water continues to grow, innovation and efficiency are required to continue to provide a reliable supply to meet community needs. In Delaware County, Aqua America (Aqua), and Chester Water Authority (CWA) are the largest public water providers servicing the County. Aqua America, which was originally created in 1886 by a group of Swarthmore College professors looking to supply water to the residents of Springfield Township, Delaware County, is headquartered in Bryn Mawr, and now services customers across eight states. Locally, Aqua sources its water from Chester, Ridley, Crum, Pickering, Perkiomen and Neshaminy Creeks, and the Schuylkill River, as well as many local reservoirs, seven of which are in Delaware County.[74] The Chester Water Authority, which was originally created in 1866 to provide water to a mere 67 customers in the City of Chester, now services over 200,000 Delaware and Chester County residents. CWA gets water from the Octoraro Reservoir and the Susquehanna River.[75] In additional to Aqua and the CWA, a small percentage of Delaware County residents are serviced by Veolia, based out of the State of Delaware, or still rely on private wells.

While local water sources are considered stable, and climate predictions anticipate increased precipitation in Delaware County in both low and high emissions scenarios,[76] scientists have estimated that in just 50 years, many regions across the U.S. will see water supplies reduced by a third of their current size.[77] Depleted water sources from other regions in the country may have localized impacts, as the United Nations has noted that over 10% of the rise in global migrations are associated with water deficits.[78] A safe and secure water source is imperative to a healthy community, economy, and environment in Delaware County; it is crucial that the County and community are proactive in protecting this vital natural resource.

SUSTAINABILITY SPOTLIGHT

Energy and Efficiencies in the Community: Delaware County Religious Institutions are a Guiding Light for Renewable Energy

Delaware County's religious institutions are leading the way to sustainability with renewable energy installations. In 2021, Temple Lutheran Church in Haverford Township worked with Solarize Delco, an all-volunteer nonprofit which encourages local use of solar power, to install a 44-kilowatt solar array on its roof.[79] At the time, the installation was Solarize Delco's largest project for a private institution to-date. The installation was large enough to offset 100% of the church's annual electricity usage, eliminating approximately 24 tons of carbon emissions annually.

In December 2022, Congregation Beth Israel in Media installed 62 solar panels on its roof to create a 26-kilowatt array.[80] The installation was the culmination of two years of dedicated efforts of the Congregation's team who worked closely with Solar States. The solar array project came on the heels of 15-years of energy efficiency projects that allowed the Congregation to halve its energy usage and emissions. The Inflation Reduction Act, which extended federal tax credits to nonprofit organizations, assisted in making the Congregations dream of solar panels reality. Over time, the synagogue will save between $3,000 - $5,000 annually because of the switch. Rabbi Martin shared, "The green work we do here not only helps our community but helps make an impact locally and globally, as well. The solar project will inspire us to be servants and stewards of the planet." The Congregation dedicated the array on the first night of Hanukkah for a real festival of lights!

Temple Lutheran Church in Haverford Township Cuts the Ribbon on their New Solar Array. PHOTO: *Delaware County*

Congregation Beth Israel Hosts 62 Solar Panels on its Roof (Middletown Township). PHOTO: *Congregation Beth Israel*

SUSTAINABILITY SPOTLIGHT

Energy and Efficiencies in the County: Delaware County's Decade-Long Commitment to Renewable Energy

Solar Panels on the Roof of the Delaware County Government Center (Media Borough).

Delaware County has been committed to renewable energy since 2012, when it installed more than 2,000 solar panels on the roof of the Courthouse and Government Center in Media. While the solar panels support some of the County's energy demand, additional supplemental energy is required. To meet this need, Delaware County purchases renewable energy credits (RECs). RECs are purchased when local renewable energy sources are not directly available. With its most recent purchase of more than 25.73 million kilowatt hours of 100% green energy certified wind power, the County received a Certificate of Recognition from WGL Energy for its leadership in renewable energy.

To further its commitment to renewable energy, Delaware County has joined Bucks, Chester, and Montgomery Counties to form the Southeastern Pennsylvania Energy Partnership Agreement (SEPA) spearheaded by the Delaware Valley Regional Planning Commission (DVRPC). SEPA leverages purchasing power of the Counties as a group to procure renewable energy at the greatest value. While this strategy does not mitigate the need for more locally sourced renewable energy, it allows the Counties to have more flexibility and options for purchasing renewable energy.

To address the need for more local renewable energy options across the region, Delaware County has joined the PJM Cities and Communities Coalition (PJM CCC). PJM CCC is a formal coalition of local governments which share ambitious clean energy goals. The group was organized to advocate and drive decarbonization in the wholesale electricity market. PJM CCC membership represents communities across the PJM service region from as far as Chicago to Philadelphia to Washington DC. These communities are dedicated to reducing carbon emissions and removing barriers to decarbonization in their regional wholesale electricity market offered by PJM. This partnership is one of the first of its kind across the country where cities and communities are coming together to demand clean energy from distributors and producers as a means of combating climate change.

Congresswoman Mary Gay Scanlon and State Rep. Jennifer O'Mara pose with residents at their Clean Energy Expo hosted in partnership with Senator Tim Kearney (No Pictured) (Nether Providence Township). *PHOTO: Senator Tim Kearney*

Taking Action to Sustain Delco

Both energy and water are critical in maintaining the quality of life in Delaware County. While different in many aspects, both energy and water are provided through public utilities that rely on supply and demand. When considering a more sustainable future in both areas, strategies in both supply and demand must be regarded. For energy, the residents of Delaware County have made it clear they are ready to transition to renewable energy sources as a means to reduce emissions and mitigate climate change. To date, 10% of Delaware County municipalities have codified their commitment to this transition by adopting Ready for 100 Resolutions, in support of 100% clean and renewable electricity by 2035.[81] Delaware County has shared this commitment by purchasing 100% of its energy using renewable energy credits (RECs).

The need for local sources of renewables is apparent. Localized or community-based renewable energy infrastructure has many benefits. This includes allowing for self-sufficiency, stabilizing energy supplies, being more resilient to natural hazards, and keeping energy costs down due to the reduction in transmission equipment.[82] Local renewables allow the community to mitigate the impacts of climate change through the reduction of GHGs while also adapting to future conditions and challenges. Delaware County has identified meaningful actions, shown on page 88 in the Implemenation Matrix, to address efficiency, consumption, and supply in both energy and water to maintain a thriving community in a changing climate.

Bales of alumnium cans for recycling at the Omni Recycling Plant in Pitman, NJ.

PHOTO: *Media Borough Zero Waste Committee*

ZERO WASTE

GOAL

Achieve Zero Waste in Delaware County.

Zero Waste

When things are no longer useful or wanted, they are thrown away, but there really is no "away." While the United States is home to just 4% of the world's population, it generates approximately 12% of the world's municipal solid waste (MSW).[83] In 2021, Pennsylvanians contributed approximately 9.4 million tons to the total; the equivalent of around 4 pounds of trash per person per day.[84] With the majority of waste in Pennsylvania going to landfills, it is left to degrade, generating approximately 14.5% of all GHG emissions in the Commonwealth. In addition to landfilling, waste incineration also contributes harmful emissions, such as particulate matter (PM), carbon dioxide (CO2), nitrogen oxides (NOx) and sulfur dioxides (SO2), which not only accelerate climate change, but also adversely impact human health. While recycling can reduce the number of emissions created through the waste stream, tonnages in Pennsylvania have dropped slightly in recent years.[85] Delaware County is striving to reverse these trends by adopting and implementing Zero Waste solutions both in County operations and in the community.

[ABOVE] Volunteers participate in the 2023 Earth Day Clean Up in Clayton Park (Concord Township).

BASELINE DATA

646,372

Total Tons of Waste Generated by County[86]

37%

Diversion Rate County-wide

• **239,800** tons of diversion (recycling and composting)

• **406,572** tons of disposal (landfill and incineration)

Zero Waste

SUBGOALS

Internal Operations

To achieve zero waste in county operations.

County-wide

To achieve zero waste in all 49 municipalities

Emissions

To reduce emissions from waste.

TARGETS

Increase diversion rate in County buildings to 50% over the next 5 years.

Reduce waste tonnage in County buildings by 60% over the next 5 years.

Increase diversion rate in Delaware County to 50% over the next 5 years.

Reduce waste tonnage in Delaware County by 60% over the next 5 years.

Reduce County emissions by 20% from the 2019 baseline over the next 5 years.

Municipal Solid Waste (MSW)

In Delaware County, 63% of waste generated is disposed of, rather than recycled, composted, or otherwise reclaimed.[87] Each of the 49 municipalities is responsible for overseeing waste collection from its residents: 14 municipalities facilitate their own collections, 25 contract third-party haulers, and 10 require residents to contract with haulers on their own behalf. While each municipality does collection a bit differently, all 49 municipalities have signed ordinances committing their MSW to be delivered to facilities owned or designated by the Delaware County Solid Waste Authority (Authority).

The Authority is an independent government agency, designated by Delaware County Council, to accept and handle residential and commercial waste generated within the County. The Authority owns two transfer stations, in Chester and Marple Townships, used to consolidate waste for transport. Two-thirds of MSW in Delaware County is delivered to the transfer stations. From the transfer stations, the waste is then conveyed to a privately-owned incinerator in the City of Chester. One-third of municipal waste is delivered directly from haulers to the incinerator due to close proximity. Following incineration, ash is transported and disposed of at the Authority-owned Rolling Hills Landfill in Earl Township, Bucks County.

The incinerator in the City of Chester has drawn environmental justice activism for decades. Considered one of the top GHG emitters in the County, the incinerator, in combination with other large industry and the Philadelphia International Airport (PHL), place significant environmental and air quality burdens on neighboring communities. According to the U.S. Environmental Protection Agency (EPA) EJScreen, communities in this corridor fall between the 80th - 100th percentiles for Air Toxics Cancer Risk and Respiratory Hazards in the United States.[88] In recognizing these outcomes, Delaware County is committed to changing the current system to put the health and safety of residents first.

Delco 2020 Baseline Diversion and Disposal Tons and Diversion Rate by Sector

21%

MUNICIPAL
62,609 tons diversion
240,244 tons disposal
302,853 tons generated

52%

COMMERCIAL
177,191 tons diversion
166,327 tons disposal
343,518 tons generated

34%

COUNTYWIDE
239,800 tons diversion
467.768 tons disposal
707,568 tons generated
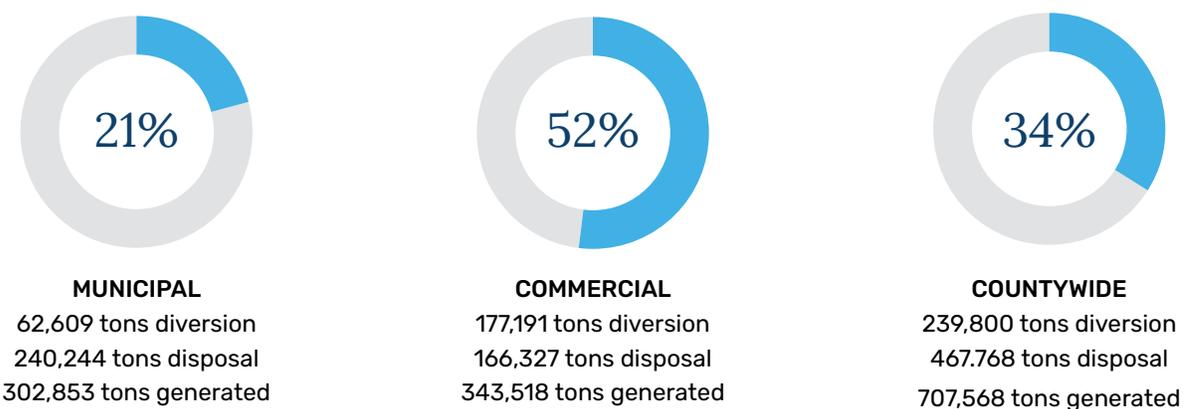
Note: Countywide disposal includes 61,196 tons disposed at facilities outside of the Authority's disposal system

SOURCE: Zero Waste Associates

SUSTAINABILITY SPOTLIGHT

Zero Waste in the Community: Media Borough Discovered Black Gold with its Community Composting Program

In Media Borough, residents "Gotta Getta, Gotta Getta Bucket" to participate in the curbside composting program.[89] In 2018, Media Borough launched a one-year pilot program to gauge the feasibility of adding food scrap collection to current recycling efforts. The program was first made available to 100 households who used Media Borough Public Works for their trash collection. Participating households were provided with a bright yellow five-gallon bucket to place their food scraps such as eggshells, coffee grounds, apple cores, and more. The Media Borough Public Works Department picked the buckets up once a week, and the food waste was then taken to Kitchen Harvest Compost Farm at Linvilla Orchards in Middletown Township. The composting process then converted the food waste into nutrient-rich soil that could be worked back into the land for new food production; an example of a closed-loop, zero-waste system.

Due to high demand, the pilot was expanded to 220 homes, in 2019, and, in part, due to a pair of quirky promotional videos including, "Gotta Getta Bucket" and "Eureka Black Gold", the Borough expanded the program to include all residents, in 2021. Media Borough's current recycling and yard waste programs divert close to 30% of residential solid waste from the incinerator in the City of Chester. Adding the food scrap collection program can reduce that figure by another 30%. Finished compost is offered back to the community four times per year free of charge. The Borough is very proud of this program recognizing its importance for reducing greenhouse gases and energy consumption and for providing a valuable resource back to the community. Since adoption, many other municipalities across the region have reached out to learn how they too can start a local composting program. Projects like this are paving the way for Zero Waste.
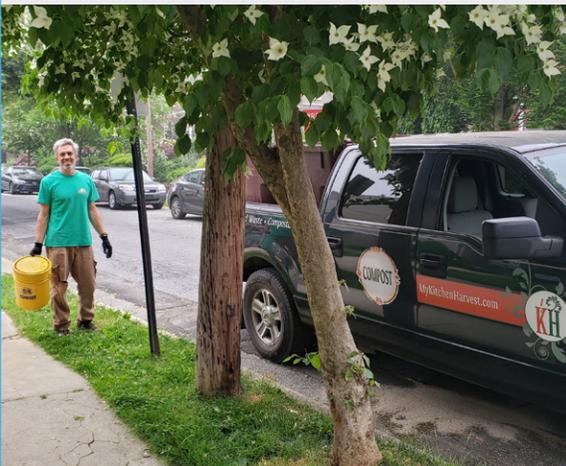
Chris Pieretti collects bucket during Pilot Composting Program (Media Borough).
PHOTO: *Media Borough*

Residents are provided with yellow buckets to collect composting materials.
PHOTO: *Media Borough*

SUSTAINABILITY SPOTLIGHT

Zero Waste in the County: Delaware County Hosts Campaign Sign Recycling Events

County Employees Ed Orner, Kostas Adamidis, Joe Ciavarelli, and Scott McNeil volunteer at the first annual Campaign Sign recycling event (Sharon Hill Borough). *PHOTO: DCOS*

Amanda Hagan (right) and other County staff work to dismantle campaign signs for recycling (Sharon Hill Borough). *PHOTO: DCOS*

Americans generate over 42 million tons of plastic waste each year, with less than 10% being recycled.[90] While some of this can be attributed to a lack of collection programs for hard-to-recycle items, Delaware County is fighting back with its Campaign Sign Recycling Events.

With Election Day 2022 quickly approaching, Delaware County recognized a growing problem as roadsides and front yards became littered in a sea of red, white, and blue plastic. Thousands of campaign signs would be heading for the incinerator as soon as the polls closed. To combat this influx of plastic, the Delaware County Office of Sustainability (DCOS) partnered with Delaware County Council, the Delaware County Solid Waste Authority (DCSWA), and the Delaware County Bureau of Elections to find a solution. After much research, DCOS found a recycling company in Hamburg, PA that was able to properly recycle the corrugated plastic and vinyl signs and a local scrap yard in the City of Chester to take the metal wickets.

Delaware County hosted its first Campaign Sign Recycling Events on November 18th - 19th and December 2nd – 3rd at the Delaware County Emergency Services Training Center in Sharon Hill. While voters, candidates, and campaigns were highly encouraged to reuse election signs and stands as a first option, over 2,280 pounds of metal and 2,000 pounds of plastic were collected for recycling. Some residents shared they had been holding onto signs since the 2008 Presidential Election as they could not bear to see them enter the waste stream. The County looks forward to continuing these events each year following both primary and general elections to reduce waste and beautify the community.

Recycling

Recycling accounts for the remaining 37% of the waste stream in Delaware County with more than 234,000 tons recycled in 2020.[91] Under the Municipal Waste Planning, Recycling, and Waste Reduction Act, (Act 101) municipalities are legally mandated to recycle if they have a population of 10,000 or more or if they have a population of more that 5,000 with a density of more than 300 people per square mile. This mandate, in combination with some elective participation, contributes to 41 municipalities in Delaware County providing municipal recycling service or requiring residents to subscribe to service. This leaves eight municipalities with no requirement to recycle and no established recyclable collection. Of the municipalities that offer recycling, single stream collection is the predominant form, meaning all recyclable materials are mixed together in a single bin. Once collected these materials are delivered to one of four materials recovery facilities (MRF) in the region. Similar to residential requirements, all municipalities mandated under Act 101 also require commercial and institutional establishments to recycle. Delaware County has established goals to move towards more equitable access to recycling across all communities.

Sustainability Commission and Media EAC member David Director visits Omni Recycling in Pitman, NJ. PHOTO: *Media Borough*

Residential Recycling Collection

Legend:
- MUNICIPAL
- CONTRACTED
- SUBSCRIPTION
- NONE

Percent by Municipality: MUNICIPAL 20%, CONTRACTED 57%, SUBSCRIPTION 6%, NONE 16%

Percent by Population: MUNICIPAL 52%, CONTRACTED 40%, SUBSCRIPTION 4%, NONE 4%
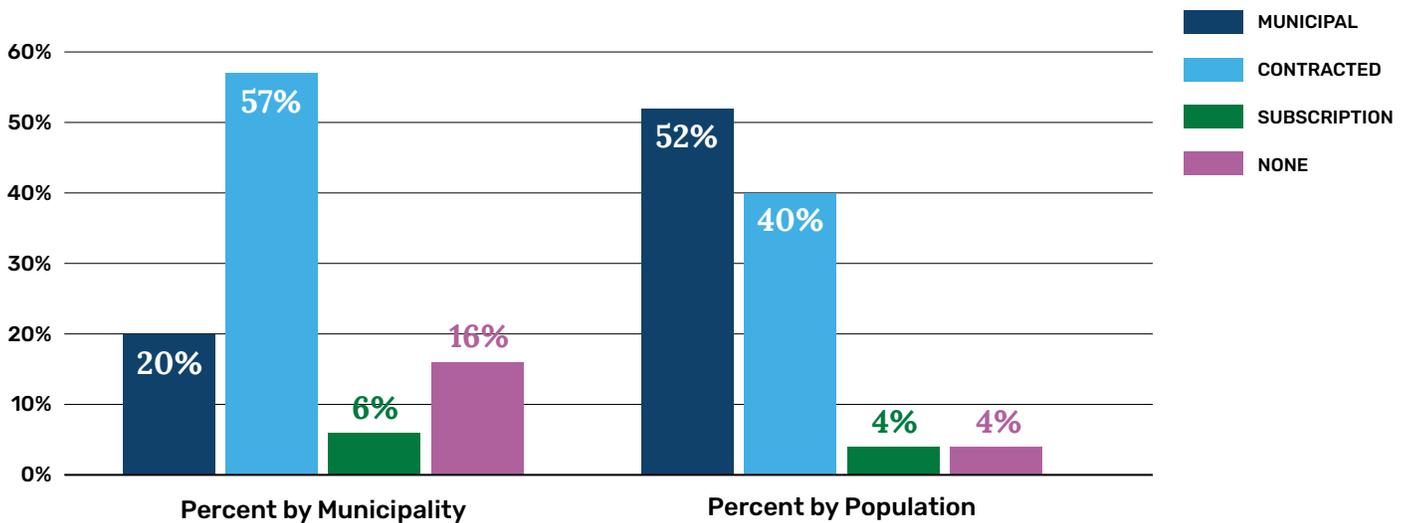
SOURCE: Zero Waste Associates

[TOP] **Compost piles give off steam as they break down.** PHOTO: *Gwen Nolan, Mother Compost*

[BOTTOM] **Food scraps at the new Bennett Compost Facility in Philadelphia.** PHOTO: *DCOS*

Organics

While most municipalities in Delaware County currently offer yard trimmings collection and/or leaf pick up, food scraps collection is not widely offered. Media Borough is currently the only municipality in Delaware County that offers food scraps collection to all households. To cover the needs of the rest of the County, several private food scrap collection providers offer services, such as Mother Compost, EZ Composting, Kitchen Harvest, and Back to Earth Compost Crew.

Large-scale collection of organics is currently constrained, as Linvilla Orchards, in Middletown Township, is the only commercial composting site accepting food scraps in the entire County. To combat this, in February 2023, Delaware County applied for a Solid Waste Infrastructure for Recycling Grant (SWIFR) through the U.S. Environmental Protection Agency (EPA). If awarded, Delaware County will utilize funds to the to open an additional site within the County allowing for the expansion of community composting services. Delaware County is taking active steps to provide necessary infrastructure to increase the diversion of organic material from the waste stream.

[RIGHT] **County Council Vice Chair Elaine Schafer, CSO Francine Locke, and staff of Capozzoli's Courthouse Café display biodegradable packaging after making the switch from traditional plastics (Media Borough).** PHOTO: *Delaware County*

Taking Action to Sustain Delco

In 2021, Delaware County embarked on a planning process to update its mandated 10-year Municipal Waste Management Plan (10-year plan) in compliance with Act 101.[92] While Act 101 requires that the plan address processing and disposal capacities, the County recognized a need to change the existing waste system for a more sustainable future. To do this, Delaware County transformed its 10-year plan from a compliance document into a comprehensive Zero Waste Plan.

> *Zero Waste is the conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health.*[93]

The Zero Waste Hierarchy 8.0

RETHINK/REDESIGN

REDUCE

REUSE

RECYCLE/COMPOST

MATERIAL RECOVERY

RESIDUALS MANAGEMENT
(Biological treatment and stabilized landfilling)

UNACCEPTABLE
(Incineration and "waste-to-energy")
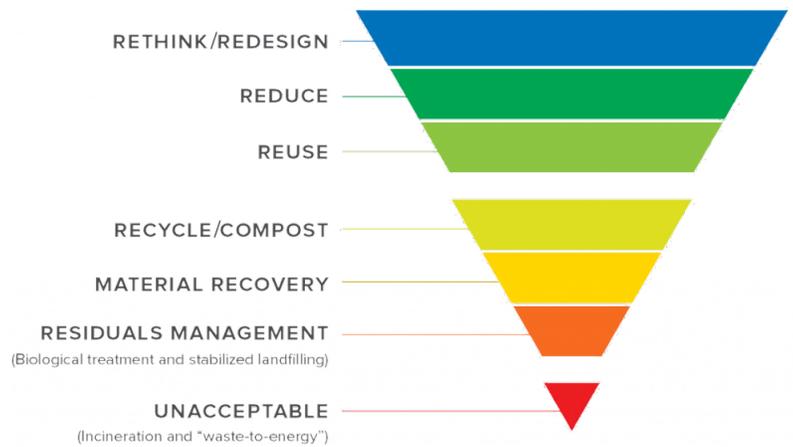
SOURCE: Zero Waste International Alliance

To better understand the existing waste system and identify Zero Waste strategies for the future, a robust public outreach and engagement process took place in 2022. In addition to four Advisory Committee meetings with representatives from municipalities, community organizations, and service providers, 20 listening sessions and three in-person workshops were held to address the 10-year plan's guiding principles, initiatives, and implementation. Nearly 200 stakeholders participated in either the virtual or in-person meetings.

Though still in draft form, the 10-year plan identifies initiatives in accordance with the Zero Waste Hierarchy to be phased in over the full 10-year planning period during the short-term (1-3 years) and medium-term (4-10 years). In tandem with additional actions identified through the Sustainability Plan subcommittee process, the initiatives from the 10-year plan have been incorporated into this Plan to put Delaware County on a path to Zero Waste. The full list of Zero Waste actions can be found beginning on page 91.

Senior Citizens plant their own herbs at the Redwood Community Center in celebration of Earth Day (Upland Borough).

PHOTO: *Delaware County Parks and Recreation*
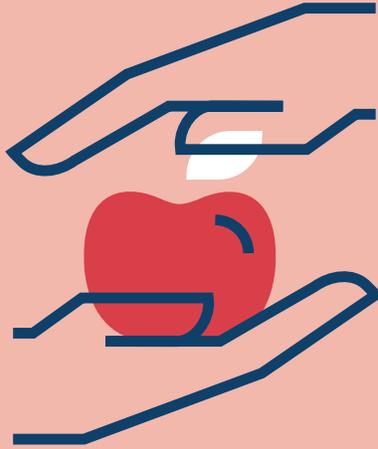
HEALTH & WELLNESS

<div style="text-align:center">GOAL</div>

To create a safe and healthy environment to live, work, play and thrive.

INTRODUCTION

Environmental health and public health are two halves of the same whole. When the natural environment is plagued by pollution, public health is also negatively impacted. Poor air quality can aggravate asthma and other respiratory conditions; contaminated water can lead to gastrointestinal issues or other serious health issues; and contaminated soil can lead to neurological deficiencies among other complications. Climate change places additional stress on these systems and has been described as the biggest health threat facing humanity.[94] Extreme heat, increases in disease, and other environmental impacts associated with climate change can affect the seriousness or frequency of underlying health issues or they can create new problems in people who had not been previously impacted.[95] Delaware County is seeking to improve community health and wellness to not only enhance quality of life, but also to promote resilience in the wake of climate change.

[ABOVE] Delco resident Mark Yurkovich shows his summer harvest (Bethel Township).

[RIGHT] Delco Resident Paramjit Gill tends to her plot in the Rose Tree Community Garden (Upper Providence Township). *PHOTO: DCOS*

Health & Wellness

SUBGOALS

Air

To ensure just and equitable access to clean, clear, and healthy air.

TARGETS

Provide education in all 49 Delaware County municipalities to increase awareness and understanding of the impacts of air quality on health over the next 5 years.

Water

Ensure just and equitable access to safe and affordable water.

TARGETS

Provide education in all 49 Delaware County municipalities about healthy hydration and the recreational use of water for health and wellness over the next 5 years.

Food

To ensure just and equitable access to healthy, nutritious, appealing and locally grown food.

TARGETS

Increase the number of healthy food offerings in food insecure communities by 20% over 5 years.

Overall Well-Being

Improve the overall physical and mental health and well-being for all.

TARGETS

Adopt 100% of Delaware County Health Department programs as they are developed over the next 5 years.

EXISTING CONDITIONS

Delaware County is ranked 37th for quality of life and health outcomes among the 67 counties in Pennsylvania.[96] Counties in the top 10% for Health Outcomes were found to have increased access to adequately funded schools, parks and social associations, healthy foods, clean air and water, quality housing, and quality healthcare. In Delaware County, 94,157 people live in Justice40 designated areas [97] (map available on Page 5). These are disadvantaged communities that have been historically marginalized and overburdened by pollution and underinvestment in housing, transportation, water and wastewater infrastructure, and health care.[98] These communities experience disproportionate impacts from climate change and have higher incidences of disabilities and poor health conditions. A 2020 study conducted by Johns Hopkins University cited indicators of particular concern for these communities including low birth weight, asthma, and cardiovascular disease. Community participants also voiced concerns about environmental health issues pertaining to lead poisoning, asthma, and air and water quality.[99] Poor health outcomes during normal conditions severely impair a community's adaptability to respond to climate change.

Air

The Clean Air Act requires the U.S. EPA to set health-based limits, called National Ambient Air Quality Standards (NAAQS), for six outdoor air pollutants: particulate matter (PM), ozone (O3), nitrogen oxides (NOx), sulfur dioxide (SO2), carbon monoxide (CO) and lead (Pb). Southeastern Pennsylvania has been designated as a region in non-attaining status of the NAAQS for ozone for more than three decades. In addition to being a GHG, ozone can aggravate asthma, and worsen symptoms of bronchitis, heart disease, and emphysema.[100] Rates of asthma and Chronic Obstructive Pulmonary Disorder (COPD) are higher in Delaware County than the state average and rising. The asthma rate for Delaware County overall is 7% but is as high as 15% in some census tracts along the riverfront.[101] The American Lung Association reiterated these findings in its 2022 "State of the Air" report by giving Delaware County a D for both Ozone pollution and for particle pollution.[102]

According to the 2023 County Health Rankings National Findings Report, Delaware County's annual average of fine particulate matter, or PM2.5, was 10.8 micrograms per cubic meter measured in the air. While this is still above that of Pennsylvania and the United States, the average daily density of PM2.5 has been improving in Delaware County over the past two decades.[103] In a recent study out of Johns Hopkins University, volatile organic compounds (VOC) and particulate matter (PM) were measured over a three week period in the Chester-Trainer-Marcus Hook area.[104] A mobile lab performed on-road sampling and a stationary site was situated in an adjacent community and served to monitor the urban background pollution levels. The study found elevated levels of benzene and formaldehyde, both chemicals are human carcinogens. Multi-pollutant plumes were also repeatedly observed in the study region. This is an example of how, although a region may be within regulatory standards for airborne fine particulate matter, some communities disproportionately suffer from air pollution.[105, 106]

Children play in splash pad at Governor Printz Park (Tinicum Township). PHOTO: DCPD

Water

Water makes up 60% of the body and is essential for human health.[107] Water plays a key role in many of the body's functions, including bringing nutrients to cells, getting rid of wastes, protecting joints and organs, and maintaining body temperature.[108] To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations that limit the number of certain contaminants in water provided by public water systems. In 2021 and 2022, both Aqua[109] and CWA[110] were in compliance with the U.S. EPA contaminant limits at that time. In recent years, Per- and polyfluoroalkyl substances (PFAS), often referred to as "forever chemicals", have sparked significant interest. The Centers for Disease Control and the U.S. EPA estimate that drinking water represents 20% of American's overall exposure to PFAS chemicals.[111] To address this concern, a maximum contaminant level for PFAS was proposed in early 2023.[112] It is expected that these regulations will be adopted in the coming years.

In addition to the water that is supplied by public utilities, the infrastructure through which water is transported inside homes and institutions can impact water safety. Lead pipes can expose users to high levels of lead through drinking water. Lead exposure can cause delays in normal physical and mental development, deficits in attention span, hearing and learning abilities, and may increase blood pressure in some adults. With the average age of housing in Delaware County being approximately 64 years old,[113] residents are at an elevated risk of exposure. In 2021 alone, 294 children in Delaware County had elevated blood lead levels, with Black and Hispanic children disproportionately affected.[114] According to the American Academy of Pediatrics, there is no safe level of lead for children.[115] Delaware County is seeking to not only raise awareness about these risks, but also increase testing and remediation within homes.

In addition to drinking water, water recreation is an important component of maintaining physical health and mental well-being. With nearly 385 miles of creeks in Delaware County, many residents partake in recreational activities in or on the natural waterways. With nearly 98% of stream miles impaired in Delaware County (further discussed in the Natural Resources section of this Plan) it is important to ensure residents are aware of the risks associated with polluted waterways and are provided with additional safe access to water recreation for overall health and well-being.

Food

People with healthy eating habits live longer and are at lower risk for serious health problems such as heart disease, type 2 diabetes, and obesity. For people with chronic diseases, healthy eating can help manage these conditions and prevent complications.[116] According to the U.S. Department of Agriculture's 2015 Feeding America "Map the Meal Gap" research, 13.2% of all residents and 14.6% of children in Delaware County suffered from food insecurity, meaning that they did not have physical and economic access to enough sufficient and nutritious food for a healthy life. As seen during the COVID-19 pandemic, disruptions in the local food chain can lead to expanded food insecurity. In 2020, some census tracts in the City of Chester, Darby Borough, and Marcus Hook Borough had as many as 41% of residents utilizing food stamp/SNAP benefits, compared to the national and county averages of just over 11%.[117] Climate change is expected to exacerbate disruptions in the food chain.

According to the 2023 County Health Rankings National Findings Report, Delaware County scored 8.7 out of a possible 10 on the food environment index, which includes access to healthy foods and food insecurity. The national average across the Country was 7.0. This measure accounts for both proximity

Volunteers from the DCEMA collect canned goods for local food pantries. PHOTO: DCEMA

to healthy foods and income. While Delaware County, as a whole is above average, certain communities are disproportionately impacted with less healthy food options. According to the Centers for Disease Control, the local government can help community members access more fruits and vegetables by making them convenient and affordable in the places where children and adults live, work, learn, and play.[118] Delaware County is seeking to improve education, offerings, and access to healthy foods by creating a robust local food system. By increasing community agriculture through local farms and community gardens health and resilience will be improved in addition to supporting the local economy.

Overall Well-Being

On April 7, 2021, Delaware County Council appointed five members to the Delaware County Board of Health. The appointments were made as part of a strategic plan to create a Delaware County Health Department (DCHD). Delaware County's first Health Department was launched in April 2022 with a mission to build healthy and thriving communities. DCHD's vision is that all members of the Delaware County community have access to the resources that provide the opportunity to lead a healthy and productive life through promoting, protecting, and assuring conditions for optimal health. DCHD consists of an Administration Division, Environmental Health Division, Personal Health Division, Population Health Division, and Epidemiology. DCOS intends to provide support and partnership to assist in DCHD initiatives as they continue to get organized and build holistic health programs serving the residents of Delaware County.

<div style="color:red">SUSTAINABILITY SPOTLIGHT</div>

Health and Wellness in the Community: Air Quality Monitoring Gets a Breath of Fresh Air

For decades, air quality in Delaware County has been rated as sub-par, receiving consistent D ratings from the American Lung Association; however, community groups such as the Chester Residents Concerned for Quality Living (CRCQL), Marcus Hook Area Neighbors for Public Health, and non-profit Clean Air Council (CAA) have said, enough is enough.

In November 2022, The Clean Air Council, Philadelphia's oldest environmental non-profit, received a grant in the amount $419,446 from the U.S. Environmental Protection Agency to develop and expand existing community-based air monitoring pilot projects in environmental justice communities in Delaware County and Southwest Philadelphia.[119] With this funding, CAA will install Purple Air Monitors throughout the industrialized I-95 corridor in the City of Chester and Trainer and Marcus Hook Boroughs to better understand the existing air quality conditions in neighborhoods bordering industry. Their project will also include a robust community education and outreach component engaging local residents and community groups.

The Pennsylvania Department of Environmental Protection (PA DEP) received a similar grant of $377,433 during the same round of the U.S. EPA Enhanced Air Quality Monitoring Grant Program. The PA DEP received funding to partner with Delaware County for enhanced air monitoring along the riverfront, spanning roughly seven miles from west to east, from Delaware County's border with the State of Delaware to the eastern border of the City of Chester. Recognizing the similarities between the CAA and Delaware County projects, both organizations have agreed to collaborate for a cohesive and robust public engagement strategy all working towards a common goal of improving air quality in Delaware County.
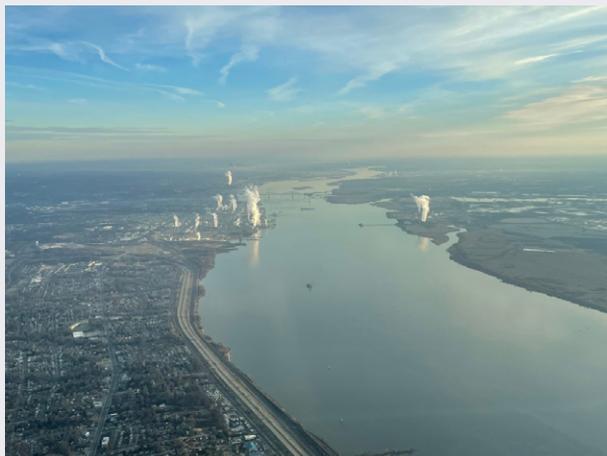
Air quality over Delaware County. *PHOTO: Eve Miari and Echo Alford, Clean Air Council*

MODULAIR sensor in Marcus Hook Borough takes air quality measurements. *PHOTO: Dr. Peter DeCarlo, Johns Hopkins University*

SUSTAINABILITY SPOTLIGHT

Health and Wellness in the County: Two (Green) Thumbs Up for the Rose Tree Community Garden

Upper Providence Resident Dan Golub tends his tomatillo plants at Rose Tree Community Garden. *PHOTO: DCOS*

Lettuce sprouting in community garden plot at Rose Tree Community Garden. *PHOTO: DCOS*

Rose Tree County Park is situated on over 120 acres of grassy rolling hills and mature woodlands in Upper Providence Township, just a few miles from downtown Media. Often called the "Crown Jewel of Delaware County", the Park offers a variety of amenities with one of the most notable being a Community Garden. Delaware County Parks and Recreation Director Marc Manfre shared, "the Community Garden has been running strong for nearly 40 years. It serves as a tremendous resource for our residents, bringing together diverse groups to connect under a shared interest in gardening. It truly is a great example of partnership between the Parks and Recreation Board, Office of Sustainability, and the members of the garden."

The popular Community Garden has over a hundred dedicated members, who lease 20 x 25-foot plots from April through November. Each plot is leased to a Delaware County resident for a fee of $30, and members supply their own tools. Gardeners are encouraged to use organic methods and grow everything from flowers and herbs to fruits and vegetables. Each Spring, members from the previous year have the option to renew their plots. As plots become available, they are then offered to the waiting list in first-come, first-serve order. Due to high demand and limited space, there is always a waiting list, so prospective gardeners are encouraged to sign up at any time during the year.

To see additional opportunities for increasing locally grown food in Delaware County, see the Health and Wellness Section of the Implementation Matrix found later in this Plan.

County Council Chair Monica Taylor, Health Department Director Melissa Lyons, and other community partners celebrate the Health Department's 1-year anniversary with a food and essential needs drive. PHOTO: DCHD

Taking Action to Sustain Delco

In its inaugural year, the DCHD has made significant strides towards improving the overall health and well-being of Delaware County. In addition to opening a community wellness center in Yeadon Borough, the Department has spearheaded vaccination clinics, community health assessments, maternal health screenings, and distribution of health resources. Additionally, DCHD has launched a Lead Prevention Task Force and Crisis Connections Team, among other initiatives, to improve environmental, mental, and public health.

In addition to the groundbreaking work at the Health Department, Delaware County is ensuring healthy food access within the community. In 2021, Delaware County Council approved a five-year contract with Share Food Program to manage the charitable food system within the County. In support of this effort, in 2023, renovation of a 9,000 square-foot warehouse in Ridley Township began to serve as the central hub for food commodities and distribution throughout Delaware County. With this expanded role, Share is leveraging its array of partnerships, experiences, and resources to address nutritional demands and food insecurity throughout Delaware County.[120]

To build on these efforts, additional actions, shown on page 95, have been identified to increase education, foster collaboration, and improve environmental factors closely tied with community health outcomes. In implementing these actions, Delaware County will be more resilient to the changing climate and exhibit improved health, wellness, and quality of life for all residents.

PATHWAY FORWARD

Over 30 volunteers came to collect litter and plant trees in Clayton Park to celebrate Earth Day (Concord Township). PHOTO: *Delaware County*

Delaware County's response to climate change is already underway. The publishing of Delaware County's first Sustainability Plan provides the pathway forward to a more equitable, resilient, and sustainable place to live, work, and play.

The actions described in the Implementation Matrix of this Plan, beginning on page 76, will provide a necessary framework towards meeting Delaware County's sustainability goals over the next 5 years. While the actions in this Plan are meant to act as a road map toward sustainability, additional analysis and research may be required prior to implementation of individual actions. Implementation of this Plan will be administered by the Delaware County Office of Sustainability (DCOS) and monitored by the Delaware County Sustainability Commission. Annual reports will be generated to reflect the County's progress in meeting its goals. Successful implementation of the Plan will require collective awareness, action, and participation from all members of Delaware County's community.

Partners

During the Plan development process, DCOS established relationships with dozens of partners who provided their time and expertise to the Plan. These partners can be found in the Acknowledgements section. They range from nonprofit organizations, to federal, state, and local government agencies, to individual citizens. In having a sense of ownership over this document, our partners are committed to achieving the goals they helped create. In the Implementation Matrix starting on page 76, many of these partners are identified as either the "lead" or "partner" organizations next to several of the identified actions. These designations reflect their commitments toward assisting in the implementation of these actions.

County Funds

Many of the projects identified within the Plan will be supported by the County's contributions. The County funding will come through two sources: operating and capital funds. Capital funds are those budgeted through the County's Capital Improvement Program. Some of these expenses include electric vehicles and charging infrastructure, the Green Ways Grant Program, and the procurement of open space and improvements to County parks and trails. Operating funds are meant to cover projects and other costs necessary for the day-to-day operation of the County. An example of a project that would be paid using operating funds would include the implementation of a Zero Waste pilot program in the County's Courthouse Complex and Government Center. This would be considered operating, as waste removal is an essential function within government buildings. Both operating and capital funds are generated from taxpayer dollars.

Fundraising

In addition to direct County funding, DCOS has established a fiscal sponsorship with the Foundation for Delaware County. The Foundation, one of the largest philanthropic organizations in Delaware County, is committed to working resourcefully for the benefit of the people of Delaware County, while promoting health equity and championing collaboration. In support of this mission, The Foundation has agreed to manage donations and sponsorship funds that support the Sustainability Plan. Under this agreement, DCOS will be responsible for fundraising. To date, this partnership has already allowed for funding of the 2023 Delaware County Sustainability Conference. The Delaware County Interactive Gaming Revenue Authority donated $20,000 to support the 2nd Annual Conference. Funds were then collected and managed through the Foundation. This partnership will allow DCOS to share the initiatives of this Plan with potential donors accelerating the implementation of this Plan. The County will utilize this Plan as a fundraising tool to further sustainability in Delaware County.

Grants

In addition to County funding and private donations, grants will also be a major funding source to implement this Plan. In 2022 and 2023, there were a number of significant grants awarded to Departments under the DCOS. In 2022, the PA DEP awarded the County $600,000 in Alternative Fuel Incentive Grants (AFIG) to purchase EVs and install charging stations. The Commonwealth Financing Authority also awarded the County over $1 Million in Local Share Account (LSA) grant funds to support the development of a Vision Zero Plan and the completion of a tree canopy study. The County will continue to seek and apply for applicable funding for the implementation of the projects outlined within this Plan.

Community Implementation

Much like the creation of this Plan, successful implementation will require involvement and participation from the community. Though many actions are catered toward specific groups within the community, each action identifies additional people, organizations, or community groups that the action is applicable for, meaning they, too, could implement a similar solution within their organization or community. An example of this is the action for the County Council to adopt a Zero Waste Ordinance. While this action is specifically identified for implementation by the County Council, municipalities, EACs, and institutions could also do this within their own organizations. This Plan is meant to inspire and inform readers to take action within their own communities, contributing to a more sustainable Delaware County.

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
Climate Resiliency				
GOAL: Prepare Delaware County to adapt, withstand, and recover quickly from the effects of climate change.				
SUBGOAL #1: Climate Hazards – To equip Delaware County to be more prepared to combat extreme weather events.				
TARGET #1: All 49 municipalities will adopt and implement resiliency practices to adapt to, prepare for, and respond to climate hazards.				
1 Define criteria of vulnerable and overburdened communities in Delaware County in accordance with regional, state, and federal partners.	DCOS	Delaware County DEI Officer, Community Groups, DCEMA, COSA, Municipalities	Short	Delaware County
2 Educate municipalities on identifying vulnerable and overburdened communities utilizing the established criteria.	DCOS	DCEMA, Municipalities, COSA, Community Groups, Municipalities	Short	Delaware County
3 Define hazards of climate change.	DCOS	DCEMA	Short	Municipalities, Educational Institutions
4 Baseline hazard vulnerabilities overlaying repetitive loss properties, floodplains, base elevations, etc.	DCDM	PASG, DCEMA, DCOS	Short	Municipalities, Educational Institutions
5 Identify pipeline-related hazards and vulnerabilities.	DEP	DCEMA	Short	Municipalities, Businesses/ Industries
6 Identify Heat Islands across Delaware County and create a plan for mitigation.	DCOS	DCEMA, Planning	Medium	Municipalities, Educational Institutions, Non-Profits
7 Create County-wide Heat and Cold-Weather Plans.	DCEMA	COSA, DCHD	Medium	All Groups
8 Evaluate accessibility to hazard-related shelters, including those for extreme cold and heat, and educate residents regarding existing resources.	DCEMA	COSA, DCHD, CAADC, Municipalities	Medium	Municipalities, Non-Profits, Community Groups
9 Identify and communicate key evacuation routes for neighborhoods.	DCEMA	Municipalities, PennDOT	Short	Municipalities
10 Ensure HMP is reviewed annually for accuracy and relevancy.	DCEMA	Planning, DCOS	Ongoing	Municipalities, Educational Institutions, Businesses/ Industries
11 Create a rolling fund to offset funding gaps between fair-market value and the actual value in floodplain buyback programs.	County Council	DCEMA, Planning	Long	Municipalities, Non-Profits
12 Establish budget for mitigation efforts in Emergency Services.	County Council	DCEMA	Medium	Municipalities

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
13 Designate a County Floodplain Manager to oversee floodplain management, training, and other mitigation efforts.	County Council	DCEMA	Medium	Municipalities
14 Meet with Municipal Emergency Managers to identify municipal-level hazard mitigation projects and County-wide mitigation projects.	DCEMA	Municipalities	Short	Municipalities, Non-Profits, Community Groups
15 Provide training to community groups regarding climate hazard mitigation and resilience.	DCEMA	Community Groups	Ongoing	Municipalities, Non-Profits, Community Groups, Educational Institutions
16 Provide technical assistance to vulnerable group populations for successful hazards planning (evacuations, contingency planning for loss of power, etc.)	DCEMA	Municipalities	Ongoing	Municipalities, Non-Profits
17 Increase municipal participation in the NFIP and CRS.	DCEMA	DCOS, PEMA, FEMA	Short	Municipalities
18 Increase community awareness regarding risks in the home as a result of climate hazards.	DCEMA	DCOS, PEMA, FEMA	Ongoing	All Groups

SUBGOAL #2: Economy - To grow and diversify the green economy.
TARGET #1: Increase the number of green jobs/businesses in Delaware County by 5% over the next 5 years.

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
19 Adopt a definition of green jobs in accordance with regional, state, and federal partners.	Workforce Development	DCOS	Short	Delaware County
20 Create a baseline of current jobs and businesses in Delaware County that meet the adopted definition of green jobs.	DCOS	Workforce Development, County Council	Short	Educational Institutions, Businesses/ Industries
21 Evaluate High Priority Occupation List for jobs that fit definition of green jobs.	Workforce Development	DCOS	Short	Delaware County
22 Create a recognition program highlighting sustainable businesses and development in Delaware County.	DCOS	County Council, Commerce Center, Planning, SBNGP	Medium	Municipalities, Community Groups, Non-Profits
23 Research opportunities to incentivize sustainable business in Delaware County.	DCOS	County Council, Commerce Center, Planning, SBNGP	Short	Municipalities, Community Groups, Non-Profits
24 Explore application to the EPA Brownfields Job Training Grant Program.	Workforce Development	DCCD, Planning, DCOS	Short	Municipalities
25 Continue to invest in businesses and industries that hire marginalized youth, returning citizens, and residents from high unemployment communities.	Commerce Center	Workforce Development, County Council, DCOS	Ongoing	Businesses/ Industries, Municipalities
26 Leverage County resources to attract clean and green businesses of all sizes.	Commerce Center	DCOS, County Council, Chamber of Commerce, Planning	Ongoing	Municipalities, Businesses/ Industries
27 Evaluate opportunities for preserving space for the creation of green jobs i.e. park maintenance, urban agriculture.	DCOS	Planning, Parks and Recreation, DCCD, County Council, GSTF, Commerce Center	Short	Municipalities, Non-Profits, Businesses/ Industries
28 Identify additional opportunities for green job training to meet localized needs.	DCOS	Workforce Development, Commerce Center	Medium	Municipalities, Non-Profits, Businesses/ Industries

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
SUBGOAL #3: Infrastructure – To ensure infrastructure is properly constructed and maintained to withstand climate hazards through informed decisions by municipalities and residents.				
TARGET #1: Increase awareness and understanding of sustainable infrastructure by engaging all 49 municipalities and their residents over the next 5 years.				
29 Create a baseline for sustainable infrastructure by evaluating existing municipal codes for resiliency requirements and best practices.	DCOS	Planning	Short	Municipalities
30 Establish model ordinances to keep structures out of the floodplain.	Planning	DCEMA, PASG	Short	Municipalities
31 Research opportunities to incentivize sustainable development through the permitting process.	Planning	DCOS	Short	Municipalities
32 Promote County Blight Demolition Fund to remove unsafe buildings in the community.	OHCD	Planning, Delaware County Public Relations, DCOS	Ongoing	Municipalities, Community Groups
33 Promote programs and funding sources for constructing green buildings.	DCOS	DVRPC, Planning	Ongoing	Municipalities, Community Groups, Non-Profits, Businesses/ Industries
34 Educate municipalities on the Delaware County Land Bank.	Commerce Center	DCOS	Medium	Municipalities, Non-Profits, Businesses/ Industries
35 Educate municipalities on the Act 135 process for redevelopment.	OHCD	Commerce Center	Medium	Municipalities, Non-Profits, Businesses/ Industries
36 Communicate with PECO about putting power lines underground during road openings.	DCOS	Municipalities, PECO, Aqua, CWA	Short	All Groups
37 Continue bi-annual maintenance and debris clearance on all County bridges.	Public Works	DCOS	Ongoing	Municipalities
38 Provide guidance and training to municipalities on the importance for keeping bridges clear to combat flooding.	Public Works	DCOS, PASG	Short	Non-Profits, Educational Institutions
39 Support redevelopment of vacant and underutilized land and properties into sustainable buildings and open spaces.	Commerce Center	Planning, DCOS	Ongoing	Municipalities, Non-Profits, Businesses/ Industries
40 Design bridge and culvert upgrades to accommodate projected flood conditions.	Public Works	DCOS	Long	Municipalities
41 Explore opportunities for using clean and porous material for public infrastructure.	Public Works	Facilities, DCOS	Long	Municipalities, Educational Institutions, HOA
42 Provide guidance for the installation and maintenance of GSI.	DCOS	Planning, Parks and Recreation, DCCD	Medium	All Groups

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
Natural Resources				
GOAL: To protect, conserve, and restore natural resources in Delaware County.				
SUBGOAL #1: Open Space – Increase the amount of and accessibility to open space.				
TARGET #1: Increase the number of acres of protected open space by 10% over the next 5 years.				
43 Create a baseline of existing open space parcels.	DCDM	Planning, Municipalities	Short	Municipalities, Community Groups, Non-Profits, HOA
44 Create criteria for open space prioritization, recognizing different needs/characteristics to look for in different classes of municipalities.	DCOS	Planning, Parks and Recreation, DCCD, County Council, GSTF	Short	Municipalities, Community Groups, Non-Profits
45 Update and review the Conservation Priority Areas Map which identifies key municipal and County parcels for conservation.	DCDM	Planning, DCOS, County Council	Short	Municipalities, Community Groups, Non-Profits
46 Provide education on identifying and prioritizing open space for protection utilizing established criteria.	DCOS	Planning, Parks and Recreation	Medium	Municipalities, Community Groups, Non-Profits
47 Provide technical assistance and resources to the community for creating and maintaining open space programs.	DCOS	Planning, DCCD, Municipalities, Land Trusts, Penn State Extension	Medium	Non-Profits, Educational Institutions, Community Groups
48 Create models and encourage adoption of ordinances which require open space to be conserved alongside new development, such as cluster zoning or conservation by design.	Planning	DCOS, Natural Lands	Short	Educational Institutions, Non-Profits
49 Create a resource manual regarding different strategies for protecting open space, in addition to different types of open space.	Planning	DCOS, DCCD, Natural Lands, GSTF	Short	Educational Institutions, Non-Profits
50 Encourage multi-municipal collaborations in preserving open space.	Planning	DCOS, DCCD, Natural Lands, GSTF	Ongoing	All Groups
51 Continue Green Ways Grant Program with consideration of making it a rolling application.	Planning	DCOS, Delaware County Solicitors Office	Ongoing	Delaware County
52 Explore opportunities for capacity building in marginalized communities with specific attention to professional services, applying for grants, administering funds, etc.	Planning	DCOS, Community Groups, Land Trusts	Short	Municipalities, Community Groups, Non-Profits, Educational Institutions, Businesses/Industries
53 Encourage participation in and collaboration between local EACs.	DCOS	Planning, Municipalities, EAC	Short	Municipalities, Community Groups
54 Preserve/acquire additional open space that meets prioritization criteria.	County Council	Parks and Recreation, Municipalities, Land Trusts	Long	Municipalities, Non-Profits, Educational Institutions, Businesses/Industries

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
TARGET #2: Increase the number of Delaware County residents with access to open space within a half mile walk by 10% over the next 5 years.				
55 Create a baseline of the number of residents within a half-mile walk of open space.	DCDM	DCOS, Planning, Municipalities, DVRPC	Short	Delaware County
56 Survey community members to better understand their access to and comfort in using parks in Delaware County and the conditions in which foster a welcoming environment.	DCOS	Parks and Recreation, Planning, Community Groups, EAC, GSTF	Short	Municipalities, Community Groups, Non-Profits
57 Create a plan for addressing barriers to accessibility, comfort, and welcoming environment as identified through community feedback.	DCOS	Parks and Recreation, Planning	Medium	Municipalities, Community Groups, Non-Profits
SUBGOAL #2: Tree Canopy and Plantings – To increase native trees, tree canopy, and natural plantings.				
TARGET #1: Increase the total tree canopy area by 10% over the next 5 years.				
58 Develop a tree canopy baseline.	DCOS	DCDM, TreeVitalize	Short	Educational Institutions
59 Map Delaware County's tree canopy.	DCOS	DCDM, TreeVitalize	Short	Educational Institutions
60 Track the changes in Delaware County's tree canopy cover.	DCOS	DCDM, TreeVitalize	Short	Educational Institutions, Municipalities
61 Develop a strategic plan to guide Delaware County's tree initiatives.	DCOS	Planning, DCCD, Parks and Recreation, Penn State Extension, PHS Tree Tenders	Short	Non-Profits, Municipalities, Community Groups
62 Produce data, reports, and presentations that clearly communicate the findings and recommendations of the strategic plan to the community.	DCOS	DCDM, TreeVitalize, Planning, DCCD	Short	Delaware County, Educational Institutions, Non-Profits
63 Provide technical assistance to municipalities and local organizations for increasing tree canopy coverage.	DCIS	Planning, DCCD, TreeVitalize, PHS Tree Tenders	Short	Delaware County, Educational Institutions, Non-Profits
TARGET #2: Restore and enhance 250 acres with native plantings over the next 5 years.				
64 Create naturalized meadows in County Parks.	Parks and Recreation	DCOS, DCCD, Penn State Extension	Short	All Groups
65 Create an invasive species management plan for County Parks, including plant identification, removal, and replacement with native plants.	Parks and Recreation	DCCD, Penn State Extension	Long	Municipalities, Non-Profits, Educational Institutions, Community Groups
66 Create design standards for landscaping utilizing primarily native plants.	DCOS	Penn State Extension, PHS Tree Tenders, TreeVitalize, Planning, DCCD, Parks and Recreation	Short	All Groups

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
67 Provide education and training to homeowners, landscapers, municipalities, and community groups on converting lawns to naturalized spaces and how to maintain them.	DCCD	PHS Tree Tenders, Penn State Extension	Ongoing	Non-Profits, Educational Institutions
68 Provide/Advertise job training for park maintenance and other conservation-centered careers.	Parks and Recreation	PA State Park System, Penn State Extension	Medium	Businesses/ Industries, Educational Institutions, Non-Profits
69 Encourage integration of natural plantings in existing recreational landscapes and municipal facilities.	DCOS	Parks and Recreation, Facilities, DCCD, Penn State Extension	Short	All Groups
70 Increase awareness of native plantings using interpretive signage, markers, and other educational materials.	Penn State Extension	Parks and Recreation, DCOS, Facilities	Short	Municipalities, Non-Profits, Educational Institutions, Community Groups, Businesses/ Industries, HOA
71 Host an annual meeting/consortium bringing together environmental groups for information sharing specific to Natural Resources.	DCOS	Parks and Recreaton, DCCD, Municipalities, Community Groups, Penn State Extension	Ongoing	Non-Profits, Community Groups
72 Promote community stewardship of natural resources through frameworks such as Doug Tallamy's Homegrown National Parks.	DCOS	Parks and Recreation, DCCD, Penn State Extension, PHS Tree Tenders	Ongoing	All Groups
73 Provide education and resources regarding which native plants are suitable for our region.	Penn State Extension	DCCD, DCOS	Ongoing	Non-Profits, Educational Institutions, Businesses/ Industries, Community Groups
74 Promote and support participation in municipal conservation designation programs such as Audubon Society Bird Town, Arbor Day Foundation Tree City, and/or Sustainable Pennsylvania.	DCOS	Planning, DCCD, Parks and Recreation, Municipalities	Ongoing	Municipalities
SUBGOAL #3: Watershed Quality – To improve the quality of watersheds throughout Delaware County.				
TARGET #1: Install 25 Best Management Practices (BMPs) across the County in the next 5 years.				
75 Create a watershed group for the Naamans, Marcus Hook, Stoney Creek Watershed.	Clean Air Council	Planning, DCOS, Penn State Extension	Medium	Delaware County, Non-Profits
76 Promote usership of existing water quality programs in Delaware County.	DCOS	DCCD, Planning, Penn State Extension	Ongoing	Community Groups, Non-Profits, Educational Institutions
77 Raise awareness on the importance of conserving natural features and resources.	DCOS	Parks and Recreation, DCCD	Ongoing	All Groups
78 Increase both research-grade and citizen-science data collection and monitoring of watershed health.	DCCD	USGS, PA DEP, Stroud Research Center, Penn State Extension, DCOS, Watershed Groups	Medium	Educational Institutions, Non-Profits, Community Groups

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
79 Facilitate collaboration between upstream and downstream communities to identify holistic watershed solutions.	DCCD	DCOS, Watershed Groups, Municipalities, Community Groups	Medium	Municipalities, Community Groups, Non-Profits
80 Draft model ordinance for floodplain overlay districts.	Planning	DCOS, DCEMA, DVRPC, Watershed Groups	Short	Municipalities
81 Provide technical assistance for regreening grey spaces and reducing impervious surfaces.	Planning	DCOS, DCCD, DVRPC	Ongoing	Non-Profits, Businesses/ Industries, Municipalities
82 Provide education, outreach, and resources for the installation of BMPs across all watersheds.	DCCD	DCOS, Public Works, Parks and Recreation, Penn State Extension	Ongoing	Educational Institutions, Non-Profits, Community Groups
83 Install and enhance riparian buffers on County-owned properties.	Parks and Recreation	DCCD, DCOS, Penn State Extension, Clean Air Council, TreeVitalize	Medium	All Groups
84 Increase No Mow Zones in County Parks.	Parks and Recreation	DCOS	Short	All Groups
85 Establish County budget to support Hazardous Material Clean Up Program to reduce point-source pollution.	County Council	DCEMA	Medium	Municipalities
86 Complete a Community Greening Plan to determining best places for green stormwater infrastructure (GSI).	Planning	DCOS, Penn State Extension	Long	Municipalities, Non-Profits
87 Create pesticide free zones in County parks and facilities.	Parks and Recreation	DCOS, Penn State Extension	Short	All Groups
SUBGOAL #4: Brownfield Remediation – Identify brownfields in Delaware County and increase remediation efforts.				
TARGET #1: Conduct a brownfield inventory in all 49 municipalities over the next 5 years.				
88 Complete potential brownfields analysis for the entire County.	Planning	DCDM, Commerce Center, DCOS	Long	Municipalities, Non-Profits, Educational Institutions
89 Explore application to the EPA Brownfields Job Training Grant Program.	Workforce Development	Planning, DCOS, Commerce Center	Short	Municipalities

Transportation
GOAL: Increase accessibility to safe, active, and multimodal transportation as alternatives to single-occupant motor vehicles.

SUBGOAL #1: Increase walking as a form of active transportation in Delaware County.				
TARGET #1: Increase miles of sidewalk and trails by 5% over 5 years.				
90 Identify baseline sidewalk inventory.	DCDM	Planning, Municipalities	Short	Municipalities, Educational Institutions, Businesses/ Industries, Community Groups, Non-Profits, HOA
91 Update Delaware County sidewalk inventory with the inclusion of street crossings.	DCDM	Planning, Municipalities, DVRPC	Short	Delaware County

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
92 Conduct a sidewalk gap analysis.	DCDM	Planning, Municipalities, DVRPC	Short	Municipalities, Educational Institutions, Businesses/ Industries, Community Groups, Non-Profits, HOA
93 Identify baseline trails inventory.	DCDM	Planning, Municipalities, Parks and Recreation, Delaware County Trail Alliance	Short	Municipalities
94 Update baseline trails inventory and map existing trails within County Parks.	DCDM	Planning, Municipalities, Parks and Recreation, Delaware County Trail Alliance	Short	Municipalities
95 Conduct a trails gap analysis using the baseline trails inventory.	DCDM	Planning, Municipalities, Parks and Recreation, Delaware County Trail Alliance	Short	Municipalities
96 Monitor and record where investment is going into transportation infrastructure to ensure that it is being equitably distributed across all communities.	Planning	DCDM, DVRPC	Ongoing	Municipalities, Non-Profits
97 Identify funding sources for new walking infrastructure.	Planning	DVRPC, DCTMA, PennDOT	Ongoing	Municipalities, Non-Profits, Community Groups
98 Work with municipalities to fill gaps in the walking network as identified in sidewalk and trails inventories.	Planning	Municipalities, DCTMA	Long	Municipalities, Non-Profits, Community Groups
99 Design and construct new walking infrastructure with a focus on connectivity in marginalized communities.	Municipalities	Parks and Recreation, Public Works, PennDOT, Planning,	Long	Municipalities, Non-Profits, Community Groups, Educational Institutions, Businesses/ Industries, HOA
100 Encourage multi-municipal collaborations for the Primary Trail Network and other trails.	Planning	DCOS, Municipalities, DVRPC	Ongoing	Municipalities, Non-Profits, Community Groups
101 Create a Safe Routes to School Program and Plan.	Planning	Schools, Colleges and Universities, PennDOT, Municipalities	Long	Municipalities, Educational institutions, Non-Profits, Community Groups
102 Create a Vision Zero Plan for Delaware County to reduce/eliminate bike and pedestrian injuries and fatalities.	Planning	DVRPC, Municipalities, PennDOT, Philadelphia OTIS	Short	Municipalities
103 Develop a model ordinance for both the development and maintenance of sidewalk infrastructure.	Planning	DVRPC	Short	Municipalities
104 Develop design guidelines for sidewalks, side paths, and crossings in correspondence with different locations (mature neighborhoods, activity corridors, etc.)	Planning	DVRPC, PennDOT, SEPTA, Delaware County Trails Alliance	Medium	Municipalities, Non-Profits, Businesses/ Industries

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
SUBGOAL #2: Increase biking as a form of active transportation in Delaware County.				
TARGET #1: Increase miles of bike lanes, safe bike routes, and trails by 5% over 5 years.				
105 **Identify baseline and update inventory for biking infrastructure, including bike routes, sharrows, and bike lanes.**	DCDM	Planning, Municipalities, PennDOT, Greater Bicycle Coalition of Philadelphia	Short	Municipalities, Community Groups, Non-Profits
106 **Ensure ample bike parking and storage at county and regional hubs.**	Planning	DCOS, SEPTA, Public Works, PennDOT	Short	Municipalities, Businesses/ Industries, Educational Institutions
107 **Adopt design guidelines and standards for providing bicycle facilities and identify key locations for installment.**	Planning	Public Works	Short	Municipalities, Educational Institutions, Businesses/ Industries
108 **Create model ordinances and guidance for requiring/ incentivizing bike parking and design considerations in the development process.**	Planning	DVRPC	Short	Municipalities
109 **Provide technical assistance by identifying potential projects and funding sources, and coaching through the application process.**	Planning	DCTMA, PennDOT, DVRPC	Ongoing	Municipalities, Non-Profits, Community Groups
110 **Identify areas for leasing SEPTA and PECO easements for trail expansion.**	Planning, DVRPC, Municipalities	SEPTA, PECO	Medium	Municipalities, Non-Profits, Community Groups
111 **Identify key locations for bike lanes/sharrows and encourage municipalities to get involved in the PennDOT repaving program for installation assistance.**	Planning	PennDOT, DVRPC, Municipalities	Ongoing	Municipalities, Community Groups
112 **Provide technical assistance regarding maintenance strategies for biking infrastructure.**	Planning	DVRPC	Medium	Non-Profits
113 **Make a wayfinding plan including interactive maps for trails, low-stress bike routes, parks, and nearby amenities.**	Planning	DVRPC, Parks and Recreation, Municipalities	Medium	Municipalities
114 **Create model design guidelines for safe bike crossings and bike lanes and provide guidance on upgrading existing lanes to the next level of protection.**	DVRPC	PennDOT, Planning, DCTMA	Short	Non-Profits
115 **Explore feasibility of regional bike share program or bike lending library.**	DVRPC	Planning, Philadelphia OTIS	Medium	Non-Profits, Businesses/ Industries, Community Groups
SUBGOAL #3: Increase transit ridership in Delaware County.				
TARGET # 1: Increase transit ridership in Delaware County by 20% over 5 years.				
116 **Complete analysis of existing bus stops around the County to identify accessibility, comfort, safety needs, and ownership of existing stops.**	Planning	SEPTA	Medium	Municipalities, Community Groups, Non-Profits
117 **Meet with Septa to ensure bus routes connect to main hubs and locations.**	Planning	SEPTA	Short	Municipalities, Community Groups, Non-Profits, Businesses/ Industries, Educational Institutions

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
118 Advertise engagement opportunities for residents to provide input on Septa projects.	DCTMA, Planning, OOS, DVRPC, PennDOT	SEPTA	Short	All Groups
119 Support and provide guidance on Transit Oriented Development (TOD) in Delaware County.	Planning	DVRPC, DCTMA, PennDOT	Medium	Municipalities, Non-Profits, Educational Institutions
TARGET # 2: Provide education in all 49 Delaware County municipalities on the benefits and availability of biking, walking and use of public transit over 5 years.				
120 Provide incentives and/or travel allowance to Delco employees, jurors, and residents for taking alternative transportation to work.	County Council	DCTMA, Commerce Center, Planning	Short	Businesses/ Industries, Educational Institutions
121 Work with local businesses to provide incentives for active commutes and alternatives to single-occupant vehicles.	DCTMA	DCOS, Commerce Center	Medium	Businesses/ Industries, Educational Institutions, Non-Profits
122 Provide locker room facilities for County employees to use following active commutes.	County Council	Facilities	Long	Businesses/ Industries, Educational Institutions
123 Create model ordinances and provide guidance for adjusted parking standards to reduce pavement and provide solutions for alternative transportation methods.	Planning	DVRPC, Municipalities	Short	Municipalities, Businesses/ Industries, Non-Profits
124 Support and provide guidance for the creation of mobility hub models prioritizing areas around local universities/colleges.	DCTMA, Planning Dept.	DVRPC	Medium	Municipalities, Educational Institutions
125 Engage members of the public to better understand existing comfort and barriers in using alternative transportation methods.	DCTMA	Planning, DCOS, SEPTA, Bicycle Coalition of Greater Philadelphia	Short	Municipalities, Educational Institutions, Non-Profits, Community Groups, Businesses/ Industry
126 Create a plan for addressing the barriers of using alternative transportation methods in Delaware County based on community feedback.	Planning	DCTMA, DCOS, SEPTA, Bicycle Coalition of Greater Philadelphia	Medium	Municipalities, Educational Institutions, Non-Profits, Community Groups, Businesses/ Industry
127 Provide outreach and education around using the transit system in Delaware County.	DCTMA	SEPTA, DVRPC, DCOS	Ongoing	Municipalities, Educational Institutions, Non-Profits, Community Groups, Businesses/ Industry
128 Develop an active transportation plan for Delaware County.	Planning	DCOS, DVRPC	Medium	Municipalities
129 Prioritize projects filling "last mile" transportation gaps.	Planning	DVPRC	Ongoing	Municipalities, Educational Institutions, Businesses/ Industry

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
SUBGOAL #4: Support access to and adoption of EV and EV infrastructure.				
TARGET #1: Increase the number of public and county-owned charging stations throughout Delaware County by 50% over 5 years.				
TARGET #2: Increase the number of electric vehicles in Delaware County by 400% over the next 5 years.				
130 **Baseline existing EV Infrastructure (Location, Accessibility, Public Use, Charging Type).**	DCDM	DCOS, Planning, Fleet Management, Public Works	Short	Municipalities, Educational Institutions, Non-Profits, Community Groups, Businesses/Industries, HOA
131 **Identify key locations for future EV and e-bike charging stations meeting both County and community needs.**	Public Works	DCOS, Planning, Fleet Management, DCDM	Short	Municipalities, Educational Institutions, Non-Profits, Community Groups, Businesses/Industries, HOA
132 **Install additional charging infrastructure to meet County and community needs.**			Medium	
133 **Promote existing incentives and programs for purchasing EVs.**	DCOS	Planning, DVRPC	Ongoing	Municipalities, Non-Profits, Community Groups
134 **Provide education to municipalities, developers, and local building inspectors regarding codes and EV chargers.**	Planning	DCOS, DVPRC	Short	Non-Profits, Educational Institutions
135 **Encourage the electrification of municipal, business, institutional, and industrial fleets to improve local air quality.**	DCOS	Planning, DVRPC	Ongoing	Municipalities, Educational Institutions, Businesses/Industry
136 **Provide education regarding EV charging (Ex. Multi-unit, on-street, cold weather, different types of chargers, who to call if there are issues with chargers).**	DCOS	DCTMA, DVRPC, Planning	Ongoing	Non-Profits, Community Groups
137 **Coordinate with public and private entities to install additional publicly accessible EV and e-bike charging stations in accordance with study findings.**	DCOS	Public Works, DVRPC	Medium	Municipalities, Businesses/Industries
138 **Coordinate with local communities and businesses to identify opportunities to share charging locations.**	DCOS	Planning, Municipalities, DVPRC	Medium	Municipalities, Community Groups, Educational Institutions, Businesses/Industries, Non Profits, HOAs
139 **Create model ordinances or guidelines for the inclusion of EV and e-bike charging and necessary electrical infrastructure in private development (multi-family housing, shopping centers, etc.)**	Planning	DCOS, DVRPC, IREC	Short	Municipalities
140 **Explore opportunities for implementing EV carsharing at multi-family dwellings.**	DCOS	Planning, DVPRC	Long	Non-Profits, Businesses/Industries, HOA

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
TARGET #3: Electrify 25% of the County Fleet over the next 5 years.				
141 Identify funding sources for vehicle electrification and infrastructure.	DCOS	Fleet, Planning	Ongoing	Municipalities, Educational Institutions, Non-Profits, Community Groups, Businesses/Industries, HOA
142 Purchase additional EVs to replace traditional gas/diesel vehicles.	Fleet	DCOS	Ongoing	All Groups
143 Provide staff training on how to use EVs, who to contact with questions, etc.	DCOS	Fleet, Personnel	Short	Municipalities, Educational Institutions, Businesses/Industries
144 Create EV maintenance plans and provide necessary training to maintenance staff.	Fleet	DCOS	Short	Municipalities, Educational Institutions, Businesses/Industries
SUBGOAL #5: Reduce emissions in Delaware County.				
TARGET #1: Reduce County emissions by 20% from 2019 baseline over the next 5 years.				
145 Research travel demand ordinances and consider applicability in Delaware County.	Planning	DCTMA, DVRPC	Medium	Municipalities, Educational Institutions, Non-Profits, Community Groups
146 Create model ordinances and provide guidance for anti-idling policies and enforcement.	Planning	DVRPC, DCTMA	Short	Municipalities
147 Work with schools, businesses, and industries to reduce persistent vehicle idling.	Planning	DCOS, DCTMA	Medium	Municipalities, Educational Institutions, Non-Profits, Community Groups, Businesses/Industries, HOA
148 Consider remote work policies in the county to reduce emission generation from commuting.	County Council	Personnel, DCOS	Short	Municipalities, Businesses/Industries
149 Encourage transition from small combustion engine equipment to electric (ex. lawn-equipment, tractors, etc.)	DCOS	Parks and Recreation, Facilities	Medium	All Groups

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
Energy and Efficiencies				
GOAL: Reduce water and energy consumption in buildings and properties in Delaware County and transition to combustion-free renewable energy.				
SUBGOAL #1: Energy – Reduce energy consumption in buildings and properties in Delaware County.				
TARGET #1: Reduce energy consumption in County buildings (EUI -- kBTU/Sqft) by 20% over the next 5 years.				
150 Collect baseline energy consumption data for County buildings from KCBA FCNA.	DCOS	Facilities, Provident Energy	Short	All Groups
151 Collect commercial grade energy audit findings from County buildings to identify energy conservation measures (ECM) and energy transition opportunities.	Public Works	DCOS, Facilities, Provident Energy	Short	Municipalities, Educational Institutions, Businesses/ Industries, Non-Profits, HOA
152 Audit energy bills to identify metering issues and billing errors.	DCOS	Facilities, PECO	Short	All Groups
153 Calculate ENERGY STAR scores for every County building through Portfolio Manager.	DCOS	Facilities, Provident Energy	Short	Municipalities, Educational Institutions, Businesses/ Industries, Non-Profits, HOA
154 Submeter County buildings in accordance with audit recommendations.	Facilities	DCOS, PECO, Provident Energy	Long	Municipalities, Educational Institutions, Businesses/ Industries
155 Develop sustainable design standards for County CIP.	Public Works	DCOS, Facilities	Short	Municipalities, Educational Institutions, Businesses/ Industries
156 Implement design and construction of Capital Improvement Projects for County buildings and include ECM.	Public Works	Facilities, DCOS	Long	All Groups
157 Conduct Energy Saving Company (ESCO) Guaranteed Energy Savings (GESA) projects in County buildings.	Public Works	DCOS	Medium	Municipalities, Educational Institutions
158 Apply for and receive rebates, incentives, and grants for Capital Improvement Projects that include applicable ECM.	Public Works	DCOS, PECO, Facilities	Ongoing	All Groups
159 Research opportunities for a demand-response program.	DCOS	Facilities	Short	Municipalities, Educational Institutions, Businesses/ Industries
160 Implement off-hours energy reduction through lighting schedules.	Facilities	DCOS	Short	Municipalities, Educational Institutions, Businesses/ Industries
161 Generate monthly energy consumption reports to be compiled for annual submission to County Council and Sustainability Commission.	Facilities	DCOS	Ongoing	Delaware County

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
162 Increase staff education in the Facilities and Public Works departments to implement energy efficiency projects.	DCOS	Facilities, Public Works, Provident Energy	Medium	Municipalities, Educational Institutions, Businesses/ Industries
TARGET #2: Reduce energy consumption in residential and commercial buildings by 20% over the next 5 years.				
163 Provide education to community groups, residents, municipalities, and businesses surrounding existing incentives and programs that can be used to reduce energy consumption and rates.	DCOS	DVRPC, PECO	Short	Non-Profits, Municipalities, Community Groups
164 Provide education to residents and businesses regarding how to make buildings more energy efficient.	DCOS	DVRPC, PECO	Short	Non-Profits, Municipalities, Community Groups
165 Increase participation in the C-PACE program in Delaware County.	DCOS	Commerce Center	Ongoing	Businesses/ Industries, Community Groups, Non-Profits
166 Encourage and/or incentivize property owners and businesses to complete energy audits and energy conservation measures.	DCOS	DVRPC, PECO, County Council	Medium	All Groups
167 Advertise and encourage use of existing Weatherization Programs.	CAADC	DCOS, Municipalities	Ongoing	Non-Profits, Municipalities, Community Groups, Residents, HOA
168 Explore potential for energy benchmarking on a regional-scale.	DCOS	DVRPC	Short	Businesses/ Industries, Educational Institutions, Municipalities
SUBGOAL #2: Water – Reduce water consumption in buildings and properties in Delaware County.				
TARGET #1: Reduce water consumption in County buildings by 20% over the next 5 years.				
169 Baseline water consumption in County buildings.	DCOS	Facilities	Short	All Groups
170 Evaluate existing landscaping protocols, watering habits, and GSI to reduce water consumption.	Parks and Recreation	Facilities, DCCD, DCOS	Short	All Groups
171 Develop sustainable building design standards for County CIP.	Public Works	Facilities, DCOS	Short	Municipalities, Educational Institutions, Businesses/ Industries
172 Design and construct plumbing improvements in County building such as low/no flow fixtures, etc. and tie them into existing projects.	Public Works	Facilities, DCOS	Long	All Groups
173 Design and construct water re-use projects in County buildings such as rainwater/greywater toilets that tie into existing projects.	Public Works	Facilities, DCOS	Long	All Groups
174 Complete a Community Greening Plan to determine best places for GSI.	Planning	Parks and Recreation, DCCD, DCEMA, DCNR	Long	All Groups
175 Generate monthly water consumption reports to be compiled for annual submission County Council and Sustainability Commission.	Facilities	DCOS	Ongoing	Delaware County

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
TARGET #2: Reduce water consumption in residential, commercial, and industrial buildings by 20% over the next 5 years.				
176 **Identify baseline water consumption in Delaware County.**	DCOS	CWA, Aqua	Short	All Groups
177 **Develop and implement an educational program encouraging water conservation in alignment with baseline findings.**	DCOS	CWA, Aqua, DCCD, PECO	Short	Non-Profits, Community Groups, Educational Institutions, Businesses/ Institutions
178 **Provide education to community groups, resident, municipalities, and businesses regarding water conservation measures and existing initiatives and programs to help fund them.**	DCOS	CWA, Aqua, DCCD, PECO	Medium	Non-Profits, Community Groups, Educational Institutions, Businesses/ Institutions
SUBGOAL #3: Increase availability and use of renewable energy sources.				
TARGET #1: Increase availability and use of combustion-free locally-sourced renewable energy sources in County buildings by 10% over the next 5 years.				
179 **Account for the solar array energy produced on the Government Center roof.**	Facilities	DCOS	Ongoing	Delaware County
180 **Develop solar array maintenance plan, including necessary cleaning and panel inspection, to ensure optimal performance.**	Facilities	DCOS	Short	All Groups
181 **Install solar energy equipment on County properties to replace electricity from the PJM grid.**	Public Works	Facilities, DCOS	Medium	All Groups
182 **Enter into Regional Power Purchasing Agreement with neighboring counties to allow for purchase of renewable energy sources at the greatest value.**	DCOS	DVRPC	Short	Municipalities, Educational Institutions
183 **Hire Delaware County Energy Manager.**	DCOS	County Council, Personnel	Medium	Municipalities, Educational Institutions, Businesses/ Industries
TARGET #2: Increase availability and use of combustion-free locally-sourced renewable energy sources in residential, commercial, and industrial properties by 10% over the next 5 years.				
184 **Promote community-based solar programs such as Solarize Delco and C-PACE.**	DCOS	Solarize Delco, Commerce Center, Community Groups	Ongoing	Non-Profits, Community Groups, Municipalities
185 **Baseline and report on mega-watts of solar added to the County each year.**	DCOS	Facilities, Provident Energy	Ongoing	Non-Profits, Educational Institutions
186 **Provide education about the different kinds of locally-sourced renewable energy infrastructure, siting projects, and funding sources for installing them.**	DCOS	DVRPC, Solarize Delco, Community Groups	Ongoing	Non-Profits, Educational Institutions, Businesses/ Industries, Community Groups
187 **Seek SolSmart County Designation and promote program to municipalities.**	DCOS	Planning	Short	Municipalities
188 **Support and bring awareness to Community Choice Aggregation (CCA) option for energy procurement in Boroughs.**			Short	Municipalities* Only Applicable to Boroughs

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
SUBGOAL #4: Reduce emissions in Delaware County.				
TARGET #1: Reduce County emissions by 20% from 2019 baseline over the next 5 years.				
189 **Calculate baseline emissions from energy.**	DCOS	Facilities, PECO, DVRPC	Short	Educational Institutions, Businesses/ Industries, Municipalities, Non-Profits, HOA
190 **Implement energy reduction projects in buildings and measure emission reductions.**	Public Works	DCOS, Facilities	Medium	Educational Institutions, Businesses/ Industries, Municipalities, Non-Profits, HOA
191 **Electrify County buildings during new construction and/ or retrofits.**	Public Works	Facilities, DCOS	Ongoing	All Groups
192 **Create HVAC upgrade plan for electrifying mechanical systems in correspondence with end-of-life of existing equipment.**	Public Works	Facilities, DCOS	Short	All Groups

Zero Waste				
GOAL: Achieve Zero Waste in Delaware County.				
SUBGOAL #1: Internal Operations – To achieve zero waste in County operations.				
TARGET #1: Increase diversion rate in County buildings to 50% over the next 5 years.				
TARGET #2: Reduce waste tonnage in County buildings by 60% over the next 5 years.				
193 **Adopt Delaware County's Zero Waste Plan (10-Year Municipal Waste Management Plan)**	County Council	DCOS, DCSWA	Short	Municipalities
194 **Create a policy for digitizing County files.**	DCOS	IT, Delaware County Solicitors Office	Short	Municipalities, Educational Institutions, Non-Profits, Community Groups, Businesses/ Industries
195 **Create an electronic signature policy for County documents.**	IT	DCOS, Delaware County Solicitors Office	Short	Municipalities, Educational Institutions, Non-Profits, Businesses/ Industries
196 **Create a green procurement policy with a focus on reducing waste.**	DCOS	Central Purchasing, Delaware County Solicitors Office	Short	Municipalities, Educational Institutions, Non-Profits, Businesses/ Industries
197 **Create a baseline of current waste tonnages and diversion rates.**	DCOS	Facilities	Short	All Groups
198 **Perform a waste characterization study to better understand what is in the County waste stream.**	DCOS	Facilities	Long	All Groups

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
199 "Right-size" the recycling program to ensure adequate receptacles, staffing, and other resources meet County needs.	DCOS	Facilities	Short	Municipalties, Educational Institutions, Businesses/ Industries
200 Create a pilot recycling program in Government Center and provide necessary training to employees regarding proper recycling practices.	DCOS	Facilities	Short	Municipalities, Educational Institutions, Businesses/ Industries, HOA, Community Groups, Non-Profits
201 Perform an analysis of waste collection and recycling in all of County buildings, including leased buildings, to better under existing contracts, receptacles, and needs.	DCOS	Facilities	Short	Municipalities, Educational Institutions, Businesses/ Indsutries
202 Create a paper recycling program and encourage paper reduction behaviors such as minimizing printing.	DCOS	Facilities	Short	Municipalities, Educational Institutions, Non-Profits, Businesses/ Industries, Community Groups
203 Create a pilot composting program at the Government Center.	DCOS	Facilities, Capozzolis	Medium	Municipalities, Educational Institutions,Non-Profits, Businesses/ Industries, Community Groups
204 Pass a Delaware County Zero Waste Resolution.	County Council	DCOS	Short	Municipalities
205 Work with County food vendors to reduce packaging and food waste.	DCOS	Capozzolis	Short	Businesses/ Industries, Educational Institutions
206 Generate quarterly, biannual, and/or annual reports on the status of waste diversion to County Council.	DCOS	Facilities	Ongoing	Municipalities, Educational Institutions, Businesses/ Industries, HOA
207 Apply for grants, incentives, and other financial assistance to assist in the implementation of Zero Waste actions.	DCOS	DCSWA	Ongoing	Municipalities, Educational Institutions, Non-Profits, Community Groups

SUBGOAL #2: County-wide – To achieve zero waste in all 49 municipalities.				
TARGET #1: Increase diversion rate in Delaware County to 50% over the next 5 years.				

TARGET #2: Reduce waste tonnage in Delaware County by 60% over the next 5 years.				
208 Collaborate with existing organizations that are doing Zero Waste.	DCOS	Municipalities, Businesses, Colleges and Universities, Community Groups	Short	Municipalities, Educational Institutions, Non-Profits, Community Groups, HOA, Businesses/ Industries

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
209 Research the powers of County Government to pass Zero Waste legislation.	Delaware County Solicitors Office	DCOS	Short	Municipalities, Non-Profits, Community Groups
210 Encourage all 49 municipalities to submit Act 101 Section 904 recycling performance grant applications to the PA DEP.	DCOS	DCSWA	Short	Municipalities, Community Groups
211 Develop and oversee implementation of County-wide Zero Waste legistation.	DCOS	Delaware County Solicitors Office	Short	Municipalities
212 Host or partner 5 events and programs per year to maintain Keep PA Beautiful affiliation.	DCOS	Community Groups, Residents	Ongoing	Municipalities, Community Groups
213 Provide comprehensive outreach, education and technical assistance to support all generators Countywide to reduce waste, recycle and compost.	DCOS	DCSWA	Ongoing	Municipalities, Community Groups, Non-Profits
214 Partner with local non-profit organizations to create a curbside residential program for the collection of durable goods and non-durable textiles to be collected for reuse and/or recycling.	DCOS	DCSWA	Medium	Municipalities, Non-Profits, Businesses/Industries
215 Partner with community organizations and County libraries to sponsor fixit clinics and repair cafés.	DCOS	Delaware County Library System	Medium	Municipalities, Non-Profits, Community Groups
216 Create and maintain an online reuse and repair directory and promote repair and reuse businesses.	DCOS	Delaware County Public Relations	Medium	Non-Profits, Community Groups
217 Develop a mini-grant program and provide support for edible food donation, refill stations and Zero packaging stores, and other community-led projects.	County Council	DCOS	Long	Businesses/Industries
218 Educate community members on the existing waste stream and the existing programs and resources for disposing of different materials.	DCOS	DCSWA	Ongoing	Municipalities, Non-Profits, Community Groups
219 Collaborate with municipalities interested in regional collaboration.	DCOS	DCSWA	Ongoing	Municipalities
220 Develop model ordinances for universal collection, deconstruction, single use plastic bans, Save as You Throw, and other Zero Waste policies.	DCOS	DCSWA, Penn Environment	Short	Municipalities, Non-Profits, Community Groups
221 Develop model waste collection contract for adoption by municipalities, businesses, institutions, etc.	DCOS	DCSWA	Short	Municipalities, Non-Profits, Community Groups, Businesses/Industries, Educational Institutions, HOA
222 Support and collaborate with municipalities on universal collection pilot program.	DCOS	DCSWA	Medium	Municipalities, Non-Profits, Community Groups
223 Encourage and work with interested municipalities to implement Save As You Throw program.	DCOS	DCSWA	Medium	Municipalities
224 Evaluate every other week collection of trash and share best practices with municipalities.	DCOS	DCSWA	Short	Municipalities, HOA
225 Support competition in designing procurement process.	DCOS	DCSWA	Ongoing	Municipalities, Non-Profits, Businesses/Industries, Educational Institutions, HOA

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
226 Secure grants and funding for Zero Waste activities in Delaware County.	DCOS	DCSWA	Short	Municipalities, Non-Profits, Community Groups, Educational Institutions
227 Support the growth of Delaware County's construction and deconstruction diversion sector.	DCOS	DCSWA, Commerce Center	Short	Businesses/Industries
228 Adopt a construction & demolition debris diversion ordinance banning C&D waste from landfills.	DCOS	Delaware County Solicitors Office, Delaware County Council, Municipalities	Short	Municipalities
229 Support and collaborate with local partners to establish building material recovery and reuse centers in Delaware County.	DCOS	DCSWA, Commerce Center	Medium	Municipalities, Non-Profits, Businesses/Industries
230 Develop relationships with municipalities to document needs for processing and technical support.	DCOS	DCSWA	Short	Delaware County
231 Work to find short- and long-term solutions to increase capacity to transfer additional streams, including recycling, organics and expanded drop off at DCSWA transfer stations.	DCSWA	DCOS	Medium	Delaware County
232 Enter into contracts to receive organics and recycling at transfer stations and existing facilities.	DCSWA	DCOS	Medium	Delaware County
233 Identify and evaluate technology and systems available to process organics and recycling.	DCSWA	DCOS	Long	Businesses/Industries
234 Complete a feasibility study for siting a MRF or organics processing solution at the transfer station locations.	DCSWA	DCOS	Long	Businesses/Industries
235 Develop budgets accounting for additional infrastructure and staffing needs for processing recycling and organics and solicit approval from appropriate parties.	DCSWA	DCOS	Medium	Delaware County
SUBGOAL #3: To reduce emissions from waste.				
TARGET #1: Reduce County emissions by 20% from 2019 baseline over the next 5 years.				
236 Calculate baseline emissions from waste.	DCOS	Facilities, DCSWA, DVRPC	Short	All Groups
237 Quantify emission reductions from the implementation of Zero Waste actions.	DCOS	Facilities, DCSWA, DVRPC	Ongoing	All Groups

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
Health and Wellness				
GOAL: To create a safe and healthy environment to live, work, play and thrive.				
SUBGOAL #1: Air -To ensure just and equitable access to clean, clear and healthy air.				
TARGET #1: Provide education in all 49 Delaware County municipalities to increase awareness and understanding of impacts of air quality on health over the next 5 years.				
238 **Increase community air quality monitoring throughout the County to better gauge air quality in all communities.**	DCHD	DCOS, Planning, PA DEP, Clean Air Council	Short	All Groups
239 **Increase availability and access to air quality data and analysis in the community.**	DCOS	DCHD, PA DEP, Planning, Clean Air Council, Colleges and Universities	Medium	Educational Institutions, Non-Profits, Businesses/ Industries
240 **Establish clear line of communication with PA DEP for efficient policy regulation and enforcement.**	DCOS	DCHD, PA DEP, Planning, Clean Air Council, Colleges and Universities	Short	Educational Institutions, Community Groups, Non-Profits, Municipalities
241 **Create anti-idling policies for County vehicles.**	DCOS	Fleet Management	Short	Municipalities, Educational Institutions, Businesses/ Industries
242 **Create a model ordinance requiring lead, asbestos, and mold testing in residential/commercial buildings (rental/ resale).**	DCOS	DCHD, Planning	Long	Municipalities, Educational Institutions
243 **Create a policy requiring safe cleaning products for all County buildings.**	DCOS	Facilities	Short	Educational Institutions, Municipalities, Businesses/ Industries
244 **Create IAQ design standards for County-owned buildings.**	Public Works	Facilities, DCOS	Short	Educational Institutions, Municipalities, Businesses/ Industries
245 **Create model zoning ordinances focusing on air quality (Ex. Setback Ordinances, Buffering, Sensitive Uses, etc.)**	DCOS	Planning	Medium	Municipalities
246 **Encourage adoption of Young Lungs at Play Ordinances in all 49 municipalities.**	DCOS	Planning, Parks and Recreation, Municipalities, Schools	Short	Municipalities, Schools, Non-Profits
247 **Acknowledge non-attainment status of air quality in Southeastern Pennsylvania.**	EPA	PA DEP, DCOS, DCHD, County Council	Short	All Groups
248 **Utilize air quality data to advocate for mitigation of harm from poor air in Delaware County.**	County Council	PA DEP, EPA, DCOS, DCHD	Ongoing	Non-Profits, Community Groups, Municipalities, Educational Institutions

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
249 Educate community members on air quality including the cumulative risk factors that increase harmful impacts and create pathways to advocate for change.	DCOS	DCHD, Clean Air Council	Short	Non-Profits, Community Groups, Educational Institutions
250 Establish guidance and a communication disbursement strategy for poor air quality days.	DCOS	DCHD, PA DEP	Short	Non-Profits, Educational Institutions, Municipalities
SUBGOAL #2: Water - Ensure just and equitable access to safe and affordable drinking water and water for recreation.				
TARGET #1: Provide education in all 49 Delaware County municipalities about healthy hydration and the recreational use of water for health and wellness over the next 5 years.				
251 Promote water testing in homes and schools for lead and other harmful chemicals.	DCHD	DCOS, CAADC, Schools	Short	Educational Institutions, HOA, Community Groups, Non-Profits
252 Review annual water quality reports from public water providers and disseminate to the public.	DCHD	DCOS, CWA, Aqua	Ongoing	All Groups
253 Identify key contacts at water providers and meet annually to discuss goals and strategies.	DCOS	DCHD, CWA, Aqua	Short	Municipalities
254 Work with the PA DEP to ensure updated water quality monitoring and accurate stream quality designations.	DCCD	DCOS, Watershed Groups	Short	Non-Profits, Community Groups, Educational Institutions
255 Inventory existing community programs around hydration (Schools, Seniors, Community Groups, Depts).	DCHD	DCOS, COSA, DCIU, Schools	Short	Educational Institutions, Community Groups, Non-Profits
256 Develop and implement and education program incorporating existing initiatives and programs.	DCOS	DCHD, COSA, DCIU, Schools, Penn State Extension	Medium	Educational Insititutions, Community Groups, Non-Profits
257 Identify dissemination strategy of educational program catering to specific communities (K-12, Adults, Seniors, etc.)	DCOS	Delaware County Public Relations, DCHD	Medium	Educational Insititutions, Community Groups, Non-Profits
258 Track completion of education programs and the number of recipients.	DCOS	DCHD, COSA	Ongoing	Educational Insititutions, Community Groups, Non-Profits
259 Complete water audits in schools and community facilities to ensure that the community have sufficient access to drinking water.	DCHD	DCOS	Medium	Educational Insititutions, Community Groups, Non-Profits
260 Increase opportunities for safe water-based recreation in Delaware County.	Parks and Recreation	DCHD, DCOS	Long	Municipalities, Community Groups, Non-Profits

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
261 Increase education and awareness around waterways in Delaware County informing residents of safety considerations when recreating.	DCOS	DCCD, Parks and Recreation, Clean Air Council	Short	Municipalities, Community Groups, Non-Profits
262 Install hydration stations in high-need areas, such as County Parks.	DCOS	Parks and Recreation	Short	Municipalities, Community Groups, Non-Profits, Education Institutions
SUBGOAL #3: Food - To ensure just and equitable access to healthy, nutritious, appealing and locally grown food.				
TARGET #1: Increase the number of healthy food offerings in food insecure communities by 20% over 5 years.				
263 Identify food insecure communities throughout Delaware County.	Share	DCOS, DCDM	Short	Municipalities, Non-Profits, Community Groups
264 Identify existing food disbursement programs (Food Banks, Shelters, Cupboards, School Programs).	Share	DCIU, DCDM	Short	Community Groups, Non-Profits
265 Evaluating existing offerings of food disbursement to ensure access to healthy and culturally-appropriate foods.	Share	DCIU, DCOS	Short	Community Groups, Non-Profits
266 Engage community members regarding food needs throughout the County.	Share	DCOS, Community Groups	Ongoing	Municipalities, Non-Profits, Community Groups
267 Advertise and/or Host Farmer's Markets/Mobile Market throughout Delaware County specifically in food insecure communities.	DCOS	Parks and Recreation, SEPTA	Short	Municipalities, Non-Profits, Community Groups
268 Ensure that all existing Farmer's Markets have access to nutrition incentive programs (ex. SNAP, GUSNIP, WIC).	DCOS	Share, Penn State Extension	Medium	Municipalities, Non-Profits, Community Groups
269 Provide nutritional programming for all ages.	PennState Extension	SNAP, Library Services, Greener Partners, DCHD	Ongoing	Non-Profits, Community Groups, Educational Institutions
270 Identify sites to host community gardens and/or managed farms in high-need and opportunity areas.	DCOS	COSA, CAADC, Parks and Recreation, SEPTA, Penn State Master Gardeners	Medium	Municipalities, Non-Profits, Community Groups
271 Install additional community garden plots and/or managed farms on County-owned land.	Parks and Recreation	DCOS, PHS, Greener Partners	Medium	All Groups
272 Provide technical assistance, capacity building, and resources for community gardens (by-laws, governance, human capital, etc.)	DCOS	PHS, Parks and Recreation, Greener Partners	Short	Non-Profits
273 Promote community resource sharing for producing locally accessible food (tool sharing, produce, seeds, etc.)	DCOS	Municipalities, Community Groups, Penn State Extension, PHS	Ongoing	Non-Profits, Community Groups
274 Create a network of farmers/farms in Delaware County.	DCCD	DCOS, DCDM, Penn State Extension	Short	Non-Profits

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
275 Create a community-wide education campaign regarding farming in Delaware County.	DCOS	DCCD, Penn State Extension	Short	Educational Institutions, Non-Profits, Community Groups
276 Perform outreach to farmers to participate in farmers markets, food rescues, and other initiatives.	DCOS	Share	Short	Municipalities, Non-Profits, Community Groups
278 Create a campaign sharing existing food resources in De7aware County.	Share	DCOS, PHS, Penn State Extension, Greener Partners	Short	Municipalities, Non-Profits, Community Groups
278 Provide education regarding different kinds of local faming methods/organizational structures.	DCCD	DCOS, Community Groups, Greener Partners	Medium	Educational Institutions, Non-Profits, Community Groups
279 Create a Food Policy Council focusing on local food in Delaware County.	DCOS	Share, Penn State Extension, Community Groups	Short	Non-Profit
280 Host an annual food summit bringing together professionals to share synergies and collaborate.	DCOS	Share, DCHD, Community Organizations, School Districts, Greener Partners	Medium	Non-Profit, Educational Institution
281 Evaluate existing zoning regulations surrounding community gardening and agriculture, and create a model for greater accessibility.	DCOS	Planning, DCCD	Short	Municipalities, Non-Profits, Community Groups
282 Adopt an urban farming pilot project on County or municipal-owned land such as the proposed Greening on Orange Pilot Project.	County Council	DCOS, Public Works, Greener Partners	Long	Municipalities, Non-Profits
283 Include criteria for local food production in the open space prioritization (NR #9) to be included in the updated Conservation Priority Area Maps (NR #11).	DCDM	Planning, DCOS	Short	Municipalities, Non-Profits

SUBGOAL #4: Overall Well-Being - Improve the overall physical and mental health and well-being for all.				
TARGET #1: Adopt 100% of Delaware County Health Department programs as they are developed over the next 5 years.				
284 Adopt all DCHD policies and implement programs.	DCOS	DCHD	Ongoing	Delaware County
285 Align Sustainability Plan with DCHD definition of wellness.	DCOS	DCHD	Ongoing	All Groups
286 Host a public health fair highlighting existing initiatives and resources.	DCHD	DCOS	Medium	Non-Profits, Community Groups, Municipalities, Educational Institutions
287 Advertise lead prevention materials and programs through the DCHD.	DCOS	DCHD	Short	Non-Profits, Community Groups, Municipalities, Educational Institutions
288 Increase opportunities for County employees to be active during the day.	DCHD	DCOS, Personnel	Short	Municipalities, Businesses/Industries, Non-Profits, Educational Institutions

98

FOCUS AREA GOALS, TARGETS, AND ACTION	LEAD ORGANIZATION	PARTNER ORGANIZATIONS	TIME FRAME	APPLICABILITY
Overarching Actions for a Sustainable Delaware County				
289 **Create a community engagement plan for all sustainability work.**	DCOS	Planning, Delaware County Public Relations	Medium	Non-Profits, Community Groups, Municipalities, Educational Institutions
290 **Hire a County Grant Writer to assist in on-going implementation efforts.**	County Council	Personnel, DCOS	Short	Delaware County
291 **Support a Municipal Grant Writer to assist underserved communities in capacity building for grants.**	County Council	Personnel, DCOS, Municipalities	Medium	Municipalities
292 **Evaluate County CIP with a lens for sustainability and equity each year.**	Public Works	DCOS	Ongoing	Municipalities, Educational Institutions
293 **Increase County volunteer opportunities, matching employees to community needs.**	DCOS	County Council	Short	Municipalities, Educational Institutions, Businesses/ Institutions
294 **Encourage Municipalities to adopt updated comprehensive plans and zoning codes that reflect sustainable practices.**	Planning	DCOS, Municipalities	Ongoing	Municipalities

[TOP] **Community members discuss sustainability topics at Open House in Chester City.** PHOTO: DCOS

[BOTTOM] **Bethel Township resident, Chris DeMuth, reviews drafted sustainability plan goals at Open House in Chester City.** PHOTO: DCOS

To create a safe and healthy environment to live, work, play and thrive.

Air

just and equitable access to clean, clear and healthy air.

100% of community members about indoor and outdoor air quality over 5 years.

mproving communication and data sharing

eating County policies and model ordinances

knowledging existing conditions and empowering people through education

Place Dots Here

C

Additional Comments

Water

Subgoal | Ensure just and equitable access to safe and affordable water.

Target | Educate 100% of community members on the importance of drinking water and the recreational use of water for health and wellness over the next 5 years.

Strategies |
A Monitoring water quality in Delaware County
B Increasing education about healthy hydration
C Providing awareness for safe water-based recreation

Place Dots Here

A ●
C
●
B

Additional Comments

Healthy F...

Subgoal | Ensure just and equitable
appealing and

Target | Increase the numb
des

Strategies |
A Identify
B Promot
C C
D Fos
E Ensurin

A ●
B

Overall Well-Being

Improve the overall physical and mental health and well-being for all.

DCHD policy on wellness and implement over the next 5 years.

rting Health Department wellness initiatives

Getting employees moving

ou will find there are not many actions under the subgoal for overall health and wellbeing. With the launching of the Delaware County Health Department in April 2022, the Department is still organizing and operationalizing. Recognizing the need for a coherent strategy for addressing wellness of residents in Delaware County, the main goal is to support the Health Department as it grows rams that align with DCHD's current

Using red dots, in each subgoal, identify the strategy y

DELCO

COMMUNITY ENGAGEMENT
SUMMARY

When creating Sustain Delco, community collaboration was seen as an integral part of the planning process. Gathering diverse ideas, understanding community priorities, and leveraging community expertise shaped this Plan to be truly representative of Delaware County.

In seeking community feedback throughout this planning process, three main goals were identified:

GOAL #1: Informing the community about sustainability efforts in Delaware County.

GOAL #2: Receiving information and feedback regarding the needs and priorities of the community to establish meaningful goals, targets, and actions.

GOAL #3: Fostering meaningful relationships to identify areas for collaboration and partnership to meet mutual goals.

To achieve these goals, the DCOS employed several engagement methods throughout the planning process, including:

- **Sustainability and Climate Action Plan Workshop**

- **Community Prioritization Survey**

- **Focus Area Subcommittees**

- **Individualized Stakeholder Meetings**

- **Public Open Houses**

A summary of each engagement method and a selection of feedback results can be found below.

ENGAGEMENT METHOD 1

Sustainability and Climate Action Plan Workshop

On November 29th, 2021, the Delaware County Office of Sustainability hosted a 2-hour workshop presenting high-level sustainability goals to members of the public. Goals had been identified by the Natural Resources Transition Team (which can be learned about in the Plan Creation and Path to Sustainability Section of this Plan) and the Sustainability Commission. Members of the public were provided with a brief presentation and then asked to share their feedback on the goals. Community members participated in the meeting both in-person and online. The feedback from this Workshop was used to identify Focus Areas and overarching themes of the Plan.

Community Prioritization Survey

In tandem with the November Workshop, in December 2021, a Community Prioritization Survey was issued to the Delaware County community to serve as an introduction to sustainability and climate action planning. Respondents were asked nine questions regarding basic demographic information and their thoughts about climate change. The collected feedback was used as a baseline for identifying how concerned residents are about climate change and their priorities for implementing climate actions. The survey was shared via social media, the County website, newsletter, and other forms of media. 711 community members representing 30 municipalities provided their feedback. A summary of community feedback can be found below.

- 83% of participants expressed a great deal or a lot of concern about climate change.
- 86% of participants felt climate change has already adversely impacted quality of life in Delaware County, either moderately, a lot, or a great deal.
- Flooding, excessive heat, and greater impacts for historically marginalized communities were of the greatest concerns with climate change.
- Natural resources, climate resiliency, and solid waste management were considered the most important sustainability issues.

Feedback from the Sustainability and Climate Action Plan Workshop and the Community Prioritization Survey were utilized to identify the six key Focus Areas of the Plan. Community concerns, priorities, and ideas also served as the foundation for Focus Area subcommittee conversations.

How concerned are you about the impacts of climate change?

711 Responses

	A GREAT DEAL	**69%**
	A LOT	**14%**
	A MODERATE AMOUNT	**12%**
	A LITTLE	**3%**
	NOT AT ALL	**2%**
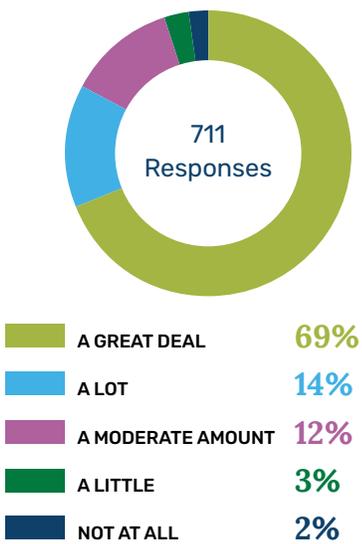
Which climate hazards do you feel have the greatest impact on Delaware County today or will in the future? *(Select all that apply)*

530 FLOODING (RISING SEA LEVELS OR EXTREME RAIN EVENTS)

463 EXCESSIVE HEAT

411 GREATER IMPACTS FOR HISTORICALLY MARGINALIZED COMMUNITIES (ENVIRONMENTAL JUSTICE)

140 DROUGHT

128 OTHER (PLEASE SPECIFY)

28 WILDFIRES

26 NONE OF THE ABOVE
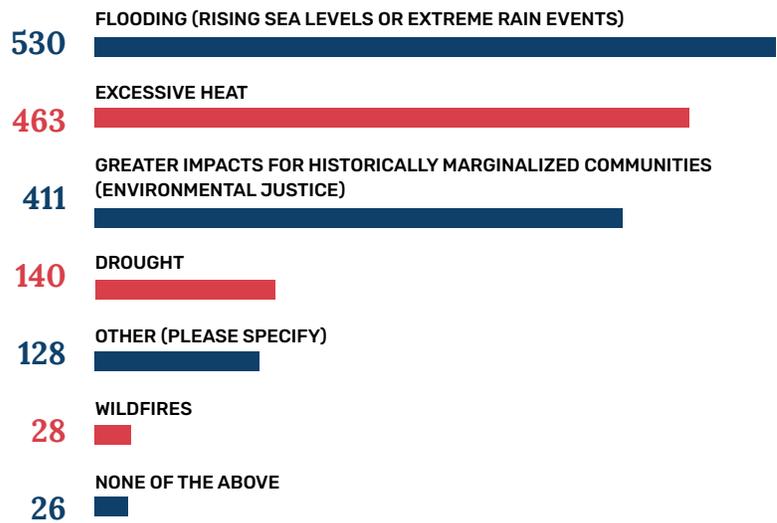
ENGAGEMENT METHOD 3

Focus Area Subcommittees

Between August 2022 and March 2023, six subcommittees in each of the Focus Areas, Climate Resiliency, Natural Resources, Energy and Efficiencies, Transportation, Zero Waste, and Health and Wellness, met first bi-weekly then monthly, to identify the final goals, targets, and actions for the Plan. Each subcommittee had between 10 and 20 advocates, nonprofit leaders, business representatives, subject matter experts, and community group leaders, who were nominated by the Sustainability Commission or identified as needed voices during the process. In identifying the actions for this Plan, subcommittee members committed to being the lead or partner organization for actions of the Plan that aligned with the goals and work programs of their organizations. Throughout the subcommittee process, 89 people participated across 63 hours of active meetings. Many participants shared their expertise in more than one Focus Area. To see the full participant list from the Focus Area subcommittees, please view the Acknowledgements section of this Plan.

FOCUS AREA 1	FOCUS AREA 2	FOCUS AREA 3	FOCUS AREA 4	FOCUS AREA 5	FOCUS AREA 6
Climate Resiliency	Natural Resources	Transportation	Energy & Efficiencies	Zero Waste	Health & Wellness
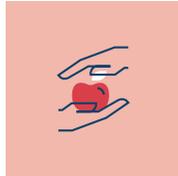
ENGAGEMENT METHOD 4

Individualized Stakeholder Meetings

Due to the extensive time requirement for participating in the Focus Area subcommittees, there were many County Departments and external organizations that were unable to participate. As an alternative, individualized stakeholder meetings were held with the Sustainability and Resilience Manager to gain perspective on the responsibilities of work programs of these organizations, as well as identify opportunities for partnership to meet mutual sustainability goals. Seventeen stakeholder meetings were held from October to December of 2022. Feedback from these meetings was taken back to the Focus Area subcommittees to provide additional context and considerations for goal, target, and action formation. The full list of organizations involved in this process can be found in the Acknowledgements section of this Plan.

ENGAGEMENT METHOD 5

Public Open Houses

In March and April 2023, four public open houses, in Chester City, Media Borough, Upper Darby, and one virtual, were held to share progress about the development of the Sustainability Plan and gather feedback on the drafted planning materials. Participants in the Open Houses were first provided with a brief presentation sharing basic information about climate change and the planning process to date. Following the presentation, participants were then welcomed to review posters highlighting the drafted goals, targets, and actions and provide feedback through guided questions and open comments. Over 80 people participated in the Open Houses representing 15 municipalities. Highlights from the Open Houses can be found below:

- General feedback was very supportive and positive about the proposed actions.
- Many participants recommended more ambitious goals and emphasized the need for equitable implementation across all communities.
- Community members expressed a need for additional background information and proper definitions to provide necessary context for prescribed goals and targets.

Collected feedback from the Open Houses was utilized to further refine the goals, targets, and actions of the Plan, as well as identify topics and background information to be included within the content of the Plan.

The Delaware County Office of Sustainability would like to express its sincere appreciation to the community members who participated in the engagement process of this Plan. Each survey, comment, and conversation were taken into careful consideration and provided necessary guidance for the creation of this Plan. The passion, expertise, and dedication shown throughout the planning process will continue to push the County towards a more sustainable future.

Which strategy would have the largest impact on creating resilient communities?

Climate Resiliency

- CREATING STRONGER CODES
- MAINTENANCE AND RELOCATION INFRASTRUCTURE
- PROMOTING EXISTING RESOURCES
- PROMOTING SMART DEVELOPMENT

27%
34%
25%
14%
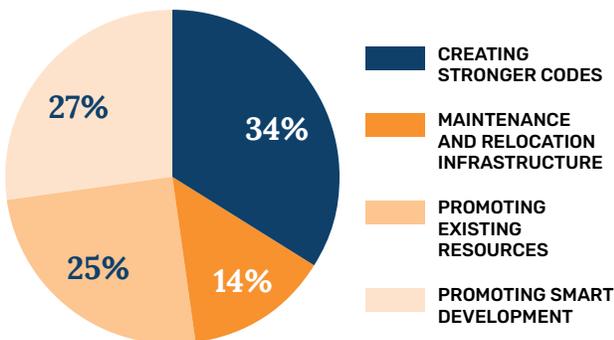
Identify one strategy that would have the greatest impact for reducing waste?

Zero Waste

ZERO WASTE POLICIES — 18

ESTABLISHING RECYCLING — 14

SHIFTING CULTURE — 29

SECURING FUNDING — 5

0   5   10   15   20   25   30

Number of Respondants
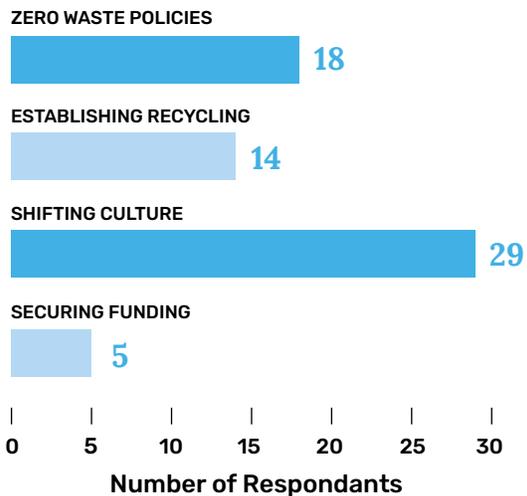
Community members review drafted health and wellness goals at Open House in Media Borough.

Which two subgoals are you most interested in seeing implemented in your community?

Transportation
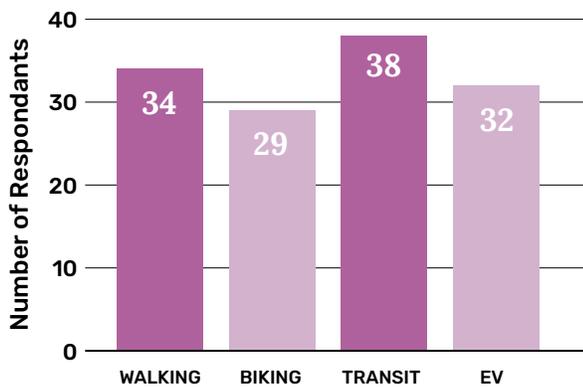
Which strategy would have the largest impact on improving health?

Health and Wellness

INCREASE SPACE FOR LOCAL FOOD PRODUCTION
16

CONVERSATIONS AROUND FOOD ISSUES
2

CREATE COMMUNITY GARDENS
19

NUTRITION EDUCATION
19

IDENTIFY NEED AREAS
18

Number of Respondants
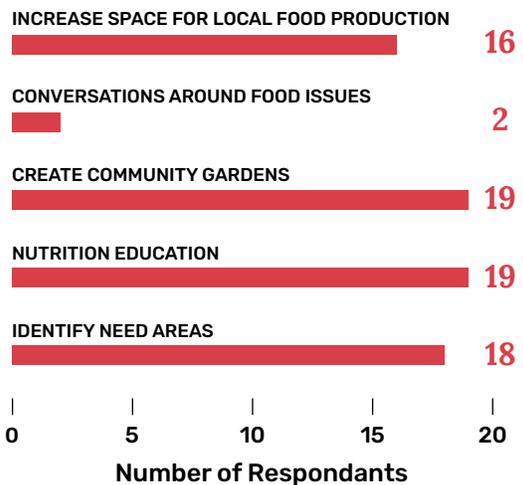
Abbreviations

ACS	American Community Survey		**DCTMA**	Delaware County Transportation Management Association
AFIG	Alternative Fuel Incentive Grant (Offered by the PA DEP)		**DE**	Delaware
BIPOC	Black, Indigenous, People of Color		**DVPRC**	Delaware Valley Regional Planning Commission
BMP	Best Management Practices		**EAC**	Environmental Advisory Council
C-PACE	Commercial Property Assessed Clean Energy		**ECM**	Energy Conservation Measures
C&D waste	Construction and Demolition		**EJI**	Environmental Justice Index
C&I	Commercial and Industrial		**EPA**	Environmental Protection Agency
CCA	Community Choice Aggregation		**ESCO**	Energy Saving Company
CCRs	Consumer Confidence Reports		**EUI**	Energy Use Intensity
Central Purchasing	Delaware County Central Purchasing Department		**EV**	Electric Vehicle
CH4	Methane		**Facilities**	Delaware County Facilities Management Department
CIP	Capital Improvement Program		**FCNA**	Facilities Conditions and Needs Assessment
CO2e	Carbon Dioxide Equivalent		**FEMA**	United States Federal Emergency Management Agency
Commerce Center	Delaware County Commerce Center		**Fleet**	Delaware County Motor Vehicle Management Department
COSA	Delaware County Offices of Services for the Aging		**GESA**	Guaranteed Energy Savings
CRS	National Flood Insurance Program Community Rating System		**GHG**	Greenhouse Gas
CWA	Chester Water Authority		**GSI**	Green Stormwater Infrastructure
DCCD	Delaware County Conservation District		**GSTF**	Delaware County Greenspace Task Force
DCDM	Delaware County Data and Mapping Innovation Office, Formerly known as GIS		**GUSNIP**	Gus Schumacher Nutrition Incentive Program
DCEMA	Delaware County Emergency Management Association		**HMP**	Hazard Mitigation Plan
DCHD	Delaware County Health Department		**HOA**	Homeowners Association
DCNR	Pennsylvania Department of Conservation and Natural Resources		**HVAC**	Heating, Ventilation, and Air Conditioning
DCOS	Delaware County Office of Sustainability		**IAQ**	Indoor Air Quality
DCSWA, Authority	Delaware County Solid Waste Authority		**ICLEI-USA**	International Council for Local Environmental Initiatives
			IPCC	International Panel on Climate Change

IT	Delaware County Information Technology Department
kBTU	One thousand British Thermal (energy) Units; energy measurement unit
KCBA	Architectural Firm that completed Delaware County's FCNA in 2021
LCAP	Local Climate Action Plan
LEED	Leadership in Energy and Environmental Design
LFPP	Local Food Promotion Program
LSA	Local Share Account (Grant Program through the Commonwealth Financing Authority)
MRF	Material Recovery Facility
MSW	Municipal Solid Waste
N2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
NOx	Oxides of nitrogen
OTIS	Philadelphia Office of Transportation, Infrastructure, and Sustainability
PA DEP	Pennsylvania Department of Environmental Protection
PA Lead Pan	Pennsylvania Plumbing System Lead Ban and Notification Act
PA, Common-wealth	Pennsylvania
Parks and Recreation	Delaware County Parks and Recreation Department
PASG	Pennsylvania Sea Grant College Program
PECO	Pennsylvania Electric Company
PEMA	Pennsylvania Emergency Management Agency

PennDOT	Pennsylvania Department of Transportation
Personnel	Delaware County Personnel Department
PFAS	Per- and Polyfluoroalkyl Substances
PHL	Philadelphia International Airport
PHS	Philadelphia Horticultural Society
Planning	Delaware County Planning Department
PM	Particulate Matter
PTN	Delaware County Primary Trails Network
REC	Renewable Energy Credits
RPPA	Regional Power Purchasing Agreement
SBNGP	Sustainable Business Network of Greater Philadelphia
SDWA	Safe Drinking Water Act
SEPTA	Southeastern Pennsylvania Transit Authority
SNAP	Supplemental Nutrition Assistance Program
TCDI	Transportation and Community Development Initiative
TOD	Transit Oriented Development
USDA	United States Department of Agriculture
USGBC	United States Green Building Council
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
WIC	Special Supplemental Nutrition Program for Women, Infants, and Children
Workforce Development	Delaware County Workforce Development Department

Glossary of Terms

Introductory Sections

Climate Change	Long-term change in the average weather patterns that have come to define Earth's local, regional, and global climates.
Disadvantaged/ Historically Marginalized/ Overburdened Communities	Minority, low-income, tribal, or indigenous populations or geographic locations in the United States that potentially experience disproportionate environmental harms and risks.
Equity	The consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment.
Environmental Justice	The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.
Global Warming	The long-term heating of Earth's surface observed since the pre-industrial period (between 1850 and 1900) due to human activities, primarily fossil fuel burning, which increases heat-trapped greenhouse gas levels in the Earth's atmosphere.
Greenhouse Gas	Gases that trap heat in the atmosphere.
ICLEI-USA Framework	A climate action planning framework developed by C40 to support cities in developing climate action plans that are aligned with the objectives of the Paris Agreement.
Inclusion	The recognition, appreciation, and use of the talents and skills of community members of all backgrounds.
Justice	The dismantling of barriers to resources and opportunities in society so that all individuals and communities can live a full and dignified life.
Justice40	An initiative prescribed by the federal government to provide 40% of the overall benefits of certain federal investments flow to disadvantaged communities that are marginalized, underserved, and overburdened by pollution. Communities designated as Justice40 can be identified using the Climate and Economic Justice Screening Tool.
Local Climate Action Plan	A plan serving to identify and measure greenhouse gas emissions in a community and establish meaningful strategies to reduce them.
Mitigation	Reducing emissions of and stabilizing levels of heat-trapping greenhouse gases in the atmosphere.
Sustainability	To create and maintain the conditions under which humans and nature can exist in productive harmony to support present and future generations in a changing climate.

Climate Projections

Chronic Inundation	An area that floods at least 26 timers per year or more, the equivalent of every other week.
Humid Continental Climate Zone	Climate zone found in the interior of continents between the 30- and 60-degrees latitude. Usually categorized by large seasonal temperature contrasts with hot summer and cold winters, with ample annual precipitation.
Thermal Expansion	The increase in volume of water due to warmer temperatures.

Climate Resiliency	
Adaptation	Taking action to prepare for and adjust to both the current and projected impacts of climate change.
Blighted Property Demolition Fund	Established by PA Act 152 of 2016, Counties may authorize the charge and collection of an additional fee not to exceed $15 for deed and mortgage recording in the recorder of deeds to be used exclusively for the demolition of blighted property in the county. In Delaware County, this is a rolling fund overseen by the Office of Housing and Community Development. Grants may not exceed $85,000.
Climate Hazards	A physical process or meteorological event or which may cause damage or loss.
Climate Resiliency	The ability to successfully cope with and recover quickly from the impacts of climate change while preventing those impacts from getting worse.
Delaware County Land Bank	A tool intended to reduce blight and spur economic development by transferring properties that are vacant, abandoned, and tax delinquent back to productive use in alignment with community goals. The Delaware County Land Bank is overseen by the Delaware County Redevelopment Authority and was approved in 2022.
Green Buildings	The planning, design, construction, and operations of buildings with several central, foremost considerations: energy use, water use, indoor environmental quality, material section, and the building's effect on site. Green building is a holistic concept that starts with the understanding that the built environment can have profound effects, both positive and negative on the natural environment, as well as the people who inhabit buildings every day.
Green Economy	Low carbon, resource efficient and socially inclusive. In a green economy, growth in employment and income are driven by public and private investment into such economic activities, infrastructure and assets that allow reduced carbon emissions and pollution, enhanced energy and resource efficiency, and prevention of the loss of biodiversity and ecosystem services.
Heat Islands/Heat Island Effect	Urbanized areas that experience higher temperatures that outlying areas. Structures such as buildings, roads, and other infrastructure absorb and re-emit the sun's heat more than natural landscapes such as forest and water bodies.
High Priority Occupation List	List utilized to to align workforce training and education investments with occupations that are in demand by employers, have higher skill needs and are most likely to provide family sustaining wages. The lis is just one component of PA's industry-driven approach to workforce development.
PA Act 135	An Act providing neighbors, businesses, and nonprofit organizations with a mechanism to address blighted properties by petitioning the court for the appointment of a conservator. If appointed by the court, the conservator then takes responsibility for rehabilitating and selling the property. This Act serves as the enabling legislation for the Delaware County land bank.
Repetitive Loss Properties	Any insurable building for which two or more claims of more than $1,000 were paid by the NFIP within any rolling 10-year period, since 1978.
Resiliency Practices	Actions taken by a community to successfully adapt to climate change. For the purposes of this Plan, communities acknowledging climate change and actively implementing solutions to deal with climate impacts will be considered resiliency actions. Examples include adopting ordinances, resolutions, or policies; installing infrastructure or implementing projects; providing education or spreading awareness to residents about climate change; and/or other actions acknowledging and addressing climate change impacts such as flooding, increasing temperatures, stronger storms, etc.
Storm Intensity	A measure of strength, duration, and frequency of a natural environmental or atmospheric disturbance. Typically associated with hurricanes, tropical storms, etc.

Sustainable Infrastructure	Those that are planned, designed, constructed, operated, and decommissioned in a manner that ensures economic and financial, social, environmental (including climate resilience), and institutional sustainability over the entire infrastructure life cycle. Sustainable infrastructure can include built infrastructure, natural infrastructure, or hybrid infrastructure that contains elements of both.
Weatherization Programs	Programs designed to reduce energy costs for low-income households by increasing the energy efficiency of their homes, while ensuring health and safety.

Natural Resources	
Best Management Practices	Devices, practices, or methods that are used to manage stormwater runoff by controlling peak runoff rate, improving water quality, and managing runoff volume.
Brownfield	A property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.
Carbon Sequestration	The process of capturing and storing atmospheric carbon dioxide.
Cluster Zoning	A technique which allows lots to be reduced in size and buildings sited closer together provided to total development density does not exceed that which could be constructed on the site under conventional zoning and the remaining land is utilized for open space or public purposes.
Community Greening Plan	A green infrastructure plan examining how communities function in their watershed and identifying specific locations where green infrastructure can minimize flooding, improve riparian habitat, reduce combined sewer overflows, and reduce legacy sediments.
Community Stewardship	The act of taking responsibility for the well-being of the environment and doing something to restore or protect that well-being.
Ecosystem	A biological community of interacting organisms including human beings and their living and non-living environment.
Floodplain	An area of low-lying ground adjacent to a river or stream, formed mainly of sediments and subject to flooding.
Green Stormwater Infrastructure	A network of natural and semi-natural systems that manage stormwater runoff by slowing the rate of water flow and filtering out harmful pollutants before they drain into waterways.
Impaired Stream	A water body in which the applicable water quality standard is not being attained.
Impervious Surfaces	Surfaces that allow little or no stormwater infiltration into the ground.
Invasive Species	A non-native plant whose introduction causes or is likely to cause economic or environmental harm or harm to human health.
Live stake	Stem cuttings taken from trees during the dormant season and then inserted directly into stream banks. The cuttings will eventually grow into new trees and are an effective way to establish a root network to prevent further stream bank erosion.
Native Plantings	A plant which has occurred naturally in a particular region, ecosystem, or habitat without human introduction.
Natural Heritage Areas	Sites that support rare plants or animals, exemplary ecological communities, and Pennsylvania's native species biodiversity.
Natural Resources	Both the individual components or features of the environment (geographic formations, soil characteristics, wildlife, etc.) and the ecosystem in which they exist.
Naturalized, Naturalization	The process of transforming a cultivated landscape, such as a lawn, into a more natural landscape featuring native plants arranged to mimic naturally occurring habitat.

Point Source Pollution	Any single identifiable source of pollution from which pollutants are discharged, such as a pipe, ditch, ship, or factory smokestack.
Porous Material	Also known as permeable or pervious pavement, is a stormwater management system that allows water to move through void spaces within the pavement and eventually infiltrate into underlying soils.
Protected Open Space	Publicly owned land under a permanent easement or deed restriction.
Remediation	The removal of pollution or contaminants from water and soil for the protection of human health, and to restore the environment.
Riparian Buffer	An area adjacent to a stream, lake, or wetland that contains a combination of trees, shrubs, and/or other perennial plants and is managed differently from the surrounding landscape, primarily to provide conservation benefits.
Tree Canopy	The layer of leaves, branches, and stems of trees that cover the ground when viewed from above.
TreeVitalize	A public-private partnership established by PA DCNR to help build capacity within communities to plan for, plant, and care for trees, and to offer educational trainings to help citizens understand the diverse benefits of trees and the importance of properly planting and maintaining them.
Unprotected Open Space	Privately-owned undeveloped land without permanent conservation easement or deed restriction.
Watershed	A land area that channels rainfall and snowmelt to creeks, streams, and rivers and eventually to outflow points such as reservoirs, bays, and the ocean.

Energy and Efficiencies	
Benchmarking	A mechanism to measure energy performance in a single building over time, relative to other similar buildings, or to model simulations of a reference building built to a specific standard.
C-PACE	A financing structure in which building owners borrow money for energy efficiency, renewable energy, or other projects and make payments via an assessment on their property tax bill. The financing arrangements then remain with the property event if it is sold.
Capital Improvement Program (CIP)	A short-range schedule of public improvement projects planned by the County Government to occur over a five-year period. The Plan details how the County will sustain and improve its infrastructure and core assets. The Plan identifies all sources and uses of funds provided for the protection, improvement, and replacement of capital assets.
Combustion-free locally sourced renewable energy	Energy that is not fueled by fossil fuels, but instead from energy derived from natural sources in the state or region that are replenished at a higher rate than they are consumed, including solar, hydroelectric, wind, geothermal, etc.
Demand-Response Program	A program that provides payments to large energy consumers that agree to make reductions, increases, or shifts in electricity consumption during times of electricity grid stress. These programs are a clean and cost-effective alternative to installing new power plants or bringing capacity held in reserve back online in order to restore the grid's energy balance.
Electrification	The process of replacing technologies that use fossil fuels (coal, oil, and natural gas) with technologies that use electricity as a source of energy. Depending on the resources used to generate electricity, electrification can reduce carbon dioxide emissions from transportation, building, and industrial sectors.
Energy Audit	An inspection and analysis providing the whole picture of a building's energy use, comfort, and safety. The assessment typically includes an inspection and analysis to identify how much energy the building is using, areas of inefficiency, and safety concerns. A final report is typically generated outlining opportunities to conserve energy, improve efficiency, repair safety concerns, and other general recommendations.

ENERGY STAR Score	A score given on a scale of 1 to 100, where the higher the score, the better the energy performance of the building. The score provides a comprehensive snapshot of the building's energy performance, taking into account the building's physical assets, operations, and occupant behavior.
Fossil Fuels	Sources of energy that are non-renewable that are formed from prehistoric plants and animals that died and were gradually buried by layers of rocks. Examples include oil, coal, and natural gas.
Mega-Watts	Unit of measurement for electricity. Equivalent to one million watts or 1,000 Kilowatts.
PJM	A regional transmission organization that coordinates the movement of wholesale electricity across 13 states. Once energy is transmitted from generators to PJM, it is then distributed to PECO for local retail distribution.
Portfolio Manager	An online tool created by the EPA allowing customers to measure and track energy and water consumption, as well as greenhouse gas emissions.
Regional Power Purchasing Agreement (RPPA)	A Regional or Aggregated power purchase agreement is where multiple buyers form a procurement group to, working with a supplier, enter contracts with an energy project through which the customers agree to purchase the energy produced by a generator over a specified period at a predetermined price per unit of energy. Each participant signs separate, but similar, contracts.
Renewable Energy Credit (REC)	A market-based instrument that represents the property rights to the environmental, social, and other non-power attributes of renewable electricity generation. RECs are issued when one megawatt-hour of electricity is generated and delivered to the electricity grid from a renewable energy resource. Because the physical electricity we receive through the utility grid does not allow for customers to select a specific source, RECs allow customers to invest in and substantiate renewable electricity claims.
Solarize Delco	A 501c3 dedicated to advancing solar power adoption in Delaware County. Solarize is run and staffed by unpaid volunteers. The program derives funding from a small fee from Solarize Delco approved contractors based on the kW solar capacity installed under the program. All funds go back into the program to assist in public outreach, communication materials, and grants.
SolSmart	A program led by the Interstate Renewable Energy Council (IREC) and the International City/County Management Association (ICMA),and funded by the US Department of Energy. The program provides no-cost technical assistance to help local governments follow national best practices to expand solar energy use in their jurisdictions and celebrates these communities with Bronze, Silver, Gold, and Platinum designations.

Transportation	
Active Transportation	Human-powered mobility, such as biking, walking, or rolling. Active transportation directly replaces motor vehicle miles traveled, so these modes are effective at conserving fuel, reducing vehicle emissions, and improving public health.
Alternative Transportation Mode	All modes of travel other than the single occupant motor vehicle.
Anti-Idling Policies	Legal policies or laws established to prohibit or limit gas or diesel-powered engines from running when the vehicles are not moving in an effort to reduce GHG emissions and improve air quality.
Circuit Trail Network	A vast regional network of hundreds of miles of off-road multi-use trails connecting communities across Greater Philadelphia. Once completed the system will connect 800+ miles of trails across the region.
E-Bike	A bicycle equipped with an electric motor that may be activated in order to assist with or replace pedaling.

East Coast Greenway	A walking and biking route stretching 3,000 miles from Maine to Florida, connecting our nation's most populated corridor. Imagined to be the urban equivalent of the Appalachian trail, the ECGW connects 15 states and Washington DC. Currently 35% complete with more than 1,000 miles of trail, the ECG is planned to follow the Delaware River through Delaware County, with some sections already completed in Tinicum Township, Chester City, and Marcus Hook Borough.
Electric Vehicles	A vehicle that can be powered by an electric motor that draws electricity from a battery and is capable of being charged from an external source.
First and Last Mile Transportation Gaps	The distance between the start or end of an individual transit trip, which must often be bridged by walking, driving, or taking some other mode of transit.
Gap Analysis	A study or report evaluating the physical and or temporal offerings of the transportation network to identify areas of need, or gaps, for the creation of a more complete system.
Mobility Hubs	Places in the community that bring together multiple public, shared, and active travel modes for people to get where they want to go without a private vehicle.
Multi-Family Dwelling	A single building divided into separate units to accommodate more than one family living separately.
Multimodal Transportation	The movement of people and goods on roadways through means such as walking, biking, transit, rail, cars, and trucks. Multi-modal transportation supports the needs of all users by providing a mix of transportation options building a more vibrant community.
Passenger Vehicle	A motor vehicle designed to carry less than 10 individuals. For the purposes of this Plan, passenger vehicles are interchangeable with single-occupant motor vehicles.
Primary Trail Network	A series of proposed recreation greenways throughout Delaware County connecting County hubs through a vast network of spoke-like trails. The PTN was first described in Volume II of the County Open Space, Recreation, and Greenway Plan, identifying 25 primary trails. To date, several sections of the PTN have been constructed with any others being studied for feasibility or under construction. (Ex. Darby Creek Trail, Chester Creek Trail).
Principal Arterial Highway	These roadways provide the highest level of service at the greatest speed for the longest uninterrupted distance, with some degree of access control. (Ex. I-476, I-95).
Safe Routes to School Program	An approach that promotes walking and bicycling to school through infrastructure improvements, enforcement, tools, safety education, and incentives to encourage walking and bicycling to school.
Sharrows	A road marking in the form of two inverted "V" shapes above a bicycle, indicating which part of the road should be used by cyclists when the roadway is shared with motor vehicles.
Single-Occupant Motor Vehicles	A privately operated vehicle whose only occupant is the driver, who uses it mainly for personal travel and daily commuting to work. For the purposes of this Plan, single-occupant motor vehicles are interchangeable with passenger vehicles.
Small Combustion Engine	The general term for a wide range of small-displacement, low-powered internal combustion engines that are used to power lawn mowers, generators, concrete mixers, and many other machines.
Transportation/ Travel-Demand Ordinance	The use of strategies to inform and encourage travelers to maximize the efficiency of the transportation system leading to improved mobility, reduced congestion, and lower vehicle emissions. These strategies include public transit, carpooling, bicycling, walking, teleworking, and alternate work hours. An ordinance is usually enacted by a municipality to require employers and/or employees to use these more sustainable modes of travel.
Vehicle Miles Traveled (VMT)	A measure indicating the total annual miles of vehicle travel for an entire population. This metric allows for evaluation of the potential impact of road projects and developments. Data from this indicator typically come from the Federal Highway Administration.

Vision Zero Plan	A strategy to eliminate all traffic fatalities and severe injuries, while increase safe, healthy, equitable mobility for all.
Wayfinding	The use of signage, color, and other design elements to help occupants navigate space and find their way.

Zero Waste	
Deconstruction	A method for dismantling a structure to maximize the recovery of reusable material.
Digitizing	A process of converting information into a digital format.
Diversion Rate	A measure for the portion of waste not being sent to landfill. Typically, tracking this metric is a great way to measure the effectiveness of reuse, recycling, and organic composting programs.
Fix-it Clinics and Repair Cafes	A free meeting place where community members can borrow tools or learn skills to repair broken items from home rather than throwing them away.
Green Procurement Policy	A policy with the goal of reducing the overall environmental impact from an organization's purchases. The policy promotes the purchase of sustainable products and purchasing from green suppliers and vendors to promote resource efficiency.
Keep PA Beautiful Affiliation	The mission of Keep Pennsylvania Beautiful is empowering Pennsylvanians to make our communities clean and beautiful. In serving as an affiliate of the 501c3, Delaware County supports this mission and is connected to a dedicated network of other affiliate organizations. This status also makes the County eligible for grants, training, and other benefits.
Municipal Solid Waste	Commonly known as trash or garbage, it consists of everyday items used and then thrown away, such as product packaging, furniture, clothing, bottles, etc.
Organics	Any material that comes from a plant or animal and is biodegradable. Also known as compostables or biodegradables. Examples include food waste, sawdust, agricultural waste, lawn clippings, etc.
Right-Size	Converting something to the appropriate or optimum size to meet the needs of the organization. An example of right-sizing would be ensuring that there are adequate recycling containers for the number of employees/visitors in a building.
Save as You Throw	A policy/program that charges customers a variable fee for trash collection based on the amount of waste they are disposing of. This program is different from traditional programs that charge all residents/customers the same rate.
Single Use Plastic	Plastics that are used once, or for a short time period, before being thrown away. Examples of single-use plastics include soda bottles, wrappers, plastic straws, bags, plastic cutlery, etc.
Universal Collection	A strategy or ordinance which requires all generators, including residential, commercial, industrial, etc., to recycle and/or compost.
Waste Characterization Study	A study quantifying and identifying the composition of the waste stream going to landfills and incinerators. The study is used to determine opportunities for reduction and diversion, conserve resources, and validate disposal estimates.
Waste Stream	The entire life cycle of disposed materials, including trash and recycling.
Zero Waste	The conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health.

Health and Wellness	
Air Quality	The measure of how clean or polluted the air is.
Cumulative Air Impacts	The incremental effect of several exposures to combinations of chemical and non-chemical stressors or pollutants in the air and their effects on health, well-being, and quality of life outcomes. While individual projects may have minimal impact, the combination of all projects or facilities, make a significant impact.
EJScreen	A web-based environmental justice mapping and screening tool created by the U.S. EPA which combines consistent environmental and demographic indicators across the country in a map. The tool was created to help users identify areas with people of color, low-income populations, potential environmental quality issues, a combination of environmental and demographic indicators and more.
Environmental Justice Index (EJI)	A web-based tool utilizing data from the U.S. Census Bureau, the U.S. EPA, and the U.S. Centers for Disease Control and Prevention to rank the cumulative impacts of the environmental injustice of health for every census tract. Census tracts are subdivisions of counties for which the Census collects statistical data. The EJI ranks each tract on 36 environmental, social, and health factors and groups them into three overarching modules and ten different domains.
EPA EnviroAtlas	An interactive web-based tool that decision-makers can use to inform policy and planning in the places where people live, learn, work, and play. The tool offers hundreds of spatial data layers that may be added to an interactive map. The layers, mapped at the national or community extent, depict environmental metrics calculated or modeled by the U.S. EPA and its partners.
Food Disbursement Programs	Programs that strengthen the nutritional safety net by providing foods and other nutritional assistance to children, low-income families, the elderly, and other emergency feeding programs. Examples include food pantries, food banks, food cupboards, etc.
Food Insecurity	A lack of consistent access to enough food for every person in a household to live an active, healthy life. This can be a temporary situation for a family or can last a long time. This is just one way to measure how many people cannot afford food.
Food Policy Council	A group of stakeholders from diverse food-related sectors to examine how the food system is operating and to develop recommendations to improve the food system to be more environmentally sustainable and socially just.
Managed Farms	Agricultural lands that are owned by individuals or institutions but cared for by an experienced professional.
Mobile Markets	A marketplace for locally grown and produced food that can be transported in a vehicle to communities experiencing food insecurity or other need areas.
Non-Attainment Status	Areas of Pennsylvania where air pollution levels consistently exceed standards set by the PA Department of Environmental Protection. Standards are set for six principal pollutants that act as indicators of air quality, also called the National Ambient Air Quality Standards.
Young Lungs at Play Ordinance	An ordinance supporting outdoor tobacco-free zones at parks, athletic fields, playgroups, and trails to help protect both children and the environment from the dangers of secondhand smoke. This program is offered through the Pennsylvania Department of Health.

References

1   https://www.census.gov/quickfacts/fact/table/
     upperdarbytownshipdelawarecountypennsylvania,
     delawarecountypennsylvania/PST045222

2   https://www.health.pa.gov/topics/HealthStatistics/
     VitalStatistics/CountyHealthProfiles/Documents/
     current/delaware.aspx

3   https://www.census.gov/quickfacts/fact/table/
     upperdarbytownshipdelawarecountypennsylvania,
     delawarecountypennsylvania/PST045222

4   https://www.nejm.org/doi/full/10.1056/NEJMe2113200

5   https://www.whitehouse.gov/environmentaljustice/
     justice40/

6   https://www.britannica.com/place/Pennsylva-
     nia-state/Climate

7   https://www.ncei.noaa.gov/access/monitoring/
     climate-at-a-glance/county/time-series/PA-045/
     tavg/60/9/1895-2023

8   https://www.epa.gov/climate-indicators/weather-
     climate

9   https://crt-climate-explorer.nemac.org/

10   https://livingatlas.arcgis.com/assessment-tool/
     explore/details

11   https://crt-climate-explorer.nemac.org/

12   https://dvrpcgis.maps.arcgis.com/apps/MapSeries/
     index.html?appid=8080c91a101d460a9a0246b90d4b4610

13   https://www.ncei.noaa.gov/access/billions/dcmi.pdf

14   Delaware County Emergency Services Department

15   Delaware County Emergency Services Department

16   https://dvrpcgis.maps.arcgis.com/apps/MapSeries/
     index.html?appid=8080c91a101d460a9a0246b90d4b4610

17   https://api.census.gov/data/2021/acs/acs5

18   https://www.ncei.noaa.gov/access/monitoring/
     climate-at-a-glance/county/time-series/PA-045/
     tavg/60/9/1895-2023

19   https://www.epa.gov/heatislands

20   https://www.uncclearn.org/wp-content/uploads/
     library/unep207.pdf

21   https://www.climate.gov/news-features/blogs/2022-
     us-billion-dollar-weather-and-climate-
     disasters-historical-context

22   https://www.usgbc.org/leed

23   https://delaware-county-sustainbility-dcpd.hub.arcgis.
     com/

24   https://www.delcocitizencorps.org/blog/2022/12/
     blue-light-express-newsletter-volume-1-issue-8

25   https://delcopa.gov/publicrelations/releases/2023/
     volunteerappreciationmonth2.html

26   https://www.ipcc.ch/report/ar6/wg2/about/
     frequently-asked-questions/keyfaq5/

27   https://www.naturalheritage.state.pa.us/CNAI_PDFs/
     Delaware_CNHI_Update_2011_WEB.pdf

28   Delaware County Office of Mapping and Data
     Innovation (2021 Open Space and Trails Inventory)

29   Delaware County Office of Mapping and Data
     Innovation (2021 Open Space and Trails Inventory)

     (Unprotected open space consists of cemeteries,
     homeowners' association lands, unprotected farmland,
     commercial properties greater than 10 acres that are
     vacant, residential owned lands that are greater than
     10 acres with significant open space, private outdoor
     recreation facilities, institutional properties with
     significant open space, utility right of ways, utility
     properties greater than 10 acres with significant open
     space and school district open space and recreation.)

30   Delaware County Office of Mapping and Data
     Innovation (2023 Data)

31   https://delaware-county-sustainbility-dcpd.hub.arcgis.
     com/

32   Delaware County Office of Mapping and Data
     Innovation (2023 Data)

33   Delaware County Data and Mapping Innovation Office

34   https://www.dvrpc.org/openspace/inventory/

35   https://delcopa.gov/planning/pubs/DelCo_Returnon-
     EnvironmentStudy.pdf

36   https://gis.dep.pa.gov/IRViewer2022/

37   https://haverfordclimateaction.org/enviro-ad-
     vis-comm-eac-1

38   https://www.haverfordtownship.org/Document_
     Library/Newsletters/2022_Township_Newsletters.pdf

39   https://www.haverfordtownship.org/Document_Li-
     brary/Newsletters/2022_Township_Newsletters.pdf

40 https://www.edcsc.org/

41 https://delcopa.gov/publicrelations/releases/2021/largestcountyownedpark.html

42 https://delcopa.gov/publicrelations/releases/2022/delcoseekingvolunteerstohelpdevelopdonguanella-masterplan.html

43 https://delcopa.gov/publicrelations/releases/2021/largestcountyownedpark.html

44 Quote from Robin Chase, Founder and CEO of ZipCar

45 Delaware County Office of Mapping and Data Innovation (2023 Sidewalk Inventory)

46 Delaware County Office of Mapping and Data Innovation (2021 Open Space and Trails Inventory)

47 Septa Average Daily Passenger Activity (Spring 2022 Transit Counts)

48 https://dcpd.maps.arcgis.com/apps/webappviewer/index.html?id=e145c44a9b8d474b92e8e7729a3715d8

49 https://www.dot.state.pa.us/public/DVSPubsForms/BMV/Registration%20Reports/ReportofRegistration2022.pdf

50 https://delcopa.gov/planning/pubs/delco2035/TransportationPlan.pdf

51 https://delcopa.gov/planning/pubs/delco2035/TransportationPlan.pdf

52 https://philadelphiaencyclopedia.org/locations/center-city/

53 https://www.nrdc.org/bio/luke-tonachel/study-electric-vehicles-can-dramatically-reduce-carbon-pollution-transportation

54 https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm

55 https://www.greenway.org/

56 https://delcopa.gov/planning/pubs/delco2035/TransportationPlan.pdf

57 https://www.youtube.com/embed/KLwVyUf5sJs

58 https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/PublicTransportationsRoleInRespondingToClimateChange2010.pdf

59 https://delcopa.gov/planning/pubs/DelCoSidewalkInventory.pdf

60 https://delcopa.gov/planning/pubs/delco2035/TransportationPlan.pdf

61 https://delcopa.gov/planning/pubs/OSRGP/Vol-II_CountywideGreenwayPlan.pdf

62 https://www.penndot.pa.gov/TravelInPA/Safety/Documents/2021_CFB_linked.pdf

63 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2937005/

64 https://www.penndot.pa.gov/TravelInPA/Safety/Documents/2021_CFB_linked.pdf

65 https://www.eia.gov/state/analysis.php?sid=PA#:~:text=Pennsylvania%20is%20the%20second%2Dlargest,-to%20other%20states%2C%20after%20Texas

66 Provident Energy (2023)

67 https://gats.pjm-eis.com/gats2/PublicReports/RenewableGeneratorsRegisteredinGATS

68 https://delcopa.gov/sustainability/pdf/DelawareCountyClimateActionPlan.pdf

69 https://delcopa.gov/sustainability/pdf/DelawareCountyClimateActionPlan.pdf

70 https://learn.pjm.com/electricity-basics.aspx

71 LCAP

72 https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

73 LCAP

74 https://www.aquawater.com/about/states-we-serve/pennsylvania/index.php

75 https://chesterwater.com/wp-content/uploads/2021/03/CCR2020.pdf

76 https://livingatlas.arcgis.com/assessment-tool/explore/details

77 https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2018EF001091

78 https://www.unwater.org/news/water%E2%80%99s-role-global-migration

79 https://delco.today/2021/07/temple-lutheran-havertown-goes-solar/

80 https://www.delcotimes.com/2022/12/06/media-synagogue-prepares-to-celebrate-new-solar-panel-array-on-roof/

81 https://www.sierraclub.org/pennsylvania/southeastern/ready-for-100-delaware-county

82 https://www.eesi.org/topics/communities/description

83   https://www.maplecroft.com/insights/analysis/us-tops-list-of-countries-fuelling-the-mounting-waste-crisis/

84   https://files.dep.state.pa.us/Waste/Recycling/RecyclingPortalFiles/Documents/2022/PA_DEP_Report_FINAL_10-04-2022.pdf

85   https://www.dep.pa.gov/Business/Land/Waste/Recycling/Pages/Recycling-Reports-and-Studies.aspx

86   Delaware County 10-Year Municipal Solid Waste Plan (2023)

87   https://drive.google.com/file/d/1xPdMp5jcrKkNV03Jt-8CYhb61x5HgmLHF/view

88   https://ejscreen.epa.gov/mapper/

89   https://www.mediaborough.com/201/Food-Compost-Prog6

90   https://www.science.org/doi/10.1126/sciadv.abd0288

91   https://drive.google.com/file/d/1xPdMp5jcrKkNV03Jt-8CYhb61x5HgmLHF/view

92   https://drive.google.com/file/d/1xPdMp5jcrKkNV03Jt-8CYhb61x5HgmLHF/view

93   https://zwia.org/zero-waste-definition/

94   https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health

95   https://www.epa.gov/climateimpacts/climate-change-and-human-health#:~:text=The%20health%20effects%20of%20climate,and%20overall%20poor%20mental%20health

96   https://www.countyhealthrankings.org/explore-health-rankings/pennsylvania/delaware?-year=2023

97   https://padep-1.maps.arcgis.com/apps/webappviewer/index.html?id=f31a188de122467691cae93c3339469c

98   https://www.whitehouse.gov/wp-content/uploads/2021/07/M-21-28.pdf

99   https://www.delcopa.gov/pdf/JHSPHDelawareCounty-FinalReport_July2020REV.pdf

100 https://files.dep.state.pa.us/Air/AirQuality/AQPortal-Files/Regulations%20and%20Clean%20Air%20Plans/attain/Ozonedes/02_2015_NAAQS_Ozone_Final_Designation_Recommendations_Final_Oct_2016.pdf

101 https://www.epa.gov/ejscreen

102 https://www.lung.org/getmedia/74b3d3d3-88d1-4335-95d8-c4e47d0282c1/sota-2022

103 https://www.countyhealthrankings.org/explore-health-rankings/pennsylvania/delaware?-year=2023

104 https://www.youtube.com/watch?v=d6qUb1lIubQ

105 https://ui.adsabs.harvard.edu/abs/2022AGUFM.A25J1857R/abstract

106 https://assets.bbhub.io/dotorg/sites/64/2022/09/JohnsHopkins_-Chester-Hazardous-Air-Pollutant-Monitoring-and-Assessment-Project-HAP-MAP-Pilot-Project-report.pdf

107 https://www.mayoclinichealthsystem.org/hometown-health/speaking-of-health/water-essential-to-your-body

108 https://health.ucdavis.edu/blog/good-food/why-its-important-for-you-to-drink-water-and-stay-hydrated/2022/07

109 https://prod.aquawater.com/WaterQualityReports/2022/PA/PA1460073.pdf

110 https://chesterwater.com/wp-content/uploads/2023/03/CCR2022.pdf

111 https://www.epa.gov/system/files/documents/2022-06/technical-factsheet-four-PFAS.pdf

112 https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas

113 United States Census Bureau

114 https://www.delcopa.gov/health/pages/lead.html#:~:text=Use%20the%20interactive%20map%20to,(EBLL)%20in%20Delaware%20County.

115 https://www.aap.org/en/patient-care/lead-exposure/lead-exposure-in-children/

116 https://www.cdc.gov/nutrition/about-nutrition/why-it-matters.html#:~:text=People%20with%20healthy%20eating%20patterns,these%20conditions%20and%20prevent%20complications

117 https://map.feedingamerica.org/

118 https://www.cdc.gov/nutrition/downloads/fruits-vegetables/2018/2018-fruit-vegetable-report-508.pdf

119 https://www.epa.gov/arp/selections-arp-enhanced-air-quality-monitoring-competitive-grant-]=]7

120 https://delcopa.gov/publicrelations/releases/2021/sharefoodprogram.html

Interrelationship of County Plans

When creating the Delaware County Sustainability Plan, synergy between County Departments and community organizations was very important. While this Plan serves as the first Delaware County Sustainability Plan, many of the community needs and potential implementation strategies were identified through previous County planning efforts. The plans highlighted below were used as points of reference providing necessary background information and statistics for the Plan.

Delaware County Planning Department

Delaware County 2035

Land Use Framework Plan (2013)

Open Space, Recreation, and Greenway Plan (2015)

   Volume I: Open Space and Recreation Plan (2015)

   Volume II: Countywide Greenway Plan (2015)

   Volume III: Parks and Recreation Plan (2015)

Economic Development Plan (2017)

Transportation Plan (2017)

Historic Preservation Plan (2018)

Housing Plan (2020)

Return on Environment Study (2022)

Steps toward Walkability (2018)

Natural Heritage Inventory (2011)

Delaware County Commerce Center

Economic Development Strategic Plan (2022)

Office of Sustainability

10-Year Municipal Waste Management Plan (2022 Draft)

Delaware County Local Climate Action Plan (2022)
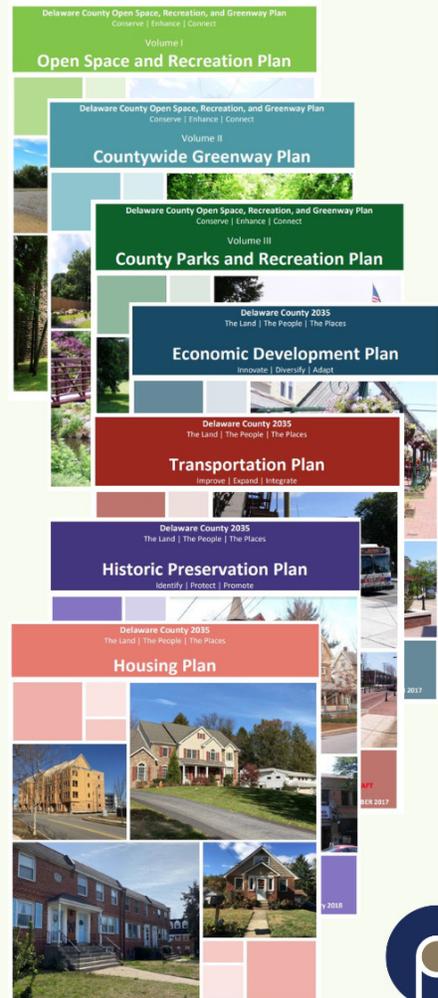
Acknowledgements

Delaware County would like to personally thank everyone who had a hand in crafting this Plan. A special thank you to those who dedicated their time, expertise, and passion to our Subcommittees. We are truly indebted to you.

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*   *Indicates this individual participated in more than one Focus Area Subcommittee.*
** *Indicates this individual was a subject matter expert who provided a presentation at the Subcommittee but was not a regular attendee.*

SOURCES

The sources of all photos are listed in the corresponding caption line. Photos without a listed source were provided by the Delaware County Planning Department, Delaware County Public Relations Department, or the Delaware County Office of Sustainability. All maps without a source listed were provided by the Delaware County Office of Data and Mapping Innovation.

"The Delco community is poised and ready to make the commitment and investment necessary to gain meaningful progress in creating a sustainable future—Sustainability is not just a goal, it's a collective responsibility and we are up to the task!"

—Delaware County Council Vice Chair Elaine Paul Schaefer

DELCO
SUSTAINABILITY