



SUSTAINABLE CAMDEN COUNTY

MAKING IT GREENER TOGETHER



PLAN

2018

The Sustainability Plan for Camden County, NJ



LETTER FROM THE CAMDEN COUNTY BOARD OF FREEHOLDERS

The Board of Freeholders of Camden County, NJ is pleased to introduce Plan 2018, Camden County's first long-range sustainability plan. Camden County has consistently been at the forefront of the environmental movement and sustainability. It was the first county in the United States to adopt a mandatory recycling program and has a nationally recognized open space preservation program and wastewater treatment facility.

With over half a million residents and more than 13,000 businesses located within the County, we strive to continue to promote and educate our community about conservation and sustainability and provide them with the tools to take action in their daily lives.

Sustainability can mean different things to different people. If you're a resident of Camden City, sustainability can mean green infrastructure, such as rain gardens and water retention and reuse projects, which prevent flooding in streets and basements. If you live or work in Winslow Township, it can mean preserving open space for farming and recreation and protecting mature trees which help keep hot summer temperatures at bay by absorbing the sun's rays. In Collingswood and Haddon Heights, it could mean having the ability to walk or bicycle to your downtown and support local businesses. In places like Gloucester Township and Pennsauken, it may mean having a strong recycling program which generates income and infuses needed funds into the municipal budget. Whatever it means to you and your community, you have a role to play and do so on a daily basis, whether you know it or not.

So why have a sustainability plan?

Having a sound sustainability program provides a road map to conserving resources, promoting innovation and saving money. In addition, as the possibility of having to deal with events like Superstorm Sandy on a more regular basis seems likely, it's critical to include resiliency and sustainability into all of our projects and planning. There's an old saying that if you can't measure it, you can't control it. Practices such as water conservation, energy efficiency, waste reduction, vehicle fleet management, green purchasing, green building design and investments in innovative technologies, such as renewable energy generation, are all part of a sustainability plan and need to be measured so we can track our progress against our goals. A sustainability plan will help us do that in the most effective, efficient and transparent way.

We look forward to engaging all of you in this effort and will rely on your involvement to make this program and this plan a success for Camden County.



Freeholder
Jeff Nash



Freeholder
Michelle Gentek

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EXECUTIVE SUMMARY

Some people still feel very disconnected with the environment and see it as a place 'over there.' It's not just the woods or the ocean or a field of wildflowers. The environment is all around us. Dr. Robert Bullard is one of the pioneering scholars and activists in the environmental justice movement. He speaks to groups all over the country on the topics of environmental justice and civil rights. He asks people: 'Do you breathe the air? Do you drink water? Do you eat food?' Of course people answer 'Yes.' Then he asks: 'Are you an environmentalist?' and they almost always answer 'No.' His belief is that the environmental justice movement has basically redefined what environmentalism and sustainability are all about. It basically says that the environment is everything: where we live, work, play, go to school, as well as the physical and natural world. And so we can't separate the physical environment from the cultural environment. We have to talk about making sure that justice is integrated throughout everything that we do.

Sustainability and environmentalism go hand and hand. We are all a part of them. They do not exist in a silo or a vacuum. The term environmental justice incorporates the idea that we are just as concerned about wetlands, birds and wilderness areas as we are about urban habitats, where people live in cities, about children that become ill because of lead in housing, about people having to live with flooding basements every time it rains, about everyone having access to healthy and fresh food, about kids playing outside in contaminated playgrounds. The environment can support health and prosperity, or it can be a factor contributing to illness, inequality and barriers to economic opportunity.

So, in the context of Camden County, the environment is where we live, work, play, shop and go to school. Plan 2018 lays out the framework for making Camden County's environment a positive force in the life of the County. Sustainability is not just about maintaining the quality of our lives – it's about improving it. Through the development and implementation of Plan 2018, we are taking the necessary steps to improve our community's quality of life.

Under the direction of Camden County Freeholders Jeff Nash and Michelle Gentek, we have made an unprecedented commitment to sustainability. The initiatives contained in this Plan build on decades of work that has already been accomplished by our dedicated County staff and community partners. The 11 Actions and 63 Initiatives were developed to take into account all the work that has been accomplished to date and sets the stage for what's to come in the next five years. The development and implementation of the plan can be summarized in four main categories:

Baseline Assessment A baseline assessment was developed for each initiative and included: identification of existing procedures, policy and projects; identification of sustainability indicators and collection of baseline data

Target Assessment A target has been identified for each indicator, which is a feasible and reasonable estimate of progress that can be achieved by 2018, assuming implementation of the proposed strategies

Implementation strategies have been developed to help us attain our goals by the deadline for this Plan.

Sustainability Plan Report compiles the work that was prepared during the planning process and provides further definition of the recommended strategies

Five years from now, the implementation of the initiatives in Plan 2018 will have moved Camden County closer to a sustainable future. We look forward to having you travel with us on this journey to a Sustainable Camden County.

WE'LL FOCUS ON THE FOLLOWING BROAD INITIATIVES:

First Steps

- Be the first County in New Jersey to hire a Director of Sustainability
- Develop a software program to better measure and track sustainability-related data
- Create liaisons with County departments and agencies to track this data
- Compile information on County-owned properties, land, vehicle fleet, etc.

Energy Efficiency

- Establish a tracking mechanism to measure overall usage
- Reduce energy consumption through staff engagement
- Install energy efficient equipment to help us meet our targets
- Implementation of green energy alternatives wherever possible

Water Conservation

- Establish a tracking mechanism to measure overall usage
- Reduce water consumption through staff engagement
- Install water conservation devices to help us meet our targets
- Implementation of County-wide water conservation initiatives

Waste

- Establish a tracking mechanism to measure overall recycling, waste and compostable materials
- Reduce waste and increase recycling and composting programs
- Educate our partners on these programs and create additional opportunities for everyone to reduce waste

Transportation

- Establish a tracking mechanism to measure overall fuel usage and vehicle miles traveled
- Reduce the number of fleet vehicles and fuel consumed
- Invest in fuel efficient and alternative fuel vehicles
- Improve access to public transit and walkability

WE'LL FOCUS ON THE FOLLOWING BROAD INITIATIVES:

Green Buildings

- Adhere to LEED certification standards for all major construction
- Invest in sustainable products for all building retrofits and upgrades

Purchasing

- Implement a green purchasing policy (buy green products, Energy Star, FSC-certified)
- Include sustainability element to all bid specifications
- Reduce consumption of paper products and buy local to reduce cost and support local businesses

Food

- Support local farms
- Invest in more healthy options for County staff and facilities

Environment

- Continue to preserve open space and farmland
- Increase tree canopy (especially in urban areas)
- Reduce greenhouse gas emissions through investments in local companies/manufacturers
- Implementation of water quality improvement initiatives in the County's rivers, lakes and streams

Community Outreach

- Promote green jobs and training programs
- Incentivize involvement in sustainability initiatives
- Assist municipalities with Sustainable Jersey registration and certification

Communication

- Develop a Sustainable Camden County website
- Work with other County departments and agencies to highlight and promote their sustainability programs
- Create engagement opportunities for students to get involved in the County's sustainability work

INTRODUCTION

Our Vision

Camden County, NJ will continually strive to be a sustainable community. We will promote sustainability initiatives and best practices at every level and will engage our residents, municipalities, businesses, schools, work force and guests in sustainability.

Camden County is home to over 500,000 residents and over 228 square miles in southern New Jersey. The County was the first in the nation to mandate a recycling program for our businesses and residents and continues to raise the bar in terms of sustainability. Over the years, we have made great strides in protecting land through our open space program, are close to completing all four phases of an extensive bicycle and multi-use trail plan and have instituted a program to support and promote local businesses through our Buy Local campaign.

The concept of sustainability is nothing new to Camden County. The County Green Initiative, created in 2007, was developed as part of the US Mayor's Climate Protection Agreement to reduce greenhouse gas emissions and has served as the predecessor to this document. The primary objective of the County Green Initiative was to significantly reduce greenhouse gas emissions and the carbon footprint resulting from County operations. With this plan, Camden County assumed a leadership position in the fight against global warming and encouraged municipal governments, businesses and institutions throughout the County to follow our lead.

Moving forward, a new initiative will carry us into the future and closer to our vision of a Sustainable Camden County. Plan 2018 lists 11 Actions with a total of 63 Initiatives related to our goals for creating a more sustainable community. Many of the initiatives focus on County-owned and operated properties. These include all County departments and County agencies (Library System, Municipal Utilities Authority, Social Services, Camden County College, Technical School Improvement Authority and the Pollution Control Finance Authority). However, engagement with all 37 municipalities that make up the County, businesses, schools and residents is critical to achieving our goals. Plan 2018 is a living document, and we anticipate that it will change and grow over time. The County will be working off of baseline data from 2009 for many of these initiatives and we will complete this plan by the end of calendar year 2018, providing annual updates so you can track our progress along the way to a more Sustainable Camden County.

We also want our residents, municipalities, schools, businesses and guests to see this plan as a resource. In this plan, you'll find best practices from around the region – examples of what our municipalities and County government are doing in regard to sustainability.

WHAT IS SUSTAINABILITY?

Sustainability is not just about the environment. It is about our people. It is about our ability to live healthy and profitable lives while protecting our natural resources so that our children and our children's children can have the same advantages and opportunities we have.

Sustainability is also not a new concept. In fact, the way humans lived prior to the Industrial Age could be perceived as much more sustainable than the way we currently live our lives. Native Americans were very mindful of sustainability as well – coining the concept of Seven Generation Sustainability, which urges the current generation of humans to live sustainably and work for the benefit of the seventh generation into the future. It originated with the Great Law of the Iroquois, which holds appropriate to think seven generations ahead (about 140 years into the future) and decide whether the decisions they make today would benefit their children seven generations into the future.

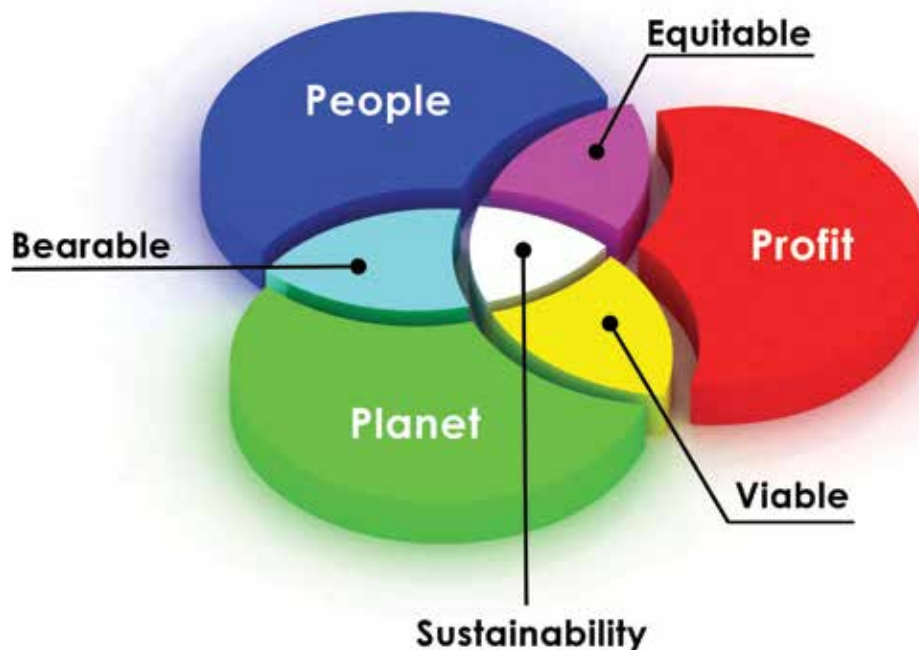
Today, the most acclaimed definition of sustainability is from the Brundtland Report of 1987, also known as Our Common Future:

“Sustainable development is that which meets all the needs of the present without compromising the ability of future generations to meet their own needs.”

Another widely accepted definition states that:

“Sustainability is an evolving paradigm for planning and decision-making. Sustainability is a promise. It is a dynamic condition, which requires a basic understanding of the interconnections and interdependency among ecological, economic and social systems.”

Another term often used when describing sustainability is the 'triple-bottom-line'; this refers to economic, social and environmental components. The idea is that these three areas are in balance with one another and thus decisions made with the triple-bottom-line as a guide ensure that the community, budget and environment are benefited as opposed to sacrificed.



2007 GREEN INITIATIVE SUMMARY

About this Report

The end of 2012 marked the five year anniversary of The County Green Initiative, the County's first long-range sustainability plan. This Initiative, adopted on April 19, 2007, was based on the US Mayor's Climate Protection Agreement, which sought to reduce greenhouse gas emissions (GHG) and the carbon footprint resulting from County operations. The Initiative has 12 objectives, some of which have been completed, while others are in progress or determined to be a future initiative. This progress report will detail how far we've come from a sustainability perspective over the past five years.

Objective #1

Inventory global warming emissions created as a result of County operations, set reduction targets and create an action plan



Objective #2

Encourage the adoption of municipal land use policies that reduce sprawl, preserve open space, and create compact walkable urban/suburban communities



Objective #3

Promote transportation options such as bicycle trails, commuter trip reduction programs, incentives for car pooling and public transportation



Objective #4

Increase the use of clean alternative energy by, for example, investing in "green tags", advocating for the development of renewable energy sources, recovering landfill methane gas for energy production and supporting the use of waste to energy technology

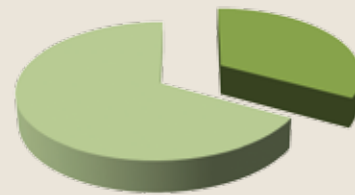


Objective #5

Make energy efficiency a priority by retrofitting County facilities with energy efficient lighting and urging employees to conserve energy and save money.



- Complete
- Incomplete



4 Objectives Completed

- In Progress
- Complete or Future Initiative



8 Objectives in Progress

Objective #6

Purchase only Energy Star equipment and appliances for County use



Objective #7

Practice and promote sustainable building practices using U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program or similar program



Objective #8

Increase the average fuel efficiency of the County's fleet vehicles, reduce the number of fleet vehicles, launch an employee education program including anti-idling messages and convert diesel vehicles to bio-diesel



Objective #9

Evaluate opportunities to increase pump efficiency in water and wastewater systems and recover wastewater treatment methane for energy production



Objective #10

Increase recycling rates in County operations and in the community



Objective #11

Maintain healthy urban forests and promote tree planting to increase shading and absorb CO2



Objective #12

Help educate the public, schools, local governments, professional associations, business and industry about reducing global warming



SUSTAINABILITY PLAN 2018 – SUMMARY OF INITIATIVES

First Steps

- I.** Compile a list of facilities both owned and leased by the County
- II.** Compile a list of all vehicles both owned and leased by the County
- III.** Establish a list of liaisons with all County agencies and departments
- IV.** Develop a tracking mechanism/utility management database for utilities, such as electric, natural gas, water, fuel oil, gasoline for fleet vehicles, pervious versus impervious surfaces, green roof coverage, waste disposal and recycling, etc.
- V.** Hire a Director of Sustainability. Establish the Camden County Office of Sustainability.

Energy

- I.** Reduce overall energy (electricity, coal, oil, natural gas) consumption by 30%
- II.** Ensure that 15% of all energy used is generated from on-site renewable sources (solar, wind, geothermal, etc.)
- III.** Purchase another 15% of electricity used from renewable energy sources
- IV.** Energy Efficiency Goal 1 - Retrofit 50% of buildings with high efficiency lighting (LED, induction or other)
- V.** Energy Efficiency Goal 2 – Retrofit 50% of buildings with more efficient HVAC equipment, boilers, vending misers, etc.
- VI.** Energy Efficiency Goal 3 - Retrofit 25% of buildings with green roof/cool roof technology
- VII.** Install electric sub-meters in key locations to better manage use
- VIII.** Enroll in a demand-response program to take advantage of incentives offered to curtail energy use during times of peak demand
- IX.** Energy Misuse Reduction - Create a 'lights out' program to reduce lighting misuse, especially in off-peak times
- X.** Join EPA's Green Power Communities Program
- XI.** Ensure all appliances and other qualified items meet Energy Star certification

Water

- I.** Reduce overall water usage by 30%
- II.** Divert 25% of remaining stormwater to on-site reuse
- III.** Increase pervious surfaces to 75% of overall property footprint
- IV.** Install water sub-meters in key locations to better manage use
- V.** Increase the number of green roofs

Waste

- I.** Reduce overall waste generated (amount disposed + amount recycled) by 7.5%
- II.** Implement a compost program for all food and other organics
- III.** Increase the percentage of waste reused/recycled/composted to not less than 65% of total waste generated

Transportation

- I.** Reduce amount of vehicle fuel used by 25%
- II.** Reduce vehicle miles traveled by 10%
- III.** Convert 20% of fleet to operate on alternative fuels (compressed natural gas, hybrid, electric, bio-diesel, etc.)
- IV.** Develop incentive program to promote employee-owned hybrid and electric vehicles (i.e. preferred parking)
- V.** Increase staff carpooling, public transit and bicycle commuting to 10%
- VI.** Develop infrastructure for alternative fuel vehicles (Public CNG and EV charging stations)
- VII.** Implement an anti-idling campaign and establish guidelines on enforcement
- VIII.** Improve walkability throughout the County to encourage walking/biking rather than driving
- IX.** Create a County-wide bike share program
- X.** Become a member of NJ Clean Cities Program

Green Buildings

- I.** Ensure all major (\$1 million+) projects are LEED certified
- II.** Ensure all construction materials used in County-funded construction/renovation projects meet greenest standards available (use of renewable materials, recycled furnishings, FSC-certified wood products, low or no VOC paints and solvents, etc.)
- III.** Benchmark all County facilities of more than 10,000 square feet using the Energy Star Portfolio Manager tool

Purchasing

- I.** Institute a Sustainable Procurement Policy to ensure 75% of cleaning products carry a Green Seal/EcoLogo
- II.** Reduce paper usage by 40% by increasing electronic communication
- III.** Reduce packaging through changes in purchasing/shipping procedures

Food

- I.** Local Produce Goal 1 – Work with local farms to create a CSA (Community Supported Agriculture) program for staff
- II.** Local Produce Goal 2 – Increase access to locally grown food by promoting additional farmer’s markets throughout the County
- III.** Purchase locally grown produce for County Facilities (Camden County Jail, Camden County College, Camden County Technical Schools)
- IV.** Work with food and janitorial product vendors to ensure use of sustainable palm oil in all products and ingredients used

Environment

- I.** Open Space and Farmland Preservation – Preserve not less than 1,250 additional acres of open space and farmland
- II.** Increase tree canopy, especially in densely populated areas of the County (for beautification as well as carbon sequestration and stormwater management)
- III.** Greenhouse Gas (GHG) Emissions Goal 1 - Reduce Scope 1 and Scope 2 by 25%
- IV.** GHG Goal 2 - Reduce Scope 3 GHG by 50%
- V.** Incorporate resiliency measures into all future projects and renovations

Community Outreach

- I.** Become a demonstration site for innovative technologies in conservation and sustainability
- II.** Develop a community conservation grant program to support start-up sustainability groups/programs
- III.** Develop an incentive-based program for staff to encourage participation in sustainability initiatives
- IV.** Implement a no smoking policy for all County parks and outdoor facilities/areas
- V.** Increase access to and availability of green job training programs
- VI.** Incorporate sustainability into the County’s decision-making process
- VII.** Develop a tool library to promote use of tools needed to make homes and businesses more sustainable (caulk guns, staplers, insulating equipment, etc.)
- VIII.** Assist municipalities in registering for the Sustainable Jersey program and achieving certification
- IX.** Reinvigorate the Camden County Environmental Commission

Communication

- I. Create a network of Green Teams in County agencies and departments that are able to help spread the word about sustainability and carry out the initiatives in this plan
- II. Develop an annual progress report
- III. Develop and launch www.sustainablecamdencounty.org which will showcase sustainability best practices in the region and be a resource for municipalities, businesses, schools and residents
- IV. Create the Camden County Conservation Corps (4C) to gain insight and feedback on our programs/initiatives by engagement of student groups within the County
- V. Create a 'Sustainability Speaker Series' to be held at the County Environmental Center to raise awareness of current trends and practices in sustainability

SUSTAINABILITY PLAN 2018

FIRST STEPS

- Compile a list of all vehicles both owned and leased by the County
- Establish a list of liaisons with all County agencies and departments
- Develop a tracking mechanism/utility management database for utilities, such as electric, natural gas, water, fuel oil, gasoline for fleet vehicles, pervious versus impervious surfaces, green roof coverage, waste disposal and recycling, etc.
- Hire a Director of Sustainability. Establish the Camden County Office of Sustainability.

ENERGY

For the purpose of these goals, energy reductions are measured in terms of energy intensity (energy use per square foot of space). Therefore, energy reduction requirements are relative. As a result, new facilities and additions of square footage of building space do not theoretically affect our progress in meeting energy reduction goals.

The most cost effective strategy for energy conservation is to reduce waste. This can be achieved by implementing energy efficiency measures that completely avoid the use of energy. For example:

- Install motion/occupancy sensors in spaces not regularly occupied
- Better use of natural/ambient light from windows and outdoor spaces
- Weatherstrip doors and windows and caulk around them to reduce air infiltration
- Install insulation with high R-values and windows with high performance glazing

In addition, changes in operational practices (i.e. turning computers and lights off when not needed, using more temperature set-backs when areas are not occupied, less use of artificial light, etc.) can have a significant impact on energy use. We will also attempt to achieve this goal by investing in high efficiency technologies, such as advanced lighting systems, boilers and HVAC equipment, geothermal, solar and other renewables, as well as through committed involvement in the EPA's Energy Star program and other efficiency modeling programs.

I – Reduce overall energy (electricity, coal, oil, natural gas) consumption by 30%

End of 2014 – Develop a tracking mechanism/utility management database for electricity

End of 2015 – Reduce consumption by 10% over 2009 baseline data

End of 2016 – Reduce consumption by 20% over 2009 baseline data

End of 2017 – Reduce consumption by 25% over 2009 baseline data

End of 2018 – Reduce consumption by 30% over 2009 baseline data

The Camden County Municipal Utilities Authority (CCMUA) is the County's wastewater treatment facility, located in the City of Camden. The CCMUA has completed the design of a new plant heating loop to conserve energy and, in an effort to reduce pumping needs and save energy, is making upgrades to the gravity powered treatment process. The CCMUA encourages local municipalities to make needed repairs in local collection systems to reduce the rate of infiltration/inflow from groundwater intrusion into the wastewater management system. These repairs will reduce pumping requirements and, correspondingly, electricity costs. CCMUA has installed a sludge drying facility to significantly reduce the amount and weight of sludge generated from the treatment process. The end product is then transported to an off-site facility for use as fuel.



Aerial view of 1.8 megawatt solar array at the Camden County in Municipal Utilities Authority Delaware #1 Facility in Camden, NJ

II – Ensure that 15% of all energy used is generated from on-site renewable sources (solar, wind, geothermal, etc.)

End of 2014 – Generate 5% of all energy used from on-site renewables over 2009 baseline

End of 2015 – Generate 7.5% of all energy used from on-site renewables over 2009 baseline

End of 2016 – Generate 10% of all energy used from on-site renewables over 2009 baseline

End of 2017 – Generate 12.5% of all energy used from on-site renewables over 2009 baseline

End of 2018 – Generate 15% of all energy used from on-site renewables over 2009 baseline

Camden County will continue to investigate the potential for energy generation from sources such as solar, wind, geothermal and methane.



Solar array at the Camden County Lakeland Complex
Gloucester Township – Source: Camden County

In a continuing effort to reduce energy costs and make the CCMUA greener, the Authority has installed a new 1.8 million-watt solar panel array that is now in service and providing power to our wastewater treatment plant. The 1.8 million watts of electricity represents approximately 10% of the plant's energy needs. The projected savings are approximately \$300,000 in energy costs during the first year of the project and about \$7 million over the life of the 15 year power purchase agreement. The energy generated from this system is enough to power 2,000 average homes.

This solar panel project is the first phase of the CCMUA's overall green energy initiative. Ultimately, the CCMUA's goal is to use 100% green energy within the next five years. CCMUA is in the process of investigating other alternative and renewable sources of energy, such as geothermal, methane from a biogas digester, and additional solar installations.

III – Purchase an additional 15% of electricity used from renewable energy sources

End of 2014 – Purchase 5% of all electricity from renewable sources over 2009 baseline

End of 2015 – Purchase 7.5% of electricity used from renewable sources over 2009 baseline

End of 2016 – Purchase 10% of electricity used from renewable sources over 2009 baseline

End of 2017 – Purchase 12.5% of electricity used from renewable sources over 2009 baseline

End of 2018 – Purchase 15% of electricity used from renewable sources over 2009 baseline

IV – Energy Efficiency Goal 1 - Retrofit 50% of all buildings with high efficiency lighting (LED, induction or other)

End of 2014 – Retrofit 10% of buildings with high efficiency lighting

End of 2015 – Retrofit 20% of buildings with high efficiency lighting

End of 2016 – Retrofit 30% of buildings with high efficiency lighting

End of 2017 – Retrofit 40% of buildings with high efficiency lighting

End of 2018 – Retrofit 50% of buildings with high efficiency lighting

Focus on buildings would see a payback of 5 years or less

Upgrading our lighting is one of the easiest ways to reduce energy consumption. New technologies in this field can easily reduce lighting consumption by 50-80%. Lighting accounts for close to half of all the energy used in a typical office building, so the potential for savings in this area is immense.

In 2004, Camden County hired Pepco Energy Services of Arlington, Virginia to perform an energy audit of County facilities, including, but not limited, to: the Courthouse, Administration Building, Hall of Justice, Correctional Facility, Prosecutor's Office, Parks Administration Building, Public Works/Public Safety Complex, Lakeland Complex, Library System, as well as facilities associated with Camden County College, the technical schools in Gloucester Township and Pennsauken and the CCMUA. The recommendations contained in this audit have been prioritized to identify projects that will result in the greatest savings in energy and tax dollars. In further prioritizing (or eliminating) projects, the future use and/or remaining useful life of the facility will be considered.

CCMUA used this information to change all of its lighting to high efficiency models. In addition, it removed its old natural gas engines and replaced them with electric motors. CCMUA also replaced its 1987 pure oxygen system with a high efficiency system to significantly reduce energy consumption. It also replaced its chemical scrubbers with bio-filters.

As part of this emphasis on energy efficiency, County employees will be educated and encouraged to take an active role in conserving energy by turning off lights and equipment when not in use, both during regular business hours and at night.

The County, through the Pollution Control Financing Authority (PCFA), is currently recovering methane gas for energy production as well as producing solar energy through a solar array at the Pennsauken Sanitary Landfill.

Since 1991, The Camden County Energy Recovery Associates (CCERA) Resource Recovery facility in Camden City has been producing renewable energy from municipal solid waste. Between 2001 and 2006, this facility produced almost one million megawatts of electricity, enough to meet the power needs of between 25,000 and 30,000 homes annually.



The Camden Resource Recovery Facility is owned by Covanta Energy Corporation. The CRRF is permitted by the N.J. Dept. of Environmental Protection and uses mass burn technology to convert over 300,000 tons per year of solid waste into enough electricity to supply the needs of approximately 25,000 homes. The land on which the Facility is located is owned by the Pollution Control Finance Authority of Camden County (PCFACC) and is leased to the Facility operator

Conifer Realty showcases green systems and smart growth – by Lynn Russo Whyllly

Senior citizens have a new place to call home in Camden, New Jersey, a place that's not only comfortable, but environmentally friendly as well. Conifer Realty completed Conifer Village at Ferry Station in February 2012, a modern senior housing project that includes 40 one-bedroom and 10 two-bedroom units and offers several green accouterments.

The project, developed, owned, and managed by Conifer Realty, a 35-year-old firm based in Rochester, New York, includes two high-efficiency boilers for hot water, 16 SEER central air-conditioning, and a 58-kilowatt solar system on the roof. The solar array will power at least three quarters of the common area, which includes management offices, a community room, and an exercise area. Sam Leone, project director for Conifer Realty, says that three months into leasing, the property was almost fully occupied.

Most of what's inside Conifer Village is green too. The appliances and lighting are Energy Star-rated, and Conifer installed low-flow fixtures, low-formaldehyde insulation, and low-E glass windows from Silver Line by Andersen. Cabinets are made from FSC-certified solid hardwood and meet the Kitchen Cabinet Manufacturers' Association's airborne toxic control measures. The carpet and padding are made from recycled material and are Carpet and Rug Institute Green Label-certified. Conifer also used ceramic tile in the bathrooms because it is more durable and healthier than vinyl tile. "It doesn't have an off-gas," Leone says. "Vinyl tile has an off-gas, particularly when it is first installed. Ceramic tile is also more resilient to moisture."

Ferry Landing, a 48-unit family project adjacent to Ferry Station, also was completed in 2012 and features balconies that used a Trex-type of product that Leone says is both durable and made from recycled content. The first two of five buildings were completed in August; the others were ready for occupancy two months later.

Conifer had experience in green building before Ferry Station. Gateway Village at Somerdale, in Somerdale, New Jersey, was completed in July 2011 and included many of the same green features as Conifer Village. The development—30 one-, two-, and 3-bedroom apartments—was built in partnership with the Camden County Housing Association. "There was a prior developer that had received site approval and an allocation of tax credits, but the project didn't work out, and we worked out a deal to take the project over," Leone says.

The rent-restricted property is part of a mixed-use redevelopment project that includes a shopping center with a Walmart. Residents are in walking distance of the shopping center, a movie theater, and a Philadelphia rail line. The project recently received a Smart Growth award from New Jersey Future, which celebrates sustainable development projects.

Unlike Conifer Village, Gateway does not generate its own solar power, but it does have occupancy sensors in the common areas and tankless water heaters in the units. "There are some additional up-front costs for tankless water heaters, but we find them to be extremely efficient," Leone says. "It also allowed us not to need so much mechanical space in the apartment."

Due to vinyl siding restrictions imposed by the municipality, Conifer used a product called fiber cement siding by Certainteed, which is made from cementitious fibers and does not have any of the toxic properties of vinyl.

Gateway is landscaped with drought-resistant native plants. "The site's on a hill and has some neat slopes in it," Leone says. "We wanted to take the best advantage of what was there, and we wanted the green space to have an impact, so rather than plant grass, we used a ground cover that doesn't have to be mowed." Two varieties of noninvasive liriope, also known as lilyturf, were planted to help reduce erosion. "It was a more expensive up-front investment," he says, "but there will be little landscaping expense to maintain it, and the residents like it."

EAM Associates rated the plans for both Ferry Station and Gateway to ensure they met all energy requirements. Gateway qualified for tier two of New Jersey's Energy Star program with a score of 60. "That roughly translates to being about 30 percent more efficient than a typical home," Leone says.

V – Energy Efficiency Goal 2 – Retrofit 50% of buildings with more efficient HVAC equipment, boilers, vending misers, etc.

End of 2014 – Retrofit 10% of buildings with more efficient HVAC equipment, boilers, vending misers, etc.

End of 2015 – Retrofit 20% of buildings with more efficient HVAC equipment, boilers, vending misers, etc.

End of 2016 – Retrofit 30% of buildings with more efficient HVAC equipment, boilers, vending misers, etc.

End of 2017 – Retrofit 40% of buildings with more efficient HVAC equipment, boilers, vending misers, etc.

End of 2018 – Retrofit 50% of buildings with more efficient HVAC equipment, boilers, vending misers, etc.



New Jersey's Clean Energy Program (NJCEP) promotes increased energy efficiency and the use of clean, renewable sources of energy including solar, wind, geothermal, and sustainable biomass. The results for New Jersey are a stronger economy, less pollution, lower costs, and reduced demand for electricity. NJCEP offers financial incentives, programs, and services for residential, commercial, and municipal customers. In 2003, the New Jersey Board of Public Utilities (BPU) established the Office of Clean Energy to administer New Jersey's Clean Energy Program. Representatives from government and industry, energy experts, public interest groups, and academicians helped establish committees to engage stakeholders in NJCEP's development and provide input to the BPU regarding the design, budgets, objectives, goals, administration, and evaluation of New Jersey's Clean Energy Program. Committee meetings are open to the public and all are invited to participate.

A number of Camden County facilities have taken advantage of the Local Government Energy Audit run through the NJCEP. The CCMUA is currently conducting an audit of all of its pump stations and plant facilities with the intent to implement additional energy savings measures in the form of upgraded lighting strategies, HVAC equipment and pumps and motors. Camden County College and the Technical Schools have completed their audits and are working to complete the recommended upgrades on lighting and other equipment.

VI – Energy Efficiency Goal 3 - Retrofit 25% of buildings with cool roof technology

End of 2014 – Retrofit 5% of buildings with cool roof technology

End of 2015 – Retrofit 10% of buildings with cool roof technology

End of 2016 – Retrofit 15% of buildings with cool roof technology

End of 2017 – Retrofit 20% of buildings with cool roof technology

End of 2018 – Retrofit 25% of buildings with cool roof technology

Green roofs and white or ‘cool’ roofs can significantly reduce the burden on cooling systems in the summer, reduce the urban heat island effect and, in the case of green roofs, can also significantly reduce stormwater runoff.

The LEED Certified Camden County Environmental Center was the first County facility to have a green roof. Consisting of sedums and other hardy plants, the green roof absorbs water during rain events, thus reducing the amount of water that goes into the stormwater system. In addition, the roof drains send the remaining water to a rain garden and a rainwater collection tank, or cistern, that uses the water to flush toilets in the building.

VII – Install electric sub-meters in key locations to better manage use

There is a saying in the energy efficiency community that ‘if you can’t measure it, you can’t control it.’ Adding electric sub-meters to buildings with substantial floor space, large air conditioning and heating requirements or suspected high energy use will help establish a baseline for the facilities and provide a reference point to evaluate efficiency and control modifications in the future. Add Direct Digital Control Systems to buildings to better manage usage.

VIII – Enroll in a demand-response program to take advantage of incentives offered to curtail energy use during times of peak demand

Occasional storms and heat waves, as well as periodic power plant repairs and maintenance, have the potential to affect supply and demand for electricity. When demand is high and supply is short, power interruptions can sometimes be the result. Demand response programs are designed to be both fiscally and environmentally responsible ways to respond to occasional and temporary peak demand periods. The programs offer incentives to businesses that volunteer and participate by temporarily reducing their electricity use when demand could outpace supply.

IX – Energy Misuse Reduction - Create a ‘lights out’ program to reduce lighting misuse, especially in off-peak times

This goal seeks to address the issue of lights being left on overnight or when not in use throughout the County. Staff would be charged with monitoring lighting use through all of the facilities and notifying their maintenance department when certain lights appear to be on when they could be shut off. Lighting is one of the largest energy consumers, so a significant reduction in use could significantly cut our electricity bills. The secondary goal of a ‘lights out’ program is to reduce lighting pollution at night, which can negatively impact migratory birds, causing them to crash into buildings and lose their sense of navigation in the bright lights. Camden County will work with the City of Camden to implement this program downtown as well, following the lead of other cities such as New York and Toronto. Lighting is obviously necessary to help create a safe environment in our neighborhoods and is always a priority, so this action will take that into account.

WHAT IS THE ATLANTIC FLYWAY?



The Atlantic Flyway encompasses some of the hemisphere’s most productive ecosystems, including forests, beaches, and coastal wetlands. From the northern Atlantic Coast and through the Caribbean to South America, Audubon is working to support this avian superhighway’s 500-plus bird species and millions of individual birds.

Forty percent of the Atlantic Flyway’s bird species are species of conservation need. These include the Wood Thrush, the most widespread of our eastern forest neotropical migratory species, whose population has been reduced by half in the past 40 years. With only one-tenth of the U.S. landmass, this flyway is home to one-third of the nation’s people. And dense population carries with it many challenges for birds and habitat: development and sprawl, incompatible agriculture, overfishing, and climate change.

X – Join EPA’s Green Power Communities Program



The Green Power Partnership is a voluntary program that encourages organizations to use green power as a way to reduce the environmental impacts associated with conventional electricity use. The Partnership currently has more than 1,400 Partner organizations voluntarily using billions of kilowatt-hours of green power annually. Partners include a wide variety of leading organizations such as Fortune 500® companies, small and medium sized businesses, local, state, and federal governments, and colleges and universities.

XI – Ensure all appliances and other qualified items meet Energy Star certification

The Board of Freeholders adopted a resolution requiring that only Energy Star equipment and appliances be purchased for County use. Purchasing specifications will be modified to reflect this policy.

GREEN COMMUNITY SPOTLIGHT: PENNSAUKEN LIGHT POLLUTION POLICY

Pennsauken Township officially adopted an Outdoor Lighting Policy on June 14, 2013. This policy will apply to all Township buildings as well as new development and redevelopment within the Township when it is economically feasible. The purpose of the policy is to provide regulations for outdoor lighting that will: 1. Ensure sufficient lighting shall be provided on each site and along roadways for safety, utility, security, productivity, enjoyment and commerce. 2. Be designed to avoid the creation of hazards to motorists and pedestrians or nuisance to adjoining property owners or residents. 3. Minimize adverse off site impacts including light trespass, obtrusive light and curtail light pollution. 4. Conserve energy and resources to the greatest extent possible. Pennsauken Township has already begun our program of implementing energy conservative lighting on our athletic fields beginning in September 2010 with our 4 new soccer fields and in September 2012 with the construction of our new football complex. The Township utilized MUSCO lighting solutions to insure that we would cut operating costs, reduce spill light and utilize system monitoring via remote control. The Township has also retrofitted all lighting ballasts and fixtures indoors at our Municipal Building, a concept we plan to continue as we craft an indoor lighting policy for our municipally owned/operated buildings.

WATER

Water is one of the most critical resources on our planet, and access to and quality of drinking water will continue to be a major concern for humans across the globe. Americans now use an average of 100 gallons of water each day – equivalent to 1,600 drinking glasses. A recent government survey showed at least 36 states are anticipating local, regional or statewide water shortages by 2015. By using water more efficiently, we can preserve our water supplies for future generations.

Water efficiency measures can be inexpensive or, in some cases, free to implement. Even by just changing some simple operational practices, you can make a significant reduction on the amount of water used.

I – Reduce overall water usage by 30%

End of 2013 – Develop a tracking mechanism/utility management database for water usage

End of 2014 – Reduce consumption by 10% over 2009 baseline data

End of 2015 – Reduce consumption by 20% over 2009 baseline data

End of 2016 – Reduce consumption by 25% over 2009 baseline data

End of 2017 – Reduce consumption by 30% over 2009 baseline data

This can be achieved through changes in practices and by installing low flow fixtures in restrooms and kitchens. Also by investing in native plants in parks and around buildings, which reduce the need for irrigation systems.

Additional water reduction can be achieved through leak detection and capital improvements in infrastructure, including replacing worn valves and repairing leaking pipes.

Using less water is the right thing to do!

- It's the right thing to do environmentally as water is a rare and precious resource. When we conserve water, we are preserving a resource for our children and future generations.
- Saving water reduces the potential for flooding and raw sewage back-ups during rain events in your town and for your neighbors upstream and downstream because you are using less of the sewer systems' finite capacity.
- Saving water reduces sewage pumping costs for your town, and treatment costs for the CCMUA which help keep costs down.



Flooding in Camden County after a rain event



Install a high efficiency faucet aerator

How much can you save?

Approximately 70% of water used in a household is used inside the home - the majority of which is used in the bathroom. The average household spends as much as \$500 per year on its water and sewer bill but could save about \$170 annually by retrofitting with water efficient fixtures and incorporating water-saving practices. Saving water around the house is simple and smart!

Inside the Home

- Fix household leaks. A drip rate of one drip per second can waste more than 3,000 gallons per year.
- Always wash full loads for both laundry and dishes.
- Replace shower heads with low-flow shower heads. A full bathtub can require up to 70 gallons of water, while taking a 5-minute shower uses only 10 to 25 gallons.
- Avoid using running water to thaw meat or other frozen foods. Instead, defrost food overnight in the refrigerator.
- Consider installing a WaterSense labeled toilet, which uses 20 percent less water while offering equal or superior performance.
- Installing a WaterSense labeled aerator is one of the most cost-effective ways to save water. Also consider replacing the entire faucet with a WaterSense labeled model. Either way, you can increase the faucet's efficiency by 30 percent without sacrificing performance.
- Turning off the tap while you brush your teeth can save 8 gallons per day.
- Replace your old washing machine with a high-efficiency, ENERGY STAR® labeled model, which uses up to 50 percent less water and electricity.
- Check out the following websites for more information:

www.epa.gov/watersense
www.home-water-works.org

www.allianceforwaterefficiency.org
www.njwatersavers.rutgers.edu

Water Conservation Ordinance Adopted by Camden City

Camden City Council recently approved a water conservation ordinance to help alleviate problems with reduced water pressure in times of drought. With the increasing effects of climate change and global warming felt throughout the world, long-term droughts are more likely to occur in the near future. It is critical to have a plan in place to deal with these conditions as they arise.

In addition, conserving water makes financial sense. Not only can you reduce your water bill, but the less water you use means the less water that needs to be treated at the City's wastewater treatment plant, thus keeping sewer rates in check.

Camden's water conservation ordinance states that, during a drought situation:

- Lawns may be watered two days per week. Properties with even number addresses may only water on Mondays and Thursdays. Properties with odd number addresses may only water on Tuesdays and Fridays.
- Watering may only be conducted between the hours of 6:00am and 9:00am or between 5:00pm and 8:00pm
- No single area shall be watered more than 30 minutes per day
- Flowers and shrubs may be watered as needed with a hand-held hose equipped with an automatic shut-off nozzle
- No hose or hose-end watering shall be permitted when it is raining
- Irrigation systems must only run between midnight and 10:00am

We are asking for your support in adhering to these guidelines. The City is committed to water conservation and encourages residents to get on board. Start saving water and money now! And help us make Camden a sustainable community!

For more information on water conservation, visit www.epa.gov/watersense and www.cleanwaterj.org

For more information on sustainability in Camden, visit www.camdensmart.com



II – Divert 25% of remaining stormwater to on-site reuse

End of 2014 – Divert 5% of remaining stormwater to on-site reuse

End of 2015 – Divert 10% of remaining stormwater to on-site reuse

End of 2016 – Divert 15% of remaining stormwater to on-site reuse

End of 2017 – Divert 20% of remaining stormwater to on-site reuse

End of 2018 – Divert 25% of remaining stormwater to on-site reuse

Through use of gray water for flushing toilets and irrigation and the installation of green roofs and pervious pavement, decrease the load on sewer/stormwater systems by diverting rainfall back to the ground through natural processes.

HOW TO PREVENT STORMWATER POLLUTION

What is stormwater?

Stormwater is water from rain or melting snow that does not soak into the ground. It flows from rooftops, over paved areas, bare soil, and sloped lawns. As it flows, stormwater runoff collects and transports soil, animal waste, salt, pesticides, fertilizers, toxic metals, oil and grease, debris and other potential pollutants. In general, untreated stormwater is unsafe.

What is the problem?

Rain and snow melt wash pollutants from streets, construction sites, and land into storm sewers.

Eventually, the storm sewers empty the polluted stormwater directly into streams and rivers without prior purification or treatment. In Camden and Gloucester City, the sewage and stormwater are combined in the same pipe. During a storm when the flow exceeds the sewers' capacity the untreated sewage and stormwater overflow into the city's waterways and streets.

Polluted stormwater degrades our lakes, rivers, wetlands and other waterways. Untreated stormwater discharging to the ground can contaminate aquifers that are used for drinking water. Nutrients such as phosphorous and nitrogen can cause the overgrowth of algae, resulting in oxygen depletion in waterways. Toxic substances from motor vehicles and careless application of pesticides and fertilizers threaten water quality and can kill fish and other aquatic life. Bacteria from animal wastes and improper connections to storm sewer systems can make lakes and waterways unsafe for wading, swimming and fish consumption. Eroded soil is a pollutant as well. It clouds the waterway and interferes with the habitat of fish and plant life.

People really can make a difference when it comes to reducing stormwater runoff and the problems and costs that go with it. Because we all contribute to the problem, we all can be a part of the solution. It starts with paying attention to stormwater; at home, at work and in our communities.

Tips to prevent stormwater pollution:

- Pick up animal waste.
- Look for ways to keep runoff out of the stormwater system so it can soak into the ground.
- Compost or mulch leaves and yard debris.
- Plant rain gardens, use rain barrels.
- Remove litter from streets, sidewalks, and storm drains adjacent to your property.
- Sweep debris from driveways and parking lots rather than hosing debris into storm drains.
- Water the lawn, not the sidewalk and driveway.
- Reduce paved surfaces.
- Do not drain swimming pools into storm drains or road ditches.
- Reduce winter salt application.
- Triple rinse and recycle empty pesticide and fertilizer containers.
- Reconsider using toxic asphalt sealers, seal cracks only.
- Avoid using chemicals near waterways or storm drains.
- Dispose of automotive fluids appropriately.
- Fix vehicle fluid leaks immediately.
- Clean up spills immediately and properly dispose of cleanup materials.
- Avoid spraying pesticides/fertilizers in windy conditions or when rain is in the forecast.
- Cover and contain topsoil and mulch during installation.
- Reduce fertilizers, turf builders and pesticides on your lawn and garden. Use small amounts of slow-release fertilizer and environment-friendly products.

CAMDEN SMART INITIATIVE

The objective of the Camden SMART (Stormwater Management and Resource Training) Initiative is to develop a comprehensive network of green infrastructure programs and projects for the City of Camden. The Initiative is a collaboration between the City of Camden, Camden County Municipal Utilities Authority, Cooper's Ferry Partnership, Rutgers Cooperative Extension Water Resources Program, New Jersey Tree Foundation, NJ Department of Environmental Protection, our public-private partners, community organizations, and most importantly, Camden residents to restore and revitalize our neighborhoods. The Initiative includes neighborhood green and grey infrastructure projects, stormwater management policy development, and green infrastructure training programs.



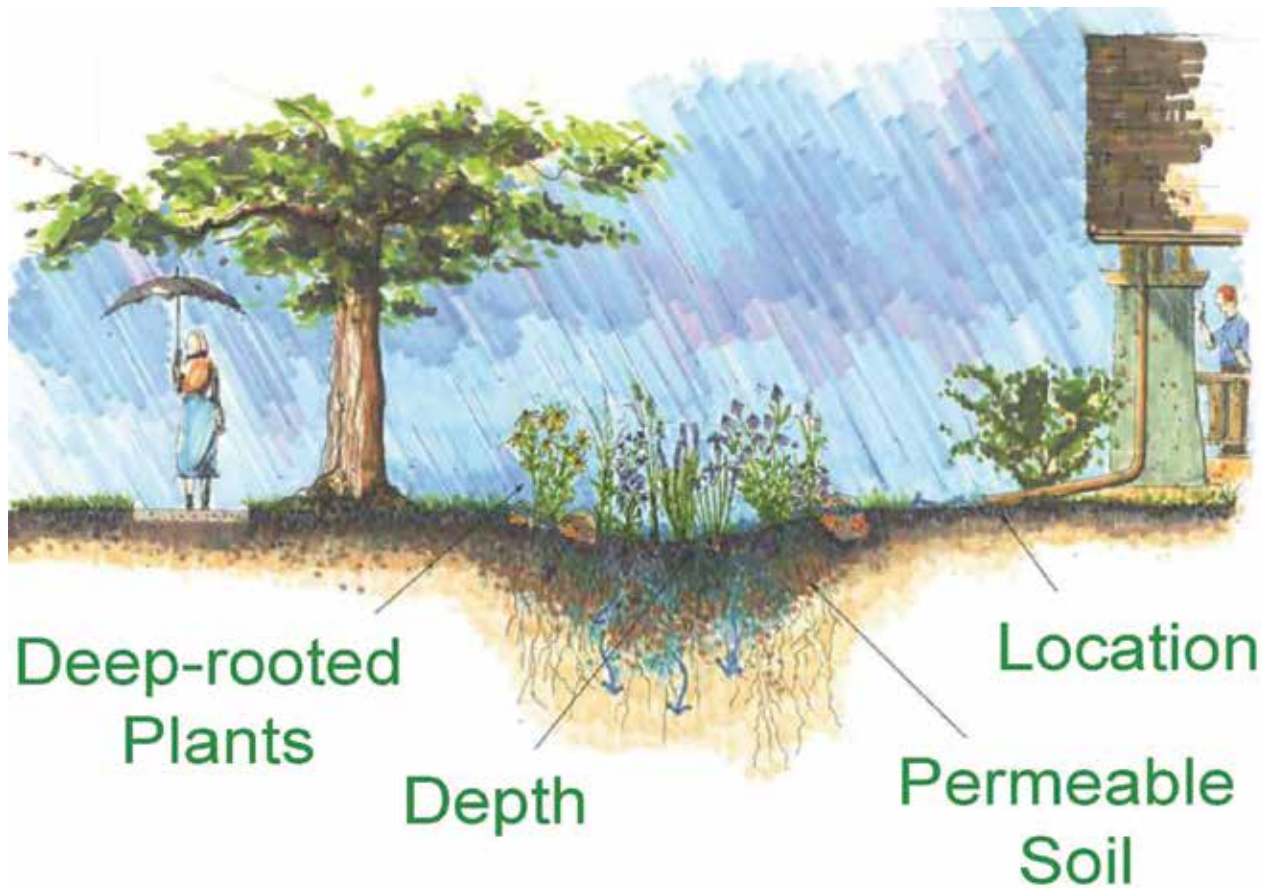
Over 2 Million Gallons and Counting!

Within the first two years, the Camden SMART Initiative resulted in the construction of over 20 demonstration projects throughout the City of Camden, including 20 rain gardens, and several rain barrels designed to capture, treat, and infiltrate over 1.5 million gallons of stormwater each year.

PROJECT TYPE	PROJECT LOCATION	STORMWATER CAPTURED (GALLONS/YEAR)
20th. St. Community Rain Gardens	N 20th & River Road	63,000
Sumner Elementary School Rain Gardens	1600 S. 8th St.	110,000
Ferry Avenue Rain Garden	1645 Ferry Ave.	75,000
Waterfront South Native Plant Nursery	1645 Ferry Ave.	0
Waterfront South Rain Garden	S. Broadway @ Chelton Ave.	470,000
Ferry Avenue Library Rain Garden	852 Ferry Ave.	62,500
Parkside Rain Barrell Workshop (25 Barrels)	-----	32,500
Brimm School Rain Garden	1626 Copewood St.	81,000
Camden County Technical School (Penn Tech)	6008 Brwoning Rd.	12,500
RT Cream School Rain Garden	1875 Loen Huff St.	25,000
PRUP Rain Garden and Rainwater Harvesting	818 S. Broadway	31,250
Woodrow Wilson High School Rain Garden	3100 Federal St.	30,000
29th St. Biobasins	29th st. @ Pierce St. & Tyler St.	400,000
Park Blvd. Rain Garden #1	Park Blvd. @ Magnolia Ave.	60,000
Park Blvd. Rain Garden #2	Park Blvd. @ Vesper Blvd.	40,000
304 State St. Rainwater Harvesting	304 State St.	3,000
Neighborhood Center Rain Garden and Rainwater Harvesting	278 Kaighns Ave.	119,000
Front St. Community Garden Rainwater Harvesting	N. Front St. at Penn St.	5,000
Pyne Poynt School	N. 7th St. @ Erie St.	47,700
Yorkship Elementary School Rain Garden	1251 Collings Ave., Camden, NJ	22,500
Urban Promise Academy Rain Garden	27 N. 36th St. , Camden, NJ	22,500
2013 Rain Barrel Program (95 Rain Barrels)	Camden City	123,500
St. Anthony's Rain Garden	29th St. @ River Ave.	175,000
TOTAL STORMWATER RUNOFF CAPTURED: 2,010,950 gallons per year		

(Source)- The Rutgers Cooperative Extension Water Resources Program. Green Infrastructure Feasibility Study. 2011

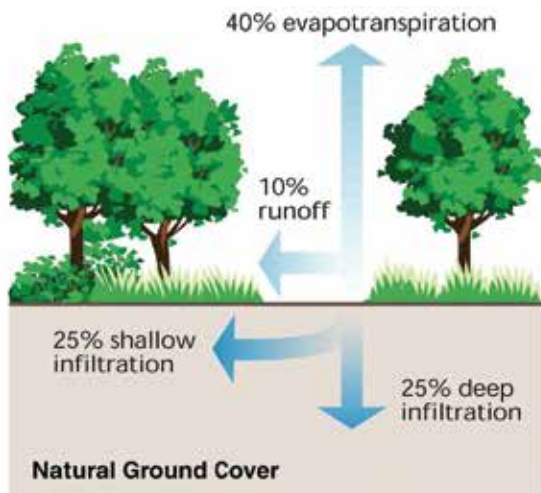
How Does a Rain Garden Work?



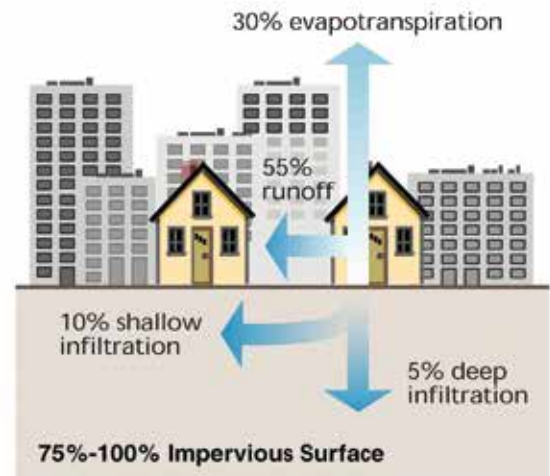
III – Increase pervious surfaces to 75% of overall property footprint

Increase green space by reducing hardscape footprint. Introduce pervious pavement and other pervious materials, such as cobbles, in place of impervious concrete and asphalt.

The County has already made a strong commitment to preserving open space. One of the many benefits of this land is that it helps reduce the burden on stormwater and sewer systems in the area because non-paved or pervious surfaces naturally filter rain water back into the ground, rivers and streams. This helps reduce the cost of laying pipes and having to treat the water at a wastewater treatment plant. But we can do more. The Camden County Environmental Center was built with pathways made of pervious concrete, which act as a natural surface in that they allow rain water to percolate through the material and back into the ground. The County will continue to use techniques like this one (in parking lots, pathways and other impervious surfaces) to reduce the need for storm drains and pipes and reduce treatment costs.



Source: http://water.epa.gov/polwaste/nps/urban_facts.cfm



NEW JERSEY ENVIRONMENTAL INFRASTRUCTURE TRUST

The NJEIT provides low-cost financing for the construction of environmental infrastructure projects that enhance and protect ground and surface water quality, ensure the safety of drinking water supplies, and facilitate responsible and sustainable economic development. Project funding is available to municipal and county governing bodies; local and regional water, sewer and utility authorities; county improvement authorities, certain state authorities and private water purveyors. Since 1987, the NJEIT, in partnership with the New Jersey Department of Environmental Protection, has issued more than \$5.6 billion in loans, funding more than 900 clean water, drinking water, land acquisition, brownfields remediation and landfill cleanup projects.

CCMUA is the most significant user of this low-interest financing program and that use of this program has enabled the CCMUA to upgrade its entire wastewater treatment plant, thereby improving its water quality performance, while actually keeping its rates lower than what they had been seventeen years ago.

IV – Install water sub-meters in key locations to better manage use

Again, if you can't measure, you can't control it. Meters will allow for better tracking and therefore define where to focus energy in conservation efforts.

V – Increase the number of green roofs

Green roofs and white or 'cool' roofs can significantly reduce the burden on cooling systems in the summer, reduce the urban heat island effect and, in the case of green roofs, can also significantly reduce stormwater runoff.



CAMDEN COUNTY ENVIRONMENTAL CENTER

This LEED (Leadership in Energy and Environmental Design) certified building in Cherry Hill is the hub of the County's environmental programs, housing the County's Divisions of Environmental Affairs and Open Space and Farmland Preservation, as well as the Rutgers Cooperative Extension office, which includes the Camden County 4-H and Master Gardeners programs. It has many green features, including pervious pavement, a solar hot water system, energy efficient lighting, water conservation fixtures in the restrooms and a green roof that can be seen in this photo.

Source: Camden County

WASTE

In February 1985, Camden County became the first county in the nation to mandate recycling on a regional basis and was the first to construct a large scale materials recovery facility for curbside recyclables. "Dual stream" recycling (bottles, cans in one container, paper in another) was born. This first of its kind program and facility made Camden County a mecca for recycling in the years that followed with individuals and groups from around the country flocking to Camden to view the facility and ask questions of County staff.

In 2007, Camden County was again at the forefront of recycling, being among the first counties in the State to convert to "single stream" recycling whereby all curbside recyclables (bottles, cans and paper products) are commingled in a single container. This change has resulted in an approximate 35% increase in the recycling of these materials County-wide, while providing the additional benefits of reduced operating costs and GHG emissions resulting from fewer collection vehicles on the street.

To assist businesses and institutions with starting or expanding recycling programs, the County is one of only four New Jersey counties with a Commercial Recycling Enforcement program. The goal of this program is to educate businesses and institutions on their obligation under the State's Mandatory Source Separation and Recycling Act to recycle. While enforcement action is required in rare instances, most business owners and institutional managers welcome the assistance and quickly develop or expand their in-house recycling programs to come into compliance with State and County mandates. Since the program's inception in 1995, it has been responsible for the start up or expansion of more than 1,000 business/ institutional recycling programs.

In 2011, the most recent year for which figures are available, Camden County municipalities and businesses recycled 575,582 tons of solid waste or 57% of the total solid waste generated.

I – Reduce overall waste generated (amount disposed + amount recycled) by 7.5%

End of 2013 – Develop a tracking mechanism/utility management database for waste

End of 2014 – Reduce generation by 3% over 2009 baseline data

End of 2015 – Reduce generation by 4.5% over 2009 baseline data

End of 2016 – Reduce generation by 6% over 2009 baseline data

End of 2017 – Reduce generation by 7.5% over 2009 baseline data

Reduce waste by employing techniques listed in next three goals. In addition, employ better efficiency measures to calculate needs better and reduce extra spending. For example, most construction jobs have an excess of paint and other material that gets discarded after the project when it could either be used for another job or would not be purchased in the first place by spending more time on figuring out exactly what is needed. Printed material often gets purchased in bulk and can no longer be used once a promotion or event has concluded. These purchases can be avoided by using more electronic communication.

Camden County has been recycling in its facilities since 1995 and has recently implemented a new program to take steps to increase the level of recycling by County employees. The program has a phased approach.

Phase 1 provides for additional recycling containers with uniform labeling and promotional posters and national materials designed to increase mixed office paper and bottle and can recycling totals in County buildings.

Phase 2 will evaluate current waste disposal practices and create new approaches to increase the number of materials recycled within County facilities. Specific materials that will be targeted are:

- scrap metal
- construction/demolition wastes
- vegetative wastes (grass, leaves, brush, tree parts)
- institutional food waste and
- various hazardous materials

With respect to hazardous materials, particular attention will be focused on the proper handling of spent fluorescent bulbs, as these bulbs contain mercury that is released into the environment if broken. While switching to compact fluorescent bulbs will significantly reduce energy consumption, their proper disposal is essential to maintain a positive environmental benefit.

- In response to the State's 2006 updated Solid Waste Management Plan, the County has set a target for an overall increase of 100,750 tons of solid waste to be recycled County-wide.
- Through County initiatives, 13 Camden County municipalities have begun to collect curbside recyclables using the "single stream" method. This method allows for bottles, cans and paper to be mixed in a single curbside container and be collected by a single vehicle. Early figures show a sizable increase in the tons recycled by many of these communities, with additional benefits of reduced operating costs and GHG emissions resulting from fewer collection vehicles on the street.
- Additional County initiatives include working with municipalities to increase recycling at multi-family residential developments and in commercial, industrial institutional and other employment centers.

All 37 municipalities in Camden County now participate in single stream recycling programs. In addition, the County holds four electronics recycling programs, six hazardous materials recycling collections and several paper shredding events throughout the year. The PCFA facility in Pennsauken is also open Monday through Friday and accepts electronic waste from Camden County residents.

22 municipalities also host their own electronics recycling programs, which are open to residents of those municipalities.

II – Implement a compost program for all food and other organics

The program would include all organic material that is not currently part of our bio-solids collection, such as food waste and ground litter (leaves, grass clippings, etc.).

FOOD WASTE RECYCLING EXPANDING

Food waste recycling continues to expand in Camden County. In March of 2012, Shoprite/Supermarkets of Cherry Hill joined a number of restaurants in Collingswood and supermarkets and institutions in other areas of the County in recycling their food waste. By the end of the year, their two stores in Cherry Hill at Garden State Pavillion and on Evesham Road had successfully composted over 200 tons of food waste while reducing their waste disposal by 58%.

Elsewhere, Cathedral Kitchen also started a food waste recycling program at their facility in Camden, which was designed as a green building, "Since beginning this recycling program, we have been able to cut back on our trash pickups, which has saved us money, and it's good to know that our food waste is being composted and will ultimately be used to grow more food." said Executive Director Karen Talarico.

The above food waste/composting programs are serviced by Organic Diversion. Organic Diversion is planning to open a 70,000 ton per year food waste to energy facility in Gloucester City. Site work is expected to begin shortly followed by the commencement of construction. It is anticipated that construction will be completed later this year.



Source: Camden County

III – Increase the percentage of waste reused/recycled/composted to not less than 65% of total waste generated

Develop an incentive-based recycling program to turn it from an expense to a revenue generator. Increase the amount of recycling containers and add satellite dumpsters at key locations throughout the County to improve the ease of recycling for participants. Include additional recycling opportunities in County parks. Increase hazardous materials recycling program as well. Find creative ways to recycle other items that are not part of the current program.



Camden County Public Paper Shredding Events in 2011. Source: Camden County



MINIMIZING WASTE DISPOSAL FOR GRASS CLIPPINGS

With grass cutting season fast approaching, it's time to think about what to do with your grass clippings. During the peak growing season, lawn clipping can account for up to 1/3 of a household's waste stream.

The following suggestions are offered to both reduce the amount of waste you put at the curb and improve your lawn and garden.

Return to lawn – Many of today's lawn mowers offer an option to return clippings back to the lawn, contributing to the soil's organic matter and supplying a portion of the lawns fertilizer needs. Note that clippings do not contribute to thatch, which is actually a combination of grass roots and stemmy material. It is important to adopt a mowing schedule that will allow clippings to filter through growing grass.

Garden Mulch – Grass clippings can be used as a garden mulch to check weed growth and moderate soil temperatures. It is suggested that you dry the clippings for one day in the sun prior to application and avoid the use of herbicide treated clippings.

Soil Incorporation – Grass clippings can serve as a source of organic matter when incorporated into your garden soil.

Backyard Composting – Grass clippings can be incorporated into a backyard composting program. It is strongly recommended that grass not be composted alone, but be mixed with leaves using 1 part fresh grass clippings and 3 parts partially decomposed leaves. This mix will help speed leaf decomposition and provide a better end product with a higher nitrogen content than leaves alone. It is important to keep the compost aerobic through occasional turning to avoid odors.

Clipping Reduction – Fertilizing and watering above the requirements of your grass may be more harmful than beneficial to your lawn. The proper use of fertilizers and careful watering can produce an attractive lawn with a reduction in lawn care costs, effort, susceptibility to disease and the amount of clippings produced. Fertilizing in the fall, rather than the spring, can also be an effective means of reducing the amount of clippings produced and result in a better lawn.

The above suggestions were taken from a fact sheet of Rutgers Cooperative Extension prepared by Peter F. Strom PhD, James A. Murphy PhD and Henry W. Indyk PhD.

GREEN COMMUNITY SPOTLIGHT: GLOUCESTER TOWNSHIP RECYCLING REVENUE

Within the past couple of years, Gloucester Township has enacted an environmentally friendly and efficient way to recycle plastic, glass, cardboard, cans, and paper in our neighborhood by introducing the Single Stream Recycling program. This recycling program has made it easy to put all recyclable items into the same container, instead of separating each by material.

From there, the 96-gallon bin is picked up every week and is transferred to a recycling facility. The time that would normally have been spent sorting through the recyclables is now quickly and productively sorted here, where each plastic, glass, can, paper, and cardboard is shipped away to its designated area.

The Single-Stream Recycling program has helped Gloucester Township in more ways than one. For starters, we've increased our recycling and have reduced the trash tonnage in our community. This alone has already saved over \$300,000 each year.

Not only has the single-stream recycling program benefited Gloucester Township environmentally, it has allowed our community to unite in our stance to support Breast Cancer Awareness. Each container, painted with a pink lid and ribbon, symbolizes the township's commitment to the American Cancer Society in an effort to defeat a disease that affects 1 in 8 women nationally.

From breast cancer awareness to an easier, more efficient way to recycle, the Single-Stream Recycling program is a way to make Gloucester Township a greener, cleaner, and united community.

TRANSPORTATION

Transportation has a major impact on our lives in one way or another. We all use sidewalks, bicycles, public transportation, personal vehicles or a combination of these to get to work or school, go shopping, attend events or just for recreation. The County's goal with regard to transportation is to invest in fuel efficient vehicles, begin conversion of some of our fleet to alternative fuel sources and reduce overall travel through consolidation of programs and activities. In addition, we want to continue to provide alternatives to driving for those that live and work in Camden County, by increasing walkability and opportunities to bicycle. Making public transit options more easily accessible and safe are also priorities for the County.

I – Reduce amount of vehicle fuel used by 25%

End of 2014 – Reduce amount of vehicle fuel used by 5% over 2006 baseline data

End of 2015 – Reduce amount of vehicle fuel used by 10% over 2006 baseline data

End of 2016 – Reduce amount of vehicle fuel used by 15% over 2006 baseline data

End of 2017 – Reduce amount of vehicle fuel used by 20% over 2006 baseline data

End of 2018 – Reduce amount of vehicle fuel used by 25% over 2006 baseline data

As leases expire on current vehicles, invest in those with better gas mileage. Reduce length of driving trips by increasing amount of video and phone conferencing. Decrease waste (through composting and operational changes) to reduce amount of trips needed to the transfer station.

In 2006 the CCMUA received a grant from the US EPA to convert its fleet of diesel vehicles to use Ultra Low Sulfur Diesel (ULSD). This technology equips vehicles with sensitive emission controls that help to reduce particulate matter and nitrogen oxide gas by over 90%.

Whenever possible new County diesel-powered vehicles will come equipped to use Ultra Low Sulfur Fuel Technology. Likewise, existing diesel-powered vehicles will be converted to use this same technology.

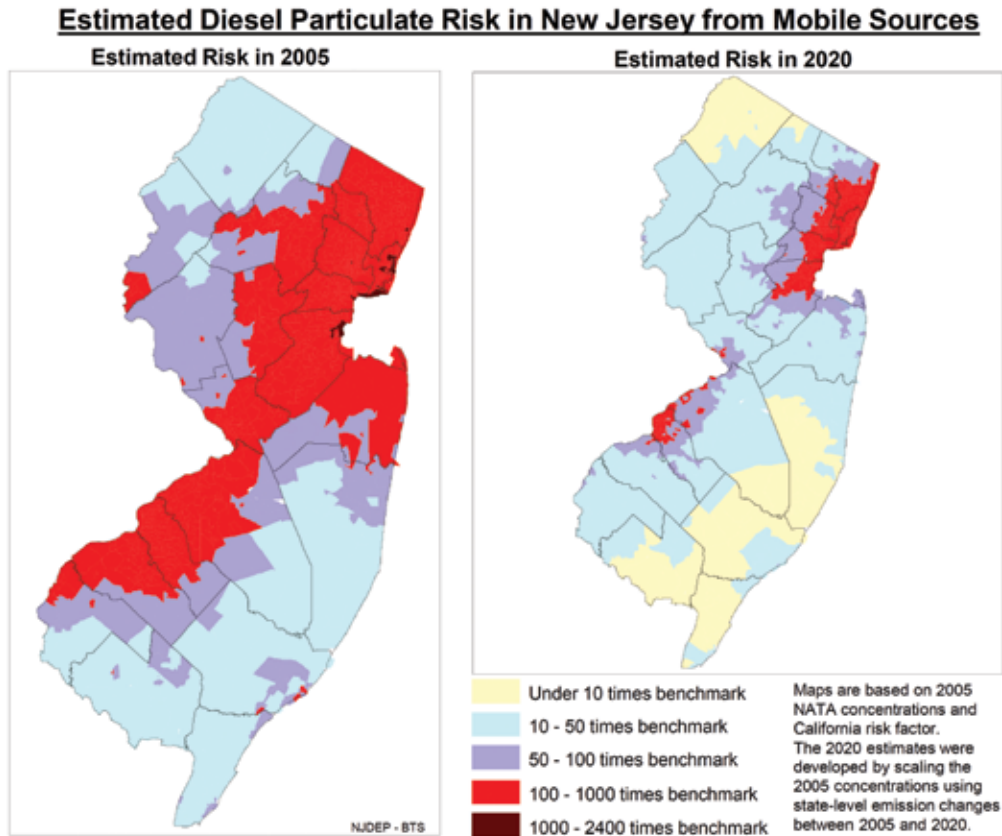
All new gas-powered vehicle purchase specifications will give preference to hybrid/flexible fuel vehicles whenever such alternative vehicles are available.

In 2005 the County performed a vehicle fleet audit. As a result of this audit, the County vehicle fleet was reduced by more than 200 vehicles. Additionally, the audit recommended implementing a state of the art fleet management system. This system has been in place since 2006.

All employees will be trained to adhere to existing State law with respect to engine idling. This policy shall apply to all fleet vehicles without exception.

Several municipalities, such as Winslow Township, have contracted with Waste Management to haul their recyclables. WM uses compressed natural gas fleet vehicles, which significantly reduce noise and air pollution over normal diesel trucks.

The CCMUA has purchased several hybrid vehicles to reduce their gasoline consumption.



NJDEP, November 2012

II – Reduce vehicle miles traveled by 10%

End of 2014 – Reduce vehicle miles traveled by 2% over 2006 baseline data

End of 2015 – Reduce vehicle miles traveled by 4% over 2006 baseline data

End of 2016 – Reduce vehicle miles traveled by 6% over 2006 baseline data

End of 2017 – Reduce vehicle miles traveled by 8% over 2006 baseline data

End of 2018 – Reduce vehicle miles traveled by 10% over 2006 baseline data

III – Convert 20% of fleet to operate on alternative fuels (compressed natural gas, hybrid, electric, bio-diesel, etc.)

End of 2013 – Develop a tracking mechanism/utility management database for fleet management

End of 2014 – Reduce consumption by 5% over 2009 baseline data

End of 2015 – Reduce consumption by 10% over 2009 baseline data

End of 2016 – Reduce consumption by 15% over 2009 baseline data

End of 2017 – Reduce consumption by 20% over 2009 baseline data

With the advances in technology for hybrid and electric vehicles, incorporate them into the County fleet to decrease carbon emissions and improve fuel efficiency. The County has access to several compressed natural gas filling stations and will begin to incorporate CNG vehicles into its heavy duty fleet as vehicles need replacing. The benefits of CNG are that they create less emissions, cost less to operate and maintain and are much quieter to use. As other vehicles become more fuel efficient, we will invest in them as our current vehicle leases expire.

WASTE MANAGEMENT OPENS FIRST COMPRESSED NATURAL GAS FUELING STATION IN CAMDEN



This new facility serves Waste Management's growing fleet of CNG powered collection trucks as well as other municipal and private fleet vehicles in the region. Natural gas is a cleaner, more efficient, domestically sourced transportation fuel that significantly reduces emissions and improves air quality.

In addition to servicing WM's 45 CNG-powered vehicles, the fueling station in Camden will provide the general public with easy access to CNG. Operated by Petrocard, the self-service station will be open 24/7. Current pump prices for CNG are approximately \$1.79 per gasoline gallon equivalent (GGE).

The 45-unit fleet yields an emissions reduction equivalent to taking 3,500 gasoline-fueled vehicles off the road.

Drive Clean

- Purchase gasoline-powered Low Emission Vehicles (LEV) which are designed by the automobile manufacturer to pollute less. Ask your dealership for the models with cleaner emissions ratings such as: Ultra-Low Emission Vehicle (ULEV), Super-Ultra Low Emission Vehicle (SULEV), Partial-Zero Emission Vehicle (PZEV).
- Purchase a Hybrid Electric Vehicle (HEV).
- Purchase a Zero Emission Vehicle (ZEV) which is currently electric. Electric Vehicles can be “recharged” at home with a special outlet, or at a special “recharging station” which is more suitable for fleet operators.
- Fleets with centrally fueled vehicles can purchase an Alternative Fueled Vehicle (AFV) which operates primarily on alternative fuels (e.g., natural gas, bio-diesel, electricity) which emit far less air toxins.

Drive Less

- Bike, walk, carpool, or use public transportation as an alternative to driving.
- If you must use your car, try to plan activities so that several trips can be linked together.
- Take the route with the least number of miles.
- Telecommute.

Maintain Your Car Properly

- Inflate tires properly. Cars with soft tires take up to 5% more energy to operate and they are also a safety hazard.
- Maintain your vehicle to comply with the air pollution standards. The average well-maintained car emits 33 pounds of pollution (some of which are air toxins) every 100 miles. Cars that are not in compliance with state emission standards can emit approximately five times more than that.
- Make sure your car’s gas cap fits properly to limit the amount of gasoline that evaporates from the tank.
- Drive calmly, avoid jackrabbit starts and stops that waste fuel and increase pollution.
- Limit idling your car. Most new cars don’t even need to be “warmed-up” in the morning.
- Source: New Jersey Department of Environmental Protection

IV – Develop incentive program to promote employee-owned hybrid and electric vehicles (i.e. preferred parking)

Provide parking spaces in prime locations for those that use hybrid or electric vehicles. Begin adding plug-in electric vehicle parking spaces in areas that are considered prime locations.

V – Increase staff carpooling, public transit and bicycle commuting to 10%

End of 2013 – Develop a tracking mechanism/utility management database for commuting

End of 2014 – Reduce consumption by 4% over 2009 baseline data

End of 2015 – Reduce consumption by 7% over 2009 baseline data

End of 2016 – Reduce consumption by 8.5% over 2009 baseline data

End of 2017 – Reduce consumption by 10% over 2009 baseline data

Create a van pool program for County staff where appropriate and educate staff on public transit options and other ride-share opportunities.

CROSS COUNTY CONNECTION TRANSPORTATION MANAGEMENT ASSOCIATION (CCCTMA)

A Region on the Move!

Mobility is the key to a region's vitality. When traffic-clogged highways and roads hamper this mobility, the region's businesses and residents suffer through wasted time. This wasted time results in:

- Stressful commuting
- Late arrivals to work, appointments and home
- Delayed arrival of goods and services

Our mission: To improve the quality of life in southern New Jersey through transportation solutions.

Cross County Connection

Transportation Management Association provides the solutions to these complex transportation problems in the southern New Jersey region encompassing Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester and Salem counties.

Cross County Connection, a nonprofit organization, partners with the North Jersey Transportation Planning Authority (NJTPA), the New Jersey Department of Transportation (NJDOT), NJ TRANSIT, the Delaware Valley Regional Planning Commission (DVRPC), the South Jersey Transportation Planning Organization (SJTPO), member organizations and the U.S. Federal Highway Administration, to provide solutions to complex transportation problems for counties, municipalities, employers and in the southern New Jersey region encompassing Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester and Salem counties

VI – Develop infrastructure for alternative fuel vehicles (Public CNG and EV charging stations)



Level 2 Electric Vehicle charging stations at the Cherry Hill Campus of Camden County College.

Source: Camden County

VII – Implement an anti-idling campaign and establish guidelines on enforcement

Air pollution has recently been identified as a carcinogen and a cause of lung cancer by the World Health Organization, so it is imperative that we educate staff and residents about the laws associated with idling. In 2007, the NJ State Department of Environmental Protection enacted a law which states that, in most cases, no person shall cause, allow or permit the engine of a diesel-powered motor vehicle to idle for more than three consecutive minutes if the vehicle is not in motion. The County helps to enforce this law by installing signage in high offending areas, educating businesses and residents about the State anti-idling program and engaging local police forces and health organizations.

SUMMARY OF N.J. IDLING REQUIREMENTS FOR MOTOR VEHICLES

N.J.A.C. 7:27-14,15 - (Revised September 2012)

All vehicles may idle for up to three minutes with the following exceptions:

- May idle for up to 15 consecutive minutes when the vehicle has been stopped for 3 or more hours and ONLY if temperature is <25 degrees F
- Buses may idle while actively discharging or picking up passengers for 15 consecutive minutes in a 60 minute period
- No idling is allowed in a parking space with available and functioning electrification technology

Three minute idling limit does NOT apply to:

- Motor vehicles stopped in traffic
- Motor vehicles whose primary power source is utilized in whole or in part for necessary and prescribed mechanical operations such as
- Refrigeration units for perishable loads, hydraulic lifts, "cherry pickers", or similar equipment
- Motor vehicles waiting to be examined by state or federal motor vehicle inspectors or motor vehicles while being repaired
- Vehicles that are actively performing emergency services, such as fire, police, snow removal, and utility vehicles
- Operation of auxiliary or alternate power systems for cabin comfort
- A motor vehicle with a sleeper berth, equipped with a 2007 or newer engine, or that has been retrofitted with a diesel particulate filter while the driver is resting or sleeping in the sleeper berth. Other idling is still prohibited.

PENALTIES: For commercial vehicle and property owner, \$250 for first violation, \$500 for second violation, \$1000 for third and each subsequent violation.

Source: New Jersey Department of Environmental Protection

VIII – Improve walkability throughout the County to encourage walking/biking rather than driving

As communities throughout Camden County are developed, it's important to include multiple transportation options for residents. Where towns are already 'built out' we must ensure that redevelopment and upgrades include a complete streets approach.

"Complete Streets" is the concept that all roadways should be designed, built, and maintained for all travelers. Streets do not exist only for single-family motor vehicles. Other roadway users – pedestrians, bicyclists, and transit users of all ages and abilities – must be considered.

A Complete Streets Policy that is formally adopted and implemented by a municipality ensures that each street is planned, designed and operated to provide safe access for multiple users. Because streets and sidewalks are built with public funds, they should accommodate all members of the public.

Bike/pedestrian/bus/disabled access should be framed as an essential part of transportation policies. The adoption of a Complete Streets Policy represents a shift in priorities to include the needs of all roadway users as part of transportation planning and implementation.

CAMDEN CITY ADOPTS COMPLETE STREETS POLICY

On June 11, 2013, the City Council of the City of Camden unanimously approved the adoption of a complete streets resolution which will further the City's efforts to produce an integrated, connected multi-modal street network that accommodates all road users. This policy will build upon Camden's significant recent progress in enhancing pedestrian and bicyclist accommodations, including construction of bicycle lanes, sidewalks and other streetscape improvements through the TIGER program and ongoing efforts by The Circuit Coalition to connect on-road active transportation facilities with current and planned multi-use trails, transit stations, centers of employment and the Ben Franklin Bridge. The City of Camden is committed to continuing to improve the safety and convenience of travel for all road users and this policy is a centerpiece of that effort.



Bicycle and Multi-Use Trail in Blackwood, Gloucester Township

Photo from Camden County



Camden County, working with the Delaware Valley Regional Planning Commission, is in the final stages of completing the **Camden County Bicycle and Multi-Use Trail Master Plan**. This plan, developed in four phases over five years, will provide the road map to constructing an inter-connected on and off- road trail system throughout the County in the years ahead. This plan is being developed using existing open space corridors identified in the **Camden County Open Space and Farmland Preservation Plan** to the extent possible. One goal of the planned trail network is to connect residents to various attractions i.e. parks, schools, shopping centers, office parks, etc. allowing them to leave the car behind and walk or bike to and between attractions. Also included are standards for trail construction and amenities and the identification of possible trail construction funding sources. It is anticipated that this plan will be included as an element of the updated **Camden County Master Plan**.

IX – Create a County-wide bike share program

Camden County has begun a County BikeShare program modeled after a program begun in Collingswood where unwanted bicycles are repaired and made available to new riders via local membership-based BikeShare outlets. The goal of the program is to promote the safe and responsible use of recycled bicycles by Camden County residents for both recreation and transportation and the use of the County's existing and proposed network of multi-use trails.

This volunteer-based program began in 2012 with the solicitation of bike donations and volunteers to repair the donated bikes at a central location at the County's Lakeland Complex. To date, the program has accepted more than 200 bikes and has repaired more than 125. As of 2013, approximately 60 of these bikes were distributed in North Camden and Parkside as the start of local BikeShare outlets in those sections of Camden City. Not less than four other County municipalities have expressed an interest in starting programs in the spring of 2014, with more expected to follow suit in succeeding years.

BIKESHARE TO KICKOFF LOCAL PROGRAM

Camden County BikeShare, a program to make recycled bicycles available to local residents at minimal cost, completed its first season in 2012. Thirty-six people responded to the call for volunteers last year, with more than half of them donating some of their time to the program. Relying entirely on grant funds and corporate and non-profit donations, this small but dedicated army of volunteers gave new life to unwanted bicycles. A total of 112 of the more than 200 bikes donated to the program were repaired at the County's Lakeland facility in Gloucester Township and made ready for delivery to local BikeShare outlets.

Several inquiries were made regarding hosting a local BikeShare program in 2013. Now, with a sufficient number of bicycles ready for distribution, plans are underway to open the County's second BikeShare program this April in North Camden, following Collingswood's lead. Local volunteers will run the program out of Northgate Park using a large overseas container donated by Magnum Computer Recycling.

"This will be the culmination of a year's worth of hard work by our volunteers, but just the beginning of what we hope to achieve through this program", said Freeholder Jeffrey Nash. "Over time we hope to establish several BikeShare locations throughout the County, allowing residents, and particularly families, to ride bicycles inexpensively for both recreation and as an alternative to driving."

The Camden County Board of Freeholders acknowledges the efforts of the many volunteers who helped move this program forward and the financial and in-kind donations of Magnum Computer Recycling, ReCommunity Recycling and the Rails-to-Trails Conservancy. We continue to accept donations of used bicycles and repair tools (wrenches, screwdrivers, hammers, etc.) to outfit local BikeShare outlets, and we welcome new volunteers to repair the bikes. Anyone interested in donating a bike, a tool, or volunteering their time to repair bicycles is asked to call the Camden County Division of Environmental Affairs at **858-5241** or email us at: ccbikeshare@camdencounty.com



DONATE a bike
DONATE a tool
DONATE your time

Camden County BikeShare
ccbikeshare@camdencounty.com
856-858-5241

X – Become a member of NJ Clean Cities Program

NEW JERSEY CLEAN CITIES COALITION



The NJ Clean Cities Coalition (NJCCC), is a tax-exempt 501(c)3 nonprofit organization incorporated in the state of New Jersey for the promotion of education related to the development and use of alternative fuels, alternative fuels vehicles, and the appropriate related infrastructure.

As a designated Coalition within the U.S. Department of Energy's Clean Cities Program, the NJ Clean Cities Coalition is one of approximately 90 similar entities across the US, and the only one in New Jersey. Clean Cities strives to advance the nation's economic, environmental, and energy security by supporting local decisions to adopt practices that contribute to the reduction of petroleum consumption. The Clean Cities network of coalitions support the development of public/private partnerships to promote alternative fuels and advanced vehicles, fuel blends, fuel economy, hybrid vehicles, and idle reduction.

The NJCCC has formed a membership coalition for the benefit of its stakeholders. The goals of the membership coalition include the facilitation of the reduction of our dependence on imported oil, reduction of regional air pollution from vehicle emissions, assistance to

stakeholders and other local businesses and public entities with regulatory environmental compliance, encouragement of economic development through job creation, and to create a positive community image.

The NJCCC has established itself as one of the premiere organizations of its kind in NJ, having secured more than \$17 million of grant funds on behalf of our stakeholders over the past four years. We have successfully established and executed public/private partnerships to leverage those federal investments with more that \$35 million of non-federal funds. These funds might not have otherwise been invested in NJ.

GREEN COMMUNITIES SPOTLIGHT: COLLINGSWOOD BIKE SHARE PROGRAM



Collingswood is the first municipality in Camden County to develop and implement its own bike share program. Bike share is a concept that allows people in cities to borrow bikes at central locations and replace the bike at another location for a small fee. It helps reduce reliance on cars makes it easier to reach public transportations and local destinations. It reduces congestion, emissions and transportation costs.

Collingswood's bike share is tailored for the need and budget of the Borough. The bike share will recycle bikes – instead of purchasing new bikes for the programs, it uses repurposed bikes that have stayed unclaimed in the police station and also accepts donated bikes. Each bike – or green machine – is painted bright green so they are easy to identify.

GREEN BUILDINGS

Most buildings can be designed to use only a small amount of energy at little or no additional cost through proper siting, building form, glass properties and location, material selection, and the incorporation of natural heating, cooling ventilation and day-lighting strategies. The additional energy a building would then need to maintain comfort and operate equipment could be supplied by renewable sources such as solar, wind, biomass, etc.

I – Ensure all major (\$1 million+) projects are LEED certified

LEED (Leadership in Energy and Environmental Design) was developed by the US Green Building Council. It is a third-party certification program and the nationally accepted benchmark for the design, construction and operation of high-performance green buildings. LEED gives building owners and operators the tools they need to have an immediate and measurable impact on their buildings' performance. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.

All future specifications for building construction will include a requirement that the project conform to the U.S. Green Building Council.

Freeholder Resolution 33 was passed on May 15, 2008 to have all projects of \$5,000,000 or more meet LEED certification of silver or higher. The new Camden County Environmental Center, which opened in 2011, was the County's first LEED certified building, and attained a rating of Silver. The next step for this initiative is to write, pass and enforce an updated resolution which states that there will now be a \$1 million threshold for all LEED projects.



Camden County College – Blackwood Campus – LEED Silver Science Building

Ron Garbowski - Senior Director of Construction

The New Science and Classroom Building LEED certification required our design team to look at what sustainability measures and design standards could be included in our building without exceeding our budget. We then compiled the sustainable features into a comprehensive list of everything that could be included in the design of the building. Everything on this list that allowed us to continue our day-to-day operation of education was included in the design. At the time of bid, our project had enough credits through the LEED certification process to obtain a gold certification. We assumed that some of the credits may not be attainable. At this time, the project is on its way to a silver certification. Time will tell whether project will obtain a gold certification.

The New Science and Classroom Building sustainability features are as follows:

- Site Selection – There will be no development that will occur within 100 feet of wetlands.
- Alternative Transportation – The site is selected to be within a quarter-mile of a bus stop served by two or more bus routes. There will be 5% of the parking capacity dedicated to low emitting fuel-efficient vehicles. There will be 5% of the parking capacity dedicated to carpool/vanpool vehicles. The parking capacity will not exceed the minimum zoning requirements.
- Stormwater Design – The peak stormwater discharge rate and quality will not exceed the preconstruction rate and quality for one and two year 24 hour design storms. The quality of stormwater discharge will be improved.
- Heat Island Effect – The project will utilize highly reflective Energy Star certified roof surface on the building.
- Light Pollution Reduction – All of the non-emergency interior lighting will be programmed to automatically turn off during unoccupied hours and exterior light fixtures will not spill excess light beyond the site boundaries.
- Water Efficient Landscaping – There will be no irrigation of the landscaping. Plant species are drought tolerant and low maintenance indigenous to the area.
- Water Use Reduction – Through the use of low flow water conserving fixtures, the building will use 40% less water than baseline standards.
- Energy Consumption – The building will use at least 28% less energy than the baseline standard through the use of high-efficiency lighting, mechanical and electrical equipment, building insulation and glazing.
- Commissioning – The HVAC, lighting and day lighting controls and domestic hot water systems will be independently commissioned to ensure proper installation and efficient operation.
- Construction Waste Management – The project goal is to deliver more than 75% of the construction waste from landfills through recycling.
- Recycling Content – The building materials with high recycled content are specified where possible, including concrete, steel, masonry, white board, ceiling panels, flooring materials and casework areas throughout the building. Also, lighting sensors are used to automatically turn off lights when sufficient daylight exists. Thermal comfort through the HVAC system are provided with controls that allow the user adjustments to suit needs.

- Regional Materials – The specifying of materials for the project that are produced within 500 miles of the site including concrete, steel and masonry.
- Certified Wood – The specifying of products (wood trim, doors and casework) that are made with wood which is certified by the Forest Stewardship Council. Such wood is grown and harvested using environmentally and socially responsible forest management practices.
- Indoor Air Quality – The carbon dioxide levels are monitored by sensors in the building and airflow is automatically adjusted in individual spaces to maintain appropriately low carbon dioxide levels without over-ventilating. The Construction IAQ Management Plan will protect systems and absorptive materials during construction to prevent moisture damage and to protect the materials and HVAC systems from pollutants and contamination. Low emitting materials are specified, including adhesives, sealants, paint and finishes to prevent off-gassing.
- Controllability of Systems – There is a high level of lighting system control for both individual workstations and group areas provided to enable adjustments to suit the needs and preferences in various areas throughout the building. Also, lighting sensors are used to automatically turn off lights when sufficient daylight exists. Thermal comfort through the HVAC system are provided with controls that allow the user adjustments to suit needs.

II – Ensure all construction materials used in County-funded construction/renovation projects meet greenest standards available (use of renewable materials, recycled furnishings, FSC-certified wood products, low or no VOC paints and solvents, etc.)

Energy consumption in buildings is the largest contributor to greenhouse gas emissions. Buildings make up 30-50% of the greenhouse gases that are released into the atmosphere, so there is a huge potential to reduce environmental impacts if we develop sustainable practices for the places within which we spend so much of our time. According to the US EPA, while many green materials and technologies do cost more, it has been demonstrated that many green strategies and technologies actually cost the same and some even cost less than traditional “not-so-green” technologies.

By blending the right mix of green technologies that cost less with green technologies that cost the same or slightly more, it is possible to have a very green building project that costs the same as a conventional one.

Often the key to a cost effective green building and site design lies within the interrelationships and associated cost and performance trade-offs that exist between different building systems. For example, the use of high performance windows and window frames increases the first cost of the building envelope, however the resulting reduction in the size and cost of the buildings heating and cooling system more than offsets the added cost of the better glazing system. The result is a building that has a comparable or perhaps even a lower first cost, a higher comfort level, lower energy use, and lower energy bills and operating cost for the life of the building.

What Makes a Building 'Green'?

- Biobased content
- Energy efficient
- Enhanced indoor environmental quality
- Low embodied energy
- Recyclable or reusable components
- Recycled-content
- Reduced environmental impact over the life cycle
- Reduced or eliminated toxic substances
- Reduced waste
- Responsible stormwater management
- Sustainable development, smart growth
- Uses renewable energy
- Water efficient
- Water reuse and recycling

III – Benchmark all County facilities of more than 10,000 square feet using the Energy Star Portfolio Manager tool

Portfolio Manager is an interactive resource management tool that enables you to track and assess energy and water use across your entire portfolio of buildings.

More importantly, it can help you implement every step of your energy management program, from setting a baseline and identifying which buildings to target to setting goals and tracking improvements. It's also the tool for getting recognition from EPA for your efforts.

Use it to help you save energy, save money, and save the environment.

You can use Portfolio Manager to manage the energy and water consumption of any building. Simply enter your consumption data, cost information, and operational use details. Portfolio Manager will then help you track more than 100 different metrics. Use them to compare your building's performance against a yearly baseline, national medians, or similar buildings in your portfolio.



PURCHASING

I – Institute a Sustainable Procurement Policy to ensure 75% of cleaning products carry a Green Seal/EcoLogo

There are many green certifications, but Green Seal and EcoLogo are known to be the most reputable. Green Seal is a non-profit organization that uses science-based programs to empower consumers, purchasers and companies to create a more sustainable world. They are a pioneer in promoting a sustainable economy. Green Seal was created in 1989 to meet the need for a tool to help shoppers find truly green products. Over the years the reputation of the Green Seal brand has grown to symbolize environmental leadership, and it continues to represent unquestionably green products and services.



II – Reduce paper usage by 40% by increasing electronic communication

End of 2013 – Develop a tracking mechanism/utility management database for stationery

End of 2014 – Reduce consumption by 20% over 2009 baseline data

End of 2015 – Reduce consumption by 30% over 2009 baseline data

End of 2016 – Reduce consumption by 35% over 2009 baseline data

End of 2017 – Reduce consumption by 40% over 2009 baseline data

As the electronic form of communication grows, the need for paper will decrease. The goal will be achieved by converting more of our business operations to electronic format instead of paper. Some sources of reduction include electronic purchasing and 'smart' copiers that use double sided printing as a default.

III – Reduce packaging through changes in purchasing/shipping procedures

By working with our vendors, we will buy more products in bulk and reduce packaging, thereby reducing the amount of material that will end up in the waste stream. In addition, we will use more electronic communication to reduce the need to purchase paper. By investing in more advanced lighting technology, we will reduce the amount of light bulbs purchased due to longer life of LED and induction lighting.

GREEN COMMUNITY SPOTLIGHT – CAMDEN COUNTY SHARED SERVICES

Camden County Leads Innovative Partnership to Purchase Electricity South Jersey Power Cooperative's group buying power to save \$3.4 million

Camden County has again taken the lead role in an innovative partnership to purchase retail electricity at a significant savings thanks to the group buying power and diversity of the South Jersey Power Cooperative (SJPC).

"This partnership reflects the Board's commitment to cost cutting and fiscal responsibility. By purchasing electricity in bulk, Camden County government is increasingly becoming leaner and more efficient, thereby saving taxpayer dollars," said Freeholder Deputy Director Edward T. McDonnell. "The reduction in electric expenditures by Camden County alone is \$400,000."

Camden County has participated in bulk electric purchasing since 2004 when the SJPC was formed. In addition to Camden, the SJPC includes the Counties of Atlantic, Cape May, Cumberland, Gloucester and Salem, along with k-12 school districts, vocational-technical schools, municipalities, utilities authorities and county colleges. In total, there are about 65 participating municipal entities.

"In Camden County, we put taxpayers first. This is an excellent example of how the county works to efficiently manage its resources and expenses," said Freeholder McDonnell. "The combined buying power of the cooperative allows all of the participants to run their operations more economically. We are proud that we were able to realize these savings through the work of our Camden County Division of Purchasing."

The Camden County Division of Purchasing received bid proposals on behalf of the SJPC through an online reverse auction for almost 400 facilities located throughout PSE&G and Atlantic City Electric territory. The lowest rates were submitted by Hess Corporation of Woodbridge, NJ. Based upon their bid prices, preliminary calculations show a projected cost savings over the course of a 1-year period of approximately \$3.4 million, cumulative for all SJPC participants.

"After many consecutive years of increasingly higher energy prices, it is refreshing to see that the SJPC and its members are now able to capitalize on a market condition where retail energy prices are currently lower than default utility rates. This condition has created the opportunity for members to achieve about 10-20% savings in energy costs. This is a small bright spot for taxpayers in difficult economic times," said Erik Miller, Energy Procurement Manager for Dome-Tech, Inc. of Edison, SJPC consultant for energy services.

FOOD

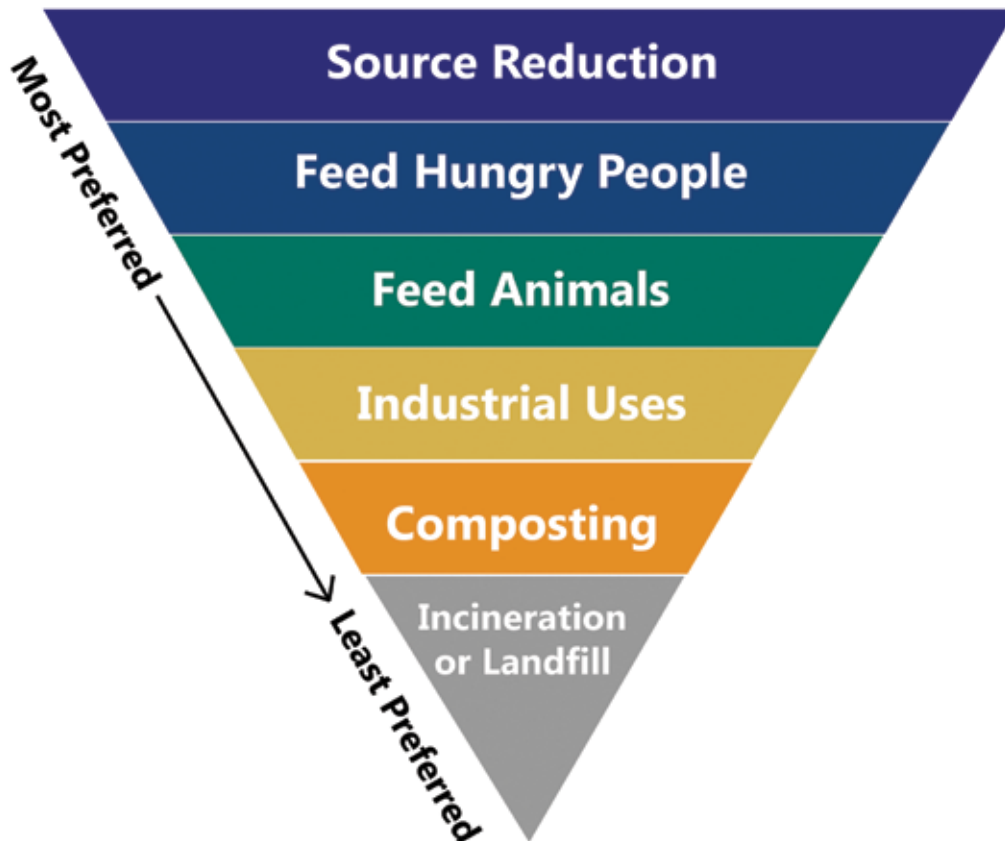
I – Local Produce Goal 1 – Work with local farms to create a CSA (Community Supported Agriculture) program for staff

Community Supported Agriculture (CSA) has become a popular way for consumers to buy local, seasonal food directly from a farmer. Here are the basics: a farmer offers a certain number of “shares” to the public. Typically the share consists of a box of vegetables, but other farm products may be included. Interested consumers purchase a share (aka a “membership” or a “subscription”) and in return receive a box (bag, basket) of seasonal produce each week throughout the farming season

We have approximately 30 acres of County owned farmland and we have leased 3 acres to the Winslow Rotary club through Winslow Township for Winslow Township High School students to grow food for local food banks.

II – Local Produce Goal 2 – Increase access to locally grown food by promoting additional farmer’s markets throughout the County

Food Recovery Heirarchy



Source: US Environmental Protection Agency

COLLINGSWOOD FARMERS' MARKET - GROWING SINCE 2000

Collingswood Farmers' Market's participating farmers value the opportunity to interact with the people who eat the food they grow. Their presence in our community emphasizes the role New Jersey farming plays in preservation of our landscapes, lifestyles, nutrition, and our local food supply.

Now into our second decade, the Market has become an established part of the social fabric of the community. People come to walk, meet their neighbors, and socialize while they shop for their weekly produce and more. And it's not just farms—local vendors and activities help make the Market a vibrant and fun destination every Saturday, May through Thanksgiving.

The sooner you can get produce after it's harvested, the better its freshness, nutrition and flavor. The quality of the produce is superior and the atmosphere is wonderful! The successful weekly Market is also an important link in the local food chain. By providing a venue for selling directly to the consumer, the business of farming is strengthened for the small family-owned farms that are characteristic of our region.

Come on down to the Market, meet the growers, and take advantage of the wonderful harvests they have to offer!



III – Purchase locally grown produce for County Facilities (Camden County Jail, Camden County College, Camden County Technical Schools)

County departments and agencies that purchase food will make a commitment to purchase locally-grown and manufactured items where possible, to support local farmers and businesses and reduce the environmental footprint associated with transporting food over long distances.

GREEN COMMUNITY SPOTLIGHT: HADDONFIELD

In Fall 2013, the Borough of Haddonfield launched a food waste composting program in all of the Borough's schools. Sustainable Haddonfield and a group of Haddonfield Memorial High School environmental sciences students initiated the project as part of the students required "Improvement Plan for the Environment" Spring project. The students audited waste and recycling habits in the High School's cafeteria and tracked the data for presentation to school administrators.

After further research and preliminary discussions, the students invited Organic Diversions to a meeting with their teacher, Sustainable Haddonfield, the school's principal and custodial staff, and the Borough's Manager of Public Works to discuss how a food waste composting program might work. Unlike many school districts that contract for their own waste and recycling services, in Haddonfield these services are provided by the Borough. The Borough and School district worked cooperatively to contract with a vendor to implement the program in all of the schools. It is anticipated the schools will compost between 3.5 and 4 tons of food waste every month. In addition, recycling rates are expected to increase as students are more deliberate in sorting all of their waste.

After a launch of the project, several different groups in the community have volunteered to provide ongoing support and monitoring to ensure the program is successful: HMHS environmental sciences students are monitoring their cafeteria and have offered assistance to one of the nearby elementary schools, a fourth grade Girl Scout troop has adopted the program for their Bronze award and is preparing school-wide presentations for students, and the middle school environmental club is working on a program at their school and members of Sustainable Haddonfield conducted a series of presentations to seventh graders as part of their Wellness Day events. Overall the program has been well-received with students, faculty and parents and is expected to be a showcase model for implementing sustainable programs in the Borough.

IV – Work with food and janitorial products vendors to ensure use of sustainable palm oil in all products and ingredients used

Camden County is committed to:

- purchasing recycled and environmentally preferred products in order to minimize negative environmental impacts relating to our work
- preserving natural resources and
- helping to create and sustain markets for environmentally preferred and recycled-content products.

We will look to purchase products that carry the Green Seal Certified logo or Eco-logo and that are biodegradable, compostable and/or made from post-consumer recycled content. When possible, we also seek products whose packaging is recyclable or made from post-consumer recycled materials.

In addition, we will attempt to work with companies whose suppliers are members of the Roundtable on Sustainable Palm Oil (RSPO) - www.rspo.org – which is a member-based group of stakeholders working together to create a certification program for sustainable palm oil production. Experts are concerned that despite the high productivity of this crop, agricultural operations are expanding too rapidly and in an unsustainable manner, negatively impacting local farmers and businesses and taking up vital habitat for wildlife in certain parts of the world.

ENVIRONMENT

In 1998, Camden County voters overwhelmingly approved a \$0.01 per \$100 of assessed value open space tax to be used to “ ... purchase, preserve, and maintain environmentally sensitive lands including open space, farmland, historic sites, and recreation areas ...”. In 2003, voters approved an increase in this tax to \$0.02 per \$100 of assessed value.

In 2004, the Camden County Board of Freeholders adopted the Camden County Open Space and Farmland Preservation Plan as an element of the Camden County Master Plan. This plan identified a network of greenways throughout the County that will serve to assist with stormwater management and aquifer recharge, preserve habitat for both plants and animals, and provide County residents with new opportunities for both passive and active recreation.

This was followed in 2008 with the development of the Camden County Farmland Preservation Plan. This plan expanded on the 2004 plan with respect to farmland preservation, identifying five Farmland Preservation Project Areas and 55 potential Target Farms for preservation.

Sustainable and environmentally friendly landscaping practices not only reduce water use and noise, air and water pollution, but also benefit wildlife. Pesticides and insecticides often affect unintended targets and pollute our waterways. Composting garden waste can ‘complete the loop’ with these organic materials and give you a great end product that will eliminate the need to fertilize with chemicals. Using the right materials and equipment can ensure the upkeep of your grounds is in sync with your environmental goals.

I – Open Space and Farmland Preservation – Preserve not less than 1,250 additional acres of open space and farmland

- Camden County has participated in the permanent preservation of 1,780 acres of open space and 678 acres of farmland for a total of 2,458 acres. In addition, the County has contributed funding for 189 local recreation facility improvement projects and preservation and restoration efforts at 24 historic sites.
- The County, through the efforts of the Open Space Preservation Trust Fund Advisory Committee, will continue to make presentations to municipal governing bodies and planning officials, encouraging them to work with the County in their efforts to build the greenway system and establish an interconnecting network of multi-purpose trails throughout the County. These trails will serve to provide recreational opportunities as well as alternative means of transportation (walking, biking, etc.) between communities.

To date, a total of 2,457.62 acres, of which 1,779.95 is Open Space and 677.67 is Farmland, have been preserved through the Camden County Open Space Preservation Trust Fund.



Haddon Lake and Timber Creek Parks, just two of 15 County-owned parks – Source: Camden County

II – Increase tree canopy, especially in densely populated areas of the County (for beautification as well as carbon sequestration and stormwater management)



The NJ Tree Foundation, which is a statewide nonprofit, started a Camden-based Urban Airshed Reforestation Program (UARP) in 2002. The UARP is a community-based tree planting program designed to mitigate air and water pollution in Camden while empowering residents to organize beautification efforts on their own streets. To date, NJTF has planted 4,490 trees with over 9,300 volunteers and maintained a 95% survival rate on the 137 tree varieties planted in Camden since 2002.

NJTF hired a Camden City program director in 2009. The NJTF continues to explore opportunities to promote and enhance the

Camden Greenway. However, their focus has primarily been on increasing stewardship with Camden Greenways. NJTF has partnered with them to get about 40 volunteers together for a stewardship training, and there are additional events happening all the time (clean ups, walks in the woods, pruning sessions).

Prioritizing grassroots work, the UARP empowers residents to create positive changes in their own communities. Residents apply for and adopt trees, help organize events, and assist with the planting of each tree. In the same vein, the UARP has engaged approximately 10,150 volunteers of all backgrounds and economic statuses in beautifying the city.

- The County will continue to promote the development of the Camden Greenway as a key component of its Open Space Plan. This greenway contains significant area of urban forests.
- The Parks Department, through the Environmental Studies Center, will continue to promote tree planting in County parks and throughout municipalities. The County's Environmental Educator will work with service, civic and environmental organizations, to promote the planting of trees, emphasizing tree planting in the urban areas of Camden and Gloucester City.
- Over the past several years the CCMUA has planted over 200 trees around its treatment facility in Camden, in conjunction with the DRPA, constructed Millennium Park in Camden City and donated land for the creation of a tree nursery in Waterfront South section of Camden City.

In addition, CCMUA created the Camden SMART team, which has constructed 19 rain gardens since 2011 (many of which contain a number of trees) in Camden City and helps with other tree planting initiatives in the City.

III – Greenhouse Gas (GHG) Emissions Goal 1 - Reduce Scope 1 and Scope 2 by 25%

Reduction in these two sources of GHG emissions ties into our overall operational goals of not only using less energy, but also purchasing energy from renewable sources. In addition, this goal can be achieved by investing in compressed natural gas, hybrid or electric vehicles to reduce fuel consumption or by using alternative fuels.

A Green House Gas Inventory for Camden County was created in 2008. The GHG Inventory established a baseline for emissions data, which will help formulate long term reduction targets and goals.

Environmental Initiatives (ICLEI) software. This inventory:

- Established a baseline of GHG's emitted as a direct result of County operations;
- Outlined the amount and type of energy used; and
- Catalogued the amount of energy generated and recovered at the County's solid waste and waste water treatment facilities. GHG reduction targets for County operations will be identified based on the results of this inventory.

A Local Action Plan for Climate Change for Camden County was created based on the results of the GHG Inventory to reinforce Camden County's commitment to addressing the issues of global warming and climate change.

Freeholder Board to pass a version of the following resolutions and the 2030 Challenge.

Resolutions:

- Carbon Neutral Buildings
- Carbon Neutral Bonding
- Energy Policy
- Hybrid Vehicles
- Transportation Fuel

In 2011, a Camden County Energy and GHG Reduction Toolkit was developed by the DVRPC as part of a pilot program. Sixteen of the 75 County buildings were inventoried for this energy study, all of which were a part of the Health and Executive Campus at Lakeland. The analysis will help determine which buildings should be targeted for energy efficiency upgrades.

IV – GHG Goal 2 - Reduce Scope 3 Greenhouse Gas (GHG) Emissions by 50%

This goal will affect our vendors and can be achieved by establishing more relationships with local manufacturers. In addition, we will need to improve our staff/volunteer commuting options and promote alternative transportation methods, such as public transit, carpooling, bicycling, etc.



WHAT IS HEAT ISLAND EFFECT?

The term “heat island” describes built up areas that are hotter than nearby rural areas. The annual mean air temperature of a city with 1 million people or more can be 1.8–5.4°F (1–3°C) warmer than its surroundings. In the evening, the difference can be as high as 22°F (12°C). Heat islands can affect communities by increasing summertime peak energy demand, air conditioning costs, air pollution and greenhouse gas emissions, heat-related illness and mortality, and water quality.

- US Environmental Protection Agency

A dense tree canopy is one way to reduce the urban heat island effect. When replacing sloped roofs, use a light colored shingle to reduce the burden on air conditioning systems in the warmer months. On relatively flat roofs, you can add a green roof or one with a high solar reflective index (SRI), such as a white roof. When the time comes to resurface your parking lots, you may want to investigate a coating with a light colored or pervious material. In addition, trees, green roofs, and gardens can also reduce the urban heat island effect and have the added benefit of creating small habitats for birds and other wildlife.

V – Incorporate resiliency measures into all future projects and renovations

EPA's Climate Ready Water Utilities (CRWU) initiative assists the water sector, which includes drinking water, wastewater, and stormwater utilities, in addressing climate change impacts. Through the development of practical and easy-to-use tools, EPA promotes a clear understanding of climate science and adaptation options by translating complex climate projections into accessible formats. This information helps utility owners and operators better prepare their systems for the impacts of climate change.

The impacts of events such as Hurricane Sandy pose challenges to water sector utilities. Extreme weather events, sea level rise, shifting precipitation patterns and temperature variability, all intensified by climate change, have significant implications for the sustainability of the water sector. By planning for, assessing and adapting to these challenges, the water sector can fulfill their public health and environmental missions and begin the process of becoming climate ready.

EPA has developed CREAT, a software tool to assist drinking water and wastewater utility owners and operators in understanding potential climate change threats and in assessing the related risks at their individual utilities. CREAT provides users with access to the most recent national assessment of climate change impacts for use in considering how these changes will impact utility operations and missions.



GREEN COMMUNITY SPOTLIGHT: WINSLOW TOWNSHIP OPEN SPACE

Winslow Township is the most rural of the 37 municipalities in Camden County and also its largest at 58 square miles. As of 2006, 80% of the township currently sits in the Pinelands National Reserve, thus restricting future land development. It also has over 19 parks and the most preserved open space of any of the County's municipalities. Despite the restriction of development on the reserve, agricultural areas still persist in Winslow. Winslow Township recently passed a Cluster Ordinance, which is a revision to the Pinelands Comprehensive Management Plan related to Zoning within Pinelands. This ordinance helps maintain the environmental structure within the Pinelands area and strengthens our belief in protecting this critical natural resource.

COMMUNITY OUTREACH

I – Become a demonstration site for innovative technologies in conservation and sustainability



Become a demonstration site for new technologies in sustainability (pervious paving materials, alternative energies, bird-friendly design). Work with organizations such as the EPA and the NJDEP to highlight their programs and relay information to our staff, residents and visitors.

Camden County Freeholder Scot McCray helping plant a rain garden in Camden
Source: Camden County – Rain garden planting at Camden Library

II – Develop a community conservation grant program to support start-up sustainability groups/programs

GREEN COMMUNITY SPOTLIGHT: SUSTAINABLE CHERRY HILL

Act One: “Think Globally, Act Locally.”, 2007-8

When a small group of local community members grew concerned about the type of planet that we, as humans, were leaving to future generations, they took this old bumper sticker adage to heart. Realizing that solving tough community problems such as sustainability would require the formation of strategic and creative alliances, this group of pioneers approached the township of Cherry Hill with the goal of working collaboratively to address these complex issues. A unique and somewhat surprising partnership was created at a time when few local governments were addressing issues of sustainability beyond the traditional conservation of open space, regulation of water quality and tree planting. For a year, this team worked diligently and regularly to educate themselves about the steps that a local government could take to move a whole community towards sustainability. The resulting “10 Point Green Action Plan” passed unanimously in March 2008 by Cherry Hill Town Council

Act Two: Starting a Movement, 2008-9

In their research, the team discovered the importance of engaging, not just local government, but the rest of the community. A key component of the plan was the formation of a community education and outreach group, Sustainable Cherry Hill (SCH). Awarded its independent 501c3 non-profit status in 2008, SCH began the process of developing its mission, goals and organizational structure. Amid much media attention and community "buzz", SCH held its first all-Cherry Hill official kick off meeting to a packed room at the Cherry Hill Library. A whirlwind year of activity followed that included monthly community educational programs, development of a local Green Drinks branch for social and professional networking "One Green Night a Month", continued collaboration with Cherry Hill Township on their 10-Point Green Action Plan, the first ever Cherry Hill Earth Day Festival and much more.

Act Three: Taking it to the Next Level, 2009-11

A high point of SCH's development came in the form of a community visioning conference in summer 2009, "Cherry Hill 2020: Shaping a Sustainable Future. On July 16-18, 2009, 90 people representing a microcosm of the Cherry Hill community joined together for thoughtful and hard work taking place for 16 hours over three days. Their mission was to define a shared vision for sustainability for Cherry Hill over the next 10 years.. Sustainable Cherry Hill hosted the event, which was by invitation only and of no cost to participants. Participants ranged from teens to seniors and represented businesses, faith groups, education, community groups, government and environmentalists. Everyone came to the conference with their own unique set of talents, backgrounds and opinions, but were united in their desire to foster and improve the community. Task forces were created to move the vision forward with the goal of engaging others in the community to join in and expand the reach of these initiatives beyond conference attendees.

The unique, collaborative relationship between SCH and Cherry Hill Township resulted in our community becoming a Sustainable Jersey Certified Community (one of only 30 in the state) in November of 2009. Sustainable Jersey™ is a certification program for municipalities in New Jersey that want to go green, save money, and take steps to sustain their quality of life over the long term. The "Green Team", made up of township staff and community members continued to meet regularly and received the newest "Silver" level of certification in November of 2011.

Act Four: Collaboration and Partnerships, 2011-13

Sustainable Cherry Hill continues to operate in a positive, collaborative manner, supporting the sustainability efforts of neighboring communities, Cherry Hill Township, Camden County, the Cherry Hill School District and the region. Our community led Task Forces thrive in areas such as alternative transportation, gardening, building/business, health, regional partnerships. Now approaching its 5th year as an official non-profit organization, it is estimated that the group has reached almost 20,000 people through the Art Blooms Earth Festival, educational programs, outreach and networking events and have mentored dozens of other towns in South Jersey.

III – Develop an incentive-based program for staff to encourage participation in sustainability initiatives

ON-THE-JOB IMPACT

“Workers who are able to make a social or environmental impact on the job are more satisfied by 2:1”

Employees who feel they can make an impact on social and environmental issues while on the job are twice as satisfied with work as those who don't, according to a new study released by Net Impact, a nonprofit membership group aimed at helping business-school graduates make a social and environmental impact. The nationwide study conducted by Rutgers University and funded by The John and Catherine T. MacArthur Foundation shows 49 percent of workers who have impact opportunities on the job report high satisfaction levels, compared with 24 percent of those who don't.

We see these satisfaction levels reinforced when digging into the ways people feel connected to impact through their jobs. For example, 45 percent of employees who say they worked directly on a product or service that makes a positive social impact are very satisfied with their jobs, compared to 29 percent of those who don't. The research finds similar numbers for people who provide input on sustainability or corporate responsibility issues at work, or volunteer alongside their co-workers. (3)

IV – Implement a no smoking policy for all County parks and outdoor facilities/areas

The County passed a resolution in 2001 which prohibited smoking in all County parks and park lands. However, ensuring the public has access to this information is a constant task. We will ensure that there is appropriate signage in parks notifying people of the no-smoking policy and will use other media sources, such as our website and County publications, to enforce that message.

V – Increase access to and availability of green job training programs

According to the United Nations Environment Program, a green job, also called a green-collar job is “work in agricultural, manufacturing, research and development (R&D), administrative, and service activities that contribute(s) substantially to preserving or restoring environmental quality. Specifically, but not exclusively, this includes jobs that help to protect ecosystems and biodiversity; reduce energy, materials, and water consumption through high efficiency strategies; de-carbonize the economy; and minimize or altogether avoid generation of all forms of waste and pollution.”(4)

GREEN JOB TRAINING IN CAMDEN CITY AND CAMDEN COUNTY COLLEGE

New Jersey received a \$300,000 federal grant, funneled through the NJ Department of Environmental Protection's Office of Economic Growth and Green Energy, for a green jobs training program in Camden that will target unemployed or underemployed residents for jobs in assessing and cleaning up brownfields and other contaminated sites in their city.

The innovative curriculum offered through Camden County College was based on the needs and skill sets identified by local employers, project contractors and community partners in Camden. Core courses will provide 176 hours of instruction and 18-24 hours of supplemental elective courses. Hands-on training will also be offered in various locations around Camden.

This project was spearheaded by the Camden Redevelopment Agency and the City of Camden Department of Development and Planning. This collaboration shows how municipal agencies in Camden are working together to produce new economic benefits for the city and its neighborhoods.

The Camden Redevelopment Agency was awarded \$11.9 million dollars as part of the federal stimulus program, Neighborhood Stabilization Program 2 (NSP 2). As part of the Mentoring Program, the Camden Redevelopment Agency placed 17 YouthBuild students on each of its NSP 2 Construction Sites and Greening sites for a one year period beginning in March 2012 and ending in March 2013. Each trainee received a weekly stipend of \$225 while they worked to improve the community. Specifically, the students spent time on each of the construction sites and were placed with Respond, Inc. to clean, green and maintain lots in North Camden. Respond's landscaping crew is trained in environmentally sustainable landscaping practices and stormwater management and, thus, were able to impart that knowledge and skill on the students.

VI – Incorporate sustainability into the County's decision-making process

Sustainability should be incorporated into all aspects of how the County does business, from the buildings we work in, to the vehicles we drive, to the products and food we serve or consume. We will work with our purchasing department to ensure there is a sustainability element in all bid specifications and RFPs.

VII – Develop a tool library to promote use of tools needed to make homes and businesses more sustainable (caulk guns, staplers, insulating equipment, etc.)

It might seem a little risky to lend out a bunch of power tools to those who probably don't know how to use them. After all, tools can be dangerous, people can be careless, and we live in an exceptionally litigious society. For some strange but very understandable reason, those concerns alone have been more than enough to effectively end many community tool libraries before they even start.

As the sharing economy continues to blossom, however, more communities are overcoming that inherent fear and establishing lending libraries to embrace the beautiful benefits of sharing with neighbors. Through Google groups, starter kits, and incubator workshops, new tool libraries now have the ability to overcome their inherent concerns by learning from the experiences of many who have come before them.

Though it seems like a relatively unique idea, around 40 community tool libraries already exist throughout the United States, from Philadelphia to Seattle and south to Oakland and New Orleans. Each has its own unique flavor but most operate roughly the same way by accepting tool donations from the community and then lending those tools out for free—or nearly free—to anyone capable of presenting an ID and signing a waiver. Through that basic setup, some tool libraries have been happily participating in the sharing economy for over 20 years.

While most tool libraries are more than willing to share whatever they've learned, a handful of libraries have recently led the charge towards making it increasingly easy for even the most cautious and underfunded communities to take up the challenge. Strangely enough, these libraries happen to be some of the youngest. (5)



Camden County, Habitat for Humanity engages in construction projects to foster economic empowerment and sustainable community revitalization in Camden County, NJ.

Working Together Works for Everyone

Collaborating with volunteers, municipal governments, organizations and partner families we create home ownership opportunities for the low to moderate income population. These projects address two significant issues inhibiting sustainable community revitalization- diminished economic empowerment and tax base erosion.

Our Partner Families

Every Habitat for Humanity build requires a partner family for success. These are low to moderate income families who find traditional interest bearing home loans out of reach. Through our interest free loans to families meeting our income, home ownership education and sweat equity requirements, partner families become homeowners. They pay full price for their house and demonstrate Habitat's "Hand up, not a Handout" philosophy. These homeowners contribute to their community as both taxpayers and responsible citizens. This arrangement provides true ownership and economic empowerment through asset development, planting the seeds for a thriving community.

Our History

Since 1986 Camden County Habitat for Humanity has helped over 50 families. In 1994 our board initiated the 16 home Clinton Avenue project. This signified our migration from single home development in Camden City to tract development. To further support our community and affiliate, the ReStore was opened in 2008. This 18,000 square foot home improvement retail outlet offers deeply discounted new and used home improvement products, supplies, furniture and appliances to the general public.

Earlier in 2011 a restructuring occurred to position the Camden affiliate for the future. This resulted in a two year transitional business plan focused on service expansion and mission sustainability positioning the affiliate to pursue a tract housing development model in Camden City and a scatter project expansion into the entirety of Camden County. Currently we are partnered with the Cooper Foundation and the NRTC in building an additional 16 homes.

To date our projects empower more than 50 families, provide over 80,000 dollars annually to Camden's tax base and have produced over 1 million dollars in new property tax revenue to the city.

Our Mission

Camden County Habitat for Humanity partners with people communities and organizations to foster economic empowerment and sustainable community revitalization by providing home ownership opportunities for those in need through housing construction and rehabilitation, discount home improvement retail outlets, financial education, job training and volunteer organization.

Camden County Habitat for Humanity provides services to all people regardless of background, ethnicity, race or religion.

VIII – Assist municipalities in registering for the Sustainable Jersey program and achieving certification

Engage all 37 municipalities in the Sustainable Jersey program. Assist municipalities in getting registered for the program and creating their own Green Team, which will allow them access to grant funding through this program. In addition, work with municipalities to get them certified under the program.

Sustainable Jersey is a certification program for municipalities in New Jersey. By supporting community efforts to reduce waste, cut greenhouse gas emissions, and improve environmental equity, Sustainable Jersey is a non-profit organization that is empowering New Jersey towns to build a better world for future generations. It provides tools, training and financial incentives to support and reward communities as they pursue sustainability programs. New Jersey is the first state in the nation to have a comprehensive sustainability program for communities that links certification with strong state and private financial incentives, and a fully resourced program of technical support and training.



PROGRAM OVERVIEW

Municipal Government Focus: Only New Jersey municipalities apply for certification.

Free: No registration fee or certification fees are charged to local governments.

Voluntary: Local government participation is strictly voluntary and never mandated.

Specific Menu of Actions: The program provides local governments with a clear mission and a menu of sustainable actions to achieve.

New Jersey Based and Consensus Driven: The technical content of the program's actions are developed with the help of 22 task forces that comprise New Jersey state local officials, experts, non-profit groups, and members of the business community. Recommended best practices/actions are vetted with local government officials.

Program Training, Workshops and Technical Support: Training, monthly workshops and technical support is provided to communities in order to build general capacity and effectiveness of local governments and Green Teams for implementing the program.

Green Teams: The only required action to become certified is to have a Green Team. The Green Team is appointed by the municipal governing body and includes representatives from the Environmental Commission, Operations and Maintenance, Planning and Zoning, and other relevant municipal departments as well as volunteers from the community and key constituencies such as the business community, faith based groups, and school groups.

Participating Towns: 392 towns are registered and working towards certification. That is over 70% of the 566 municipalities in New Jersey. Nearly 75% of New Jersey's population lives in registered/certified Sustainable Jersey communities.

Certified Towns: 113 municipalities are certified: 102 towns are certified at the bronze level and 11 towns are certified at the silver level

Small Grants Program: Sustainable Jersey provides funding to local governments for sustainability projects. To date, \$795,000 has been awarded through the 2009-2012 Sustainable Jersey Small Grants program. 119 grants have been given to New Jersey municipalities representing 20 counties for sustainability projects to make communities more livable, environmentally friendly and prosperous.

History: The Sustainable Jersey certification program was launched in February 2009. Sustainable Jersey began as a collaborative effort between the New Jersey State League of Municipalities' Mayors' Committee for a Green Future and the Municipal Land Use Center

IX – Reinvigorate the Camden County Environmental Commission

The Camden County Environmental Commission was established in 1991 to advise the Department of Environmental Affairs on a broad range of issues to improve the quality of life for the residents of Camden County. After several years of inactivity, the Environmental Commission is being reinvigorated with a slightly different mission. With the recent growth of the Sustainable Jersey program, the EC will now focus on having an equal representation throughout the County's 37 municipalities, as well as several County representatives, to share ideas and best practices and further the efforts of our municipalities toward their sustainability goals.

WHAT ENVIRONMENTAL COMMISSIONS DO



Volunteers helping protect their communities' environment

Environmental commissions use a wide range of information and approaches to advise local government and inform residents on environmental issues, laws and programs. They

- Research, compile and direct studies, including environmental resource inventories, water studies, energy audits and conservation easement inventories;
- Review development proposals and promote long-range environmental planning based on the capacity of the land and natural resources;
- Inventory, plan and preserve open space;
- Inform residents through educational programs, displays, publications and meetings;
- Work with neighboring commissions and other organizations to address regional and state-wide environmental problems (6)

COMMUNICATION

I – Create a network of Green Teams in County agencies and departments that are able to help spread the word about sustainability and carry out the initiatives in this plan

Given the depth and breadth of County operations, it is critical to have a point of contact in each County Department and Agency to disseminate information, collect data and be an advocate for sustainability. We will create a County staff Green Team and will encourage and provide the tools for each department and agency to create their own internal Green Team as well.

WHAT IS A GREEN TEAM AND WHY IS IT IMPORTANT?

“Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed it is the only thing that ever has.”

- Margaret Mead

The formation of a “Green Team” is the first step in establishing a community sustainability program. Green Teams leverage the skills and expertise of team members to develop plans, implement programs, and assist with educational opportunities that support the creation of a sustainable community.

Creating a sustainable community will require leadership, vision, and a commitment to starting the long-term journey toward sustainability. A Green Team is the catalyst for creating an understanding of what sustainability means in your community. It does not matter what you call your Green Team — what matters is that your community is working together in a coordinated fashion to create a more sustainable set of goals, policies, and actions. The success of the community’s sustainability efforts going forward depends on how well the entire community is included at the beginning of the process.

II – Develop and publish an annual progress report

At the end of each calendar year, starting in 2014, we’ll produce an annual report with updates on our progress and any changes and additions to the initiatives we set forth in this document.

III – Develop and launch www.sustainablecamdencounty.org which will showcase sustainability best practices in the region and be a resource for municipalities, businesses, schools and residents

Camden County has acquired the domain name: www.sustainablecamdencounty.org which will be used to communicate everything happening in the County in terms of sustainability. The site will also serve as a database for sustainability best practices from across the County and region.

The Division of Environmental Affairs publishes an annual newsletter, *The Recycler*, which informs Camden County residents about environmental issues of local interest.

The County's new Environmental Center, opened in 2011, will serve as the hub for environmental education.

Camden County has hired a full time environmental educator who works directly with schools to support their sustainability programs and will disseminate and incorporate the County's sustainability initiatives into schools.

CCMUA also has a strong environmental education program, through mail inserts on water conservation that go out in bills to County residents and via tours given at the plant to thousands of students each year.

Camden SMART is also very active in engaging residents of Camden City on the issues of green infrastructure and stormwater management.

IV – Create the Camden County Conservation Corps (4C) to gain insight and feedback on our programs/initiatives by engagement of student groups within the County

The Camden County Conservation Corps, or 4C, consists of two groups of young people who will provide feedback with valuable insight into all aspects of our County-wide sustainability initiatives, such as programming, interpretation, master design plans, website content and the five-year County Sustainability Plan, Plan 2018. One group will consist of seven Camden County school students, age 10-15, and the other will consist of seven Camden County school students age 16-21. Each group will meet in person on a quarterly basis at the Camden County Environmental Center to provide feedback on County sustainability initiatives and work on group projects related to sustainability.

Goal

4C will go beyond simply providing feedback to a group that takes action, using a Doing Leads to Caring strategy. By taking action on behalf of County sustainability initiatives, the students will be more engaged in promoting, advocating and leading sustainability efforts in their schools and communities.

Objectives

- Program will begin in September 2013, in line with the start of the next school year.
- A request for students interested in serving on 4C will go out to Camden County schools. Students will be required to fill out an online application on the Sustainable Camden County website.
- The description of the program and recruitment process will emphasize the role we expect them to play in their schools and communities, as well as on behalf of the County.
- Propose a “challenge” to the students tied to the County’s sustainability initiatives.
- Engage 4C to their full potential throughout the year by having them complete ambassador assignments in between meetings. This will encourage them to engage their families and friends to become involved as well as gain more external feedback in the process.
- 4C members only serve a one year term. Realize that kids may have an interest in continuing for beyond the one year term. Therefore, create a ‘Phase 2’ component to the program (i.e. host two alumni meetings, be a mentor for new members, etc.)
- Invite the families of members to a 4C finale at the end of their term to acknowledge and celebrate their accomplishments as well as engage their families in sustainability.

Define their role

- Feedback and insight on County plans and initiatives
- Best ways to message to the community (use of technology/media)
- Define role as ambassadors/change agents in their schools/communities
- Feedback on wants/needs in the community with regard to sustainability (Example: Do you view Camden County as a sustainable community? If no, why, and how can we change that?)



Freeholder Jeff Nash speaking at the Creating Community Connections Tri-County Sustainability event in Stratford – January 2013. Source – Camden County

Haddon Heights Community Visioning Event

On March 9, 2013, a community visioning was held at the Haddon Heights Borough Hall. Attendees that represented a cross section of the community including residents, businesses, government representatives, civic groups and neighboring communities came together to discuss the future of Haddon Heights. Guided by facilitators from MaGa Sustainability, LLC, attendees were asked to explore both their preservation and transformation values while thinking critically about their need to establish a sustainable future. Based on these values, attendees then established both short and long term actions for residents, government and schools to implement. The information gained from this workshop will be used to help guide the next Haddon Heights Master Plan.

GLOSSARY OF TERMS (A-C)

Alternative Fuels — Alternative fuels are derived from resources other than petroleum. Some are produced domestically, reducing dependence on foreign oil, and some are derived from renewable sources. Often, they produce less pollution than gasoline or diesel.

Anthropogenic — Meaning “as a result of human activity”. When applied to climate change, the word is most commonly used when speaking about greenhouse gas emissions caused by human beings.

Appliance Energy Efficiency Ratings — The ratings under which specified appliances convert energy sources into useful energy, as determined by procedures established by the U.S. Department of Energy.

Biodegradable — A material or substance which, when left exposed to nature, will decompose without harmful effects to the environment.

Bio-diesel — Bio-diesel is an alternative fuel made from virgin vegetable oil or used vegetable oil. Even animal fats like beef tallow and fish oil can be used to make bio-diesel fuel. Bio-diesel may be blended with conventional diesel to get different blends such as B2 (2 percent bio-diesel and 98 percent conventional diesel) or B20 (20 percent bio-diesel) or it can be used as 100 percent bio-diesel (B100).

Biofuel — A fuel derived from some form of biomass. Examples of biofuels include ethanol, bio-diesel, biogas, vegetable oil, etc.

Bioretention — A stormwater management system which utilizes an excavated area filled with a mixture of soil, vegetation, and other organic matter. A bioretention system is designed to filter or evapotranspire stormwater. Examples of bioretention facilities include rain gardens and sidewalk planters.

British thermal unit — The quantity of heat required to raise the temperature of 1 pound of liquid water by 1 degree Fahrenheit at the temperature at which water has its greatest density (approximately 39 degrees Fahrenheit).

Brownfield — The U.S. Environmental Protection Agency’s (EPA) designation for existing facilities or sites that have been abandoned or underused because of real or perceived environmental contamination. The EPA sponsors an initiative to help mitigate these health risks and return the facility or land to renewed use.

Captured Rainwater — Rainwater harvested or collected through the use of specific building materials stored for future non-potable use such as showers and hand washing.

Carbon Dioxide — A colorless, odorless noncombustible gas with the formula CO₂ that is present in the atmosphere. It is formed by the combustion of carbon and carbon compounds (such as fossil fuels and biomass), by respiration, which is a slow combustion in animals and plants, and by the gradual oxidation of organic matter in the soil.

Carbon Footprint — The total amount of greenhouse gas (GHG) emissions released as a result of an activity, event, product, or operation. For example, if a coal-fired power plant releases 100,000 metric tons of carbon dioxide into the atmosphere, this level of emissions is said to be the plant’s “carbon footprint”. For simplicity of reporting, it is often expressed in terms of the amount of carbon dioxide, or its equivalent of other GHGs, emitted.

GLOSSARY OF TERMS (C-E)

Carbon Offset — A financial tool used to help reduce greenhouse gas (GHG) emissions. Typically, a single carbon offset represents a reduction of one (1) metric ton of carbon dioxide gas emissions. Carbon offsets can either be generated or purchased, with many companies often buying them to offset their carbon footprints.

Cistern — A large storage device designed to capture and store stormwater. Cisterns are typically installed underground or on rooftops, and can be integrated with building water systems to help reduce non-potable (greywater) water use.

Climate Change — A term referring to fluctuations in the Earth's natural processes over time. These fluctuations may be caused by natural or anthropogenic effects.

Compact Fluorescent Lamp (CFL) — Compact fluorescent lamps combine the energy efficiency of fluorescent lighting with the convenience and popularity of incandescent lamps. CFLs can replace incandescents that are roughly three-to-four times their wattage, saving up to 75 percent of the initial lighting energy. Although CFLs cost 3-10 times more than comparable incandescent bulbs, they last 6-15 times as long (6,000-15,000 hours).

CNG (Compressed Natural Gas) — Natural gas that is stored in a high-pressure container (usually at 3000 to 3600 psi). It is used mainly as an alternative fuel for internal combustion engines (such as automobile engines). It generates low hydrocarbon emissions.

Cooling degree-days (CDDs) — A measure of how warm a location is over a period of time relative to a base temperature, most commonly specified as 65 degrees Fahrenheit. The measure is computed for each day by subtracting the base temperature (65 degrees) from the average of the day's high and low temperatures, with negative values set equal to zero. Each day's cooling degree-days are summed to create a cooling degree-day measure for a specified reference period. Cooling degree-days are used in energy analysis as an indicator of air conditioning energy requirements or use.

Cool Roof — A term that refers to a building roof coated in a substance that reflects sunlight. The coating helps reflect solar radiation, hence cooling the interior temperature of the building and the exterior air surrounding the roof.

Conservation — The preservation of resources through efficient and careful use.

Constructed Wetlands — A man-made basin filled with water, a substrate (i.e. gravel, soil, rock), plants, and organisms similar to those found in natural wetlands. The wetlands are then used to maintain water quality by filtering runoff and utilizing a mostly impermeable subsurface layer to prevent water from seeping into the ground.

Construction Waste Management Plan (CWMP) — A plan that diverts construction debris from landfills through conscientious plans to recycle, salvage and reuse. For best results, this type of plan should also eliminate packaging of materials when possible and be carefully monitored or audited by the contractor.

Detention Basin — A holding area for runoff that allows stormwater to be held temporarily, and then discharged over an extended period of time (hours to days).

EV (All-Electric Vehicle) — A vehicle that is powered only by one or more electric motors. They receive electricity by plugging into the grid and store it in batteries. They consume no petroleum-based fuel while driving and produce no tailpipe emissions.

GLOSSARY OF TERMS (E-F)

Embodied Energy — All the energy used to grow, extract and manufacture a product including the amount of energy needed to transport it to the job site and complete the installation.

Emissions Inventory — A list of air pollutants emitted into a community's, state's, nation's, or the Earth's atmosphere in amounts per some unit time (e.g., day or year) by type of source. An emission inventory has both political and scientific applications.

Energy Audit — The process of determining energy consumption, by various techniques, of a building or facility.

Energy Efficient — Products and systems that use less energy to perform as well or better than standard products. While some have higher up-front costs, energy-efficient products cost less to operate over their lifetime.

Energy Intensity — A measure relating the output of an activity to the energy input to that activity. It is most commonly applied to the economy as a whole, where output is measured as the gross domestic product (GDP) and energy is measured in British Thermal Units (Btu) that allow for the summing of all energy forms. On an economy-wide level, it is reflective of both energy efficiency as well as the structure of the economy. Economies in the process of industrializing tend to have higher energy intensities than economies that are in their post-industrial phase. The term energy intensity can also be used on a smaller scale to relate, for example, the amount of energy consumed in buildings to the amount of residential or commercial floor space.

Energy Performance Ratings — You can use the energy performance ratings of windows, doors, and skylights to tell you their potential for gaining and losing heat, as well as transmitting sunlight into your home.

Energy Star™ Rating — The label given by the EPA and the U.S. Department of Energy (DOE) to appliances and products that exceed federal energy efficiency standards. This label helps consumers identify products that will save energy and money. ENERGY STAR™ -labeled appliances often exceed the efficiency levels of other new products.

Environmentally Friendly — A term that refers to the degree to which a product may harm the environment, including the biosphere, soil, water and air.

Environmentally Preferable Purchasing — The federal government requires the purchase of products or services that have the least negative effect on the environment and human health in consideration of the acquisition of raw materials, manufacturing methods, packaging, distribution, recyclability, operation, maintenance and final disposal.

Fossil Fuel — Any form of fuel formed by the natural decomposition of natural resources (animals, plant matter, etc.). When burned, these fuels release carbon dioxide into the Earth's atmosphere. Examples of fossil fuels include gasoline, diesel, coal, crude oil, and natural gas.

FSC Certification — An accreditation issued by the Forest Stewardship Council to certify that wood has been sustainably harvested. The Forest Stewardship Council is a non-profit organization that sets certain high standards to make sure that forestry is practiced in an environmentally responsible and socially beneficial manner.

GLOSSARY OF TERMS (G-H)

Fuel Cell — An electrochemical cell that is able to convert a chemical/fuel input into electrical current. This term most commonly refers to hydrogen fuel cells, which utilize hydrogen to generate power to propel fuel cell vehicles.

Global Warming — A term referring to a trend in increasing average surface temperatures on Earth since the late 19th century.

Greywater — Refers to wastewater coming from sinks, showers and laundry that can be collected and treated for some reuse, such as the flushing of toilets or watering of landscape. (See also Captured Rainwater).

Green — A term and color used to describe environmental or sustainable causes. Taking action which is consistent with sustainability goals is often referred to as “going green”.

Green Building — Also known as green construction or sustainable building, is the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building’s life-cycle: from siting to design, construction, operation, maintenance, renovation, and deconstruction.

Green Roof — A roof partially or fully covered with vegetation, which is planted on top of a waterproof membrane. Green roofs are designed to enhance stormwater management, greywater collection, energy efficiency and insulation, and roof temperature management for residential and commercial buildings. They are also known as “living roofs”, and exist in two types: extensive and intensive.

Greenhouse Effect — The process by which radiation leaving the Earth’s surface is absorbed by atmospheric (greenhouse) gases. This absorption in turn leads to increased surface heat retention.

Greenhouse Gas (GHG) — Gases emitted in the atmosphere that absorb radiation, or prevent radiation from being reflected from the Earth’s surface into space. Examples of GHGs include methane, ozone, nitrous oxide, carbon dioxide, and chlorofluorocarbons (CFCs).

Scope 1 GHG Emissions: Direct GHG emissions from sources that are owned or controlled by the reporting entity. This can include emissions from fossil fuels burned on site, emissions from agency-owned or agency-leased vehicles, and other direct sources.

Scope 2 GHG Emissions: Indirect GHG emissions resulting from the generation of electricity, heat, or steam generated off site but purchased by the reporting agency.

Scope 3 GHG Emissions: Indirect GHG emissions from sources not owned or directly controlled by the reporting agency but related to the agency’s activities such as vendor supply chains, delivery services, outsourced activities, and employee travel and commuting.

Groundwater — Water stored below the Earth’s surface. Groundwater is typically found in soil pores, aquifers, and rocks.

Hazardous Waste — Byproducts of society with physical, chemical or infectious characteristics that pose hazards to the environment and human health when improperly handled.

GLOSSARY OF TERMS (H-P)

High Performance Green Building — These buildings include design features that conserve water and energy; use space, materials and resources efficiently; minimize construction waste; and create healthy indoor environments.

Hybrid Vehicle — A vehicle that is powered by two or more sources. The term most commonly refers to Hybrid Electric Vehicles (HEVs), which are powered jointly by a conventional internal combustion engine and one or more electric motors.

Impervious Surface — Any surface that cannot be penetrated by water. These are primarily artificial surfaces such as pavements and sidewalks, though compacted soils as a result of development are also highly impervious.

Incandescent Lamps — Incandescent lamps operate without a ballast. They light up instantly, providing a warm light and excellent color rendition. You can also dim them. Light is emitted when electricity flows through-and heats-a tungsten filament. However, incandescent lamps have a low efficacy compared to other lighting options (10-17 lumens per Watt) and a short average operating life (750-2500 hours). Incandescent lamps are the least expensive to buy, but because of their relative inefficiency and short life spans, they usually are more expensive to operate.

Infiltration Basin — A shallow rock-filled trench with no outlet intended to detain and infiltrate stormwater into the underlying soil. Typically, stormwater passes through a swale or other control mechanism before flowing into this basin.

LEED — The Leadership in Energy and Environmental Design (LEED) is a building rating system created by the United States Green Building Council. It sets industry standards for green building design.

Low Emitting and Fuel Efficient Vehicle — Any vehicle that has either been classified as a Zero Emission Vehicle by the California Air Resources Board or has achieved a minimum green score of 40 on the American Council for an Energy Efficient Economy (ACEEE) annual vehicle rating guide.

Non-Renewable Resource — A natural resource that cannot be re-grown, produced, or regenerated on a scale to sustain its consumption rate. Commonly known non-renewable resources include oil, natural gas, and nuclear energy.

Organic (compound) — Any compound that contains carbon (i.e. CO₂).

Organic (food) — Foods made in a way that excludes any synthetic materials from the growing/production process.

Organic (matter) — Matter that has come from any living or once-living organism.

Ozone Layer — Defined by the EPA as the protective layer of atmosphere, 15 miles above the ground, which absorbs some of the sun's ultraviolet rays, reducing the amount of potentially harmful radiation reaching the Earth's surface. Ozone depletion is caused by the breakdown of certain chlorine- and/or bromine-containing compounds such as CFCs or halons.

GLOSSARY OF TERMS (P-R)

Pervious Paving — The practice of installing permeable pavement to allow for the filtration and distribution of stormwater into soils below. Examples of pervious paving materials include porous asphalt and permeable concrete.

Pollution — The introduction of contaminants into an environment which causes harm or other adverse effects.

Post-Consumer — A material or finished product that served its intended use as a consumer item. It may be recycled and incorporated into building materials and identified as containing post-consumer recycled content or recovered material.

Post-Industrial or Pre-Consumer — This refers to waste produced during the manufacturing process of virgin material and rerouted from one step in the process to the next. This does not refer to recycled material.

Power Purchase Agreement (PPA) — A legal contract between an energy producer and an energy consumer where the consumer purchases power generated by the producer for a contracted price. This is usually applied to independent power companies (such as solar or wind companies) as opposed to large utility firms.

RECs (Renewable Energy Certificates or Credits) — Also known as green tags, green energy certificates, or tradable renewable certificates, RECs represent the technology and environmental attributes of electricity generated from renewable sources. Renewable energy certificates are usually sold in 1 megawatt-hour (MWh) units. A certificate can be sold separately from the MWh of generic electricity it is associated with. This flexibility enables customers to offset a percentage of their annual electricity use with certificates generated elsewhere.

Rainwater Harvesting — Rainwater harvesting is an ancient practice of catching and holding rain for later use. In a rainwater harvesting system, rain is gathered from a building rooftop or other source and is held in large containers for future use, such as watering gardens or washing cars. This practice reduces the demand on water resources and is excellent during times of drought.

Rapidly Renewable — Materials that are not depleted when used, but are typically harvested from fast growing sources and do not require unnecessary chemical support. Examples include bamboo, flax, wheat, wool and certain types of wood.

Recyclability — The ability of a product or material to be recovered or otherwise diverted from the solid waste stream for the purpose of recycling.

Recycled/Recovered Materials — Waste materials and by-products that have been recovered or diverted from solid waste but do not include those materials and by-products generated from and commonly reused within an original manufacturing process.

Recycling — A series of activities including collection, separation and processing by which products or materials are recovered from the solid waste stream for use in the form of raw materials in the manufacture of new products other than fuel for producing heat or power by combustion.

Renewable energy — Energy which comes from natural resources such as sunlight, wind, rain, tides, and geothermal heat, which are renewable (naturally replenished).

GLOSSARY OF TERMS (R-U)

Renewable Resource — A resource that is replaced by natural processes at a rate that is similar to or faster than the rate of consumption by humans. Examples of renewable energy include solar radiation, wind, water flow, and biomass (when managed properly).

Retention Basin — Also known as a wet pond. An impoundment designed to maintain a permanent pool of stormwater between precipitation events. A retention basin is different from a detention basin in that it always maintains a pool of water.

Retrofitting — The process of applying new or updated technologies to older, possibly out-of-date systems.

Smart Growth — “Smart growth” covers a range of development and conservation strategies that help protect our natural environment and make our communities more attractive, economically stronger and more socially diverse. Based on the experience of communities around the nation that have used smart growth approaches to create and maintain great neighborhoods, the Smart Growth Network developed a set of 10 basic principles:

- Mix land uses
- Take advantage of compact building design
- Create a range of housing opportunities and choices
- Create walkable neighborhoods
- Foster distinctive, attractive communities with a strong sense of place
- Preserve open space, farmland, natural beauty and critical environmental areas
- Strengthen and direct development towards existing communities
- Provide a variety of transportation choices
- Make development decisions predictable, fair and cost-effective
- Encourage community and stakeholder collaboration in development decisions.

Stormwater — Any water runoff attributable to an event of precipitation (rain) or snow melt.

Stormwater Treatment Train — A collection of linked stormwater management systems designed to maximize effectiveness and best management practices.

Surface Runoff — Excess water flow that cannot be absorbed as a result of soil saturation or impervious surfaces.

Sustainability — A term that refers to a pattern of resource use targeted at meeting human needs while preserving the integrity, health, and condition of the environment.

Swale — A channel lined with vegetation that utilizes plant life to filter stormwater while transporting it to a retention or detention facility, or allowing it to infiltrate the soil naturally.

GLOSSARY OF TERMS (V-W)

Transpiration — The loss of water vapor from plants. This process is similar to evaporation, but only pertains to water vapor leaving a plant.

Underground Infiltration — A term used to describe various methods and practices for locating materials (pipes, PVC, concrete) under parking lots and streets that temporarily store and filter stormwater.

Volatile Organic Compound (VOC) — These substances are indoor air pollutants or chemical compounds that exist as vapor or gases at normal temperatures and are carbon-based molecules typically used as solvents in products such as household cleaners, paints, inks and dyes. Sources of VOCs include formaldehyde (a suspected carcinogen), xylene, toluene, benzene (a known carcinogen) and acetone.

Waste Reduction — This is a process to reduce or eliminate the amount of waste generated at its source or to reduce the amount of toxicity from waste or the reuse of materials. The best way to reduce waste is not to create it in the first place.

Waste Stream — The total flow of solid waste from homes, businesses, institutions and manufacturing that is recycled, burned or disposed of in landfills.

Wastewater — Water that has been used and contaminated. Wastewater must be purified before being used again or before being returned to the environment.

Watershed — An area of land where all water under it or draining from it runs to the same location. For example, all water in the Delaware Valley Watershed drains into the Delaware River.

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- VIII. Page 76** - <http://www.anjec.org/WhatECsDo.htm>

ADDITIONAL RESOURCES

- Camden County – www.camdencounty.com
- NJ Board of Public Utilities – <http://www.state.nj.us/bpu/>
- NJ Department of Environmental Protection – www.njdep.org
- US Department of Energy – <http://energy.gov/>
- US EPA – <http://www.epa.gov/>
- Camden County Municipal Utilities Authority – www.ccmua.org
- Camden SMART Team – www.camdensmart.com
- Delaware Valley Regional Planning Commission – www.dvrpc.org
- Sustainable Jersey – www.sustainablejersey.com
- United Nation's Brundtland Commission Report – <http://www.un-documents.net/ocf-ov.htm>
- US Green Building Council – www.usgbc.org
- EPA Water Sense Program – <http://www.epa.gov/watersense/>
- Rutgers Water Research Resources Institute – http://njwrri.rutgers.edu/watershed_orgs.htm
- EPA Energy Star – www.energystar.gov
- National Renewable Energy Laboratory – <http://www.nrel.gov>
- New Jersey Clean Energy Program – www.njcleanenergy.com
- Cross County Connection – <http://www.driveless.com/>
- NJ Clean Cities Coalition – <http://njcleancities.org/>
- NJ Tree Foundation – <http://njtreefoundation.org/>
- Jersey Fresh – www.jerseyfresh.nj.gov/
- EcoLogo – <http://www.environmentalchoice.com/en/>
- Green Seal – <http://www.green seal.org/>

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

(Brundtland Commission, United Nations, 1987)



Scan with your mobile device to visit:
Sustainable.CamdenCounty.com