

SECTION XVI

Environmental Sustainability Plan Element



City of Millville | County of Cumberland

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INTRODUCTION

The Environmental Sustainability Element represents renewed social concerns about the effects of civilization on the natural resources and systems of the earth. This element was recently added as a separate optional document in municipal master plans, but may also be viewed as an expansion of the ideas and concepts contained within the Conservation Element and its emphasis on the preservation of natural systems. Whereas the Conservation Element identifies strategies for preserving Millville's environmental assets, the Sustainability Element adopts a comprehensive approach of promoting conservation that extends from educational campaigns aimed at citizens to retooling economic development strategies and encouraging high performance "green" development.

GOALS

There is a broad debate around the definition of sustainable and sustainability, and whether a modern city can truly be sustainable. This Element uses a broad definition established by the World Commission on Environment and Development's 1987 Brundtland Report, which states that sustainable "meets the needs of the present without compromising the ability of the future generations to meet their own needs."

The Sustainability Element presents strategies, policies, and sample implementation tools that will aid the City in becoming more sustainable. The recommendations present a multi-pronged approach for the City that, depending on interest and resources, involves being a regulator, an environmental steward, or a program developer. Through pursuing the strategies outlined within the Element, the municipality will be able to strike a balance between furthering the sustainability of the City while advancing its economic development agenda.

The following are the goals of the Environmental Sustainability Element:

1. Put Millville on the map as a Green City.
2. Lead the way by example.
3. Green the City's Land Use Policy.
4. Promote Energy and Water Conservation.
5. Promote Recycling.
6. Ensure Open Space and Natural Habitat Preservation.
7. Growing the Green Economy.
8. Living Green for Residents.
9. Learning to be green for Students.

GO GREEN ACTION PLAN

In order to make Millville more sustainable, it is critical that the City strive to balance the often competing demands of its economy, the needs of its residents and business owners and the natural environment. The policies presented below highlight recommendations that the City of Millville can adopt to encourage sustainability at the local level. This is the framework to propel Millville into a new era by providing the tools for the City to Go Green. Once achieved, Millville will stand apart from its neighbor towns and be reinvented as a prominent leader in the State of New Jersey as a Green City.

1

Put Millville On The Map As A Green City

The first foot forward towards Environmental Sustainability is to identify the City of Millville as a Green City. It is imperative that Millville team with local community partners, participate in state programs and join national organizations in its vision to Go Green. The following is a list of first steps in designating the City of Millville as a Green City.



✓ Create a Go Green Movement with Community Partners

The vision to Go Green is achievable when the City, business owners, residents, non-profits, and Cumberland County are all working to achieve the same goal. Fostering the development of relationships with various agencies and partners will facilitate the momentum of the Go Green Movement.

It is important that the City of Millville synchronize the vision of going Green with the Millville Planning Board, Millville Shade Tree Commission and the Millville Neighborhood Council. Having a unified vision will help to develop strategic alliances with community leaders, groups and non-profit organizations alike. Millville can extend this vision by seeking support from Cumberland County agencies such as the Cumberland County Improvement Authority (CCIA) and the Cumberland County Community College.

✓ Join the Mayors' Committee for a Green Future

The Mayors' Committee for a Green Future (MCGF) is a committee of the New Jersey League of Municipalities with a mission to "Make New Jersey green, one municipality at a time." This mission is carried out through local action on the environment in the areas of water, air, transportation, toxics, energy consumption, waste, land use, conservation and health. Membership in the MCGF provides tools for the identification of measurable actions and provides guidance to enable communities to make progress towards sustainability. Member municipalities have access to specific

program tools such as “Sustainable Jersey” which provides direction and resources for municipalities to institute programs that address sustainability and green communities. This program also provides incentives for municipalities that are making progress toward the actions, including a sustainable community certification and awards program.

Continue in the Tree City USA Program

The Tree City USA® program, sponsored by the Arbor Day Foundation in cooperation with the USDA Forest Service and the National Association of State Foresters, provides direction, technical assistance, public attention, and national recognition for urban and community forestry programs for towns and cities. Millville has been a Tree City for 12 years. Its membership in this program provides Millville with opportunities for educating the public, providing publicity events, creating citizen pride and providing opportunities for funding. Through the City’s continued participation in the program, Millville will receive annual, systemic management of tree resources, which will assist Millville in implementing its tree management plan.

To qualify for Tree City USA, a town or city must meet four standards established by The Arbor Day Foundation and the National Association of State Foresters.

- A Tree Board or Department
- A Tree Care Ordinance
- A Community Forestry Program with an annual budget of \$2 per capita
- An Arbor Day Observance and Proclamation program



Cool Series, Sierra Club
<http://coolcities.us>

Consider the Cool Cities Initiative

Millville, with guidance from the Shade Tree Commission, can make a commitment to stopping global warming by signing the U.S. Mayors’ Climate Protection Agreement. The City has taken the first step by joining the Cool Cities Campaign in 2008. Cool Cities empowers city residents and local leaders to implement smart energy solutions to save money and build a cleaner, safer future, such as tree planting to reduce heat island effects. Millville will be guided by a detailed toolkit, have access to resources and have the support of their peers across the country as well as an expert team.



Participate in NJ Clean Energy Programs



NJCEP
<http://www.njcleanenergy.com>

The New Jersey Clean Energy Program promotes increased efficiency and the use of clean, renewable sources of energy including solar, wind, geothermal, and sustainable biomass. The results for New Jersey should be 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.

Millville can take advantage of current and future programs to help offset costs and increase funding for municipal programs. Currently, municipalities and local government officials can take a leadership role by participating in the “Local Government Energy Audit Program” offered as part of New Jersey’s Clean Energy Program to review the energy consumption of city operated facilities. The program helps to identify cost-justified energy efficiency measures and provides a subsidy for the cost of the audit, up to 100%.

2

LEAD THE WAY

The City of Millville has the opportunity lead the way on sustainable practices by being a positive example in greening its community facilities. A sizeable landholder and employer, the City of Millville is responsible for many government functions and services. The local government’s role is quite visible, as residents of Millville rely on the City funded amenities on a regular basis. This places the city government in a unique position to lead the greening of Millville by using new practices in the implementation of capital improvements for city streets, pedestrian ways, infrastructure, downtown revitalization, existing city buildings and parks, and operational procedures.



Adopt LEED as City Building standard

A commitment to greening existing community buildings and requiring new or renovated municipally funded buildings to meet LEED certification standards would help to establish Millville as a leader in the community and throughout the state.



The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ http://news.cnet.com/i/ne/p/2008/LEED_550x550.jpg

Leadership in Energy and Environmental Design (LEED) was created by the U.S. Green Buildings Council (USGBC), a non-profit organization created in 1993, by people and organizations with an interest in building efficiency. LEED is a third-party certification program and a nationally accepted benchmark for the design, construction and operation of high performance green buildings. LEED certification provides tools to measure building performance and provides 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. By adopting LEED certification as its own standard, other builders will be encouraged to follow.

Green operations

A commitment to greening the construction of city buildings must also include a commitment to keeping it green. The City of Millville would benefit from assessing its operational practices to determine how Millville could reduce its environmental impact. A comprehensive evaluation of the city-wide operations would aid Millville in identifying areas that could be improved, such as office recycling procedure, purchasing practices and vendor selection. The evaluation would enable the City to green not only the built environment, but any operational functions that waste energy and resources. This evaluation should also include review of building maintenance programs. The city can improve its indoor air quality by purchasing green cleaning products for all city operated buildings. Addressing any shortfalls can significantly reduce the city’s carbon footprint and energy expenditures.

Green Fleet

The City may want to consider greening its municipal fleet of vehicles as a way to reduce its environmental impact, save money on fuel costs, and to serve as a leader in the sustainability movement. The City of Millville can adopt a City Fleet Management Plan with several initiatives listed below.



- Reduce the current fleet with the utilization of bike patrols for police and neighborhood code enforcement.
- Develop a plan to implement the availability of alternative fuels such as bio-diesel at all gas stations. Bio-diesel should be purchased from refineries offering an ultra low sulfur blend which complies with EPA standards.
- Introduce alternative fuel vehicles such as bio-diesel, compressed natural gas (CNG) and hybrids to the city fleet. The use of hybrid vehicles can achieve up to twice the fuel economy of a conventional car and reduce greenhouse gas emissions by 30% to 50%.
- Use alternative fuel vehicles for all off-road vehicles. All riding lawn mowers could be run on bio-diesel and ultra-low (ULS) diesel fuel. Push power mowers should have 4-cycle rather than 2-cycle engines which burn much cleaner.

The Denver Post
http://extras.mnginteractive.com/live/media/site36/2007/1215/20071215_20071216_C02_CD16HYBRID~p1_200.JPG

- The use of vehicles with low fuel efficiency should be weeded from city use in all non-emergency applications. Establish a policy that the smallest, most fuel efficient vehicles that meet City needs be purchased.
- Replace any parking enforcement vehicles with electric vehicles that which use no liquid fuel.
- Encourage city employees who car-pool to work or use personal alternative fueled vehicles to have reserved parking close to building entrances.
- Provide reduced cost or even free van pooling services for city employees to commute to and from work within the city boundaries.

 Green Open Spaces and Recreational Amenities



Highpoint, West Seattle
http://upload.wikimedia.org/wikipedia/commons/8/81/High_Point_community_garden.jpg



Philadelphia Farmers Market
<http://blog.americanfeast.com/images/Farmers%20Market%202.jpg>

The 2005 adopted Recreation Plan Element outlines policy recommendations that increase access to passive and active recreation spaces and advance sustainable development practices. The proposed strategies incorporate smart growth principles, which are synonymous with green community planning. For example, the Recreation Plan recommends that the City establish accessible open spaces for large scale projects, create pocket parks in dense urban areas, and emphasize pedestrian connections to the waterfront. An implementation strategy for these initiatives is now necessary.

In addition to creating new open spaces and recreational amenities, it is recommended that the City consider greening its existing recreational amenities, such as softball, baseball and soccer fields. Strategies for greening recreational facilities could include planting of native and adaptive species in non-playing field areas, automated lighting fixtures, increased availability of recycling containers and using pervious or porous surfaces for parking.

Additionally, it is recommended that the City consider creating community gardens in the central city area. Community gardens provide residents with access to

garden plots for personal gardening and plots for affordable, locally grown fruits and vegetables which use a minimum amount of energy for transportation to markets. Allowing developers to meet a portion of their open space requirements with the creation of a community garden not only produces a balance in the types of recreational amenities offered, but also increases residents’ access to healthy, nutritious foods.

The concept of a community garden could further be expanded to include the City’s farmers’ market, where local farmers sell their affordable fresh produce to people in Millville. In this instance, the concept of the farmers’ market could be expanded to also include stands for excess produce from community gardens. This would give additional impetus to the further development of the market.

✓ Extension of Bike Trails

The City of Millville is heavily dependent on the automobile like many other municipalities in the state. By establishing a bicycle path network that expands on existing trails, the City would not only enhance the recreation amenities available to residents, but would also promote an alternative form of transportation that is sustainable.

It is recommended that the City of Millville expand its existing bike networks to create connectivity with high volume nodes. This will provide residents with opportunities to bike to jobs, stores, and needed services. Additionally, the City of Millville could further promote bicycle use by providing bike storage racks in public areas and require them on industrial and commercial sites.



<http://home.comcast.net/~bennett12/jenlibrary.jpg>

✓ Promote Pedestrian Access

Millville can improve upon pedestrian access in the City through amending its Land Use and Development Regulations Ordinance. The following is a list of proposed strategies for creating a more walkable Millville:

- Require non-residential and mixed use development to include continuous sidewalks or other pedestrian pathways along both sides of all streets within the project.

² - N.J.A.C. 5:21 *et seq.*, Table 4.3

- Encourage residential developers to utilize the “neighborhood street” cross-section with sidewalk on both sides of the cartway in the Residential Site Improvement Standards .
- Require that all off street parking facilities be located at the side or the rear of the building, so that building frontages and streetscapes are free of parking. This creates more attractive pathways that are visually stimulating to pedestrians. Through creating a more aesthetically pleasing environment, individuals would be more willing to walk.
- Develop pedestrian safety initiatives such as pedestrian countdown timers, pedestrian-actuated overhead flashing lights, “LOOK” crosswalk pavement markings and raised crosswalks.

✓ Revitalization of the Downtown

The downtown business district provides a traditional form of development for the City of Millville. Featuring mixed use structures with ground floor retail, both High Street and Main Street attract substantial foot traffic. A high density residential neighborhood abuts the traditional main street and serves as a potential market for downtown commercial enterprises. While the business district experienced disinvestment, the City administration renewed its commitment to the idea of a thriving downtown, establishing numerous initiatives aimed at revitalizing the downtown core. These programs included the development of the Glasstown Arts District, the creation of the revenue allocation district to fund needed infrastructure improvements, and local redevelopment efforts spearheaded by the City’s staff.



Glasstown Arts District, Millville, NJ

The administration’s continued emphasis on the revitalization of the downtown business district is an integral component of greening the city’s local economy as it results in a significantly smaller development footprint and reduced energy consumption. Millville’s promotion of adaptive reuse of existing structures in the City’s core provides a sustainable alternative to the construction of auto-dependent commercial uses strung along highway corridors. Adaptive reuse limits the disturbance to existing wildlife habitats and critical environmental resources, such as high aquifer recharge areas. The site disturbance associated with adaptive reuse is minimal compared to new construction on “greenfield” sites, which often requires costly infrastructure extensions such as the expansion of sewer and water lines and the addition of new roads. In addition, new construction often relies on virgin building materials that have a high amount of “embodied” energy, the energy associated with the production and transportation of the materials. In contrast, the reuse of an existing structure limits the need for new building materials, which reduces the project’s need for energy in the supply of the materials from producer to the site.

The Master Plan’s intent for land use is to create “village nodes” of concentrated development in three areas, thereby lessening the demand for more sprawling development along county and state highways. Moreover, unlike sprawl development, the downtown business district is centrally located and is easily accessible via foot or bike. Consumers, owners, and employees of downtown businesses can have shorter commutes, and are able to use alternative methods of transportation, which reduces other ecological effects that come from business as usual practices.

3

GREEN LAND USE POLICY

In contrast to adjacent municipalities, the City of Millville is known for its rich tradition of compact development. Millville has a dense downtown based on a gridded street system that features a mixed use commercial core and adjacent residential neighborhoods. The downtown adheres to smart growth principles as it provides multiple access points, and is known for its well maintained sidewalks and pedestrian friendly curb appeal. A continuation of this pattern will provide both local and regional benefits. Further actions can be taken towards a sustainable city by amending current land use policy.

✔ Excellence in Green Development

Environmental sensitivity and sustainability is paramount for all new development proposed. The City can take measures to encourage green development such as creating an Excellence in Green Design program for local developers and property owners. Additional standards and incentives can be implemented to encourage compact and sustainable development:

- Encourage multi-story mixed use development by concentrating development in the downtown and riverfront sections of the City. The City may adopt a plan as outlined in the “Glasstown River Renaissance” report by EDSA in 2006.
- Ban or limit toxic and environmental hazardous building materials for development projects to the degree permitted by the Uniform Construction Code.
- Require green space and usable open space as part of subdivisions.
- Require bike and walking trails as part of subdivisions.
- Implement the Village Node concept that is detailed in the 2005 Master Plan. The Village Node approach adopts a neo-traditional form of development to promote walkability and reduces the amount of automobile travel within the development.
- Identify infill development and redevelopment areas which take advantage of existing infrastructure and if used with the remediation of brownfield sites, also reduces the discharge of toxic materials into the environment.
- Examine “greyfield” properties, obsolete commercial (typically retail centers), within the City’s boundaries that can be transformed into mixed use development.

 Encourage Green Building

Green buildings, also known as high performance buildings, reduce energy consumption, waste creation, operating and maintenance costs, and improve the indoor air quality of buildings. Initially, using recycled building materials, increasing thermal efficiency, designing highly efficient mechanical systems added substantial cost to new construction, from \$20-\$40 per square foot. As more suppliers are providing greener materials and architects and engineers think more holistically about the design process, these costs have dropped significantly, with additional costs lowering to 2% - 10%, or approximately \$2-\$16 per square foot depending on the level of building “greening” desired. Though the original cost is somewhat higher, the operation and maintenance benefits over the lifetime of the building related to energy, emissions and wastewater are approximately four times the cost to make the building more efficient.

The City of Millville cannot require new construction to meet green building standards, as building codes are governed by New Jersey’s Building Code. However, the

City can offer incentives to projects that meet specified green building standards, such as LEED certification. Incentives could include density increases, reduced hookup fees and other cost reductions. Additionally, projects submitted with a LEED certification goal could receive priority site plan review and/or be prioritized for financial aid from City resources.

The City will also incorporate green building techniques, design principles and materials into any new building construction. Energy efficient equipment will also be used when replacing equipment or building new facilities. To the maximum extent possible, the City will also purchase equipment and materials made of recycled products and encourage the use of renewable energy.

 **Revise Parking Standards**

A Parking Plan should have governing objectives of reducing the consumption of fossil fuel and improving air quality. The City’s parking standards should be reviewed with this in mind and an overall plan should be developed and ultimately implemented. Reductions of up to one-third of parking in the suburban parts of the City and up to two-thirds could be contemplated by implementing the commuter trip reduction noted in the section on potential City efforts in reducing its own carbon footprint. Straightforward solutions can be evaluated to permit overall reduction in parking requirements when the developer/business owner provides designated car pool spaces, carpooling services and complementary land uses in mixed buildings.



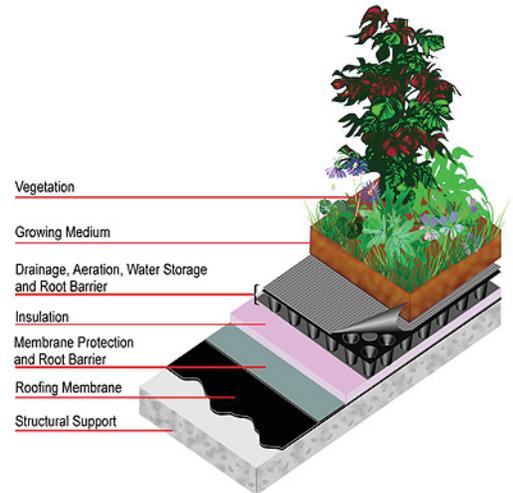
Lake Catemaco, www.delange.org/Catemaco/DSC00297.jpg

Furthermore, the City may want to consider incentives to the community for the personal use of fuel efficient vehicles. The city can adopt a Free Parking for Green Vehicles program. Millville can grant free metered parking to vehicles which may be powered solely by an alternative fuel (propane, compressed natural gas, or electricity) or that are top performers in regards to city fuel economy or emissions according to the Department of Energy’s Fuel Economy Guide of vehicle testing done at the Environmental Protection Agency’s National Vehicle and Fuel Emissions Laboratory.

³ - Kats, Gregory. October 2006. “Greening America’s Schools: Costs and Benefits.”

✔ Limit Impervious Coverage

The City of Millville has worked diligently to limit the amount of impervious coverage allowed in both residential and non-residential developments. However, Millville can propose more stringent guidelines aimed at decreasing the amount of impervious cover and reducing the urban heat island effect, which occurs when warmer temperatures are experienced in urban areas as compared to nearby rural ones. This is an effect where solar energy is retained by constructed surfaces, such as roofs and surface parking lots. In order to limit the urban heat island effect and encourage a reduction of impervious surfaces, it is recommended that Millville consider the following amendments to its Land Use and Development Regulations Ordinance:



<http://sitemaker.umich.edu/section-9group1/files/greenroof1.jpg>

- Allow green roofs, pervious pavers or materials and new technologies to count towards impervious coverage;
- Prohibit the use of more than 40% of the total development footprint area in suburban parts of the city and 20% in the central city for surface parking facilities;
- Require that a minimum of 50% of impervious materials not including the building (e.g., driveways, sidewalks, courtyards, parking lots) be covered in shade within five years of occupancy;
- Require the use of paving materials with a solar reflectivity index of at least 29 or the use of an open grid pavement system;
- Provide incentives for the installation of a vegetated roof that comprises a minimum of 50% of the roof area;
- Require the use of roofing materials with a solar reflectivity index equal to or greater than 78 for low sloped roofs or greater than or equal to 29 for steep sloped roofs.

✔ Light Pollution Reduction

Studies show that light pollution alters natural nocturnal rhythms that change necessary predator and prey relationships, cause confusion in land animals and disorient

migrating birds. Additionally, light pollution unnecessarily consumes energy that is wasted on light that is emitted skyward.

It is recommended that the City of Millville amend its Land Use and Development Regulations Ordinance to minimize light pollution. If this change moves forward, a balance will need to be struck between environmentally sensitive lighting and lighting design that meets the visibility and safety needs of the residents and visitors of Millville. Suggested amendments to the Ordinance include the following:

- Designing exterior lighting in residential areas so that all site and building mounted lights produce a maximum initial luminance value no greater than 0.10 horizontal and vertical footcandles at the site boundary and no greater than 0.01 horizontal footcandles 10 feet beyond the site boundary.
- Designing exterior lighting in commercial/industrial or high density residential areas so that all site and building mounted lights produce a maximum initial luminance value no greater than 0.20 horizontal and vertical footcandles at the site boundary and no greater than 0.01 horizontal footcandles 15 feet beyond the site.



New Jersey Housing and Mortgage Finance Agency (HMFA)
<http://www.nj.gov/dca/hmfa/>

- Design exterior lighting for parks and rural settings so that all site and building mounted lights produce a maximum initial luminance value no greater than 0.01 horizontal and vertical foot candles at the site boundary and beyond.

 **Green Affordable Housing**

The New Jersey Housing and Mortgage Finance Agency (NJHMFA) has developed green guidelines for affordable housing. The City can require compliance with NJHMFA's Green Future Guidelines for affordable housing construction and city sponsored housing projects.

The NJHMFA Green Future program was developed as a point option within the LI-HTC Qualified Allocation Plan. Green Future consists of a list of basic green building items that were selected for their minimal impact on project cost if designed in from the beginning, importance as a policy decision, and for maximum impact. These basic green building items cover energy efficiency, renewable resources, siting & land use, water conservation, building durability, indoor air quality, and operations & maintenance. Installing a renewable energy system for the common areas of affordable housing developments again reduces operation costs and leads to maintaining affordable rents for the tenants. Beyond energy savings and generation, the Green

Future program works to create pleasant and healthy interiors for the residents.

LEED certification is also available to projects for developers that would like to earn the name recognition associated with the U.S. Green Building Council. In the future, LEED certification may become a criterion for other funding sources.

4

ENERGY AND WATER CONSERVATION

Planning and development regulations are key elements in enabling energy conservation, as the man-made building environment is one of the largest consumers of energy. According to the U.S. Department of Energy, 37% of energy and 68% of electricity produced annually in the United States is consumed by buildings. Moreover sprawling development patterns have dramatically increased fuel consumption for automobiles. According to the Federal Bureau of Transportation Statistics, vehicle use in America has nearly tripled between 1970 and 2002, from 1 to 2.85 trillion miles per year, with a reduction only occurring this year from its continuous upward trend.

The reduction of energy consumption is interwoven in many of the strategies and recommendations throughout this element. However, the following objectives are strategically targeted to reduce energy consumption through fostering alternative energy sources and encouraging water conservation strategies.

Promote Alternative Energy

Energy prices are likely, over the longer term, to continue to rise relative to incomes and revenues.

This increasing cost will provide the incentive for individuals, businesses, and institutions to investigate alternative power sources, like wind, solar, and geothermal. Still in the pilot program stage, utilizing tides to power electrical generation is a longer term prospect that could have future applicability for Millville. While alternative sources of energy currently comprise only a small portion of the total energy market, the City of Millville can proactively plan for these new power sources while simultaneously facilitating their growth. Millville can create conditions that are amenable to the emergence of wind and solar power within its boundaries by removing any unnecessary restrictions in its Land Use and Development Regulations Ordinance and specifically delineating a developer's right to install alternative sources of power. In order to foster alternative energy, it is recommended that Millville take the following actions:



<http://www.ibabuzz.com/education/wp-content/uploads/2008/04/greenjobs2.jpg>

- Partner with local power supply companies to create a program to purchase green power for all City operated buildings and property. The City may investigate additional program offerings such as solar programs for municipal/not-for-profits where funding is made available for the purchase and installation of solar panels.
- Amend the accessory use regulations to explicitly allow solar arrays and small wind turbines, which are defined as wind powered electric systems sized for homes, farms and small businesses that do not exceed 100 kilowatts in capacity. In particular, ensure that height and design standards do not unintentionally restrict the use of solar arrays and small wind turbines.
- Create optimum conditions for passive and active solar strategies through solar orientation. The ordinance could be amended to require that new development be designed to orient 75% or more of the subdivision's blocks within 15 degrees of an east/west line, with the long axis of the block in this configuration.
- Adopt a solar access protection ordinance that establishes solar access as a development right. The solar access protection ordinance would establish protections for a property owner's potential use of solar power.
- Expand the definition of "essential services" to include alternative forms of energy.

 **Conserve Water**

Using large volumes of fresh water increases maintenance and lifecycle costs for building and city operations. Water conservation strategies such as biological waste water treatment, rainwater harvesting and gray water plumbing systems often involve substantial investments and may be investigated further for feasibility. However, some water conservation strategies involve no additional or minimal costs.

For example, citywide landscaping plant material should be native or adaptive plants to reduce or eliminate irrigation requirements. Where irrigation is required, the use of high-efficiency drip equipment and/or climate based controls could be instituted. Landscaping should be designed with climate-tolerant plants that can survive on natural rainfall quantities. The land can be contoured to direct rainwater runoff through the landscape area to give vegetation an additional water supply.

As old building systems and plumbing fixtures are replaced, the City will benefit through the Uniform Construction Code from replaced water-conserving fixtures or non-potable water fixtures. Dry fixtures such as composting toilet systems and non-water using urinals can reduce waste water volumes. Consider reusing storm water or gray water for sewage conveyance or on-site wastewater treatment systems.

✓ Wastewater Collection and Treatment

The City encourages all development applications to utilize best practices in storm water management. There are some nontraditional or nonstructural techniques that could be incorporated into City-sponsored or financed projects, including rain gardens and vegetative swales.

5 RECYCLING

The promotion of recycling is a critical element of greening the City of Millville, as it addresses natural resource consumption, energy use, and the integrity of the City's natural assets. Recycling limits the population's strain on natural resources. For example, the re-use of existing materials reduces the demand for virgin resources while simultaneously diverting waste from landfills. Through reducing the use of existing landfills, and recycling

limits the need for new landfill space.



Rose-Hulman Institute of Technology
<http://www.rose-hulman.edu/news/images/07Recycling.jpg>

While the benefits of recycling are numerous, waste that could be recycled continues to reach landfills. For example, the average New Jersey household creates 6.4 pounds of garbage each day. Additionally, the US EPA estimates that construction and demolition activities generate approximately 136 million tons of waste in the United States each year. Although the City of Millville has an existing recycling program, it is recommended that the City expand its recycling program to include community recycling facilities that allows recycling for an expanded amount of products, such as plastics #3, #4, #5, #6. Additionally, Millville may want to consider negotiating with its waste provider to move

to single stream recycling, which allows residential households to combine their paper, glass, aluminum, and plastic recyclables into one recycling container. This single stream method typically results in higher recycling rates. Additional recycling measures the city may want to consider are:

- Utilize recycle containers for public events.
- Place recycling containers in all public areas, parks and public properties.

⁴ - Avery, Brett. New Jersey Monthly. December 20, 2007. www.njmonthly.com (Accessed August 6, 2008).

- Require recycling of construction materials through CCIA credits for all city sponsored projects

6 OPEN SPACE AND NATURAL HABITAT PRESERVATION

The built environment frequently disturbs the natural ecosystem surrounding development sites, as natural landscape features like native vegetation and open fields are removed or supplanted. This may result in the displacement of indigenous plants and animals, the disruption of wildlife corridors and an eventual decrease in biodiversity. Lowering the quantity of flora and fauna that can exist in an area means that it is more vulnerable to ecological disruptions. These may range from climatic effects and the emergence of new diseases and invasive plants and insects.

State efforts to preserve land in wildlife management areas have borne fruit in providing significant sanctuaries for biological communities. Further in its 2005 Master Plan, Millville committed to preserving 50% of its lands through an internal transfer development credit to the village nodes and clustering of development. To date, 23.9% of Millville's land is preserved via a state, local or non-profit preservation program. Additionally, Millville's Land Use and Development Regulations Ordinance include a number of provisions that are aimed at preserving the integrity of the natural ecosystem. For example, applications for subdivisions and site plans require the inclusion of an environmental impact statement that assesses the proposed project's effect on wildlife and natural vegetation among other conditions. Also, Millville requires planned village developments in the Agricultural Conservation District to preserve at least 50% of land area for open space or agriculture and offers density bonuses for an increased open space set asides.

Although the City has taken measures aimed at preserving habitat and open space, it is recommended that Millville take further action by amending its Land Use and Development Regulations Ordinance to limit disruption to the natural ecosystem. Recommendations include:

- Partner with local non-profit conservation groups for education and public awareness.
- Provide volunteer stipends to organizations that work to clean parks, streets, public properties. Sponsor neighborhood clean-ups in central neighborhoods.
- Work with the nearby prison system to institute a tree nursery that can facilitate a "Plant a Tree" program or a free community tree giveaway program.
- Add a definition for 'construction disturbance area', which would serve as the basis for the footprint of the area of a site that is affected by development;
- Encourage planned over conventional residential development to allow land to

be set aside for open space;

- Adjust the recommended plant list for the installation of native and well-adapted species;
- Provide incentives for brownfield redevelopment, such as a density increase or even a limited tax abatement as allowed by law;
- Provided incentives for the installation of green roofs that feature native and adapted vegetation, such as lower parking requirements.

Finally, the City should join in a countywide collaborative effort to develop a Cumberland County Open Space Plan. Development of such a plan would provide the necessary resource inventory and prioritization of sites for conservation across the county. The county plan is a prerequisite to obtaining state and regional preservation dollars. A farmland preservation/open space tax is already in place within Cumberland County. What is needed is a plan to guide the expenditure of these resources.

7

GROWING THE GREEN ECONOMY

Following the decline of the City's manufacturing base, the administration of Millville embraced a multi-pronged economic development strategy aimed at redefining the "Holly" City's identity. Through courting the creative class, promoting redevelopment in the downtown, attracting large scale development projects, and strengthening the City's tourism industry with the Motor Sports Park complex, the administration reversed the trend of job loss.

While the City has achieved definitive economic gains, Millville would further enhance its resurgence in the marketplace and promote sustainability by incorporating elements of the green economy into its economic development policies. The "green economy" is a concept that distinguishes the traditional marketplace from an economy based on promoting environmentally-friendly business practices. This alternative economy addresses job opportunities, environmentally friendly products and technologies, and sustainable business models. Through incorporating aspects of the green economy into its revitalization plan, Millville would reduce its environmental footprint while simultaneously creating a niche market for green products and services. Natural synergies between the green economy and Millville's current economic revitalization plan include a green branding campaign, greening the workforce, the continued development of partnerships, and building on existing opportunities.



Sustainable Design Update
<http://sustainableupdate.com/wp-content/uploads/2007/08/green-business-logo-1.jpg>

 **Marketing Campaign**

The City of Millville has an existing program that promotes and supports locally owned and operated businesses. The program identifies local businesses as a “Millville Partner” and rewards their commitment to the community with a certificate that can be displayed on their premises. Through expanding this marketing program to identify businesses that act as environmental stewards, Millville can encourage businesses to act in an environmentally responsible way and raise public awareness about green business practices.

A new green business campaign can be developed by cooperation and partnership with Cumberland County to develop a business best practices tool kit. The City can work with local businesses and non profit organizations to assist in incorporating environmentally friendly practices into operations

The administration of Millville has cultivated a local business community that is active in civic matters. Through establishing a “buy green” campaign, the administration of Millville would promote environmentally responsible business practices. The administration could be responsible for establishing targets for the elimination of the use of plastic bags from local stores, increased recycling rates, energy reduction, and the availability of a green product selection. If a business met these established green standards, the City could provide a certificate or plaque indicating that the business is an environmental leader in Millville. Businesses would benefit from participation on multiple levels. In addition to a positive marketing strategy, the business could also enjoy reduced energy costs over different pay back times, depending on the methods employed by the establishment.

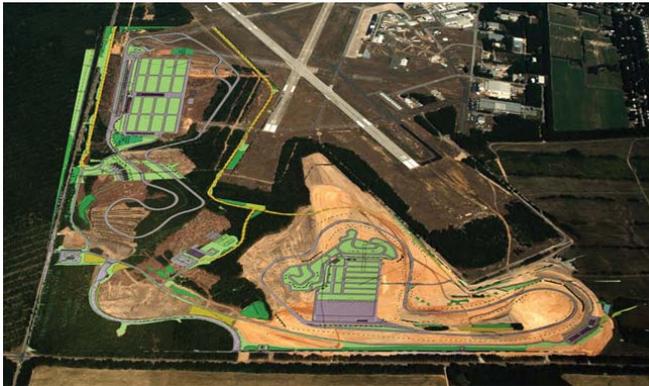
A program such as this would serve as a public education campaign. Patrons, employees, and owners would gain increased awareness of the environmental impact associated with goods and services, and would have access to individuals who are familiar with low-cost methods for greening a building and operations. Through this grass roots interaction, residents, employees and owners can participate in a knowledge exchange. Moreover, consumers would have greater access to environmental products, such as natural cleaning products, locally produced goods, and energy efficient light bulbs. This would enable them to implement green household operations as well.

 **Greening the Workforce**

Over the past decades, Millville’s economy has shifted from manufacturing to service sector jobs. While glass manufacturers in Millville continue to employ approximately 4,000 people, the City has focused on diversifying its economy through developing

a thriving arts community, marketing its eco-tourism attractions, and a establishing itself as a regional shopping center. While the efforts were successful in revitalizing the downtown and creating new jobs, unemployment in Millville is still higher than the state and national average. The green economy presents an opportunity for Millville to create new jobs by establishing a market niche. Through investing in training programs for green collar jobs, the administration of Millville would prepare the labor force for the growing green market and make Millville an attractive location for green technology firms. In this, a partnership with the County, as discussed below, may be an attractive means of achieving this objective.

Despite its low high school graduation rate, the City of Millville has a number of competitive advantages associated with greening the workforce. The City is located in close proximity to the County Vocational School, Cumberland County Community College and Rowan University. While the courses offered at these institutions are not necessarily focused on the green sector, their base curriculum lends itself to revisions that would prepare students for green collar jobs. For example, the County vocational school could amend its curriculum to offer education in green construction, which is a skill set that is in great demand. The County could integrate the Green Advantage coursework, a certification program for green construction workers, into its



New Jersey Motorsports Park
www.racenow.com/NJ%20Map.jpg

curriculum. This would provide Millville with a competitive advantage in the green building movement. Moreover, the County vocational school could also introduce auto mechanical training that includes a focus on alternatively fueled vehicles, such as electric cars.

Through investigating these partnerships and additions to the existing core curriculum, Millville would establish itself as a leader in skilled labor for the green economy. This would serve

as a competitive advantage in attracting green technology firms, and would provide the residents of Millville with opportunities to be a part of the rapidly growing green economy.

✓ Building on Existing Opportunities

The City of Millville has a number of large scale economic development projects completed or underway. Most recently, Thunderbolt Raceway, New Jersey Motorsports Park, opened on land adjacent to Millville Airport. This project is expected to create 1,500 new jobs directly and spur additional job creation in the related hospitality industry. The opening of the race circuit creates a new opportunity for the City to explore with Motorsports Park owners ways to raise awareness about the City's

green initiatives and alternative forms of transportation. With rising interest in plug in hybrid engines, photovoltaic vehicles, and fuel cell propulsion, the Motorsports Park could create a niche enterprise that would highlight racing of alternatively fueled vehicles.

8 LIVING GREEN FOR RESIDENTS



<http://www.ngms.state-ms.us/env/images/recycle,%20reuse%20reduce.jpg>

For sustainable practices to take hold with the City’s population there will need to be some investment in a public education and awareness campaign. While global climate change and energy independence have recently moved to the forefront of the national agenda, many residents are unclear of what they can do as individuals. The City of Millville has the opportunity to serve as an environmental steward by greening its facilities, partnering with Millville Public Schools to promote environmental education, and developing an outreach campaign. The following is a list of potential programs for ecological and sustainability awareness:

- Develop a best practices manual for residents and businesses and provide this manual for download on city webpage.
- Provide a quarterly neighborhood newsletter with green tips for households and educate the public on ways to change residential energy patterns.
- Hold special events and environmental fairs for residents during Arbor Day or Earth Day by partnering with local non-profit organizations such as the Atlantic Audubon Society, Riverkeepers and the Sierra Club.
- Encourage residents to buy locally produced food at the city farmer’s market during the growing season.
- Provide energy audits and professional advice to the public with a special call line to the City Hall.
- Work with Master Gardeners to develop community gardens in central neighborhoods.
- Provide “Toxic Turn In Program” for household chemicals. The city can partner with Cumberland County recycling programs to develop such a program.

9

LEARNING TO BE GREEN FOR STUDENTS

A prime candidate for assisting an outreach effort would be Millville’s public schools. The school curricula already include a considerable educational effort in environmental science. Sustainable methods are a practical outgrowth of the environmental sciences. It is recommended that the City of Millville partner with



<http://www.wrapables.com/images/product/A53892.jpg>

the Millville Public Schools to provide programming on recycling, sustainable behaviors and lifestyles, and energy conservation. The City can work with the Board of Education to develop a basic curriculum for various age groups. The City can sponsor events for children during the city-wide celebrations of Arbor or Earth Day. For example, the City may sponsor materials and equipment for children to design and fabricate a bird or bat cage. Winning houses can be installed in city owner preserved land and public parks for display and use by native species.

The education campaign can be expanded beyond the public school system to include outreach and informational sessions hosted by local non-profits, neighborhood groups, and government agencies. The foundation for a multi-tiered educational campaign already exists. The Neighborhood Council of Millville has assumed a leadership role in advancing Millville's sustainability goals through agreeing to organize information sessions for residents on ways that they can green their everyday life and behavior patterns. Additionally, the Cumberland County Improvement Authority (CCIA) is a valuable resource that the City could partner with in providing detailed training sessions on green living. The CCIA provides environmental enhancement grants to organizations for education programs and for bricks and mortar projects that utilize recycled materials. For example, in 2008, the Cumberland County Improvement Authority partnered with Wheaton Arts to host a "Green Living for Your Home and Garden", which featured exhibitors and presenters on products, strategies and resources for greening homes and gardens. Additionally, CCIA also provides disposal credits to each municipality in the County for clean up days, special clean up events and hosting hazardous waste disposal days, which serve to raise community awareness about conservation and environmental stewardship.

In summary, there are many means whereby the City could make efforts towards Go Green and encourage others to do the same.

GOALS AND OBJECTIVES MATRIX

FOR THE

GO **GREEN** ACTION PLAN



ACTION PLAN		Action Type					
		Study/Evaluation	Purchasing	Educational Program	Partnership	Ordinance Amendment	Organizational
Goals and Activities							
Goal #1: Put Millville on the Map as a Green City							
1. Create a Green Movement with Community Partners							
Activities	Synchronize the vision of going green with Millville Planning Board, Millville Shade Tree Commission and Millville Neighborhood Council				X		X
	Develop strategic alliances with community leaders, groups, and non-profit organizations				X		X
	Seek support from Cumberland County agencies				X		X
2. Join the Mayor’s Committee for a Green Future					X		
3. Become a “Tree City USA”							
Activities	Use Shade Tree Commission as a tree board under the Tree City requirements						X
	Adopt a Tree Care Ordinance					X	
	Develop a community forestry program with an Annual Budget of at Least \$2 Per Capita					X	
	An Arbor Day Observance and Proclamation			X			
4. Join “Cool Cities Initiative”					X		
5. Participate in NJ Clean Energy Program		X	X		X		
Goal #2: Lead the Way							
1. Adopt LEED as City Building Standard		X				X	
2. Green Operations							
Activities	Assess operational practices to determine how the City could reduce its environmental impact	X					X
	Review of building maintenance programs	X					X
	Review recycling procedures	X					X
	Review purchasing practices and vendor selection	X	X				X

ACTION PLAN		Action Type	Study/Evaluation	Purchasing	Educational Program	Partnership	Ordinance Amendment	Organizational
Goals and Activities								
Goal #1: Put Millville on the Map as a Green City								
1. Create a Green Movement with Community Partners								
Activities	Synchronize the vision of going green with Millville Planning Board, Millville Shade Tree Commission and Millville Neighborhood Council					X		X
	Develop strategic alliances with community leaders, groups, and non-profit organizations					X		X
	Seek support from Cumberland County agencies					X		X
2. Join the Mayor’s Committee for a Green Future						X		
3. Become a “Tree City USA”								
Activities	Use Shade Tree Commission as a tree board under the Tree City requirements							X
	Adopt a Tree Care Ordinance						X	
	Develop a community forestry program with an Annual Budget of at Least \$2 Per Capita						X	
	An Arbor Day Observance and Proclamation				X			
4. Join “Cool Cities Initiative”						X		
5. Participate in NJ Clean Energy Program		X	X			X		
Goal #2: Lead the Way								
1. Adopt LEED as City Building Standard		X					X	
2. Green Operations								
Activities	Assess operational practices to determine how the City could reduce its environmental impact	X						X
	Review of building maintenance programs	X						X
	Review recycling procedures	X						X
	Review purchasing practices and vendor selection	X	X					X

ACTION PLAN		Action Type					
		Study/Evaluation	Purchasing	Educational Program	Partnership	Ordinance Amendment	Organizational
Goals and Activities							
5. Extension of Bike Trails							
Activities	Establish a bike path network that expands on existing trails	X			X	X	
	Provide storage racks in public areas		X		X		
	Require bike racks on industrial and commercial sites				X	X	
6. Promote Pedestrian Access							
Activities	Require non-residential and mixed use development to include continuous pedestrian pathways along both sides of the streets within the project					X	
	Encourage residential developers to utilize the “neighborhood street” cross section in the Residential Site Improvement Standards				X	X	
	Develop pedestrian safety initiatives	X		X			X
7. Revitalization of Downtown							
Activities	Promote adaptive reuse of existing structures					X	X
	Encourage multi-story mixed use development					X	
	Ban or limit toxic and environmental hazardous building materials for development projects			X		X	
	Require green space and usable open space as part of subdivisions					X	
	Require bike and walking trails at part of subdivisions					X	
	Further implement the Village Node concept that is detailed in the Master Plan					X	X
	Identify infill development and redevelopment areas	X					
	Examine greyfield properties for use as mixed use developments	X					

ACTION PLAN		Action Type	Study/Evaluation	Purchasing	Educational Program	Partnership	Ordinance Amendment	Organizational
Goals and Activities								
Goal #1: Put Millville on the Map as a Green City								
1. Create a Green Movement with Community Partners								
Activities	Synchronize the vision of going green with Millville Planning Board, Millville Shade Tree Commission and Millville Neighborhood Council					X		X
	Develop strategic alliances with community leaders, groups, and non-profit organizations					X		X
	Seek support from Cumberland County agencies					X		X
2. Join the Mayor’s Committee for a Green Future						X		
3. Become a “Tree City USA”								
Activities	Use Shade Tree Commission as a tree board under the Tree City requirements							X
	Adopt a Tree Care Ordinance						X	
	Develop a community forestry program with an Annual Budget of at Least \$2 Per Capita						X	
	An Arbor Day Observance and Proclamation				X			
4. Join “Cool Cities Initiative”						X		
5. Participate in NJ Clean Energy Program		X	X			X		
Goal #2: Lead the Way								
1. Adopt LEED as City Building Standard		X					X	
2. Green Operations								
Activities	Assess operational practices to determine how the City could reduce its environmental impact	X						X
	Review of building maintenance programs	X						X
	Review recycling procedures	X						X
	Review purchasing practices and vendor selection	X	X					X

ACTION PLAN		Action Type	Study/Evaluation	Purchasing	Educational Program	Partnership	Ordinance Amendment	Organizational
Goals and Activities								
	Require that a minimum of 50% of impervious materials not including the building be covered in shade within the first five years of occupancy						X	
	Provide incentives for the installation of a vegetated roof						X	
	Require the use of paving and roofing materials with a certain solar reflectivity index						X	
5. Light Pollution Reduction							X	
6. Green Affordable Housing								
Activities	Require compliance with NJHMFA Green Future Guidelines for affordable housing construction						X	
	Promote the concept of LEED certification for affordable housing construction			X				
7. Implement best practices for storm water management, including rain gardens and vegetated swales.							X	
Goal #4: Energy and Water Conservation								
1. Promote Alternative Energy								
Activities	Allow installation of alternative sources of power by right.						X	
	Partner with local power supply companies to create a program to purchase green power for City owned facilities		X			X		
	Amend the DRO to create optimum conditions for passive and active solar strategies through solar orientation						X	
	Adopt a solar access protection ordinance that establishes solar access as a development right						X	
	Expand the definition of essential services to include alternative forms of energy						X	

ACTION PLAN		Action Type	Study/Evaluation	Purchasing	Educational Program	Partnership	Ordinance Amendment	Organizational
Goals and Activities								
2. Conserve Water								
Activities	Use native or adaptive plants in landscaping		X					
	Use high efficiency drip equipment and/or climate based controls when irrigation is required		X					
	Mandate City systems and fixtures be replaced with water conserving fixtures or non-potable water fixtures		X					X
	Consider reusing storm water or gray water for non-potable systems	X		X				
Goal #5: Recycling								
1. Utilize recycling containers for public events								
Activities	Place recycling containers in all public areas, parks and public properties							X
	Require recycling of construction materials through CCIA credits for all city sponsored projects						X	
Goal #6: Open Space and Natural Habitat Preservation								
1. Amend Land Use and Development Regulation Ordinance								
Activities	Partner with local non-profit conservation groups to develop public lands strategy to seek additional open space for permanent preservation					X		
	Provide volunteer stipends to organizations that work to clean parks, streets, public properties.		X					
	Expand neighborhood clean-ups in central neighborhoods			X	X			X
	Work with prison system to institute corporate tree nursery that can facilitate a "Plant a Tree" program or free community tree giveaway program					X		
	Add a definition for "construction disturbance area" and create a limit.						X	

ACTION PLAN		Action Type						
		Study/Evaluation	Purchasing	Educational Program	Partnership	Ordinance Amendment	Organizational	
Goals and Activities								
	Encourage planned over conventional residential development to allow land to be set aside for open space					X		
	Adjust the recommended plant list for the installation of native and well-adapted species					X		
	Provide incentives for brownfield redevelopment					X		
	Provided incentives for green roofs that feature native and adapted vegetation							
2. Cumberland County Open Space Plan								
Activities	Work with county to develop a comprehensive Cumberland County Open Space Plan	X			X			
Goal #7: Growing the Green Economy								
1. Marketing Campaign								
Activities	Expand Millville Partner program to include Green Business campaign				X			
	Create a business best practice tool kit	X			X			X
	Create a buy green campaign				X			X
	Establish targets for the green practices, such as the elimination of the use of plastic bags from local stores, increased recycling rates, energy reductions	X		X				
	Provide greater access to green products				X			
2. Greening the Workforce								
Activities	Invest in green job training programs			X	X			X
	Amend County vocational school curriculum to include green elements, such as green construction practices and auto mechanical training for alternatively fueled vehicles			X	X			X

ACTION PLAN		Action Type	Study/Evaluation	Purchasing	Educational Program	Partnership	Ordinance Amendment	Organizational
Goals and Activities								
3. Building on Existing Opportunities								
Activities	Explore with Motorsports Park owners ways to partner on the City’s green initiatives			X	X			
	Work with Motorsports Park owners to create a niche enterprise that would highlight racing of alternatively fueled vehicles					X		
Goal #8: Living Green for Residents								
1. Promote environmental education								
Activities	Develop best practices manual for residents and businesses			X				
	Provide best practices manual on the website			X				
	Provide a quarterly neighborhood newsletter with green tips for households			X				
	Provide energy audits and professional advice to the public with special call line to the City Hall			X				
2. Develop an environmental education outreach campaign								
Activities	Hold special events and environmental fairs for residents			X				
	Work with Rutgers Master Gardeners Program to develop community gardens in central neighborhoods			X	X			
	Partner with Cumberland County recycling program to develop “Toxic Turn In Program”			X	X			