ENGLEWOOD MASTER PLAN 2009

Sustainability

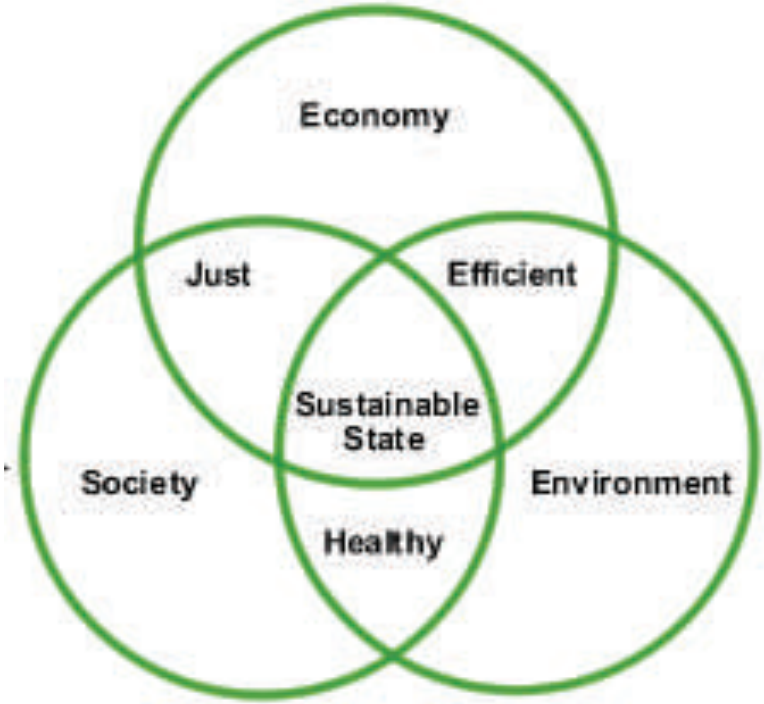
November 24, 2009

Sustainability Element

Introduction

There is a growing and compelling consensus, in New Jersey and throughout the world, that climate change is a real threat requiring an immediate and ongoing response from all parties to avoid severe and permanent damage to the environment. According to several studies (see in particular-Frumhoff, P.C., J.J. McCarthy, J.M. Melillo, S.C. Moser, and D.J. Wuebbles. 2007. Confronting Climate Change in the U.S. Northeast: Science, Impacts, and Solutions. Synthesis report of the Northeast Climate Impacts Assessment (NECIA), Cambridge, MA: Union of Concerned Scientists (UCS)). The Northeast section of the United States will be particularly vulnerable to the environmental, ecological and economic impacts of global warming including major changes to the shoreline and the ecology of New Jersey.

In recognition of the problems faced by New Jersey, Governor Corzine in 2007 signed into law the Global Warming Response Act (GWRA) (P.L. 2007, c.112)



which calls for dramatic reductions in emissions, supporting changes in transportation policy and providing a framework for future modifications to achieve the requirements of the act. In 2008, the New Jersey Department of Environmental Protection developed a draft Energy Master Plan. In April of 2009, the New Jersey State Planning Commission issued its new draft State Plan with extensive review of sustainability issues for New Jersey (this plan will soon be adopted by the Planning Commission).

This effort to reduce greenhouse gases and a reduction in energy costs must be incorporated into land use decisions in order to have a comprehensive achievable program. Toward this end, the State Assembly and the State Senate each overwhelmingly passed legislation amending N.J.S.A. 40:55D-28, which authorizes a local planning board to include in its master plan a "green buildings and environmental sustainability plan element." This law governing Master Plans for all municipalities in New Jersey, now permits a sustainability element:

"A green buildings and environmental sustainability plan element, which shall provide for, encourage, and promote the efficient use of natural resources and the installation and usage of renewable energy systems; consider the impact of building on the local, regional and global environment; allow ecosys-

tems to function naturally; conserve and reuse water; treat storm water on-site; and optimize climatic conditions through site orientation and design (N.J.S.A. 40:55D-28b(16))"

Sustainability and Land Use

In plain language, sustainability means that people must live within the means of what the Earth can provide over a long term. A process is sustainable when it can be carried out over a long period of time without damaging the environment or creating impossibly high costs. The United Nations World Commission on Environment and Development adopted a definition that is also suitable for Englewood's Master Plan:

> *"Sustainability meets the needs of the present without compromising the ability of future generations to meet their own needs."*

Sustainable development implies economic growth together with the protection of environmental quality, each reinforcing the other. Limiting or eliminating dependence on non-renewable resources is a basis for sustainability. Land use policy on a local level can make a meaningful contribution to this effort.

In examining the various sources of greenhouse gas emissions it is readily seen that the transportation sector contributes more than one-third of New Jersey's greenhouse gas emissions and is its fastest-growing source. Land use policy on the local level must take into account this fact. If suburban sprawl continues in the same pattern as it has in recent history, transportation costs and greenhouse gas emissions will continue to increase. Identifying opportunities for

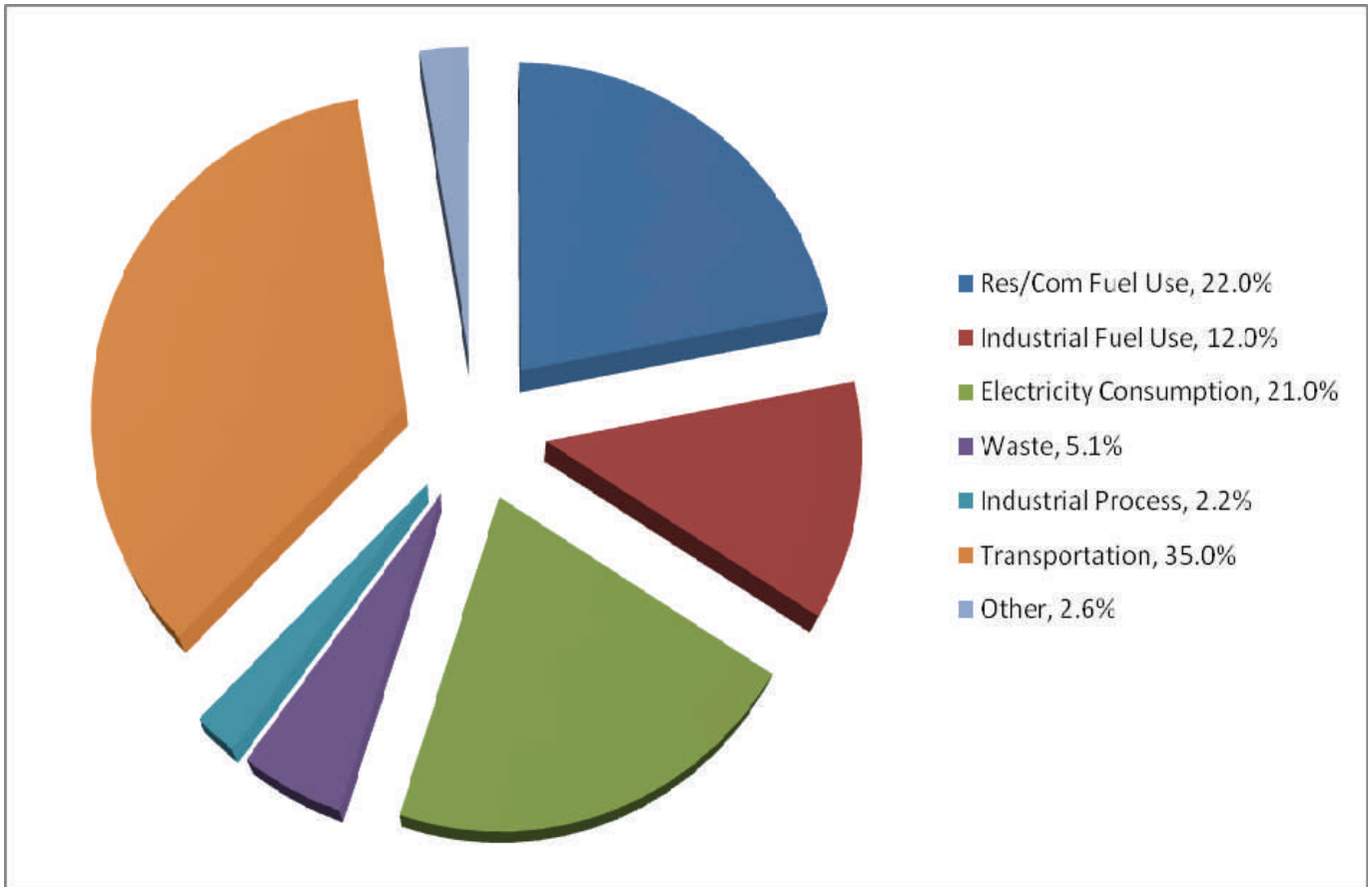


Figure: NJ Gross Greenhouse Gas Emissions by Sector, 2000
Source: NJ Department of Environmental Protection, *Draft Greenhouse Inventory and Reference Case Projections 1990-2000, February 2008*

smart growth, creating pedestrian friendly communities and seeking opportunities to create transit villages are all ways that local land use planning can support sustainability. Land use decisions should consider the overall impact of developments on sustainability. When sustainability is ignored, poor land use decisions can markedly affect the impact of those decisions.

Land use policy, transportation planning, open space policies, water use and stormwater management plans, when properly implemented, can be consistent with sustainable objectives while also supporting quality of life issues.

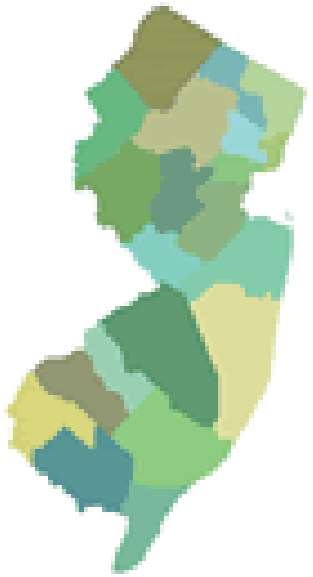
Land Use Policy

When considering sustainability, land use policy generally looks at issues such as density, the location of varying densities, proximity to public transportation and recreation areas, the specific use of open space including the use of open space that is part of both residential and commercial developments, the need for pedestrian friendly developments and of course recycling policy and implementation. The Master Plan in its Land Use Element is consistent with smart growth and sustainability issues with regard to downtown development and redevelopment of the Office-Industrial Zone using mixed-use planned developments. Locating higher density residential developments in close proximity to the downtown and public transportation should continue while maintaining the current density of the outlying residential areas.

Energy Issues

The City of Englewood needs to promote increased energy efficiency to provide long-term economic savings to the community, while reducing our overall environmental footprint on the Earth. Unlike many aspects in our day to day lives, reducing energy consumption is an activity that can be addressed by all sectors of the community. It is vitally important that municipal government take leadership in this arena, but to accommodate significant change it is incumbent on residents, commercial and industrial interests, in addition to our political leaders, to share responsibility in reducing energy usage. Energy conservation can indeed be a sustainable solution by providing long-term economic benefits through reduced utility bills, benefits to society by fostering energy independence and preserving natural resources, and improving our environment by reducing pollution.

There are many ways to improve energy conservation, and therefore many potential solutions. Thoughtful leadership and the willingness of the community to support and participate in the various initiatives will be an important part of any program. Technologies that were once considered promising for the future, are becoming today's mainstream solutions. Renewable sources of energy including solar, wind, geothermal, and sustainable biomass are ready to become significant players in the energy game, and with prudent application



some or all of these renewable technologies can be utilized within the City.

The green building movement is moving ahead with steady expansion, and be-

ing "green" is becoming mainstream with environmental alternatives now being a factor in decision making in all sectors of the community. If the City of Englewood starts to think long-term about energy conservation, the results will likely be a stronger economy, with less pollution, lower energy costs, and reduced demand for electricity.

The goals of a comprehensive energy program would be to:

- reduce the City of Englewood's municipal energy usage, and encourage residents to follow suit;
- improve the environment by lowering emissions of fossil fuels while providing long-term economic savings to the community;
- encourage the installation of renewable energy systems on municipal buildings and promote renewable options for residents and commercial enterprises.

The implementation of such a program would include the following activities:

- Conduct energy audits for all municipal buildings taking advantage of funds available through the New Jersey Board of Public Utilities' Local Government Energy Audit program.

- Install energy saving components on municipal buildings as delineated within the energy audits.

- Investigate the feasibility of various renewable energy technologies with an emphasis on installing solar arrays on appropriately oriented municipal buildings and schools taking advantage of financial assistance programs offered through the New Jersey Clean Energy Program, the United States Department of Energy, and PSE&G.

- Investigate the potential for entering into Power Purchase Agreements (PPAs) in which the City of Englewood would allow solar panel installation companies to install systems on appropriately oriented buildings. In a PPA, the City would allow the solar PV owner to install systems in exchange for the City receiving reduced energy bills. The building owner is typically not responsible for upfront installation costs or maintaining the system, and details are worked out concerning roof warrantees and damages, etc. The solar installation company receives the direct benefits of Solar Renewable Energy Credit sales, Energy Tax Credits, accelerated depreciation, rebates and utility bill credits.

- Encourage the facilitation of green building technology to reduce energy consumption within municipal buildings and throughout the greater community.

- Install Light-emitting diode (LED) traffic lights on all municipally controlled signals, and urge Bergen County to do the same on County controlled signals.

- Purchase and install Energy Star equipment, mechanicals, and appliances whenever possible considering long-term economic value as the main factor in decision-making. Consider the feasibility of becoming an Energy Star Municipal Partner offered through the United States Department of Energy.

- Expand the City of Englewood's role in the New Jersey Clean Power Communities program run through the New Jersey Board of Public Utilities. The Clean Power Communities Program is a statewide initiative that urges residents and businesses to choose clean, renewable sources of energy as opposed to the typical utility energy offerings which do not emphasize renewable energy alternatives.

- Investigate the technology options available for converting the municipal fleet to higher fuel economy alternatives. Consider incentives offered by the New Jersey Clean Energy Program's Alternative Fuel Vehicle Rebate Program, Biodiesel Fuel Rebate Program, and Alternative Fuel Infrastructure programs.

Transportation Issues

Englewood is only five miles from New York City and therefore is susceptible to heavy traffic from its residents, commuters and commercial traffic. Traffic, particularly in the Central Business District, has been a problem from both a congestion standpoint and a parking perspective. The CSX freight rail connection also causes considerable traffic problems during key times in the mid-day and early evening hours.

In 2008, the City of Englewood initiated a trolley service that travels along primary routes to the north and south of the City and offers connections to public transportation locations and to the Central Business District. This service should be more heavily publicized and the trolley service routes should be posted at the proposed kiosks in the center of town. Additional trolley service should also be considered to eliminate as many local vehicles traveling to the Central Business District as possible.

The City should continue to investigate measures to limit or eliminate the mid-day freight train which blocks traffic in the center of town. The train is blocking traffic at peak lunch time hours when employees/visitors are either out for lunch, attempting to conduct business, or visiting houses of worship.

In addition, the City should continue to support light rail or DMU (a combination of diesel and electric) commuter service thus eliminating freight service while providing greater public transportation options for Englewood residents.

The new public garage on South Dean Street has helped alleviate some parking issues but meter feeding continues to be a problem, causing traffic tie-ups along Palisade Avenue and creating greater circulation problems in the downtown area. Greater enforcement will open up meter parking along Palisade Avenue and should help to limit congestion.

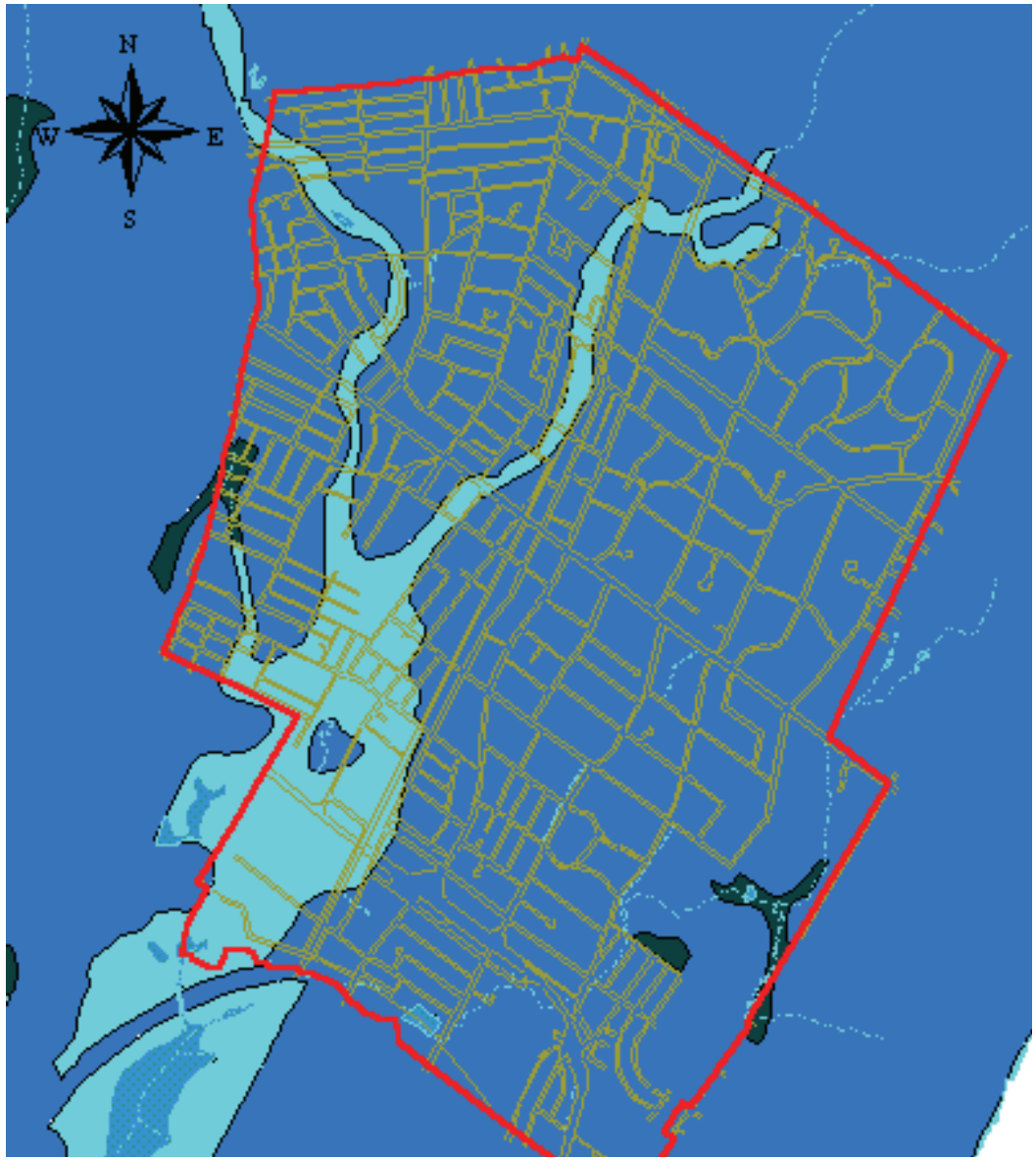
Englewood should review, strengthen, and enforce traffic ordinances relating to jay-walking and pedestrian safety. New controllers along the avenue will also limit congestion.

The City can develop bicycle routes and install bike stands in strategic locations along Palisade Avenue and the parks. Fleet management by the City can play an important role in limiting greenhouse gases, providing increased efficiency in energy use and limiting the amount of gasoline and diesel fuel utilized by the hundreds of vehicles in the City's fleet.

The Traffic and Circulation Element has been enlarged in this Master Plan and is consistent with sustainability principles.

Water Use and Stormwater Management

Demands on Englewood's water supply have greatly increased due to population growth and development, making water conservation necessary for Englewood's citizens year round. Over the past several years New Jersey has been subject to periodic droughts and water shortages. In addition, the creation and treatment of potable water uses resources such as



Englewood's Flood Hazard Areas

electricity and chemical processing agents that have an environmental impact.

The City of Englewood recognizes that a successful water conservation program starts with the development of a comprehensive water management and conservation plan and public education is a critical component of any plan. This plan should provide information about how the community uses its water and how water conservation can be achieved through increased efficiency. The Environmental Commission together with the Department of Public Works can be a force in creating and continuing a public education program for water efficiency.

The environmental benefits of water efficiency include:

- Fewer sewage system failures caused from excess water overwhelming the system.
- Reduced water contamination caused by polluted runoff due to over irrigation.
- Reduced need to construct additional water and wastewater treatment facilities.

A water emergency and/or drought contingency plan should be developed which will describe how businesses and residents will meet minimum water needs in an emergency and/or reduce water consumption in a drought or other water shortage. This plan should be published on the city's website.

The public should be informed of the priority Englewood places on water efficiency. Residents, business and contractors should be encouraged to take water supply, wastewater, storm water issues and water efficiency best management practices into account when making equipment purchases, and at the earliest stages of planning and design for renovation and new construction Education is the primary tool to be used for meaningful change.

Some of the ways this might be accomplished include:

- a user-friendly hot-line or other system to report leaks or other wastes of water;
- greater use of the City's web site to publicize water efficiency.

Stormwater management policies must be supportive of sustainability principles. Englewood has long had strong stormwater management ordinances that support groundwater recharge and limit soil erosion and sediment transport.

With regard to land use policies, site plan review before the Planning Board and Board of Adjustment should include an assessment of water efficiency and sustainability issues including the limitation of lawn areas and the replacement of lawn areas with vegetative areas requiring less water and limited pesticides and fertilizers. In this manner, the protection of groundwater and streams can be protected from pollutants that in the past were thought to be benign. Site issues for particular developments should evaluate:

- The landscape design and its need for supplemental water and fertilizer and pesticides
- An irrigation system that applies the appropriate amount of supplemental water in an efficient manner.

Water-efficient landscapes using native and other "climate appropriate" landscape materials can reduce irrigation water, stand up better to drought, reduce the drought loss or damage to plant material and require less time to maintain which will lower maintenance costs. Reduced turf and other irrigated areas can also significantly reduce time and money spent mowing, fertilizing and maintaining landscapes.
Experts estimate that more than 50 percent of commercial and residential irrigation water is wasted due to evaporation, wind, poor management and/or improper system design, installation, or maintenance. Some options to improve efficiency of irrigation practices include:

- Encourage developers, contractors and residents to become familiar with water-efficient irrigation practices through seminars and/or published information. A lawn management plan for all large development should be made part of site plan review.
- Require all newly installed irrigation systems have rain-sensing technology to prevent irrigation from taking place during periods of sufficient moisture.
- Recommend that all irrigation systems be designed, installed and maintained according to irrigation best management practices. (http://www.irrigation.org)

Rainwater Harvesting

Education efforts and site plan reviews should also consider rainwater harvesting. Rainwater harvesting captures, diverts, and stores rainwater for later use. Captured rainwater is often used in landscaping, because the water is free of salts and other harmful minerals and does not have to be treated. It is also useful in attracting and providing water for wildlife. Rainwater harvesting can also help to prevent flooding and erosion, turning storm water problems into water supply assets by slowing runoff and allowing it to soak into the ground. Reducing run-off also helps to reduce the contamination of surface water with sediments, fertilizers, and pesticides in rainfall run-off.

Rainwater can be collected in cisterns and used with little or no treatment for a variety of non-potable purposes. The major components of a rainwater harvesting system include the catchment area/roof or surface upon which the rain falls, gutters and downspouts to carry the water to storage, leaf screens to remove debris, cisterns/storage tanks to store the harvested rainwater, conveyances to deliver the stored water either by gravity or pump, and a water treatment system to settle, filter, and disinfect the water, if required.

Building Issues

In 2009, all public buildings in Englewood will be undergoing a comprehensive energy audit. The findings of these audits should be incorporated in an energy efficiency program for the City. As public facilities are renovated, green initiatives should be considered to move these facilities towards sustainability. New public facilities should undergo a sustainability assessment and be LEED certified or LEED compliant. Solar energy for public buildings should be assessed and implemented, if feasible.

Recycling Issues

Increasing waste reduction throughout Englewood is critical to sustainability. The Recycling Element addresses specific objectives related to waste reduction. All commercial and multi-family residential developments must have a recycling plan incorporated into the site plan. The Planning Board and Board of Adjustment should implement a thorough review of recycling plans during all site plan review applications.