

*****FINAL*****

**CITY OF RAHWAY
GREEN BUILDING AND SUSTAINABILITY
MASTER PLAN ELEMENT**

Prepared for:

ENVIRONMENTAL COMMISSION, CITY OF RAHWAY, NEW JERSEY

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1.0 INTRODUCTION

1.1 Background

Sustainability

This Green Building and Environmental Sustainability Plan Element of the Master Plan has been prepared in accordance with the Municipal Land Use Law (M.L.U.L.). N.J.S.A. 40:55D-28a which provides that the Planning Board “may prepare and, after public hearing, adopt or amend a master plan or component parts thereof, to guide the use of lands within the municipality in a manner which protects public health and safety and promotes the general welfare.” The purpose of the Green Building and Environmental Sustainability Plan is to establish goals, policies and strategies to protect natural resources and to create a healthy and sustainable economy and society.

Sustainability is described by the American Planning Association as “the capability to equitably meet the vital human needs of the present without compromising the ability of future generations to meet their own needs by preserving and protecting the area’s ecosystems and natural resources. The concept of sustainability describes a condition in which human use of natural resources, required for the continuation of life, is in balance with Nature’s ability to replenish them.”¹

In practice, sustainability is a process which leads to a sustainable condition. Sustainability encompasses the decision-making processes related to where and how to preserve and conserve, where and how to grow, protecting our natural resources and maintaining biodiversity, maintaining a healthy economy, and providing safe, healthy places to live, work and recreate. The sustainable equation balances the environment with the economy with societal needs. These are often referred to as the “triple bottom line.” In addition, this balancing act includes the impact of buildings and structures on the local, regional, and global environment. As stated in the Green Plans, Working Strategies for a Sustainable Future: A Primer, “success is not measured by imposing one agenda over another, but by finding solutions that integrate many needs and concerns.”²

The overriding goal of the Green Building and Environmental Sustainability Plan Element is to make sustainability inherent in community policies and regulations. The sustainability of the municipality’s resources, including the built and natural environments, is dependent on the implementation of the goals, policies and strategies of this plan element. Through the adoption of this plan element, municipal residents may learn the components of sustainability and how planning for sustainability advances the means for the environment, the economy and the community to become more sustainable. Understanding the interdependence of the three elements of sustainability, this plan element seeks to reduce activities that encroach upon nature, meet human needs fairly and efficiently, and reduce dependence upon fossil fuels, underground metals, and minerals.

New Jersey Municipal Land Use Law

The Municipal Land Use Law describes the contents of the Green Building and Environmental Sustainability Plan Element at N.J.S.A. 40:55D-28b (15), as a plan

¹ American Planning Association – Policy Guide on Planning for Sustainability – p. 3

² Resource Renewal Institute, “Green Plans, Working Strategies for a Sustainable Future, A Primer,” p. 6

“which shall provide for, encourage, and promote the efficient use of natural resources; consider the impact of buildings on the local, regional and global environment; allow ecosystems 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-2 identifies the purpose of the M.L.U.L. and the statutory authority for municipal land use planning and regulation in New Jersey. More than one-half (nine of fifteen) of the purposes of the M.L.U.L. charge the Planning Board with a mandate to protect the environment, prevent urban sprawl, and protect the State’s natural resources. This Green Building and Environmental Sustainability Master Plan Element has been prepared to conserve natural resources and promote the maintenance of a clean and healthy environment. Nine of the purposes of the law are listed below, which are consistent with the locally identified goals and objectives of this plan:

- To encourage municipal action to guide the appropriate use of or development of all lands in the state, in a manner which will promote the public health, safety, morals and general welfare;
- To secure safety from fire, flood, panic, and other natural and man-made disasters;
- To provide adequate light, air and open space;
- To ensure that the development of individual municipalities does not conflict with the development and general welfare of neighboring municipalities, the county and the State as a whole
- To promote the establishment of appropriate population densities and concentrations that will contribute to the well-being of persons, neighborhoods, communities and regions, and the preservation of the environment;
- To provide sufficient space in appropriate locations for a variety of agricultural, residential, recreational, commercial, industrial uses, and open space both public and private, according to their respective environmental requirements in order to meet the needs of all New Jersey citizens;
- To promote the conservation of historic sites and districts, open space, energy resources and valuable natural resources in the State and to prevent urban sprawl and degradation of the environment through improper use of the land;
- To promote utilization of renewable energy sources; and
- To promote the maximum practicable recovery and recycling of recyclable materials from municipal solid waste through the use of planning practices designed to incorporate the State Recycling Plan goals and to compliment municipal recycling programs.

New Jersey State Development and Redevelopment Plan

The 2001 State Development and Redevelopment Plan (SDRP), through the State Planning Commission, establishes policies to guide the formulation of local land management and natural resource conservation policy³. A revised State Plan has not yet been released by the Commission. However, the SDRP Cross Acceptance III process, started in 2004 and concluded in 2007, anticipated that a revised State Plan will be released sometime in 2009. Plan Endorsement, a municipally-voluntary continuation of cross acceptance, is a bottom up process which allows municipalities, working in concert with the Office of Smart Growth (OSG), to integrate local plans into the SDRP. Participation in the Plan Endorsement Process allows municipalities to move forward in coordinating local plans with the SDRP, even in the absence

³ <http://www.nj.gov/dca/divisions/osg/plan/>

of having an updated and adopted SDRP. The Plan Endorsement process requires a municipality to include a Sustainability Statement that describes the town's intent to plan for sustainability. Municipalities may petition for Plan Endorsement at any time and may be a condition of receiving of certain state grants.

Aligning the goals of this Green Building and Sustainable Master Plan Element with the goals of the SDRP is an added line of defense and prudent reinforcement for the Township's vision of itself as a sustainable community.

Rahway City Master Plan

Paraphrasing its Introduction, the *Master Plan for the City of Rahway*⁴, at a minimum, fulfills the requirements of State law to have a master plan and land use regulations which react to development in Rahway. However, the most recent plan also aims to perpetuate Rahway's proactive role in encouraging and fostering development that will have a positive impact on its future. While containing all of the necessary elements of a master plan called for in the state statute, the master plan focuses on the principal issues facing the City:

- Continuing efforts to revitalize the retail sector of the downtown
- Capitalizing on the success of the Union County Arts Center
- Utilizing the renovation and expansion of commuter parking at the train station to foster retail and service development
- Maximizing opportunities for development of vacant parcels in Rahway, particularly the 11-acre parcel behind City Hall to generate taxes and provide jobs and housing
- Retaining and improving the quality of community services, including the schools and indoor recreation for the young and elderly alike
- Retaining Rahway's employment base by accommodating the needs of its current industries and businesses (including Merck and the Hospital) in a way that protects citizens' right to a high quality of life
- Fostering opportunities for new housing development
- Catering to the needs of its growing elderly population in housing and recreation
- Encouraging the preservation of historic structures and areas
- Creating opportunities for small businesses in the retail, service and industrial sectors
- Taking measures to improve access to and use of the waterfront for recreation and development while protecting against flooding and negative environmental consequences

The plan was prepared by planning consultants in cooperation with the Rahway City Council, Planning Board and Zoning Board of Adjustment, as well as the Rahway Center Partnership, and working under the guidance of the City's Department of Building, Planning and Economic Development. The current Master Plan was adopted in February 1997, then revised in April 2002, March and December 2005, July 2006 and December 2008.

The Master Plan presents a series of goals and objectives and then follows with 12 elements, as follows:

- Land Use Plan Element
- Housing Plan Element
- Economic Plan Element

⁴ Master Plan, the City of Rahway, Union County, New Jersey, prepared for the Rahway Planning Board, prepared by Abelew Phillips Preiss & Shapiro, Inc., adopted February 1997, last revised December 2008.

- Utilities Plan Element
- Community Facilities Plan Element
- Open Space and Recreation Plan Element
- Circulation Plan Element
- Historic Preservation Plan Element
- Recycling Plan Element
- Municipal Stormwater Management Plan
- Bikepath Plan for the City of Rahway
- Rahway River Greenway Plan

Many of these existing plan elements are very relevant to the present effort to make the Rahway Master Plan greener and more sustainable through the adoption of a Green Building and Sustainability Master Plan Element.

Rahway Environmental Commission

According to its March 1996 Mission Statement provided by Commission Chairman Jeffrey Robinson, the Rahway Environmental Commission's mission is to make a unified effort to eliminate or favorably resolve all local environmental problems so that each of our citizens can enjoy an excellent quality of life.

The EC's goals and objectives are:

- To protect natural resources and encourage their wise use; study and make recommendations concerning:
 - Open space preservation
 - Water resources management
 - Noise control
 - Soil and landscape protection
 - Environmental appearance
 - Marine resources
 - Protection of the flora and fauna
- To develop and maintain an accurate local data base of Rahway's environmental and natural resources (ERI, open space, etc.).
- To coordinate and integrate environmental activities in Rahway.
- To inform the public through educational programs, publications and meetings.
 - Play a public liaison role – both informing and listening
 - Provide a forum for city residents to present environmental issues for the attention of the commission
- To promote regional and long range planning.
- To review and comment on governmental actions.
- "Things" that can affect the Rahway environment but fall outside local review (Action by state agencies, neighboring municipalities)
- To function as the local pipeline to other governmental environmental agencies and organizations.

Rahway's Environmental Commission (EC), is strictly an advisory board. However, by taking advantage of a broad range of responsibilities it can and does contribute to the environmental health and welfare of the community in a number of ways; these include:

- Maintaining its Environmental Resource Inventory
- Performing studies and investigations
- Keeping an eye on our parks and greenways

- Advocating for positive environmental policies
- Education and informing residents
- Making recommendations to the City Council, Redevelopment Agency, Planning Board and Zoning Board

In its monthly meetings, the EC also conducts routine review of:

- NJ Department of Environmental Protection (NJDEP) notifications regarding hazardous substance discharges
- NJDEP notices regarding regulatory changes
- Wetland applications and stream encroachment permits between developers and NJDEP
- Sewer extension permits
- Site plans presented to the City Planning and Zoning Boards
- City Council resolutions and ordinances having environmental impacts

Association of New Jersey Environmental Commissions

The Association of New Jersey Environmental Commissions, or ANJEC, was established, “*To promote the public interest in natural resource protection, sustainable development and reclamation and to support environmental commissions and open space committees working with citizens and other non-profit organizations.*” This plan was prepared with the assistance of a Smart Growth Planning Grant from ANJEC with matching funds from the City of Rahway.

1.2 Vision for Rahway Green Building and Sustainability Master Plan Element

Methodology

This Vision Statement and Outline of the Green Buildings and Sustainable Master Plan Element (GB&SMPE) for the City of Rahway is based on input from the following sources:

- Background information provided on the Rahway Environmental Commission’s relevant activities and initiatives at its October 2009 meeting
- Small breakout group presentations and discussions at the Environmental Commission’s November 2009 meeting
- Tours of the City’s downtown and redevelopment areas, as well as historic and cultural sites, parks and river corridors in November and December 2009
- Presentations by the Environmental Commissioners and follow-up discussion with Planning Board members and public at a joint meeting of the Environmental Commission and Planning Board in January 2010
- Review of the existing April 2002 Master Plan for the City of Rahway, including subsequent elements addressing municipal storm water management, the Rahway River greenway concept plan, and bike path plan
- Review of sustainable master plans and sustainable master plan elements prepared by other localities in New Jersey, as well as draft guidance provided by the New Jersey Chapter of the American Planning Association (NJ-APA). (Note that in the coming year it is anticipated that NJ-APA will issue final guidance for preparing GB&SMPEs and that Sustainable Jersey will incorporate that guidance into their certification program; however, these steps will come only after the Rahway GB&SMPE must be completed per the terms of the ANJEC grant.)

Goals and Objectives

The City of Rahway’s goals of achieving smart growth and preserving the environment were “spotlighted” by Sustainable Jersey in their guidance on how to prepare a climate action plan, and people are moving back into Rahway’s downtown recognizing it as a desirable place to live

near downtown resources and transit convenient to Philadelphia, New York City (see Box below) and points between. The City of Rahway’s vision for a sustainable future is founded on the following four objectives of sustainability as applied to Rahway (taken from the APA-NJ Model Green Building and Environmental Sustainability Master Plan Element):

- Communities as good places to live, which offer economic and other opportunities to their inhabitants.
- Societal values – things like individual liberty and democracy.
- Biodiversity of the natural environment, both for the contribution that it makes to the quality of human life and for its own inherent value.
- Ability of natural systems to provide the life-supporting “services”, or natural capital, that are rarely counted by economists, but which have recently been estimated to be worth nearly as much as total gross human economic product.

Box. Rahway’s Convenient Transit Connections to New York City

Rahway has been touting its quick and easy accessibility to Newark Airport by train. It is a 15-minute ride from Rahway to the airport where riders can then transfer to and ride the Air Train (a monorail system) to all of the air terminals. Air travelers and airline personnel have been traveling from the airport to Rahway and staying at the Indigo Hotel across the street from the Rahway Train Station. The station stop at the airport was built by NJ Transit about five years ago. It has since become a big selling point for the city.

Guiding Principles

In addition, the City applied the following practical guidelines in developing its Green Buildings and Sustainable Environment Master Plan Element:

- Recognize and build on what the City has already done or set in motion that relates to sustainable development, both in terms of Environmental Commission initiatives taken and Master Plan elements prepared. Conduct a gap analysis of the implementation and effectiveness of selected relevant existing master plan elements relative to the GB&SMPE components outlined below.
- Focus on SMPE components that address the City’s highest priorities for sustainable development in the most cost-effective way, e.g. by integrating several sustainability measures into a small number of specific, high-profile land use development initiatives that are the most vital to the future of Rahway (rather than pursue a long wish list that is less likely to be fully implementable and sustainable).
- Recommend plans that address all three pillars of sustainable development, i.e. environment, social and economic sustainability, and that provide benefits to all five categories of stakeholders, i.e. government, residents, businesses, schools, and civil organizations, present and of course future.
- Implement and sustain the recommended SMPE land use planning components by including a major component of public outreach, environmental education, and programming.
- Sustainable Jersey’s certification program was used wherever possible in recommending actions, because: (1) Sustainable Jersey is a widely accepted source of information on sustainable development actions, and their respective methodologies, stakeholders, timeframes and resource needs; and (2) Rahway plans to pursue certification by Sustainable Jersey so actions taken that would qualify for Sustainable Jersey points would provide an added advantage.

Major Components of GB&SMPE

Three major components of the Rahway SMPE include two high-profile land use / development initiatives and a stakeholder outreach and environmental education component. Where relevant, the existing master plan elements aided in specifying sustainability objectives and actions. In addition, the improved elements were integrated into a single sustainability approach to the City's downtown redevelopment.

Downtown Redevelopment

The following planning measures relate to downtown Redevelopment Areas in the City of Rahway but, by institutionalizing it in the redevelopment process, sustainability can also be applied to other redevelopment areas in the City.

- **Brownfields Cleanup & Redevelopment.** Remediate and utilize brownfields to gain needed space for redevelopment or parks, thus densifying downtown and providing needed open space and recreation, and to remove the stigma preventing redevelopment.
- **Transit Village & Circulation.** Create pedestrian, bike and transit friendly circulation that conserves energy by shifting to more energy-efficient urban forms and more efficient routing.
- **Green Buildings.** Conduct thorough sustainability audits (energy, water, solid waste, etc.) of not only all existing municipal buildings, but also all existing redevelopment projects, and conduct thorough green building assessments of all municipal buildings and redevelopment projects that are under construction or in the planning and design stages, and recommend energy efficiency, renewable energy and other measures to improve sustainability.
- **Parking Lots & Garages.** With fewer cars needed, densify parking lots into a fewer number of parking garages and utilize the resulting surplus parking lots for redevelopment sites or parks.
- **Parks & Recreation.** Review the number, size, accessibility, features and quality of downtown parks relative to downtown redevelopment plans and, using land generated by brownfield cleanups and parking lot conversions, identify optimal locations for new parks that can be incorporated into the downtown pedestrian, bike and transit circulation system, as well as into the citywide river/greenway system (see below).

Citywide River/Greenway System

The following planning measures focus on development of greenways along the rivers in the City of Rahway but, by institutionalizing it in the greenway system development process, sustainability can also be incorporated into the planning of other greenways in the City. This will entail effective partnership with the County, since many existing parks in the City of Rahway are owned by Union County, as well as with private sources of financing for parks.

- **Parks & Recreation.** Create new park space along the rivers and streams in the City and expand and improve existing parks.
- **Circulation.** Link the existing riverside parks with new riverside parks and other parks and greenways in the City to provide an efficient and comprehensive system for pedestrian and bike circulation while, at the same time, providing valuable corridors for wildlife to travel between protected habitats which improves their chances for survival in urban areas where a given habitat area may not be sufficient in terms of area, food, cover, reproduction, etc.

- **Flood Control and Wetlands.** Continue to prevent and remove development from the 100-year floodplain of the rivers and streams in the City, and restore or create wetlands and other natural floodplain uses and values.
- **Water Pollution Control and Green Infrastructure.** Incorporate green infrastructure into the riverside parks and greenways so that storm water is managed in a way that minimizes surface water runoff, soil erosion, and stream sedimentation.
- **Water Conservation.** Implement and replicate the water conservation project currently being designed with support from the State to reduce wastewater generation generally in the City.
- **Tree Planting and Maintenance.** Focus the city's tree planting and maintenance program on the riverside parks and greenways, being careful to choose trees that are not only survivable and manageable on the City's streets but which also are compatible with the ecological restoration themes of the riparian areas being recovered and converted to parkland.
- **Invasive Species and Control of Destructive Wildlife.** Encourage protection and growth of native plants and protection of native animals. Encourage elimination of invasive plants and control of non-native animals.

Environmental Education and Community Outreach and Development

- **Stakeholder Outreach.** Develop and implement an effective public information, education and consultation program tailored specifically to implementing the SMPE.
- **Environmental Education in Schools.** Partner with the Board of Education to develop and implement a comprehensive environmental education curriculum at all levels in the City's school system that will utilize not only the school system's natural sciences teachers but also the physical resources of the City's parks and greenways systems themselves.
- **Environmental Education in Parks.** Develop an environmental education program for the city's parks and greenways systems, providing interpretive trails, signage and other physical resources, as well as human resources to provide guided tours and teach classes.
- **Environmental Education in Libraries.** Establish a green reading room in the City's Main Library, and green reading shelves in the City's schools, providing resources for planning, designing and constructing or refurbishing, operating and maintaining green homes, offices, businesses, shops, industries, neighborhoods, infrastructure and communities.

Organization of GB&SMPE

Within each of the above components and areas, activities were grouped according to whether they have been started / completed, high priority / near-term, and lower priority / needing more time to develop and implement. The APA New Jersey Chapter's Model SMPE and case studies from Highland Park, Hopewell and West Windsor were used as guidance for both organization/format and substance as appropriate to Rahway's unique needs and desires.

Monitoring and Evaluation of GB&SMPE

The implementation and effectiveness of the GB&SMPE will be monitored and evaluated over time. The Environmental Commission and Planning Board will hold an annual joint public meeting to review monitoring and evaluation results and recommendations. When the project work group is satisfied that sufficient progress has been made, a new set of GB&SMPE planning components will be developed from among the potential measures listed in the APA-New Jersey Model Green Building and Environmental Sustainability Master Plan Element (see box at end of Section 5).

2.0 SUSTAINABLE DOWNTOWN REDEVELOPMENT

2.1 Goals and Objectives

The following planning measures relate to downtown Redevelopment Areas in the City of Rahway but, by institutionalizing it in the redevelopment process, sustainability can also be applied to other redevelopment areas in the City.

Brownfields Cleanup & Redevelopment

Remediate and utilize brownfields to gain needed space for redevelopment or parks, thus densifying downtown and providing needed open space and recreation, and to remove the stigma preventing redevelopment.

Transit Village & Circulation

Create pedestrian, bike and transit friendly circulation that conserves energy by shifting to more energy-efficient urban forms and more efficient routing.

Green Buildings

Conduct thorough sustainability audits (energy, water, solid waste, etc.) of not only all existing municipal buildings, but also all existing redevelopment projects, and conduct thorough green building assessments of all municipal buildings and redevelopment projects that are under construction or in the planning and design stages, and recommend energy efficiency, renewable energy and other measures to improve sustainability.

Parking Lots and Garages

With fewer cars needed, densify parking lots into a fewer number of parking garages and utilize the resulting surplus parking lots for redevelopment sites or parks.

Parks and Recreation

Review the number, size, accessibility, features and quality of downtown parks relative to downtown redevelopment plans and, using land generated by brownfield cleanups and parking lot conversions, identify optimal locations for new parks that can be incorporated into the downtown pedestrian, bike and transit circulation system, as well as into the citywide river/greenway system (see below).

2.2 Action Plan

The Action Plan below presents recommended actions, organized according to the goals and objectives outlined above, and identifies who should be involved, priority/status and timeframe, and estimated project costs and other resources needed for implementation. Many of the recommended actions can earn the City points toward Sustainable Jersey certification if the action is implemented and documented according to the Sustainable Jersey guidelines. The Sustainable Jersey actions and corresponding possible points are indicated in the action descriptions which also provide a link to the corresponding Sustainable Jersey webpage.

ACTION PLAN: SUSTAINABLE DOWNTOWN REDEVELOPMENT**LAND USE AND ZONING*****Utilize LEED-ND in Downtown Redevelopment***

Utilize and seek certification for the Leadership in Energy and Environmental Design for Neighborhood Development Rating System (LEED-ND) in future downtown redevelopment planning. LEED certification provides independent, third-party verification that a development's location and design meet accepted high levels of environmentally responsible, sustainable development. LEED-ND integrates the principles of smart growth, urbanism and green building into the first national system for neighborhood design, developed by a collaboration of the US Green Building Council, Congress for the New Urbanism, and the Natural Resources Defense Council. Categories of LEED-ND project evaluation include:

- Smart Location and Linkage
- Neighborhood Pattern and Design
- Green Infrastructure and Buildings
- Innovation and Design Process
- Regional Priority Credit

Given these evaluation categories, LEED-ND can be used to guide many of the below components of this Sustainable Downtown Redevelopment theme of the Rahway GB&SMPE. Appendix A presents the LEED-ND Project Checklist. More information can be found at the USGBC LEED-ND webpage: <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=148>

Zoning to Promote Desired Downtown Development

What the City is already doing: The City has established a series of over a dozen redevelopment areas, many implemented via innovative public private partnerships, comprising a broad redevelopment ring zone surrounding the downtown. Zoning can be tailored flexibly by the Rahway Redevelopment Authority to the needs and characteristics of each of the dozen-plus individual redevelopment areas. In addition, The Rahway Arts District Board, a 501(c)(3) organization representing downtown businesses, has recently taken over management of the Downtown Special Improvement District from the Rahway Center Partnership to reflect the City's recent initiative to move away from a retail emphasis to more of an arts and historical focus as a way of bringing more visitors to downtown restaurants, cafes, and businesses. The Board allocates about \$140,000 per year of funds generated by the 7% property tax surcharge levied on the District's approximately 165 businesses. Many projects have already been completed or are ongoing, including the restoration of the Union County Performing Arts Center and the development of a 1,200-seat amphitheatre and combination 225-seat black box theatre and dance studio (soon to be occupied by the world-renowned Nai-Ni Chen Dance Company). The proposed arts district would also provide one or more buildings with artists' lofts, e.g. in the YMCA or some other adaptively re-used existing building, where they could live, work and exhibit inexpensively.

Make it a priority: Although project-specific zoning can be advantageous from an individual site development perspective, the downtown arts district initiative described above could benefit from some form of overall downtown zoning or design review focusing on the aesthetic treatment of buildings, sites and infrastructure. Examples of such improvements include:

- Commissioning sculptures of famous Rahway citizens to be placed downtown, making the commissioning competitive and contingent upon the sculptor relocating to Rahway's arts district.
- Converting the unattractive railroad bridge across Milton Avenue at the train station in town center into a creative gateway to downtown by appropriate repainting, lighting and signage.

More generally, the Master Plan calls for the transformation of the downtown through both changing zoning to reflect current development, and enforcing current zoning that is mutually exclusive with undesirable development; the two actions the Master Plan recommends are:

- Reexamine zoning downtown, especially along Milton, Hazelwood, Fulton, Emerson, West Cherry St., Campbell St., Clinton St., and Elm Ave., and ensure that they are properly zoned to encourage mixed use, medium density development.
- Reexamine development west of Routes 514/27 to ensure that this area is compliant with low density, single family development.

BROWNFIELDS CLEANUP AND REDEVELOPMENT

Brownfields Redevelopment Opportunities

What the City is already doing: The NJ DEP recently designated Rahway as a "Brownfield Development Area", thus providing it with one-stop shopping at NJ DEP for brownfield funding and financing up to a raised ceiling of \$5 million per year.

The Master Plan calls for reviewing remaining brownfields to identify those within 0.6 miles of downtown, and then look for funding and financing for their assessment, cleanup and redevelopment. State funding and financing is available under the NJ Hazardous Site Discharge Remediation Fund (HSDRF); designation as a Brownfields Development Area (BDA) would bring additional funding.

Brownfield Areas Land Use Planning and Zoning

The Master Plan calls for reexamining existing land use planning and zoning on and near brownfield sites to allow for new zoning to expedite redevelopment.

TRANSIT VILLAGE & CIRCULATION

What the City is already doing: Rahway was designated as one of the first "transit villages" in New Jersey with a commitment to concentrate its redevelopment efforts and maximize the concentration of workers and residents within a one-half mile radius of the train station. The City wants to take advantage of this important designation to become a more pedestrian-friendly city and add to and enhance its mass transit options. Merck already operates a shuttle bus to ferry its employees from the train station to its campus; there is also a senior citizens' shuttle bus that makes a downtown circuit. The system of one-way streets for automobile circulation that reigned for 50 years was converted 3 years ago to the present more convenient two-way street system.

In addition, Rahway has been touting its quick and easy accessibility to Newark Airport by train. It is a 15-minute ride from Rahway to the airport where riders can then transfer to and ride the Air Train (a monorail system) to all of the air terminals. Air travelers and airline personnel have been traveling from the airport to Rahway and staying at the Indigo Hotel across the street from the Rahway Train Station. The station stop at the airport was built by NJ Transit about 5 years ago. It has since become a big selling point for the city.

Mass Transit

- Incentivize large local businesses to develop Transportation Management Plans providing alternative ways for employees to commute to work (mass transit, ride sharing, biking, walking)
- Review transit stops and schedules to improve convenience for riders
- Improve bike and pedestrian access to transit stations and stops (see Bikeways and Walkways below)
- Institute a citywide ride sharing website
- Publicize Rahway's convenience to Newark Airport by train.

Alternative Transport

- Gradually replace municipal public works, school and commercial vehicle fleets with more fuel-efficient alternative fuel vehicles
- Bring back horse-drawn carriage rides for downtown Rahway (ensuring humane treatment of the horses)

Bikeways

What the City is already doing: While there is an existing master plan element entitled, "Bike Path Plan for the City of Rahway (prepared by CME Associates in December 2004), that plan has apparently not been implemented. The bike paths that have been developed pre-date the existing bike path and greenway plans (see Section 3 below); these include the path developed by Union County beginning at Grand Avenue and going northwest through the County's Rahway River Park and the path going west along and the west toe of the levee north from Milton Avenue to Monroe Street. Despite these paths, there is a lack of bike-friendly routes across the City.

The downtown is home to many governmental and educational facilities as well as commercial and public transportation infrastructure. In light of the Rahway Master Plan, which calls for the redevelopment of the downtown into a walk-able, arts oriented, mixed-use setting, these different assets and resources can be connected via designated pedestrian and bikeway systems and integrated into a holistic downtown setting.

Implement, or complete implementing, one or more bikeway proposals presented in the Bike Path Plan for the City of Rahway to provide the benefits listed below. Where funds are limited, consider implementing elements of the bikeway proposals in the following order of priority from sustainability perspective:

- Bike access to and from downtown relative to outlying areas of the City – including the East Coast Greenway connecting to towns and regions north and south – emphasizing bike access to and storage at downtown transit centers, especially train station, to relieve rush hour traffic (reducing congestion, idling, etc.).
- Bike circulation and bike storage facilities elsewhere around downtown, emphasizing bike access to and storage at downtown parks, schools and other community facilities and services – link to Public Outreach and Environmental Education theme (see Section 5 below).
- Bike connectivity to downtown intersections with existing and proposed river greenway systems -- link to Sustainable River Greenways theme (see Section 4 below).

Bikeway design principles:

- Where street widths are insufficient to safely accommodate bike paths, consider building another downtown parking structure to alleviate the need for on-street parking on one side thus freeing up that side to establish a bike lane.
- Include pervious surface along all bikeway redevelopment, thus reducing storm water near vulnerable floodplains downtown.
- Provide signage along all bikeway redevelopment (especially on high traffic Milton Avenue and at transit center) to educate populace about pervious surface, storm water, and other environmental topics as well as direct downtown pedestrian traffic to designated pedestrian circulation systems.
- Follow recommended guidelines for corridor routing, setbacks, widths, surfaces, lighting, fencing, multiple uses and other safety provisions.

Walkways

What the City is already doing: The City has replaced virtually all of the old sidewalks in the downtown area with new brick-paved walkways and other attractive pedestrian infrastructure, including street trees, benches and lamp posts.

Review pedestrian improvements proposed in the Master Plan and elsewhere and implement or complete implementing those relating to the downtown and which improve sustainability using as models the proposals and guidelines described above for bikeways. Where funds are limited, consider implementing walkway proposals in order of priority from a sustainability perspective. The following Monroe Bridge proposal in the Master Plan is illustrative.

Modify Monroe Bridge on East Milton Ave. by adding barriers between the busy road and pedestrian sections of the bridge to link the Essex / Main St. areas with resources within several blocks and currently separated by the river. These elements include:

- The new Library, which could effectively administer green education
- City services (City Hall, Firehouse, and Police Department, all right by the bridge) and Post Office
- Food service and entertainment downtown
- Rahway River Association as part of downtown entertainment zone with river walk, bikeway, and community center integration
- Grover Cleveland School
- Community Centers such as the Esterbrook senior center, the Claude Reed Community Center

GREEN BUILDINGS

Building Energy Audits

What the City is already doing: In 2008, the Environmental Commission received a presentation on the NJ Bureau of Public Utilities' Local Government Energy Audit (LGEA) Program. Since then, the City has initiated participation in the LGEA Program which provides municipal building energy efficiency and renewable energy audits. In addition, solar photovoltaic equipment has been or is planned to be installed on several existing buildings in Rahway, including:

- Rahway Middle School & High School
- Merck & Co., Inc.
- Zion Evangelical Lutheran Church
- Walgreen Eastern Co., Inc.
- Resident
- Other commercial

Make it a priority: Energy conservation and renewable energy audits should be conducted of all major municipal, commercial and residential buildings in downtown redevelopment projects in particular and in the downtown area in general. Audits and/or retro-commissioning could be conducted of existing buildings and plans for buildings still in the design stage can be reviewed by energy specialists to identify opportunities for improving energy efficiency and adding renewable energy generation capability. Audit results can be used to identify opportunities to install energy efficiency retrofits and renewable energy equipment on the existing buildings. This will entail completion of the current NJ BPU LGEA audits, but the City can work with equipment vendors and service providers in the sustainable energy industry to find innovative ways to finance audits and retrofits of additional buildings.

Green Building Policy/Resolution (SJ: 5 points)

Develop and adopt a policy by resolution that supports green building design and operating practices for municipal facilities.

http://www.sustainablejersey.com/actiondesc.php?arr_num=35&id_num=5!1

Green Building Training (SJ: 5 points)

Status: As part of the EC's promotion of "green friendly" and environmentally sustainable building practices, the EC organizes and promotes relevant sustainable development presentations each year. In 2007, the EC sponsored a presentation entitled, "High Performance Redevelopment: Sustainable Architecture in Rahway and Beyond" which covered the Leadership in Energy and Environmental Design program (LEED) and was well attended by participants in Rahway redevelopment, including developers, city officials, board members, and elected officials including the Mayor. In 2008, the EC sponsored a talk, "New Jersey's Clean Energy Program for Rahway Residents" which dealt with financial incentives, programs and services available to residential customers that can save energy, money and the environment.

Municipal staff and volunteers (board members) that regularly interact with builders and developers can participate in one or more green building training sessions to improve knowledge of green building to facilitate its implementation throughout the community.

http://www.sustainablejersey.com/actiondesc.php?arr_num=36&id_num=5!2

Green Building Scorecard for Commercial & Residential Buildings (SJ 10 points)

Developing a green building scorecard as a voluntary element in their Site Plan approval process. A green building scorecard lists various green building design strategies that can be implemented as part of a residential or commercial development, whether part of a designated redevelopment area or not.

http://www.sustainablejersey.com/actiondesc.php?arr_num=38&id_num=5!3

Site Plan Green Design Standards for Commercial & Residential Buildings (SJ 20 points)

In order to earn 20 points toward Sustainable Jersey certification, municipalities can amend their Site Plan checklist to include green design standards. This will require the adoption of an ordinance to amend the Site Plan checklist. Site Plan approval would then become conditional on fulfillment of these items, for which statutory authority is given by N.J.S.A. 40:55D-41 (contents of Site Plan ordinance).

http://www.sustainablejersey.com/actiondesc.php?arr_num=39&id_num=5!4

Green Building Education for Commercial & Residential Buildings (SJ 5 points)

Municipalities are encouraged to provide educational information to residents to facilitate the incorporation of green building elements to residential projects. Each municipality can determine

the best ways in which to accomplish this, however it is strongly suggested that green building educational materials be provided at the municipal construction office.

http://www.sustainablejersey.com/actiondesc.php?arr_num=40&id_num=5!5

New Construction for Municipal Buildings (SJ 20 points)

Municipalities that achieve a recognized green building standard when constructing new municipal buildings and facilities can earn 20 points toward Sustainable Jersey certification.

http://www.sustainablejersey.com/actiondesc.php?arr_num=42&id_num=5!6

Upgrade/ Retrofit - Water Conservation for Municipal Buildings (SJ 10 points)

What the City is already doing: *The City is already participating in a NJ Department of Environmental Protection sponsored water conservation pilot project involving only five localities in the state.*

Water conservation is the most cost-effective and environmentally sound way to reduce our demand for water. This action helps municipalities to identify and implement water conservation measures in their own facilities. The Green Building Policy/Resolution action is a pre-requisite

http://www.sustainablejersey.com/actiondesc.php?arr_num=43&id_num=5!7

Upgrade/ Retrofit - Light Pollution for Municipal Buildings (SJ 10 points)

The goal of the Reduce Light Pollution action is to create an outdoor lighting policy that helps prevent misdirected or excessive light caused by inappropriate or misaligned light fixtures. The Reduce Light Pollution action aims to reduce annoying and destructive impacts like glare, light trespass, and skyglow. A Reduce Light Pollution policy also helps encourage energy conservation, improve nighttime public safety, and prevent annoying and destructive light pollution.

http://www.sustainablejersey.com/actiondesc.php?arr_num=44&id_num=5!8

Construction Waste Recycling for Municipal Buildings (SJ 10 points)

The goal of this action is to increase recycling of construction and demolition debris through the adoption of a municipal policy. Such a policy would require that a certain percentage of the construction and demolition (C&D) debris generated from municipal projects be diverted from landfill disposal and instead managed through reuse and recycling options. These actions divert construction, demolition, and land-clearing debris from disposal in landfills and incinerators and can direct recyclable recovered resources back to the manufacturing or construction process.

http://www.sustainablejersey.com/actiondesc.php?arr_num=45&id_num=5!9

PARKING LOTS AND GARAGES

What the City is already doing: *The City has developed one parking structure to accommodate downtown visitors and plans two more. While financing is being sought for the additional parking structures, the City is beginning development of a surface parking facility both as an interim parking measure and as a means of banking that land for future redevelopment.*

Onsite Parking at Redevelopment Projects

The Master Plan notes that standalone parking facilities tend to encourage community blight while onsite parking incorporated into larger and denser new downtown redevelopment projects, e.g. as implemented by MERCK, will make downtown more walk-able.

Parking Requirements and Alternative Transport

Evaluate zoning requirements for parking in downtown redevelopment projects to ensure that they do not encourage residents and visitors to drive to and around downtown as opposed to using mass transit, bicycling and walking.

Incorporate Solar Energy in Parking Facilities

Evaluate existing and planned parking lots and garages for potential opportunities to install photovoltaic solar energy panels.

Incorporate Alternative Vehicle Charging Stations

Estimate demand and prepare a plan and design for installing alternative vehicle charging stations at selected downtown parking facilities.

Parking Facility Design

Parking facilities should be designed to include safety features and be aesthetically pleasing to encourage downtown visitors to use them.

PARKS AND RECREATION***Downtown Parks Integration with Redevelopment***

The Master Plan calls for increased attention to downtown parks and to provide park features for commercial and government development in downtown. Evaluate downtown parks and open space needs – function, location, size, design and programming -- relative to planned redevelopment projects and projected population increase, demographics and density to ensure that parks meet the needs of the people who live in work in downtown. In addition to the larger traditional public parks, builders and developers of larger scale developments should be encouraged to incorporate attractive courtyards and green spaces into their developments.

Environmental Education in Parks

Emphasize environmental education in park facilities and program design – link to Public Outreach and Environmental Education theme in Section 5.

Community Garden Integration with Redevelopment and Parks

Where possible provide garden space for residents.

Downtown Parks Connectivity

Evaluate and plan multi-modal connectivity among downtown parks and between downtown parks and river corridors and other parks beyond downtown via greenways and other sustainable transport – link to Citywide River Greenways them in Section 4.

3.0 SUSTAINABLE RIVER GREENWAY SYSTEM

3.1 Goals and Objectives

The following planning measures focus on development of greenways along the rivers in the City of Rahway but, by institutionalizing it in the greenway system development process, sustainability can also be incorporated into the planning of other greenways in the City. This will entail effective partnership with the County, since many existing parks in the City of Rahway are owned by Union County, as well as with private sources of financing for parks.

Parks and Recreation

Create new park space along the rivers and streams in the City and expand and improve existing parks.

Circulation

Link the existing riverside parks with new riverside parks and other parks and greenways in the City to provide an efficient and comprehensive system for pedestrian and bike circulation while, at the same time, providing valuable corridors for wildlife to travel between protected habitats which improves their chances for survival in urban areas where a given habitat area may not be sufficient in terms of area, food, cover, reproduction, etc.

Flood Control and Wetlands

Continue to prevent and remove development from the 100-year floodplain of the rivers and streams in the City, and restore or create wetlands and other natural floodplain uses and values.

Water Pollution Control and Green Infrastructure

Incorporate green infrastructure into the riverside parks and greenways so that storm water is managed in a way that minimizes surface water runoff, soil erosion, and stream sedimentation.

Water Conservation

Implement and replicate the water conservation project currently being designed with support from the State to reduce wastewater generation generally in the City.

Tree Planting and Maintenance

Focus the city's tree planting and maintenance program on the riverside parks and greenways, being careful to choose trees that are not only survivable and manageable on the City's streets but which also are compatible with the ecological restoration themes of the riparian areas being recovered and converted to parkland.

Invasive Species and Control of Destructive Wildlife

Encourage protection and growth of native plants and protection of native animals. Encourage elimination of invasive plants and control of non-native animals.

3.2 Action Plan

The Action Plan below presents recommended actions, organized according to the goals and objectives outlined above, and identifies who should be involved, priority/status and timeframe, and estimated project costs and other resources needed for implementation. Many of the recommended actions can earn the City points toward Sustainable Jersey certification if the action is implemented and documented according to the Sustainable Jersey guidelines. The Sustainable Jersey actions and corresponding possible points are indicated in the action descriptions which also provide a link to the corresponding Sustainable Jersey webpage.

ACTION PLAN: SUSTAINABLE RIVER GREENWAY SYSTEM**PARKS AND RECREATION**

What the City is already doing: Three greenway plans have been prepared over the past 20 years that are relevant to the City of Rahway; these include:

- *Greenways to the Arthur Kill: A Greenway Plan for the Arthur Kill Tributaries, prepared by Dunrie A. Greiling and published by New Jersey Conservation Foundation, dated 1993. It covers all of the river basins feeding into the Arthur Kill.*
- *Rahway River Greenway Concept Plan, prepared by The RBA Group, dated February 6, 2006, and adopted in 2006 as an element of the Master Plan for the City of Rahway. It focuses only on that stretch of the Rahway River that flows through the City of Rahway, and on public transport, public access and aesthetics issues. The Rahway River Association played a role in commissioning the plan as a means of getting Union County to consider the greenway concept.*
- *Rahway River Greenway Plan, which covers the entire river basin (prepared by Rutgers Edward J. Bloustein School of Planning and Public Policy, February 2009). It addresses the entire Rahway River Basin, including jurisdictions beyond the City of Rahway.*

The 2006 greenway master plan element was based on concepts included in the very substantial 1993 Arthur Kill greenway plan. However, implementation of the existing greenways in Rahway, i.e. the Rahway River Park and Milton Lake Park (on Robinson's Branch), was part of a Union County river greenway plan extending from Rahway upstream to Springfield. Implementation of that County plan took place 80 years ago and therefore greatly pre-dated both the 2006 greenway master plan element and 2009 Rutgers greenway plan. The latter two plans apparently have not been implemented due mainly to lack of funding. Further, no greenway plan yet been implemented for the stretch of Rahway River extending downstream from Rahway to Carteret and Linden.

The Rahway River Association has been since 1992 the region's leading voice in championing the cause of preserving open space, improving water quality and protecting natural resources of the Rahway River watershed which encompasses 24 municipalities including the City of Rahway. In this capacity, the Association has been instrumental in implementing many environmentally sustainable projects along the river in Rahway and maintains an excellent cooperation with the City of Rahway.

Recent notable projects that the Rahway River Association has completed or ongoing – with financial, engineering/technical or construction support obtained from private, City, County, Federal (e.g., US Army Corps, FEMA) sources, include:

- *Acquiring flood-prone properties, demolishing the existing buildings and replacing them with constructed wetlands, native species plantings, community gardens, parks and open space to improve floodplain hydraulic and ecologic functioning, e.g. at St. George's and Central Avenue (community gardens) and Union and Allen Streets (Bezega Park)*
- *Restoring stream banks on Robinson's Branch, Orchard Brook and Albemarle*
- *Restoring wetlands on the Rahway River at Monroe Street and Routes 1&9*
- *Controlling non-point water pollution to Robinson's Branch*
- *Managing invasive vegetation at Bezega Park on the Rahway River*
- *Establishing a park near the Covanta facility*

A summary of the Association's accomplishments and activities can be found at their website: www.rahwayriver.org. While the Association has been established and continuously active for nearly 20 years, and is stable in its officers and membership, the recent economic downturn has jeopardized both sustaining grants and project-specific funding. Presently, the Association can afford only one part-time assistant to organize events and conservation projects can be developed only one at a time.

Evaluate and Revise Existing Greenway Plan

Make it a priority. This Sustainable River Greenway System theme of the Rahway GB&SMPE is intended to address all major waterways in Rahway, including Robinson's Branch and South Branch as well as Rahway River, and cover flood control, water quality and other sustainability issues as well as public access and transport via greenways and aesthetics issues. The following initial steps are recommended:

- Review the existing Open Space and Recreation Plan element of the Master Plan relative to the City's rivers and streams, and their associated floodplains and wetlands.
- Evaluate the status of implementation and the extent of effectiveness of the existing greenway master plan element (Rahway River Greenway Concept Plan, 2006) in achieving sustainable development goals and identify any obstacles to implementation or effectiveness.
- Update and revise the existing Rahway River Greenway Plan addressing obstacles and gaps to improve the likelihood of implementation and effectiveness. In addition, the 2006 plan element could also benefit from integration of concepts and information from the 2009 Rutgers Rahway River greenway plan (see below).

Prepare Financing and Implementation Action Plan

Provide a rigorous action plan detailing how the all measures will be financed and implemented.

- Prepare a detailed implementation plan, identifying priorities, responsible parties, timeframes, resources needed, and indicators and targets to monitor and evaluate. Focus on measures and actions that have low or no cost, such as the voluntary and regulatory measures recommended in the existing greenway master plan element.
- Conduct a rigorous analysis of financial feasibility, identify relevant and available financial resources, and prepare a plan for obtaining those financial resources. Section 4: Funding Sources, in the Rutgers 2009 greenway plan describes several sources of funding; this summary should be reviewed and updated to determine which sources are most feasible and appropriate to fund the measures recommended in the 2006 greenway master plan element.

Voluntary Measures

What the City is already doing: Each year the EC actively participates in the activities of the Rahway River Association. In 2007, the Rahway EC commemorated the Year of the Rahway River by joining other ECs based in the Rahway River Basin in an Earth Day basin-wide garbage cleanup. In 2008, the Rahway EC participated in the annual Earth Day cleanup again, as well as in a special 1-day conference, "The State of the Rahway Watershed" and a Rutgers University workshop, "Rahway River Greenway". The Rahway EC participated in the Annual Earth Day cleanups in 2009 and 2010 as well.

Make it a priority: The following voluntary measures were recommended in the 2006 Rahway River Greenway Concept Plan and are still valid:

- Create a community program to encourage local groups and business owners to donate time, services or money to local landscaping, vegetation management and clean-up efforts.

- Create a community fund for tree and vegetation replacement and clean-up efforts.
- Encourage the donation of conservation easements.
- Provide tax, zoning and permit incentives to landowners and developers to preserve or enhance trees and vegetation.

Regulatory Measures

Make it a priority: The following regulatory measures were recommended in the 2006 Rahway River Greenway Concept Plan and are still valid:

- Enact ordinances for viewshed protection, tree conservation, landscaping and vegetation management. Viewshed ordinances may include controls for building and site design to avoid impacting scenic resources or obstruction views.
- Establish an overlay district to establish consistent standards for development or design within the greenway corridor.
- Develop design review standards and requirements for development within the river corridor to ensure that greenway quality, character, public access and connections are incorporated into future development in keeping with the Rahway River Greenway Plan.

Public Transport and Access Measures

What the City is already doing: *The existing Rahway greenway master plan element's Vision Statement is: "The Rahway River Greenway can become an integral part of the City of Rahway's identity, enhancing the quality of place and offering the fullest possible public access and recreational opportunities along a scenic and healthy waterway." The Goals of the existing greenway master plan element are:*

- *Develop continuous pedestrian and bicycle facilities along the river and to public destinations (downtown, parks, river access points)*
- *Provide public access to the river and facilities to support activities such as boating, fishing and bird watching.*
- *Provide public gathering places along the river and create and designate areas for viewing the river environment.*
- *Manage the riverbanks to restore the natural river environment and create a litter free environment and improve river views.*

Make it a priority:

- Review, update and prioritize the action plan design recommendations presented in the 2006 existing City greenway master plan element as presented overall and by river zone in Parts 2 and 3 of the plan.
- Review, update and prioritize the general recommendations in Section 2 of the 2009 Rutgers Rahway greenway plan; pay particular attention to the proposed and potential acquisition sites in Tables 1.2 and 1.3 of the Appendix that are located in the City of Rahway.
- Reconcile and integrate the recommendations of the 2006 and 2009 greenway plans, set priorities for implementation, evaluate financial feasibility and identify and seek financing.

FLOOD CONTROL AND WETLANDS

What the City is already doing: *As described above, several projects in recent years have acquired and demolished homes in flood-prone areas that are costing both the residents and the City additional money to protect and insure against, and repair and cleanup after, severe flood events. The City is now involved in efforts to improve the City's overall flood rating so that residents' flood insurance premiums can be reduced.*

Make it a priority:

- Identify additional properties within the 100-year floodplain that could be acquired and converted to parkland thus restoring floodplain hydraulic and ecosystem functioning and values while also reducing the costs of repairing flood damage to buildings and properties.
- Identify areas where wetlands can be protected, enhanced, restored or created (constructed), develop a prioritized plan for such measures and search for relevant funding and financing.
- Implement the water conservation measures described below.
- Reduced property tax revenues from converted parcels may be offset ultimately by increases in property values of homes outside the floodplain but adjacent to the expanded and improved parklands and greenways

WATER POLLUTION CONTROL AND GREEN INFRASTRUCTURE

What the City is already doing: The City has recently become the beneficiary of a \$1 million technical assistance grant, to be shared with the Town of Clark, from the US Army Corps of Engineers and NJ Department of Environmental Protection under Section 404 of the Federal Clean Water Act to the Rutgers University Extension Service to carry out projects to control non-point source water pollution (i.e., especially floatable trash like plastic bottles, suspended solids from erosion, and nutrients such as nitrogen and phosphorus from fertilizer). The Environmental Commission and Rahway River Association have for the past 4 years sponsored river cleanup days as well.

Make it a priority:

- Solid waste (plastic bottles and bags, tires) – Encourage recycling by providing recycling containers as well as trash receptacles at all public trash collection points thus reducing solid waste deposited in the streams and floodplains; also continue to hold annual river cleanup days
- Sedimentation (suspended solids) – Develop a citywide education and incentivization effort to utilize rain barrels, rain gardens and permeable surfaces (permeable pavers, gravel, etc.) on park lands and other land uses to reduce the volume and velocity of runoff and thus reduce soil erosion and stream sedimentation; revise rules to allow gravel driveways as long as they are maintained in an attractive way
- Nutrients (nitrogen and phosphorus) – Develop a citywide education and incentivization effort to reduce curb-side yard waste and other sources of excess nutrient pollution of surface water runoff by reducing the use of nitrogen lawn fertilizers, encouraging the use of mulching mowers and backyard composting, and replacing lawns areas with native shrubs and groundcovers
- Chlorides (sodium chloride) – Utilize an eco-friendly chloride (e.g., magnesium, potassium or Calcium chloride) and/or other sustainable means of melting snow on roads and walks thus reducing the need to plow as well as reducing water pollution

WATER CONSERVATION

What the City is already doing: Rahway is one of five New Jersey municipalities chosen to participate in the New Jersey Water Conservation Program funded by the Rutgers Cooperative Extension, NJ DEP and US EPA. The 3-year pilot project will develop a model community-based water conservation education program with the aim of reducing residential water use by

10%. RHS will have two “green” restrooms by the end of the school year for free. This may lead to entire school being updated with low flow technologies next year. Benefits include:

- RHS and the community will serve as a model of water conservation within the region.
- Complete implementation of the New Jersey Water Conservation Program funded by the Rutgers Cooperative Extension, NJ DEP and US EPA.
- The 3-year pilot project will develop a model community-based water conservation education program with the aim of reducing residential water use by 10%.

Make it a priority: In addition to completing and looking for funding to extend the water conservation pilot project described above, the public outreach and environmental education program described in Section 4 below should be utilized to encourage residents to practice water conservation; illustrative activities include:

- Making rainwater collection barrels
- Creating rain gardens
- Landscaping for water conservation (e.g., native species and xeri-scaping)
- Converting lawn areas to natural state with native trees, shrubs and wildflowers (versus invasive species)

TREE PLANTING AND MAINTENANCE

What the City is already doing: The City of Rahway is very aggressive in protecting and maintaining Rahway’s existing street tree stock. The City takes advantage of Union County’s Green the Streets Fund to plant new street trees.

Make it a priority:

- Besides planting and maintaining trees throughout the city, emphasize saving trees that are threatened with redevelopment and routine street repairs, consulting a certified NJ arborist to help make these decisions.
- Plant greenway and park areas with native tree, shrub and flower species.

INVASIVE SPECIES AND CONTROL OF DESTRUCTIVE WILDLIFE

Make it a priority:

- Encourage protection and growth of native plants and protection of native animals.
- Encourage elimination of invasive plants and control of non-native animals.

4.0 COMMUNITY OUTREACH AND ENVIRONMENTAL EDUCATION

4.1 Goals and Objectives

In order for the community to reach the vision together, there must first be a shared understanding of the vocabulary of sustainability. That understanding will be developed as residents generate a personal rationale for sustainability and feel that they contribute to the shift toward a sustainable future. Through continual education the concept of, and work toward, a more sustainable future will become an inherent ideal in the community. This plan is the first step in that effort.

Stakeholder Outreach

Develop and implement an effective public information, education and consultation program tailored specifically to implementing the SMPE.

Environmental Education in Schools

Partner with the Board of Education to develop and implement a comprehensive environmental education curriculum at all levels in the City's school system that will utilize not only the school system's natural sciences teachers but also the physical resources of the City's parks and greenways systems themselves.

Environmental Education in Parks

Develop an environmental education program for the city's parks and greenways systems, providing interpretive trails, signage and other physical resources, as well as human resources to provide guided tours and teach classes.

Environmental Education in Libraries

Establish a green reading room in the City's Main Library, and green reading shelves in the City's schools, providing resources for planning, designing and constructing or refurbishing, operating and maintaining green homes, offices, businesses, shops, industries, neighborhoods, infrastructure and communities.

4.2 Action Plan

The Action Plan below presents recommended actions, organized according to the goals and objectives outlined above, and identifies who should be involved, priority/status and timeframe, and estimated project costs and other resources needed for implementation. Many of the recommended actions can earn the City points toward Sustainable Jersey certification if the action is implemented and documented according to the Sustainable Jersey guidelines. The Sustainable Jersey actions and corresponding possible points are indicated in the action descriptions which also provide a link to the corresponding Sustainable Jersey webpage.

ACTION PLAN: COMMUNITY OUTREACH AND ENVIRONMENTAL EDUCATION**STAKEHOLDER OUTREACH**

What the City is already doing: See descriptions of annual green buildings workshops in Section 2 and annual Rahway River cleanup campaigns in Section 3 above for examples of ongoing public environmental outreach and education.

Establish “Green Team” (SJ: 10 points)

Make it a priority: This could be the same group as recommended in Section 5.1 to oversee GB&SMPE adoption and implementation, etc.

http://www.sustainablejersey.com/actiondesc.php?arr_num=1&id_num=111

Survey and Evaluate Environmental Outreach and Education

Make it a priority: Survey and evaluate public environmental information, education and consultation. Design and administer a comprehensive annual sustainability survey that assesses resident awareness, and knowledge of and participation in both Township wide and individual sustainable activities, and that gathers information for indicators that is not readily available by other methods of data collection.

Illustrative Outreach and Education Delivery Systems

Make it a priority:

- Develop an environmental guideline or owner’s manual for residents, as well as a program to distribute it. Consider using the *New Jersey Green Home Remodeling Guidelines* which can be found at www.greenbuilding.rutgers.edu or the *Hopewell Township Living Greener Guide*, which covers a very broad range of sustainability topics. It could be pressed into the public eye by its being placed in between an essential city service online, and the user. When someone downloads tax forms, for example, it should include this document.
- Develop an information kit for electronic distribution to local schools and non-profit groups regarding participation in sustainability efforts
- Develop a municipal awareness campaign using messages in local publications, e.g. a regular column in local newspapers and township newsletters about sustainability issues such as local air quality; radio broadcasts; local public television channel presentations; and outreach efforts at community events, etc.
- Distribute free energy efficiency starter kits to interested individuals and groups or wherever township staff is communicating with the public (farmers market, community meetings, etc.); the starter kit could be a collection of information and simple energy efficiency measures, such as CFLs, low flow showerheads (< 1.5 gpm), and faucet aerators, along with information on the actions residents can take and how to go about taking them (e.g. how to sign up for wind power, how to plant trees for electricity savings, or how to take advantage of and apply for Energy Star rebates)
- Facilitate the certification of Energy Star Homes by providing a listing of qualified certifiers, and by marketing the program to homeowners

Illustrative Environmental Education Events

Make it a priority:

- Hold free viewing of environmental awareness videos
- Have at least one “green event” featuring green local products.
- Have at least two “clean your parks” events.
- Sponsor city wide or neighborhood wide garage sales to encourage re-use.
- Create Rahway river summer events.

- Host block parties at local parks and community facilities.
- Host “Local Garden Tours” of area homes, businesses, and organizations (e.g., organic fruits and vegetables, natural vegetation, wildlife habitat gardens, water efficient landscaping, green roofs, and organic lawn and gardens).
- Organize a series of Community Sustainability Events that help to raise awareness about local air quality (i.e., Walk Your Child to School Day, Bike to Work Day, Car Free Day etc.)

Illustrative Environmental Education Grants, Contests and Challenges

Make it a priority:

- Involve residents and children of all ages in Green Challenges.
- Celebrate residents or local businesses that have helped promote sustainability within Rahway through public recognition.
- Conduct contests with prizes in the form of local tax breaks as awards to recognize green leaders within the community.
- Provide mini-grants to promote recycling awareness; small grants (\$500-1500) can encourage schools, community groups or non-profits to develop innovative projects that promote source reduction, reuse, or recycling in the community.
- Recruit businesses and organizations into the federal Energy Star program, utilizing pledges, peer exchanges, and public recognition programs to sustain involvement.
- Publicize every grant, certification or award achieved or maintained by the Township by the following three means; a press release; posting of a plaques or certificate in the municipal building lobby; and posting an announcement on the Township web page.

Illustrative Content for Environmental Education

Make it a priority:

- Encourage trading in of gas mowers for electric or battery powered mowers
- Using green or high reflectance roofs on buildings and other reflectance and shading techniques for parking lots and impervious
- Raising awareness about Energy Star business partnership and Energy Star Home program
- Changing light bulbs and unplugging unused equipment
- Recycling solid waste
- Using green cleaning products and practices
- Making rainwater collection barrels
- Creating rain gardens
- Landscaping for water conservation (e.g., native species and xeri-scaping)
- Maintaining lawns in natural state with native trees, shrubs and wildflowers (versus invasive species)
- Using vegetation to shade buildings and to reduce the urban heat island effect
- Composting yard waste
- Reducing motor vehicle emissions
- Complying with idling laws
- Walking to school

Community Education and Outreach (SJ: Six sub-actions at 10 points each)

Make it a priority: Community Education and Outreach is an essential element of any effort to make change. It provides community members with an understanding of sustainability as it relates to their everyday lives by giving them an understanding of how the choices they make can lead to a more sustainable future for themselves and their communities. This action promotes sustainability literacy and builds awareness, understanding, and action by educating

municipal staff, residents, and the business and non-profit sectors of the community about the need for sustainable choices and behaviors. In addition to promoting action outside of local government, it can build support within the community for local government to take bolder steps. Through Community Education and Outreach, the Green Team and other partners offer opportunities for various stakeholders to learn about sustainability initiatives and to implement sustainable practices. SJ offers six “sub-actions” worth 10 points each:

- Organize a Community Energy Outreach Program
http://www.sustainablejersey.com/actiondesc.php?arr_num=4&id_num=1!3
- Purchasing Clean and Green Energy
http://www.sustainablejersey.com/actiondesc.php?arr_num=5&id_num=1!4
- Efficient Home Heating and Cooling Subsidies
http://www.sustainablejersey.com/actiondesc.php?arr_num=7&id_num=1!6
- Home Energy Audits and Upgrades
http://www.sustainablejersey.com/actiondesc.php?arr_num=7&id_num=1!6
- ENERGY STAR Appliances and Products
http://www.sustainablejersey.com/actiondesc.php?arr_num=8&id_num=1!7
- Refrigerator-Freezer Recycling
http://www.sustainablejersey.com/actiondesc.php?arr_num=9&id_num=1!8

Green Challenges & Community Programs (SJ: 10 points)

Make it a priority: Local government alone does not have the capacity to solve many sustainability problems. For example, local government facilities and operations usually account for 2-3% of all local greenhouse gas emissions. Achieving targets recommended by scientists (80-98% reductions) will require broad community participation. A Green Challenge Program is a strategy to engage individual residents and businesses in a community effort towards sustainability. Challenges help individual people and households make a significant collective impact in achieving broader goals. Green Challenges engage residents to join in achieving common community goals. With a high rate of participation, residents will be able to track and monitor progress within their communities and to see results to which they can easily relate. Reporting the success and progress of the Program will show people their participation contributes to a community-wide movement, which is the first step to recognizing one’s role in a global movement. See for more information:

http://www.sustainablejersey.com/actiondesc.php?arr_num=12&id_num=1!11

ENVIRONMENTAL EDUCATION IN SCHOOLS, PARKS AND LIBRARIES

Schools

Make it a priority:

- Develop one or more projects with schools to install solar energy systems and conduct associated classroom activities.
- Create a compost pile at local schools to dispose of waste from cafeterias. Use this compost to start a vegetable garden to supplement school lunch ingredients. Use this program to teach students life cycle analysis of food. Students will begin to appreciate problems involved in getting a group of anyone, especially fellow students to follow a program. Responses to problems, such as inappropriate material ending up in compost can include student led school wide PR campaigns, student government initiatives, etc.

Parks, Conservation Areas, Greenways and Trails

Make it a priority:

- Develop and install appropriate interpretative signs and information brochures on biodiversity values at Rahway parks, conservation reserves, greenways and trails
- Recommend to Union County that they develop "Wolf's Farm" (also called "Graywill Acres"), located on Bramhall Road in Rahway as a park and education facility; recruit local volunteers to operate it; and use the farm and adjacent natural areas to provide horseback rides for children, establish community vegetable gardens, bring back chicken coops to produce organic locally grown Grade A eggs, etc.

Libraries and Other Community Facilities

- Create a Sustainable Development Reading Room at the Library
- Create sustainability educational displays in municipal buildings

Downtown Redevelopment Area

- Provide developers and property owners with information, education and training relating to green building design and construction, e.g. using green roofs or high reflectance roofs on buildings and other reflectance/shading techniques for parking lots and impervious surfaces.
- Work with local stores to promote Energy Star products and educate consumers about the Energy Star label. Provide links to ENERGY STAR's product locator and buyer's guide on Rahway website
- Bring back humane carriage rides, or tram-type shuttle buses, in downtown Rahway

School-based Energy Conservation Programs (SJ: 10 points)

The purpose of the School Energy Conservation Programs action is to promote school participation in existing energy conservation/education programs. See for more information:

http://www.sustainablejersey.com/actiondesc.php?arr_num=10&id_num=1!9

Education for Sustainability Programs (SJ: 10 points)

Sustainability is about the future, and students are our future. Education for sustainability will provide students with a broader context for the choices they make and will give students insight into the implications of their consumption habits. Students will be able to apply what they are learning in school to real-world issues that directly affect their local communities, and that can have global implications. Students, and by extension their families, can gain an understanding of what achieving sustainability requires and why it is important to use natural resources efficiently, engage the whole community, and maintain a viable economy. The goal of education for sustainability is to prepare students to make informed decisions about their lifestyles and consumption habits. Many sustainability issues can provide a meaningful context for what students are already learning in school. Educating the next generation about sustainability issues is a logical role for schools, and it is one that will help us to move toward a more sustainable future. See for more information:

http://www.sustainablejersey.com/actiondesc.php?arr_num=11&id_num=1!10

Green Fairs (SJ: Two sub-actions at 10 points each)

Make it a priority: A Green Fair is a community-wide event that educates and encourages people of all ages to adopt a more sustainable lifestyle. Green Fairs allow participants to visualize how their seemingly small individual efforts can make a huge difference in their community. SJ offers two "sub-actions" worth 10 points each:

- Hold a Green Fair:
http://www.sustainablejersey.com/actiondesc.php?arr_num=14&id_num=1!12
- "Green" Your Green Fair
http://www.sustainablejersey.com/actiondesc.php?arr_num=15&id_num=1!13

5.0 PLAN ELEMENT IMPLEMENTATION AND FOLLOWUP

5.1 Plan Element Adoption and Implementation

The SMPE will first need to be accepted at a meeting of the City of Rahway Environmental Commission, and then formally adopted by a vote of the City of Rahway Planning Board.

The GB&SMPE presented in Sections 2, 3 and 4 above can be converted to a set of tables to facilitate implementation by providing information on who should implement each action, with what priority and schedule, and with what level and source of money and other resources. While the City's Planning Department is the logical organization to implement the GB&SMPE, it is recommended that a GB&SMPE Oversight Committee, which could be called the "Green Team", be established with representatives from the Environmental Commission, Planning Board, City Council, City Administration, Redevelopment Agency, Rahway Arts District Board, Rahway Center Partnership, Rahway River Association, School Board and general public.

5.2 Plan Element Monitoring and Evaluation

The Green Team will monitor and evaluate the completeness of GB&SMPE implementation on a quarterly basis, and will monitor and evaluate effectiveness in meeting GB&SMPE goals and objectives on an annual basis. This will provide feedback to the City of Rahway as to whether changes are needed in order to speed and complete implementation of individual measures or to meet goals and objectives for effectiveness.

The most systematic means of monitoring and evaluation for implementation is to expand the implementation tables described in Section 5.1 above into tracking tables using the actions presented in Sections 2, 3 and 4 of this plan element as the row headings and then adding columns for implementation or completion progress, actual or projected completion date, person reporting and person reported to, etc. Systematic monitoring and evaluation of effectiveness, however, is best aided by first establishing a series of indicators and associated targets. Indicators are measurable parameters representing particular objectives, e.g. solid waste recycled annually, while targets are the quantitative expression of the respective indicators, e.g. a specific number of tons of solid waste recycled or percentage of total solid waste recycled in a year, which can be regularly monitored. Indicators and targets could be set for each component of the three themes in this plan, for each of the three themes in general, or for the overall City.

Setting indicators and targets is not a requirement for GB&SMPEs and is a significant task requiring stakeholder input; however, it can pay significant dividends over the long run in setting and achieving realistic goals. If the City pursues certification under the Sustainable Jersey program, perhaps the most cost-effective way of establishing indicators and targets for the Rahway GB&SMPE is for the City to conduct a Carbon Footprint Analysis and then prepare a Climate Action Plan which requires that indicators and targets be established to track progress in achieving reductions in greenhouse gases.

5.3 Plan Element Updating and Revision

When the Green Team is satisfied that sufficient progress has been made, a new set of GB&SMPE planning components will be developed from among the potential measures listed in the APA-New Jersey Model Green Building and Environmental Sustainability Master Plan Element (see box below). Through this process, additional existing Master Plan Elements will be reviewed and amended to be made more sustainable.

The ultimate goal will be to make the entire Master Plan a Sustainable Master Plan the next time the Master Plan must be updated. An interim goal would be to check at the end of the first year to confirm that the GB&SMPE meets the criteria established for such plan elements by the New Jersey Chapter of the American Planning Association and Sustainable Jersey, when they finalize their guidance for GB&SMPEs in the coming year. Then the City of Rahway can submit the GB&SMPE to Sustainable Jersey to obtain points under the Sustainable Jersey's certification program.

Sustainable Community Components (Source: Model Green Building and Environmental Sustainability Plan Element, American Planning Association – NJ Chapter)

Community Development

This section can be crafted to create complete communities that are multi-faceted, healthy and balanced. This should include, and is not limited to, sufficient housing, jobs, community services, recreation and transportation.

Land Use, Landscapes, and Ecology

Development of the land, eco-friendly or not, places an impact on the surrounding environment. Establishing sustainable design objectives will encourage development and preservation – or restoration – practices to limit environmental impact. Agricultural lands, open spaces, soils, and greenways then have the opportunity to become productive landscapes for people and for wildlife.

Water

As development in a community occurs, the natural hydrology of individual sites is modified and often times only restored through the use of expensive remediation techniques. Limiting the disruption from the outset can prevent water quality degradation, in turn saving money on remediation or restoration to its natural state. In the same respect, efficient indoor water use puts less of a strain on the water supply and lowers water bills. Innovative measures to address stormwater, wastewater, and water efficiency enable the community to alleviate negative effects on individual sites and reduce the overall impact on the system.

Energy

Buildings consume approximately 37% of the energy and 68% of the electricity produced in the United States annually, according to the U.S. Department of Energy. In addition, fossil-based generation of electricity releases carbon dioxide, which contributes to global climate change.⁵ Changing energy practices within a building helps to reduce the amount of electricity used and reduces the demand on the source. Innovative technologies, such as solar, wind, and geothermal power, can also reduce the need for raw materials to create electricity. Additionally, communities may choose to promote better insulated homes, the use of more energy-efficient appliances, and other techniques discussed in this section.

Materials & Resources

While the greenest building may be the one that is already built, new construction practices can utilize renewable resources that have been harvested responsibly, transport materials from nearby sources, and reduce construction waste to minimize using landfill space. New construction and

⁵ US Green Building Council, New Construction & Major Renovation Version 2.2 Reference Guide. 2nd Edition, September 2006.

renovations can also recycle and re-use demolition materials from other nearby projects. On the land, materials management may include reducing the use of pesticides and fertilizers that degrade local waterways and groundwater sources.

Public Education & Outreach

Throughout the process of developing a Sustainability Plan Element, the most important factor of ensuring its success is educating the public. A municipality creating a sustainability program should provide encouragement, support, and education about short- and long-term actions to reduce the individual, as well as the community, environmental footprint.

6.0 REFERENCES

Master Plan for the City of Rahway, prepared for the Rahway Planning Board, adopted February 1997, last updated December 2008.

Model Green Building and Environmental Sustainability Plan Element (Sustainability Plan Element), Draft, January 8, 2009, prepared by the Sustainability Committee of the American Planning Association – New Jersey Chapter.

Sustainable Jersey, Green Design Commercial & Residential Buildings, Draft, February 16, 2009.

The Sustainable West Windsor Plan 2007, prepared by the Center for Green Building at Rutgers University Edward J. Bloustein School of Planning and Public Policy
http://www.greenbuildingrutgers.us/uploaded_documents/West_Windsor.pdf

Greening of Hopewell Township's Land Use Ordinances
http://www.greenbuildingrutgers.us/uploaded_documents/Living_Greener_6_10_08.pdf

“Highland Park 2020” Green Community & Green Redevelopment Plan
[IS THERE A RUTGERS LINK?]

Rahway River Greenway Plan, February 2009, prepared by Rutgers University Edward J. Bloustein School of Planning and Public Policy.

APPENDIX A**LEED 2009 FOR NEIGHBORHOOD DEVELOPMENT PROJECT CHECKLIST****Smart Location and Linkage 27 possible points**

- Prerequisite 1 Smart Location Required
- Prerequisite 2 Imperiled Species and Ecological Communities Required
- Prerequisite 3 Wetland and Water Body Conservation Required
- Prerequisite 4 Agricultural Land Conservation Required
- Prerequisite 5 Floodplain Avoidance Required
- Credit 1 Preferred Locations 10
- Credit 2 Brownfield Redevelopment 2
- Credit 3 Locations with Reduced Automobile Dependence 7
- Credit 4 Bicycle Network and Storage 1
- Credit 5 Housing and Jobs Proximity 3
- Credit 6 Steep Slope Protection 1
- Credit 7 Site Design for Habitat or Wetland and Water Body Conservation 1
- Credit 8 Restoration of Habitat or Wetlands and Water Bodies 1
- Credit 9 Long-Term Conservation Management of Habitat or Wetlands and Water Bodies 1

Neighborhood Pattern and Design 44 possible points

- Prerequisite 1 Walkable Streets Required
- Prerequisite 2 Compact Development Required
- Prerequisite 3 Connected and Open Community Required
- Credit 1 Walkable Streets 12
- Credit 2 Compact Development 6
- Credit 3 Mixed-Use Neighborhood Centers 4
- Credit 4 Mixed-Income Diverse Communities 7
- Credit 5 Reduced Parking Footprint 1
- Credit 6 Street Network 2
- Credit 7 Transit Facilities 1
- Credit 8 Transportation Demand Management 2
- Credit 9 Access to Civic and Public Spaces 1
- Credit 10 Access to Recreation Facilities 1
- Credit 11 Visitability and Universal Design 1
- Credit 12 Community Outreach and Involvement 2
- Credit 13 Local Food Production 1
- Credit 14 Tree-Lined and Shaded Streets 2
- Credit 15 Neighborhood Schools 1

Green Infrastructure and Buildings 29 possible points

- Prerequisite 1 Certified Green Building Required
- Prerequisite 2 Minimum Building Energy Efficiency Required
- Prerequisite 3 Minimum Building Water Efficiency Required
- Prerequisite 4 Construction Activity Pollution Prevention Required
- Credit 1 Certified Green Buildings 5
- Credit 2 Building Energy Efficiency 2
- Credit 3 Building Water Efficiency 1
- Credit 4 Water-Efficient Landscaping 1
- Credit 5 Existing Building Reuse 1
- Credit 6 Historic Resource Preservation and Adaptive Use 1
- Credit 7 Minimized Site Disturbance in Design and Construction 1
- Credit 8 Stormwater Management 4
- Credit 9 Heat Island Reduction 1
- Credit 10 Solar Orientation 1
- Credit 11 On-Site Renewable Energy Sources 3
- Credit 12 District Heating and Cooling 2
- Credit 13 Infrastructure Energy Efficiency 1
- Credit 14 Wastewater Management 2
- Credit 15 Recycled Content in Infrastructure 1
- Credit 16 Solid Waste Management Infrastructure 1

- Credit 17 Light Pollution Reduction 1

Innovation and Design Process 6 possible points

- Credit 1 Innovation and Exemplary Performance 1–5
- Credit 2 LEED® Accredited Professional 1

Regional Priority Credit 4 possible points

- Credit 1 Regional Priority 1–4

LEED 2009 for Neighborhood Development Certification Levels

100 base points plus 6 possible Innovation and Design Process and 4 possible Regional Priority Credit points

Certified 40–49 points

Silver 50–59 points

Gold 60–79 points

Platinum 80 points and above

APPENDIX B