



GLEN ROCK CONSERVATION PLAN ELEMENT

August 2009
DRAFT



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Prepared for:

**Borough of Glen Rock
Environmental Commission**

The original of this report was
Signed and sealed in accordance
With N.J.S.A. 45:14A-12

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August 2009

Glen Rock Conservation Plan Element

Borough of Glen Rock, Bergen County, NJ

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1. Introduction

The Municipal Land Use Law (N.J.S.A. 40:55D-28) provides guidelines for the content of a conservation plan element as part of a municipal master plan as follows:

“A conservation element providing for the preservation, conservation, and utilization of natural resources, including, to the extent appropriate, energy, open space, water supply, forests, soil, marshes, wetlands, harbors, rivers and other waters, fisheries, endangered or threatened species wildlife and other resources, and which systematically analyzes the impact of each other component and element of the master plan on the present and future preservation, conservation, and utilization of those resources.”

This conservation element, together with Glen Rock’s Environmental Resources Inventory (the “ERI”) addresses the above guidelines. The ERI is an inventory of the Borough’s natural assets and environmental resources, and was completed in 2009. The conservation element provides policy guidance and recommendations to address the resources and problems discussed in the ERI. It also establishes a sustainable basis for long-term natural resource protection and conservation relative to other objectives of the Borough’s Master Plan. Both the ERI and this conservation plan element were jointly crafted by the Glen Rock Environmental Commission and its consultant, H2M Associates, Inc.

While the two documents are intended to be used together, the ERI is not formally a part of the Master Plan and as such, may be modified, expanded and updated without the need to amend the Borough’s Master Plan. However, adoption of this conservation element requires completion of a public process culminating in a vote by the Planning Board to adopt it as part of the Borough’s Master Plan. Thus, a duly advertised public hearing on this plan was held on _____ and the Planning Board voted to adopt this amendment to the Master Plan on _____.

Preserving the Borough’s natural resources allows for continuation of natural processes and for people to enjoy them for generations to come. Natural and cultural resources present in Glen Rock are assets that are beneficial to sustaining the natural environment, enhancing quality of life, and even enhancing economic aspects. The approaches outlined here strive to protect, maximize and expand these assets.

The recommendations presented in this conservation plan are largely in the form of strategies the Borough of Glen Rock should pursue to ensure resource conservation. The resource categories include greenways, soil, groundwater, surface water, wetlands, air

quality, vegetation, open space, historic features, energy, and solid waste. These are the resources extensively inventoried in the ERI. The compilation of maps in the ERI present a geographic context for many of the strategies in this Plan.

Overall goals and potential uses for the ERI and this conservation plan are to:

1. Promote natural and cultural resource protection within and around Glen Rock;
2. Increase understanding of natural systems and their limitations;
3. Identify critical areas for conservation, and direct land use in an appropriate manner;
4. Provide a rational and factual basis to support long term resource management planning, environmental protection, and land use planning;
5. Analyze land capabilities to aid in determining appropriate development intensity, provide a basis to amend a municipal Master Plan and zoning regulations;
6. Guide the review of proposed site development plans;
7. Satisfy grant eligibility needs, such as Green Acres, the Association of New Jersey Environmental Commissions (ANJEC), the NJ Department of Environmental Protection (NJDEP), preservation grants, and pollution reduction grants;
8. Serve as an action plan for the Environmental Commission to prioritize actions;
9. Provide an educational resource for residents to learn about their community and its environment;

Goals and objectives specific to each topic are provided within each of the following sections.

2. Open Space

Open space preservation is a crucial part of any conservation plan. Not only is it effective for natural resource protection, but it is important for people as well, since the availability of open space is closely linked with an enhanced quality of life. Open space is relatively scarce in Glen Rock and surrounding areas. Therefore, it is crucial to carefully manage existing areas, and expand the Borough's stock of open space where realistic opportunities present themselves, now and in the future.

Goals and Objectives

1. To use open space preservation as a primary means for conserving natural resources.
2. Use a variety of methods to secure permanent open space, including easements, purchase, and partnering with regional and state organizations.
3. Incorporate by reference the goals and objectives of the Borough's Open Space and Recreation plan, as modified by the 2008 Glen Rock Master Plan Reexamination Report.

Summary of ERI Findings

The Borough of Glen Rock has about 139.85 acres of open space, or about 8.03% of all its land area. Open space provides many benefits to a community, including economic benefits, increased groundwater recharge, and flood control.

Glen Rock has a Recreation and Open Space Inventory (ROSI) and an Open Space and Recreation Plan Element, both of which are necessary for the managing and adding to the Borough's open space. Bergen County also has an Open Space Plan. While the groundwork has been laid in these plans, an assessment and ranking of priorities is needed, as well as a financing program in order to make the most of available resources to expand its open space inventory. Securing land adjacent to the Ho-Ho-Kus and Diamond Brooks are likely priorities.

Strategies

Glen Rock already has an Open Space and Recreation Plan Element with which it can advance the goals and objectives of this topic. Building on this valuable foundation, the ERI provides important details on the resource areas that are most vulnerable and of optimal value as open space. Potential specific strategies are outlined below.



Saddle River Park, Glen Rock

Methods for Acquiring and Funding Public Open Space:

1. **Fee Simple Acquisition** – This involves a direct purchase of a parcel by the town or open space trust organization, with the intention of creating permanent open space. Vacant land is the most common target of this type of purchasing technique but in certain cases, developed property may also be acquired.
2. **Bargain Selling** – Property owners sometimes are willing to sell their land to the town for less than market value for open space or other public purposes. Reasons one might sell below market value include reduced maintenance costs and tax benefits.
3. **Property Exchange** – Towns sometimes have a surplus of public land, meaning they could use it for exchange in acquisition of environmentally sensitive properties.
4. **Open Space Tax** – In recent years, many New Jersey counties and municipalities have, with voter approval, established dedicated open space taxes. The revenues from an open space tax can support a pay-as-you-go strategy for open space preservation. By 2001, 19 of New Jersey's 21 counties and 180 of its 566 municipalities had voter approved open space taxes.
5. **Green Acres** – The Green Acres Program carries out the state's purchases of conservation and recreation lands, and provides open space matching grants to municipal governments, county governments, and tax-exempt non-profit organizations that qualify as "charitable conservancies". Wilde Memorial Park and Dean Street Park have already received Green Acres funding.
6. **Issuing Bonds** – Governments will sometimes borrow money for open space by issuing bonds. The issuance of long-term general obligation bonds to finance open space acquisitions has a compelling rationale: undeveloped land, or easements on such land, may not be available in the future at any price. Using bond proceeds today for acquisition assures that future generations will enjoy the fruits of preservation.



Glen Rock can continue to apply for these funds to add more open space.

7. Capitalizing on Economic Conditions -- The current national economic downturn has resulted in depressed market values of real property, meaning that this may represent a unique opportunity for purchasing open space.
8. Create an Endowment – Individual donors, through bequests and donations help create endowments. Endowments can be coordinated by non-profits/foundations and used for the acquisition and maintenance of open space.



Glen Rock's Faber Field



Duck Pond at Saddle River County Park

Increasing Open Space without Purchasing Property:

1. **Conservation Easements** – Conservation easements are permanent deed restrictions that prevent land from being developed. These restrictions typically are effective in perpetuity, or at least beyond the tenure of the current owner. These easements can allow for public access, which is useful when trying to construct hiking trails or bikeways. This is a very important tool for several different resources in Glen Rock, including the establishment of greenways.



Conservation Easements can help establish greenways

2. **Master Plan Adjustments** – Changes to the Master Plan and resulting conservation zoning designations should be made as open space protection priorities are refined.
3. **Cluster Zoning** – This involves the town allowing greater than normally allowed density of buildings on a single piece of land in exchange for the owner leaving the rest of the parcel for conservation. For Glen Rock, which is largely fully developed, this approach may have potential for use in connection with redevelopment.
4. **Transfers of Development Rights (TDR)** – Similar to cluster zoning, TDR involves exchanging the rights to build at a higher density than normally permitted for conservation land across different parcels.
5. **Landscaping** – Landscaping decisions made on both private and public property are potentially useful for creating or extending open space. An important step is to encourage the planting of native trees, shrubs, and groundcover in yard areas instead of non-native and exotic plants. This can allow the plant and animal habitat established in existing open space to be broadened. Natural areas are also usually cheaper and easier to maintain than formal lawns and ornamental plantings.

3. Greenways

While this was not a subsection of the ERI, a section on greenways is an essential component of a conservation element, especially for a developed suburban community. It is a natural extension of the previous discussion of open space resources because greenways typically function to link or join open space areas.

A greenway is a primarily natural place designed to preserve and protect desirable natural features for use and enjoyment by wildlife and people. The most recognizable form of a greenway is a linear park, often located along a stream or ridgeline. This type of greenway increases the benefit of protected natural resources because they are connected in an unbroken corridor, which often link larger protected areas. Such areas provide a contiguous area for natural processes to occur with less encroachment by human activities. Additionally, these parks are also useful tools for increasing recreational opportunities and non-automotive mobility; they are logical locations for foot and bicycle trails. Greenways can also adjoin streets and may include water bodies with vegetated shorelines or beaches.

Goals and Objectives

1. To create and maintain sustainable greenways within Glen Rock;
2. To identify appropriate locations for new and expanded greenways in Glen Rock;
3. To link greenways and other natural and recreational areas within Glen Rock to nearby greenway systems and other recreational land and/or permanent open space.



Walking trail in the Arboretum



Forested trail in Glen Rock

Strategies

The highest potential for greenway development in Glen Rock is along the Diamond Brook and Ho-Ho-Kus Brook, along which some parkland already exists. The Existing Open Space Map in the ERI shows where the current natural areas are located and provides a context for the following strategies:

1. Determine ways to connect existing natural areas.
2. Seek to include lands not suitable for development with buildings or parking.
3. Add trails between natural areas, preferably for walking or hiking and biking. This allows people to enjoy the entire greenway and provides a more scenic and peaceful alternative for travel.
4. Obtain easements for strategic properties within greenway corridors.
5. Explore acquiring the parcels of vacant land located in delineated greenway corridors.



*Saddle River
County Park
Connections*



4. Soils

Soil diversity is essential to healthy ecosystems. The primary goal for protecting the value soil provides is to prevent its loss due to erosion. Rates of erosion are based on gravity and therefore slope. Most soil conservation strategies involve reducing development and increasing vegetation on erosion-prone steep slopes. Glen Rock is largely characterized by gently sloping land and its highest point is less than 200 feet above sea level. Therefore, there are not many steep slopes to facilitate erosion. Also, Glen Rock has an extensive supply of soil-anchoring vegetation, despite being very developed. Although floods do erode some soil, the Borough can consider soil erosion a marginal hazard. There are still steps the Borough can take to improve soil quality.

Summary of ERI Findings

Soil forms an important buffer between the earth's surface and the resources below the ground while supporting water storage, plant growth, and agriculture.

Glen Rock is home to six different soil series: Boonton, Dunellen, Fluvaquents, Pascack, Udorthents, and Wethersfield. Dunellen soil is most abundant, occupying 58.8% of the land. Meanwhile, urban land occupies 10.7%. Upper layers of the Borough's soil may be vulnerable to erosion.

Goals and Objectives

1. To assure soil diversity and quality throughout the Borough;
2. To minimize loss of soil due to erosion and contamination;
3. To enhance the quality and natural functions of existing soil.



Strategies

1. Encourage individual property owners to properly compost appropriate yard and food wastes which reduces municipal solid waste disposal costs and provides a local source for low-cost soil nutrients.
2. Cleaning up the Borough's Known Contaminated Sites (KCS) will avoid further seepage of contaminants into the soil. The KCS are identified in Section 5 (Water Supply and Protection) of the ERI. This list should be updated on a regular basis, with strategies for expediting remediation.
3. Avoiding removal of existing vegetation in erosion-prone areas, especially near and along stream banks, should be an ongoing policy. While State regulations governing wetlands usually protect these areas, certain non-wetland areas near streams may benefit from local regulations aimed at preventing soil erosion, especially in small areas of disturbance that may fall below the minimum thresholds for County Soil Conservation District jurisdiction.
4. Minimizing disturbance of vegetation in natural drainage and flood-prone areas will help sustain the water-cleansing properties of well-established natural soil media.



Maintain vegetation along stream and pond banks



5. Groundwater

Water that collects underground is an invaluable source of drinking water for the Borough of Glen Rock. The Borough's land area lies above the Ridgewood Sole Source Aquifer (SSA), which contains the drinking water supply for Glen Rock and neighboring municipalities. It is crucial for the Borough to continue to protect this aquifer so it can naturally provide Glen Rock with clean drinking water for years to come.

Goals and Objectives

1. To assure sustainable recharge of the Borough's groundwater with clean water;
2. To optimize natural groundwater recharge through clean, vegetated areas;
3. To promote the participation of property owners in increasing aquifer recharge with clean water.

Summary of ERI Findings

Groundwater is an important source of drinking water in Glen Rock. Glen Rock is located on top of the Ridgewood Sole Source Aquifer. There are four drinking water supply wells and four pump stations and treatment facilities in Glen Rock.

The process of groundwater recharge is important to protect in order to ensure there is an adequate future water supply. Contaminants can reach the groundwater supply through the soil. This increases the importance of securing and cleaning Known Contaminated Sites (KCS). Well Head Protection Areas (WHPA) should be further protected.



Aquifer Replenishment

As groundwater is withdrawn for use by the community, it is replenished through the natural process of precipitation slowly seeping through the soil into the aquifer. Human activities have impeded natural recharge of groundwater, but the Borough can take a number of pro-active steps to improve the function of this important process.



Strategies

1. Strive to decrease Glen Rock's amount of impervious surfaces. Impervious surfaces, such as pavement and cement, turns all surface water into runoff instead of letting it absorb into the groundwater supply. The amount of impervious surface should be monitored and reduction goals can be set.
2. Increase the amount of vegetated land in Glen Rock. Vegetation assists its host soil media in cleansing stormwater as it seeps into the aquifer. (Strategies for this are discussed later in the vegetation section of this Plan.)
3. Water conservation should be promoted as much as possible to additionally ensure the long-term viability of the groundwater supply. Promoting water conservation in schools and to the general public is an important awareness measure.
4. The Borough, as well as private property owners, can plant rain gardens on their properties. Rain gardens consist of a variety of water-loving plants that are established at naturally occurring or man-made low points on the terrain so as to absorb stormwater from both vegetated and impervious surfaces. Naturally cleansed water that is not absorbed by the plants recharges the aquifer. This approach is preferable to other types of drainage systems that permit stormwater to go downstream, instead of recharging the Borough's aquifer.



A natural rain garden

Aquifer Quality

The quality of the water entering the groundwater supply is another important issue for the Borough. Because of permeable soils and a high water table, the Ridgewood SSA is particularly vulnerable to contamination.

Strategies

1. Vegetation acts as a filter in the aquifer recharging process. An action plan for increasing vegetation throughout the Borough can help improve water quality, in addition to assisting in replenishment.
2. Minimizing the use of hazardous household chemicals will help prevent contamination of the aquifer. Fortunately, eco-friendly and equally effective household products are increasingly more available as substitutes for toxic substances. The Borough should promote their use through special purchasing programs and by setting an example through its own use of sustainable products in the maintenance of its municipal buildings and schools. Offering incentives or coupons for their purchase would be another measure.
3. It is crucial to secure or clean up Known Contaminated Sites (KCS) that have the greatest chance of leaking pollutants into the groundwater supply, especially in Tier 1 Well Head Protection Areas (WHPA) that comprise 43.4% of Glen Rock. According to the Environmental Constraints Map in the Borough's 2008 Master Plan Reexamination Report (and updated in the ERI), there are several KCS's in Tier 1 and Tier 2 areas.
4. Other sites that contain storage tanks, road salt piles, landfills, and other water quality threats should be secured if possible to prevent leakage into the aquifer.
5. Since the storing of groundwater is not a visible process, it is important to educate residents and business owners about the importance of their actions on the entire system. This can include enhancing their understanding of how their day-to-day activities impact water quality and promoting improved aquifer stewardship through informed individual and group actions and through school programs.

6. Surface Water

As described in depth in the ERI, Glen Rock is located within the Passaic River watershed. While it does not border the trunk stream, the Diamond Brook and Ho-Ho-Kus Brook bring water into and out of Glen Rock. In order to allow these to effectively transport clean water, Glen Rock should encourage buffers, cleaner runoff, and flood prevention.

Goals and Objectives

1. To ensure the long-term viability and function of natural drainage resources;
2. To reduce or eliminate pollutants in water entering streams;
3. To promote responsible actions by property owners so as to prevent contaminants from entering surface waters;
4. To restore stream beds, channels and buffers and optimize flood retention areas.

Summary of ERI Findings

Glen Rock's two streams are Ho-Ho-Kus Brook and Diamond Brook. The Borough is located in Water Management Area (WMA) 4, which encompasses the Lower Passaic River Watershed.

Uncontrolled urbanization has many potential impacts on the surface water supply, including impervious surface creation, greater intensity of stormwater, increased local flooding, and water pollution.

Reducing the quantity of and improving the quality of stormwater runoff remains an ongoing concern.



Saddle River, Saddle River County Park, Glen Rock

Buffers

When development encroaches on the banks of a stream, it takes away the stream's natural protection of vegetation. This protection slows the flow of runoff into the stream and filters out pollutants that could impair wildlife habitat at the point of entry and downstream. Development can also harm the structure of the stream channel itself, which manifests in erosion. Restoring and maintaining such buffers along Glen Rock streams is an important step toward improving surface water quality.

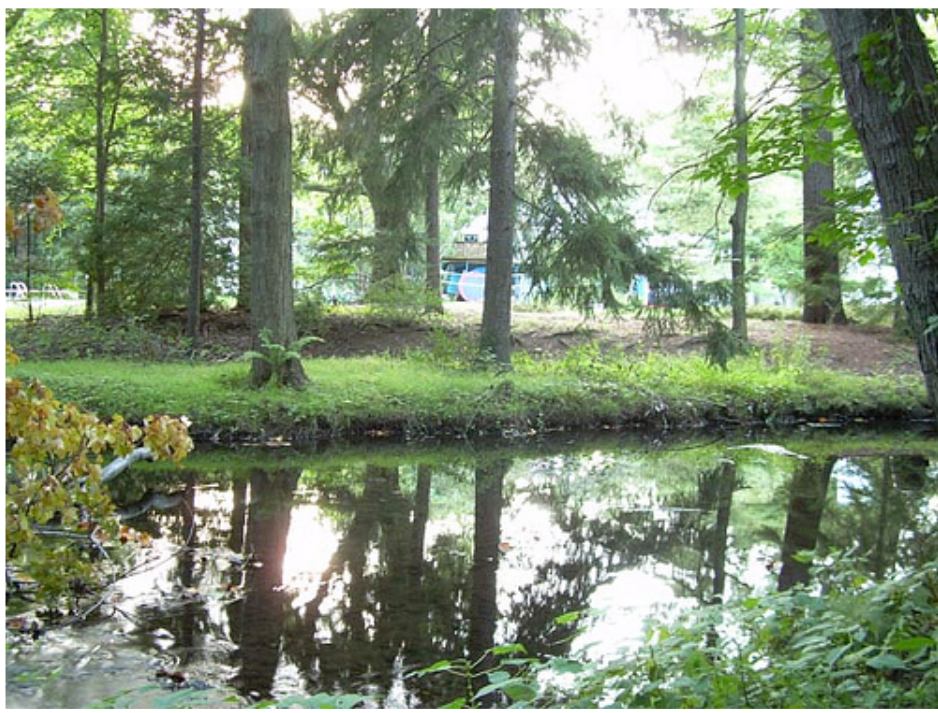


Strategies

1. The Borough should develop a program to encourage the planting and maintenance of natural vegetative cover to provide a natural filter for buffering streams. The Surface Water Protection Study recommends a minimum riparian protection zone of 150 feet measured from the top of a stream bank.
2. Where natural stream banks have been degraded, the Borough should make efforts to stabilize and restore the banks, using the original channel location as a guide.
3. The Borough should enlist community participation in the planting of stream buffers and stabilizing of banks, perhaps by establishing a Borough Service Day for this purpose.
4. Conservation easements, which are typically long-term deed restrictions that prevent land from being developed, should be obtained for land abutting streams to help create and protect buffers.
5. The Borough should prepare and adopt an ordinance stating a plan for the future lining of Glen Rock's streams with buffers. An example ordinance for enacting these steps is the "Riparian Buffer Conservation Zone Model Ordinance" prepared by the Passaic River Coalition and the NJ Department of Environmental Protection (NJDEP).



Diamond Brook



Quality of Water Entering Streams

While protection of stream banks is necessary for stream protection, it is as important to prevent or mitigate pollutants that may enter streams.

Strategies

1. The Borough should minimize use of harmful fertilizers and pesticides on public landscaping, which will result in better water quality in Glen Rock. Choosing native grasses and vegetation for landscaping reduces the need for fertilizers and pesticides. Using native vegetation on Borough property will also set a good example.
2. Residents should be educated in environmentally friendly lawn maintenance practices, including attractive, low-maintenance alternatives to grassed lawn.
3. Existing stormwater outfalls and detention facilities should be retrofitted using more environmentally sound technology that will reduce point source pollution.
4. Signs should be placed on storm drains to discourage the depositing of litter that travels directly into streams, clogs them and impairs aquatic resources.
5. Canadian Geese tend to congregate along Glen Rock's stream corridors and contribute large amounts of fecal coliform bacteria to the water. Managing these populations will help stabilize water quality.



Native plants require less fertilization



Porous-asphalt parking lot

Flood Prevention

Floods are a major problem in much of the lower part of the Passaic River Watershed, which includes the Borough of Glen Rock. These floods cause property damage, surface water contamination and disruption to neighborhoods. While flooding is a natural event, human settlement and improvement of land often worsens the destructive capabilities of floods. The Borough can play an important role in minimizing the negative effects of flooding.

Strategies

1. Reduced flooding can be achieved through more vegetation and less area of impervious surfaces like buildings, parking lots, and roads. This can be accomplished by adding more street trees, encouraging rain gardens, green roofs, and providing incentives for property owners to minimize impervious surfaces.
2. Require that all new impervious surfaces be permitted only with a zero net increase in stormwater runoff. The regulation could allow compensating reductions off of the development site, provided they are permanent and within the same contributing drainage area to the receiving waters.
3. Stormwater management decisions play an important role in flood prevention or reduction. Higher speed and intensity of stormwater drainage to streams will result in more flooding than a slower drainage system. The Borough has already adopted Nonstructural Stormwater Management Standards into the Borough Code. Reasonable measures beyond the Code should be explored during site plan review.



Create more pervious areas such as green patios and green roofs with native vegetation

7. Wetlands

Wetlands provide a multitude of ecological, economic and social benefits. They provide habitat for fish, wildlife and a variety of plants. Wetlands are nurseries for many saltwater and freshwater fishes and shellfish of commercial and recreational importance. Wetlands are also important landscape features because they hold and slowly release flood water, recharge groundwater, act as filters to cleanse water of impurities, recycle nutrients, and provide recreation and wildlife viewing opportunities for people.

The Borough of Glen Rock contains 165 acres of wetlands within its borders, most of which lie near the Borough's two principal streams. These are shown in the Floodway and Wetlands Analysis Map in the ERI. Glen Rock can take several steps to ensure the health of its wetlands.

Summary of ERI Findings

Wetlands are important because of their ability to regulate water flow, filter pollutants out of water, and for wildlife habitat.

Wetlands in New Jersey are regulated by the NJDEP's freshwater wetlands program, which protects wetlands and land within 150 feet of them (buffers) through regulations designed to minimize disturbance of this valuable resource. The ERI describes the types and locations of Glen Rock's 165 acres of wetlands.

Goal

- ☀ Assure the ongoing protection and optimal natural function of wetland resources.



Strategies

1. Protection of Transition Areas – These are needed adjacent to wetlands in order to reduce the risk of degradation. State restrictions on development in transition areas vary by type of wetland, with exceptional value wetlands requiring 150 feet of buffer and most other wetlands requiring 50 feet of buffer. Borough plan reviewers should stay abreast of wetland protection requirements to further ensure conformance with buffering requirements. Reasonable protection measures beyond State requirements should be explored with willing applicants during plan review. Additional protections may be required by the Zoning Board of Adjustment as conditions of approval of a use variance involving a wetland resource.
2. Conservation easements – Similar to surface water protection, protection of wetlands and transition areas can be achieved through conservation easements.
3. Development regulations -- The NJDEP Freshwater Wetlands Program has many laws restricting wetland development, which should be emphasized in Glen Rock's development process. Ideally, reference to these can be directly incorporated into the Borough's zoning and development codes.
4. Delineation -- Lines protecting wetlands and their transition areas should be clearly delineated on Glen Rock's planning maps and on the ground.

8. Air

While air quality has improved in Northern New Jersey over the last 40 years, there is still work to be done. Air pollution has many sources, including transportation, manufacturing, and commercial activities. Each of these source areas should be addressed in order to comprehensively reduce air pollution.



Summary of ERI Findings

Air quality is an issue in the entire region around Glen Rock, due to pollution from many different sources. The Federal EPA has many regulations for monitoring and regulating air quality, especially the Clean Air Act (CAA).

While air quality has improved recently in New Jersey overall, the region still fails to meet some clean air standards. Local sources of air pollution include transportation, lawn mowers, dry cleaners, and manufacturing. Regional air quality can be improved through reductions in local pollution sources.

Goals and Objectives

1. To provide continuous improvement in air quality for residents and wildlife;
2. To reduce air pollution from known sources;
3. To advise and encourage individuals and groups to contribute to improved air quality;
4. To pursue and support alternatives to activities associated with high air pollution emissions.

Strategies

Transportation Emissions

Mobile emissions from transportation are the largest source of pollution in Glen Rock. Automobile and truck exhaust contains climate-altering greenhouse gases, smog-forming nitrates, and acid rain-creating sulfur oxides. Borough residents take most of their trips by automobile, even though Glen Rock has two train stations and a compact street grid conducive to walking. It is important that significant attention is dedicated to reducing transportation pollution. Realistic approaches include the following strategies:

1. Establish and sustain optimal sidewalk maintenance for existing walkways and install new sidewalks where they are missing. Walking connections between Glen Rock and adjoining communities should be created or improved, as needed.
2. Provide Borough support for biking, including bike lane designation and rack installation in important public places and on private property that accommodates large numbers of visitors.
3. Explore expansion of the commuter shuttle service that brings people to the train stations.
4. Work with NJTransit to provide more amenities at train and bus stops to encourage greater ridership.
5. Enforce Glen Rock's existing ordinance restricting the idling of vehicles, including trucks and buses.
6. De-emphasize infrastructure projects that only support expanded automobile capacity without enhancing other modes of travel.
7. Establish a schedule for converting municipal vehicles to fuel-efficient and/or emission-free vehicles, where possible.
8. Encourage residents to purchase fuel-efficient and/or emission-free vehicles.
9. Ensure that Borough land use plans take these measures into account and do not conflict with them.



Forms of alternative transportation that help decrease air pollution from transportation sources.



Other Local Sources of Emissions

While transportation is the largest source of air pollution in Glen Rock, significant other sources exist as well. Steps should also be taken to reduce emissions from these sources.

1. The use of gasoline-powered leaf blowers and lawn mowers to maintain lawns causes air pollution. The use of push or reel mowers instead is a realistic option for Glen Rock's many small residential lawns. Reducing lawn size also will help reduce this source of emissions.
2. Dry cleaning operations are disproportionate air polluters, contributing harmful perchloroethylene to the atmosphere. The EPA now has restrictions on dry cleaners, forbidding them from having transfer machines and requiring them to reduce the outflow of perchloroethylene. Glen Rock should encourage conversion of its seven dry cleaners to organic cleaning facilities.
3. While Glen Rock does not contain significant amounts of manufacturing, wholesaling and retailing, the surrounding county and region have large amounts of these uses and the related truck traffic contributes to diminished air quality that likely affects Glen Rock. Therefore, reducing emissions from manufacturing and commerce should include reaching out to other municipalities and creating regional or county-wide initiatives for cleaner manufacturing and distribution. The Borough should also work with NJTransit and Bergen County to revise bus routes and stops to better match current travel needs of employees and shoppers.

9. Vegetation Cover/Forests

The value of vegetation in Glen Rock is well-documented in the ERI. While Glen Rock is a built up community, there are several steps the borough can take to reap the greatest benefits from trees and other vegetation.



Summary of ERI Findings

Vegetated areas in Glen Rock include woodlands, open lands, and wetlands. Much of the native woodlands have been replaced by landscaping and ornamental plants, which have considerably less ecological value. Vegetation provides many benefits, including carbon sequestration, cooling, aesthetic value, wildlife habitat and a boost to property values. Additional economic benefits include reducing energy costs, street maintenance costs, flood control costs, and healthcare costs. Glen Rock has had an effective street tree program in place for decades. Threats to plant life in Glen Rock include invasive species, pollution, disease, and additional habitat fragmentation. Improved management of the Borough's green infrastructure will enhance the overall benefits derived from its vegetation resources.



Goals and Objectives

1. To sustain and increase the extent of vegetative cover with appropriate species, especially shade trees, on Borough lands and within public rights-of-way;
2. To encourage property owners to plant and maintain trees.



Strategies

1. Glen Rock's tree removal ordinance should be strengthened and better enforced to curb preventable destruction or removal of trees; it should have specific provisions for protection for large mature trees. An example to draw from is the "Tree Protection Code of the Borough of High Bridge [NJ]."
2. A "tree bank" can be established by the Borough to store trees that can be harvested from development sites where such trees would otherwise be destroyed. The Borough may also coordinate the transplanting of such trees to new locations, such as public or private property in need of additional trees.
3. The Borough can prepare an Urban Forestry Management Plan. The City of Baltimore, MD has written one with the goal of doubling tree cover in the city within 30 years. Glen Rock can set its own goals relative to its needs over time. Species diversity is suggested to minimize the overall impact of potential tree blights that may impact whole populations of affected species. The Borough should pursue available planning and implementation grants in connection with initiatives to reduce the global warming impacts of 'greenhouse gases' in the atmosphere.

10. Wildlife Habitat

Development in Glen Rock has drastically reduced the amount of remaining wildlife habitat. Despite this loss, many wildlife species live in Glen Rock. Specific actions may be taken to slow this loss and reclaim some of this habitat:



Summary of ERI Findings

Although development has substantially reduced most of Glen Rock's wildlife habitat, many different species of plants and animals still live in Glen Rock. Urbanization has favored some species over others, including geese, squirrels, raccoons, and opossums. Landscaping decisions have a large impact on habitat; typical lawns covered in just one type of grass are generally not supportive of wildlife diversity. Invasive and overabundant species that are an issue in Glen Rock include geese and wild domestic cats. It is unlikely that any threatened or endangered species are found in Glen Rock. Measures to increase wildlife habitat and plant species diversity would be beneficial to the affected ecosystems. Preserving the settings for these valued resources is an ongoing concern.

Goals and Objectives

1. To provide for appropriate maintenance of natural areas so as to best support diverse wildlife populations;
2. To develop a Wildlife Management Plan.



Strategies

1. The Borough should encourage property owners to plant native vegetation in their yards instead of just grass. This will reduce the need for pesticides and fertilizers, which are harmful to wildlife. This will also help increase the amount of habitat.
2. Greenway enhancement, as discussed in the Greenways section, will help increase wildlife habitat. Outreach to neighboring towns to connect greenways will be beneficial.
3. The Borough can arrange community wildlife viewing or inventorying programs to help spread awareness and increase involvement.
4. Sustained action to control invasive species can be helpful in fostering suitable habitats for increased wildlife diversity.



Habitat living in Glen Rock

11. Historic and Cultural Preservation

While the focus of this Conservation Plan is on the Borough's natural assets, historic and cultural resources of value to the composite natural and built characteristics of the Borough were identified and discussed in the ERI. Thus, this Plan includes recommendations on this topic.

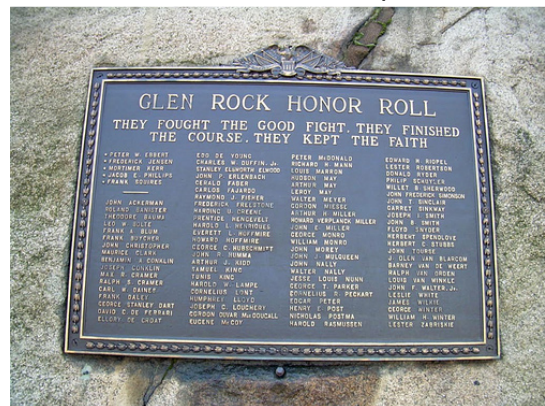
Goals and Objectives

1. To preserve desirable elements of the Borough's heritage;
2. To protect and enhance the settings for the Borough's historic structures and sites.

Summary of ERI Findings

Glen Rock has many sites of historical and cultural significance which should be preserved and emphasized. The Borough contains four properties on the State and National Registers of Historic Places. It also has one historic district and many other sites on the Bergen County and Glen Rock Historic Preservation Society lists. Glen Rock is home to many cultural sites, institutions, and organizations that add value and diversity to the community.

Glen Rock has many Historic and Cultural Resources that should be preserved



Strategies

1. The Borough should prepare a Historic Preservation element that identifies all buildings and sites with historic and architectural significance and recommendations to encourage their long-term preservation.
2. The most common and effective technique used by municipalities to protect historically significant structures and historic areas is to nominate them to the State and/or National Historic Registers. Glen Rock should continue to submit candidates of both individual buildings/sites and historic districts for this list. The Borough could also consider producing a public information brochure that explains the nomination process, the various benefits of a property being listed, the rights and responsibilities of nomination, and a listing of historic properties. The buildings currently on the State and National Registers, as well as other historic buildings, are listed in the ERI and shown on its Historic and Cultural Sites Map.
3. Another vitally important step is to ensure that the design of buildings adjacent to historic structures and sites are complementary to each historic resource. The character of a historic district can be harmed significantly by new construction that is inconsistent with the neighborhood. However, there are some guidelines the Borough can formally adopt to help with these issues. When constructing new buildings in the context of an existing neighborhood, known as in infill redevelopment, the new building should match the size, architectural features, building material, shape, and landscaping of the existing neighborhood.
4. When rehabilitating a historic building, it is useful to consider the Department of Interior's Standards of Rehabilitation Guidelines, which discuss how best to preserve a building's historical attributes. The Borough of Glen Rock should consider adopting the Federal Standards as the municipality's design guidelines for owners of historic properties.
5. The Borough should establish an Architectural Review Board and/or a Historical Advisory Committee. These organizations, which should include a good cross-section of Borough citizens who are knowledgeable in planning, architecture, building and historic preservation, can give advice and draft guidelines for development projects affecting historical resources or occurring in an area where development should respect a particular design.
6. The Borough should conduct a careful review of other borough plans to identify potential conflicts with the goals and strategies of this plan element and make the appropriate adjustments, as needed.

12. Energy Resources

Conserving energy is an important and practical way of conserving natural resources. This is crucial if Glen Rock is going to take local action to help reduce the threat of climate change. There are a number of approaches the Borough can pursue to make a meaningful difference.

Goals and Objectives

1. To make Glen Rock a sustainable community;
2. To integrate sustainable and energy-efficient operations into everyday municipal, business and residential life in Glen Rock;
3. To reduce use of fossil fuels and energy derived from the current power grid;
4. To explore new technologies and methods for greater energy efficiency.

Summary of ERI Findings

This section reviews how energy is used in Glen Rock and what measures can be taken to reduce consumption. Sources of municipal energy usage are identified, including schools and municipal buildings.

Possibilities for better energy efficiency, including encouraging use of alternative forms of energy, conducting a detailed municipal energy audit, and working with state and regional programs, are presented.



Downtown Glen Rock

Strategies

Reduce Energy Consumption

Simply using less energy is an essential part of any attempt to save energy.

1. The Borough should prepare a 'green buildings and environmental sustainability element' for the Borough's Master Plan, pursuant to the guidance provided in the Municipal Land Use Law N.J.S.A. 40:55D-1 et. seq. While this spans more categories than energy, the pursuit of greater energy efficiency is a major focus of such a plan. Other topics in this conservation element will also be served by a comprehensive sustainability plan.
2. The Borough should participate in the Sustainable Jersey program, which requires establishment of an active sustainability committee.
3. The Borough should conduct a municipal energy audit for all public buildings and facilities. The use of energy for lighting, heating, transportation, and powering of equipment should be scrutinized by this audit for possible reductions.
4. Changes in the Borough's development regulations should be adopted to provide guidance and incentives for creating more energy-efficient buildings and more environmentally friendly development sites. Standards developed by the US Green Building Council (USGBC) through its LEED (Leadership in Energy and Environmental Design) Certification program can serve as a model on which to base local standards and criteria.
5. Reductions in private usage of energy should be strongly encouraged by the Borough. This can be done with grant-funded energy-saving incentives (local, regional, State, & Federal) and community outreach and education programs.



Use Renewable Forms of Energy

Alternative sources of energy are not carbon based and therefore do not release greenhouse gas (carbon dioxide) into the atmosphere when consumed. They can be designed to partially or fully satisfy the Borough's energy needs. Increasing utilization of these commercially available energy resources, including solar, wind, geothermal, and hydroelectric, is an important component in a municipal initiative to improve energy efficiency.



1. The Borough should participate in the CleanPower Choice Program, which allows energy ratepayers to choose renewable sources of energy. It should encourage homeowners and businesses to join as well.
2. Solar power is a renewable energy type that can be readily harnessed throughout Glen Rock. The Borough should review and revise its development regulations to facilitate the installation of solar collection equipment on both public and private buildings and inside and rear yard areas (with appropriate screening). This should also include a solar access ordinance to optimize access to this energy resource for passive and active solar energy generation. Size limits are recommended so as not to impact neighborhood character with generation facilities that are too large to be considered accessory uses.
3. The Borough should develop a plan for replacing its vehicle fleet with alternative fuel vehicles, especially electric vehicles, which will substantially reduce carbon emissions and enable the use of renewable energy to power vehicles and other motorized equipment.



Electric and hybrid vehicles in California

13. Solid Waste and Recycling

Reducing Glen Rock's solid waste volumes will assist in many of the Borough's conservation goals. Cutting back on waste will reduce the energy needed to process it, conserve land that would be used for landfills, and reduce handling costs for the Borough. Reducing consumption and recycling are two very practical solutions. Listed below are potential applications of these approaches in Glen Rock.

Summary of ERI Findings

Reducing solid waste in Glen Rock will lead to energy savings, cost reductions, and reduce pollution. Increasing recycling is an important method for achieving these goals. Many statewide and local laws exist that facilitate and regulate recycling. Local recycling venues and materials are identified. Improving recycling rates is an important municipal objective.

Goals and Objectives

1. To reduce quantities of non-recycled solid waste that must be removed from the Borough;
2. To encourage and promote Borough, individual, and group decisions to reduce consumption and increase recycling.



Strategies

1. The Borough should continue to encourage recycling through hosting special events, placing recycling bins in public places, and posting information in visible places.
2. Convenient places for disposal of other items, such as cell phones, eyeglasses, and printer cartridges should be established and advertised.
3. The Borough should periodically evaluate and improve the effectiveness of municipal, residential and commercial recycling operations, especially emphasizing proper sorting and curbside placement of recyclables.
4. The Borough should promote and participate in composting of grass clippings, leaves, and branches. Much of this material can be used as mulch or fertilizer in gardens and yards; this would both decrease waste and the need for harmful fertilizers.
5. The Borough should explore reducing the frequency of its trash pickups, which can encourage residents to create less garbage while saving the Borough money.



14. Summary

This Conservation Element provides a foundation for the preservation, conservation, and utilization of Glen Rock's natural resources. It builds on the Borough's Environmental Resource Inventory (ERI), which is a detailed and evolving inventory of these resources, and the basis for each strategy in this Plan. Effective resource conservation in Glen Rock should continue with these policies as a framework:

GOOD GOVERNANCE

As a built-out community in a highly urbanized New Jersey County, natural land is a limited and increasingly important resource that helps to provide a good quality of life for residents. Pro-active preservation in the public interest therefore should be one of the many spokes of good governance at all levels. Glen Rock Borough is charged with the important task of monitoring, protecting and enhancing its many natural resource assets, from soil to water to air. This can be accomplished through detailed site plan review, revisions to the zoning ordinance and regulations, environmental programs, and the many other strategies outlined in this Plan.

EDUCATION AND INVOLVEMENT

The Borough must also promote natural and cultural resource protection within and around Glen Rock by involving its citizenry. Environmental education for all ages of the population, within and outside Borough schools, is a wise and effective approach. Working together as a community with a shared conservation agenda, the Borough can accomplish its preservation objectives.

ACTION

A prioritized Action Plan should be developed from the strategies provided in this Conservation Plan. The Environmental Commission should revise and update the action plan as progress is made, and as the environmental and preservation needs of the Borough evolve.



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