

RANDOLPH TOWNSHIP'S ENVIRONMENTAL GUIDEBOOK:

A WORKING DOCUMENT OFFERING PROJECTS FOR CONSIDERATION WITH CORRESPONDING ACTION PLANS

September 2023



TOWNSHIP OF RANDOLPH
MORRIS COUNTY
STATE OF NEW JERSEY



Pinto Consulting, LLC.



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ACKNOWLEDGEMENTS

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GRANT FUNDING

The development of the *Randolph Township Environmental Guidebook* has been generously funded through a \$30,000.00 grant from the New Jersey Highlands Council.

The New Jersey Highlands Council is a regional planning agency that works in partnership with municipalities and counties in the New Jersey Highlands Region to encourage a comprehensive regional approach to implementing the [2004 Highlands Water Protection and Planning Act](#) (P.L. 2004, c.120). Acting under this authority, the New Jersey Highlands Council adopted the *Regional Master Plan* in 2008 and has provides numerous funding opportunities and technical assistance to the 88 municipalities and 7 counties located within the Highlands Region.

The Highlands Region contains 4 states: New Jersey, New York, Pennsylvania, and Connecticut. [The New Jersey Highlands Region](#) consists of 859,267 acres (approximately 1,343 square miles) and provides drinking water for 70% of the State.



For more information about the New Jersey Highlands Region and the New Jersey Highlands Council, please visit:

<https://www.nj.gov/njhighlands/>

EXECUTIVE SUMMARY

The Randolph Township Environmental Guidebook (RTEG) is an innovative, living document that not only details information about contributors to climate change and environmental degradation, but also provides projects and strategies that can be implemented locally to create positive and measurable change. The RTEG is designed to be utilized at different scales, from municipal leadership to volunteer groups of all ages and abilities. As projects from the RTEG are carried out, the positive outcomes will be realized in the form of improved environmental quality, increased environmental stewardship and community engagement, and the incorporation of sustainable practices into standard decision-making processes and project prioritization in Randolph Township.

The Environmental and Landmarks Committee, in consultation with Pinto Consulting, LLC, was charged with the oversight in the development of the RTEG. Throughout the process, the Environmental and Landmarks Committee met with the Consultant Team, provided feedback on the proposed projects and draft text, and developed a comprehensive community engagement strategy to promote acceptance and utilization of the RTEG by municipal officials, Township Staff, volunteer groups, local businesses, and residents.

In the initial phases of the development of the Plan, Randolph Township brainstormed the major contributors and concerns related to achieving sustainability and resiliency. This focus allowed for a detailed review of the issues affecting Randolph Township directly, as well as framework for a solutions-based approach to prioritizing sustainable practices and environmental stewardship as the standard of practice. The RTEG contains detailed recommendations for 49 projects across **11 action categories**:

▪ Air Quality	Page 16
▪ Climate	Page 25
▪ Community Engagement	Page 33
▪ Energy	Page 42
▪ Food	Page 49
▪ Housing and Economic Development	Page 57
▪ Natural Resources Management	Page 78
▪ Open Space	Page 102
▪ Transportation	Page 116
▪ Waste Management	Page 127
▪ Water	Page 141

Each project identifies the purpose of the project, what steps need to be taken for implementation, what the anticipated approvals and costs are associated with the project and provides additional resources for the user. Randolph Township intends to treat the RTEG as a living document, meaning that an annual review will take place, implemented projects will be updated, and new projects and strategies will be added as appropriate for the municipality. Accomplishments will be celebrated and promoted in the community to highlight the success achieved locally, and at a variety of scales.

The RTEG was developed and drafted with the financial assistance of a \$30,000.00 grant from the New Jersey Highlands Council. This grant, awarded in November 2022 with the purposes of “supporting environmental and economic sustainability”, supported the hiring of the Consultant Team to conduct research, community outreach, meeting with the Environmental and Landmarks Committee and Township Staff, mapping analyses, and drafting of the actual document. The Consultant Team consisted of the following professionals, under the contractual agreement with Pinto Consulting, LLC:

Frank Pinto – President, Pinto Consulting LLC

Tara Kenyon, AICP/PP – Primary Author

Robert Canace

The Township of Randolph is proud to share the RTEG with the community. The Township understands the importance of the development of this Plan, as well as the collaboration of municipal government and residents to implement its principles and projects. The partnerships that will be achieved through the completion of projects will all work towards reaching the shared goals of sustainability, environmental stewardship, and resiliency. In working together towards these shared goals, the outcomes earned will benefit the entire community in its overall health, wellness, and pride in being a resident of Randolph Township.

INTRODUCTION, VISION AND GOALS, AND METHODOLOGY



Randolph Township was incorporated in 1805 and was originally recognized as a summer resort town. Today, Randolph is a modern, suburban community located near New York City, thousands of acres of open space, beautiful natural resources, miles of trails, accessible mass transit, and a variety of housing, employment, and education opportunities. Randolph Township is located upstream of the Black River, the South Branch of the Raritan River, and the Whippany River, and the Rockaway River. The municipality is also located within the

New Jersey Highlands Region, and within part of the Appalachian Mountains. In its 21 square miles reside just under 26,000 residents.

The municipality has demonstrated a clear commitment to sustainability, resiliency, and environmental protection. A focus on strategic planning to achieve these tenets is evidenced through recent updates to the *Open Space and Recreation Plan* (2016), the *Trails Master Plan* (2017), and the *Randolph Township Environmental Guidebook* (2023). These concepts are not new to Randolph. The 2006 Master Plan, along with subsequent Re-examinations, have identified the preservation of open space, protection of natural resources, sustainability, and resiliency as part of its goals and objectives, including:

- *Land Use Goal #3*: Permit development in a manner that protects environmentally sensitive areas and features.
- *Residential Goal #4*: Cluster residential development should be encouraged to minimize environmental disturbance and preserve open space.
- *Community Design Goal #2*: Encourage creative planning and development to produce visual harmony and identity, preserve special physiographic features, and protect natural resources.
- *Circulation Goal #3*: Pedestrian circulation facilities, including sidewalks, bikeways, the Township's trails system serving as connections between community facilities commercial areas and residential neighborhoods, and employment sites should be encouraged as indicated in the *Circulation Plan*.
- *Utilities Goal #1*: Protect the Township's critical water supply for future needs.

- *Parks, Recreation, and Open Space Goal #4*: Continue to create (as funds allow) non-motorized pathway systems between public open space/recreation areas and greenway connections, as well as major residential areas, schools, and the Village Center.
- *Parks, Recreation, and Open Space Goal #5*: Preserve and protect open spaces having important environmental, historical, and cultural significance.
- *Conservation Goal #1*: Protect environmentally sensitive areas such as stream corridors, steep slopes, flood plains, etc. as passive open space. Prohibit development in environmentally critical areas.
- *Conservation Goal #3*: Encourage development which preserves natural amenities and does not aggravate Township drainage problems or negatively impact water quality, particularly in important wellfield and drainage areas.
- *Conservation Goal #6*: Encourage the preservation of existing vegetation, particularly significantly wooded areas.
- *Conservation Goal #7*: Replacement plantings in areas of disturbance should reflect the natural vegetation within these areas.
- *Conservation Goal #9*: Review and update the environmental management techniques the Township currently has in place to ensure that sensitive areas are protected.
- *Recycling Goal #1*: Encourage resource recovery and the continued recycling of recyclable materials.

(Source: Goals and Objective – Randolph Township Master Plan
https://www.randolphnj.org/masterplan/02_goals.pdf)

Vision and Goals of the RTEG

“Through strategic planning, environmental stewardship, a strict focus on sustainability, and public education, Randolph Township will become a sustainable, resilient community for its current and future residents, as well as a partner for other municipalities across New Jersey.”

The Vision and Goals for the RTEG have been developed by studying the original goals from the 2006 *Randolph Township Master Plan*, the 2016 *Re-Examination Report*, the updated *Open Space and Recreation Plan*, and *Trails Master Plan*, as well as other relevant information from the municipal website and publications. Meetings with Township Administration, Staff, and the Environmental and Landmarks Committee were incredibly valuable in understanding the Township’s current conditions and future plans.

Current trends in sustainability, regulatory framework for environmental protection, and planning strategies have been reviewed and integrated into Randolph's existing philosophies to develop a set of goals specific to the RTEG. If implemented in all pertinent municipal initiatives and strategies, these goals will serve as steppingstones in achieving the overall vision of the RTEG:

The goals developed to achieve the Vision of the RTEG have been used as the backbone for the Action categories and projects identified in Chapter 3. They remain consistent with the original intent of the *Randolph Township Master Plan*, while taking into consideration the changing climate, new environmental regulations, grant programs and opportunities, the introduction of new technologies, and updated planning theory and practice. These goals include:

- To Make Randolph More Sustainable and Resilient
- To Develop and Expand Partnerships with Municipal Departments, the Board of Education, Non-Profit Entities, Environmental Organizations, and Other Agencies to Promote Sustainability and Environmental Stewardship
- To Protect Environmentally Sensitive Land and Habitat
- To Use and Produce Clean Energy
- To Manage Stormwater Using Green Infrastructure
- To Engage the Community and Create Citizen Stewards
- To Improve Air and Water Quality
- To Reduce Waste and Increase Recycling

Methodology and Format of the RTEG

Randolph Township consulted with Pinto Consulting, LLC in 2021 to develop the RTEG. The team consists of:

1. Tara Kenyon, AICP/PP, Principal – Kenyon Planning, LLC
2. Frank Pinto, Principal – Pinto Consulting, LLC
3. Robert Canace, Principal – Conservation Advising, LLC

The team met with Township Staff and representatives and the Environmental and Landmarks Committee throughout the project. A variety of resources have been utilized to develop the RTEG, all of which are noted under "Citations".

A survey was created to obtain input from key stakeholders including the Environmental and Landmarks Committee, Trails Committee, Economic Development Committee, Traffic Advisory Committee, Department of Parks and Recreation, Department of Public Works, the Township Engineer, and the Township Health Officer. The results of this survey were compiled and used as a valuable information source regarding intra-municipal operations and practices when preparing the *Guidebook*.

Public participation is very important to Randolph Township. The Township understands that the success of the implementation of this Plan goes hand in hand with buy-in from the public, a foundational understanding of the principles and purpose of this Plan, and a cooperative partnership between Township Staff and Committees and residents. The final draft of the RTEG will be made available for public comment, as well as feedback from other Township committees and the Township Council. This feedback will be thoughtfully reviewed and incorporated into the final Plan, as determined by the Township of Randolph.

How is the RTEG Formatted?

The RTEG is designed to be used as a guidebook that is referred to often for project recommendations and frequent prioritization. Eleven main sustainability categories have been explored through the lens of actions that, if implemented, would advance the Vision and Goals of this Plan. As such the RTEG is formatted as follows:

Executive Summary

Introduction, Vision and Goals, and Methodology

Brief background and characteristics of Randolph Township, the Vision and Goals specific to the RTEG, and the methodology employed by the Project Team to complete this Guidebook.

Chapters 1 - 11: Overview of Environmental Features and Land Use Conditions

Described by Action categories, these Chapters describe the environmental features and land use conditions that will benefit from the sustainability and environmental protection projects identified in the RTEG. Each Action Category contains specific projects including the purpose of the project, steps and approval needed to implement the projects, funding resources available, and links to added resources and reading to assist with implementation and prioritization

Chapter 12: Next Steps

Recommendations for implementing the recommendations of the RTEG to realize the established Vision and Goals.

Appendices and Mapping

Citations

How Will Projects Recommended in the RTEG be Implemented?

The RTEG is a living document that provides a myriad of initiatives and projects that when successfully implemented will conserve natural resources, incorporate sustainable practices, protect wildlife habitat and environmentally sensitive spaces, improve community health, and more. Recommended projects range in scale and timeframe, and can be implemented by volunteer groups, larger Watershed Groups or non-profit organizations, or through Randolph Township's Council, Administration and Staff.

When a project is selected for implementation from the RTEG from an outside entity, the following steps should be taken:

1. The outside entity or volunteer group interested in implementing the project should present their plan for completing the project to the Environmental and Landmarks Committee. Details to be included are the location of the project, the anticipated number of volunteers working on the project, the anticipated timeframe, the estimated costs, any assistance needed from Township Staff, and the benefits to the environment and/or community.
2. The Environmental and Landmarks Committee will forward their recommendation for allowance of the project to the Township Council.
3. Once approval is given for the project, the outside entity and/or volunteer group can proceed with their project. The Environmental and Landmarks Committee should be updated on progress (for larger projects). Any questions or requests during the project should be forwarded to the Environmental and Landmarks Committee.
4. Upon completion of the project, the outside entity and/or volunteer group should forward photographs, plans, and any other relevant data to the Environmental and Landmarks Committee. A presentation to the Committee may be requested for larger projects.
5. The RTEG will be updated annually to remove completed projects, and to add new projects that are deemed beneficial.

CHAPTER 1: AIR QUALITY

New Jersey began its work to improve air quality in 1965 - five years before the federal government signed the initial Federal Clean Air Act. The United States Environmental Protection Agency (USEPA) amended the Clean Air Act in 1990 to provide broader authority for the reduction of emissions and the implementation of cost-effective practices to improve air quality. The National Ambient Air Quality Standards (NAAQS) [§40 CFR, Part 50] establishes limitations six principal air pollutants that are harmful to public health and the environment:

- Carbon Monoxide (CO)
- Lead (Pb)
- Nitrogen Dioxide (NO₂)
- Ozone (O₃)
- Sulfur Dioxide (SO₂)
- Particulate Matter (PM)

The 1990 Clean Air Act also requires that all areas of the country be evaluated for attainment or non-attainment of the NAAQS standards, with the range of non-attainment is from “marginal” to “extreme”.

The United States Air Quality Index is updated hourly, and provides interactive mapping, resources about air quality conditions and monitoring stations, and registration for alerts. This continuous update is achieved through a partnership between the USEPA and the New Jersey Department of Environmental Protection (NJDEP), which operates 30 Air Quality Monitoring Stations across the State. The data collected at these outdoor field stations are reviewed by NJDEP Staff, and submitted to the USEPA, which posts the updated data to its website: www.airnow.gov. Randolph Township is part of the *North Central Reporting Area*.

Contributors to Air Quality Degradation

According to the National Parks Service, there are four main types of air pollution sources:

- Mobile Sources – cars, trucks, trains, airplanes, idling vehicles.
- Stationary Sources – power plants, industrial facilities
- Area Sources – agricultural areas, cities
- Natural Sources – forest fires, wind-blown dust

This degradation of air quality impacts all communities, and leads to increased illness and mortality, reduced visibility, and furtherance of climate change. Pollutants travel quickly in an unpredictable fashion, depositing harmful pollutants into many of our natural resources. Addressing these contributors onsite, or preventing these pollutants from being created and emitted, will lead to improved air quality locally, with the benefits extending well beyond Randolph Township.



Figure 1: [NJDEP's No Idling Signage](#)

In New Jersey, on-road mobile sources of air pollution account for over 50% of New Jersey's carbon monoxide emissions, over 20% of New Jersey's volatile organic compounds emissions, and nearly 60% of New Jersey's total noxious oxides emissions. Idling vehicles significantly adds to these emissions, while concentrating emissions into a smaller area with more people in the vicinity. Because of the significant damage to air quality caused by idling, New Jersey has adopted legislation (NJAC 7:27-14 and 15), effectively prohibiting idling for more than three minutes (with noted exceptions). Additionally, the legislation provides a structure for enforcement and fines, with flexibility provided for facilities that have posted signage with NJDEP-approved language. This strategy is effective in that it allows for punishable action for violations, while encouraging public education and prevention.

Another major contributor to air quality degradation in New Jersey is the Heat Island Effect. According to USEPA, heat islands are "urbanized areas that experience higher

temperatures than outlying areas". Urbanized areas can experience temperatures ranging between 1 degree and 7 degrees hotter than outlying areas in the daytime, specifically in humid regions like the eastern United States.

The Heat Island Effect describes the creation of these "islands" where heat is increased due to specific conditions, such as:

- *Reduced Natural Landscapes* – lack of sufficient shade trees, tree canopy, and open/natural spaces.
- *Increased Urbanized Materials* – large amounts of roofing on buildings and asphalt in parking lots.
- *Urban Geometry* – the development patterns of urban areas tend to block the movement of wind and air, while the buildings themselves absorb solar energy.
- *Human Generation* – motor vehicles (moving and idling), excessive use air conditioning, industrial uses.
- *Weather and Location of the Urban Area* – especially humid regions tend to suffer more from the Heat Island Effect, as well as urban areas that are part of larger, more densely populated urban regions.

The Heat Island Effect leads to the further degradation of air quality and contributes to climate change, while simultaneously negatively impacting human health. In New Jersey, where land use is already mixed and development is always on the rise, the Heat Island Effect poses a significant threat to our air quality and the quality of other natural resources, such as soils, vegetation, and water. The increased temperatures lead to the increased energy consumption, causing higher levels of emissions and pollutants. Higher temperatures also increase the temperature of stormwater runoff, which enters our waterways and increases the ambient water temperature. This increase is detrimental to water quality and aquatic life.

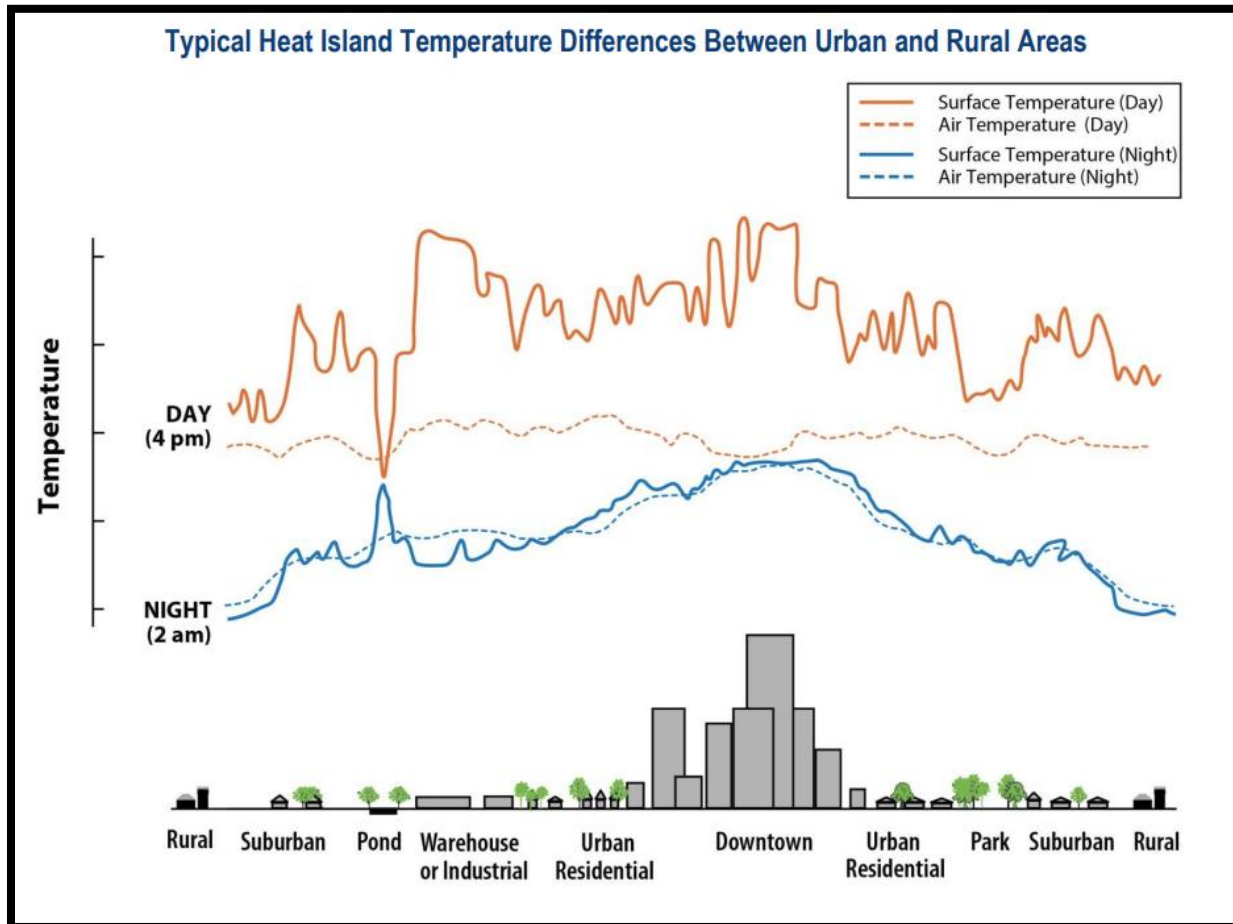


Figure 2: Temperature Changes Caused by the Heat Island Effect

Source: https://www.epa.gov/sites/default/files/2016-09/documents/heat_island_4-page_brochure_508_120413.pdf

Land use also plays a key role in the determination of air quality. Land preservation is an effective method for improving air quality, while increased development, specifically of industrial and large commercial uses, is an effective contributor to air quality degradation. Land use is dictated locally, showing that strategic planning and sensible, enforced zoning at the municipal level are instrumental in protecting natural resources, such as air quality.

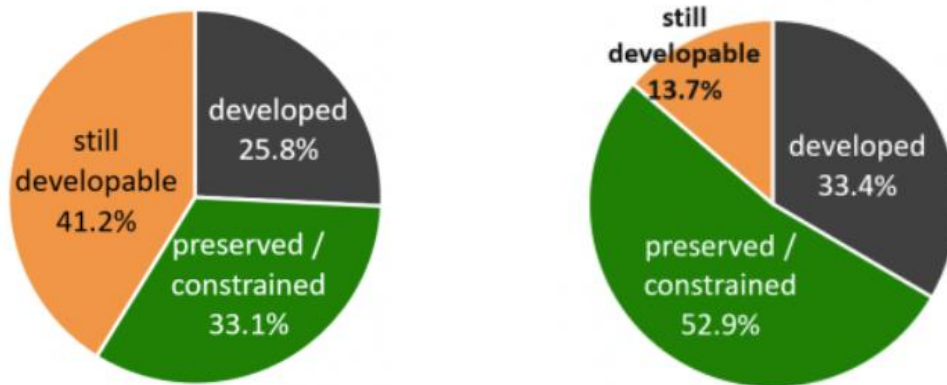


Figure 3: 1986 Land Use in New Jersey (left) versus 2015 Land Use in New Jersey (right)

Source: <https://www.njfuture.org/2020/02/17/new-jerseys-supply-of-developable-land-is-shrinking-as-a-result-of-both-development-and-preservation/#:~:text=As%20of%2019%20%5B3%5D%2C,million%2Dacre%20goal%20was%20established.>

How Does Air Quality Affect Randolph Township and Beyond?

The environmental condition of air quality has a direct impact on all people, regardless of where they live. Ironically, where you live has a direct impact on air quality, which will have a significant direct impact on human health. According to the World Health Organization, reduction in air pollution levels leads to significant decreases in stroke, heart disease, lung cancer, and both chronic and acute respiratory diseases.

Knowledge of current and forecasted air quality conditions allow the public, specifically vulnerable populations, to assess their ability to be outdoors, and to modify their behaviors as needed. This knowledge also allows the municipality to understand trends in air quality and implement policies and projects to mitigate specific contributors to air quality degradation. These projects, which include increased monitoring, public education, and naturalizing specific urban areas to reduce the Heat Island Effect, will directly benefit Randolph Township residents, with outcomes extending to Morris County and beyond.

As part of the RTEG, the Township has studied air quality and developed the following projects:

Project 1A: Assess Readiness for Air Quality Alerts

Purpose

The United States Air Quality Index is updated hourly, and provides interactive mapping, resources about air quality conditions and monitoring stations, and registration for alerts (www.airnow.gov). This data is easily accessible, but not well known by the public. Randolph Township can act as a conduit for this data to by publishing local alerts about air quality conditions and forecasts, especially as it pertains to vulnerable populations. This information can help residents prepare for existing or projected conditions that could significantly impact their health.

Implementation Strategy

In assessing the Township's website (<https://www.randolphnj.org/>), information about air quality is not clearly available to residents. In looking through the buttons at the top of the page, there is no clear reference to air quality information under any of the categories.

1. By providing a link to the United States Air Quality Index (www.airnow.gov) on the municipal website, Randolph can lead its residents and visitors of the website to current data about air quality, allowing them to make important decisions related to their schedules, locations, and health.
2. By providing a link to Enviroflash (<https://www.enviroflash.info/>), residents can register to receive notifications and forecasts about their local air quality.
3. Celebrate National Air Quality Awareness Week to promote the resources available to the public about air quality, as well as Randolph Township's commitment to keeping the public informed on current conditions and improving air quality moving forward.



Figure 29: Magnet Template
(<https://www.enviroflash.info/assets/toolkit/Magnet.pdf>)

Approvals Needed

No approvals are needed.

These resources are already prepared and updated frequently by the USEPA using reliable data.

Funding Resources Available

Because the resources are already available, and frequently updated by the USEPA, no funding is needed for development or maintenance of this educational and alert system. Existing Information Technology Staff would be responsible for creating the new webpage on the existing Randolph Township website.

Resources

The following are links to existing resources that can be used to implement this project:

- *Air Quality Assessment Report*. New Jersey Highlands Council. 2008.
https://www.nj.gov/njhighlands/master/tr_air_quality_assessment.pdf
- *The American Lung Association's Annual State of the Air Report*. The American Lung Association. 2022.
<https://www.lung.org/research/sota>
- *Celebrate Air Quality Awareness Week*. United States Environmental Protection Agency.
<https://www.airnow.gov/aqaw/>
- *Enviroflash*. United States Environmental Protection Agency.
<https://www.enviroflash.info/>
- *The National Ambient Air Quality Standards (NAAQS)*. United States Environmental Protection Agency.
<https://www.epa.gov/criteria-air-pollutants/naaqs-table>
- *NJDEP's Division of Air Quality Monitoring*. New Jersey Department of Environmental Protection.
<https://www.nj.gov/dep/airmon/>
- *The United States Air Quality Index*. United States Environmental Protection Agency.
www.airnow.gov

Project 1B: Educate the Public About the Anti-Idling Law and its Enforcement

Purpose

Education and enforcement of the State's regulations (NJAC 7:27-14 and 15) are the most effective strategies for discouraging idling and ultimately improving air quality in our Township and the surrounding areas. Changes to zoning, circulation patterns, and the offering of safe alternative transportation are more permanent solutions to idling. A good first step at the municipal level is to educate the public about the restrictions set forth in the New Jersey Anti-Idling Regulations, what the benefits are to the environment and public health, and how these rules are enforced. This understanding will encourage motorists to stop idling, leading to a reduction in greenhouse gas emissions, diesel-fuel exhaust, and their toxic components.

Implementation Strategy

An Education and Enforcement Campaign provides residents with information about the State's regulations, the impacts of idling to the environment, and the dangers to public health. Signage should be heavily promoted, especially with commercial properties and school facilities. Randolph Township will also have to work closely with the Morris County Health Department and Randolph Township Police Department, both having authority to enforce the State's regulations and issue violations.

To develop a corresponding Education and Enforcement Campaign, the following tasks must be undertaken by Randolph Township:

1. The Randolph Township Environmental and Landmarks Committee, in connection with the Randolph Township Planning Board, should develop a list of frequent-idling sites. This list can be shared with the Morris County Health Department for use in their regularly scheduled surveillance activities.
2. The Randolph Township Environmental and Landmarks Committee can share existing resources with commercial properties and schools:
 - a. New Jersey's No-Idling Pledge for Municipalities
 - b. New Jersey's No-Idling Pledge for Schools and School Districts
 - c. New Jersey's No-Idling Pledge for Bus Companies
 - d. New Jersey's No-Idling Pledge for Parents
 - e. New Jersey's No-Idling Pledge for Community Members
 - f. Language for signage approved by NJDEP.
3. Publish information about anti-idling in Township newsletters and at appropriate events.

Approvals Needed

Approvals are not needed as idling is illegal as documented by the State's regulations.

Approval to adopt the Anti-Idling Resolution and corresponding Education and Enforcement Campaign is required by the Randolph Township Committee.

Funding Resources Available

The majority of costs to Randolph Township will be for the purchase of signage and materials needed for the Education and Enforcement Campaign.

NJDEP's Bureau of Mobile Sources may be able to provide promotional materials (pens, windshield ice scrapers, magnets, etc. to Randolph Township for free upon request to distribute as part of the Education and Enforcement Campaign.

Signage with NJDEP-approved language for specific sites is to be purchased by the landowner. Signs can also be produced by Randolph Township or Morris County, if that capability exists.

Resources

The following are links to existing resources that can be used to implement this project:

- *Air Quality Assessment Report*. New Jersey Highlands Council. 2008.
https://www.nj.gov/njhighlands/master/tr_air_quality_assessment.pdf
- *Ambient Outdoor Air Pollution*. World Health Organization.
[https://www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health)
- *Anti-Idling Education and Enforcement Action Item*. Sustainable Jersey.
<https://www.sustainablejersey.com/actions/#open/action/38>
- *Control and Prohibition of Air Pollution from Diesel-Fueled Motor Vehicles (NJAC 7:27-14)*
<https://www.nj.gov/dep/aqm/currentrules/Sub14.pdf>
- *Control and Prohibition of Air Pollution from Gasoline-Fueled Motor Vehicles (NJAC 7:27-15)*
<https://www.nj.gov/dep/aqm/currentrules/Sub15.pdf>
- *How Can I Help? Stop the Soot*. New Jersey Department of Environmental Protection.
<https://dep.nj.gov/stopthesoot/idling-what-you-can-do/>
- *State of the Air Report*. American Lung Association. 2022.
<https://www.lung.org/research/sota/health-risks>
- *Stop the Soot* – the NJDEP's Bureau of Mobile Sources has created a comprehensive campaign to reduce idling of motor vehicles across the State. This website provides fact sheets, tips, templates, access to promotional materials, and more.
<https://dep.nj.gov/stopthesoot/idling/>
- *Where Does Air Pollution Come From?:* The National Parks Service.
<https://www.nps.gov/subjects/air/sources.htm>

CHAPTER 2: CLIMATE

Climate is defined as the generally prevailing weather conditions of a region, including the temperature, air pressure, humidity, precipitation, sunshine, cloudiness, and winds, throughout the year, averaged over a series of years (*Merriam Webster*). Climate speaks to long-term atmospheric conditions, whereas weather addresses immediate conditions. New Jersey's climate is considered temperate, showing fairly significant variation over the course of a year. The state is exposed to cold air masses moving across the continent and warm air masses coming from the Atlantic Ocean. The northern elevated highlands and valleys regularly experience colder temperatures and more annual average precipitation than the rest of the state.

The statewide annual average precipitation is 47.6 inches, with the north-central portion of the state averaging around 50 inches of precipitation and the coastal region averaging 40–45 inches. (<https://climate.rutgers.edu/stateclim/>)

A Changing Climate

A significant body of scientific data exists – including weather records, records of sea levels, ice-cores from the Arctic regions and other records such as tree rings - to support the conclusion that our climate is changing noticeably over time. Temperatures in New Jersey have risen more than 3.5°F on the average since the beginning of the 20th century. The 10 hottest calendar years on record for the state have occurred since 1990, with an additional six occurring since 2010. The years 2012 and 2020 were the warmest on record at 3.0°F above average and 2.6°F above average, respectively. The number of very cold nights has been below average since the early 1990s (Figure 2b). Over the past 25 years, there have been many more unusually warm months than unusually cold months in New Jersey. During the 2000–2020 interval, there were no “Top 5 Coldest Months”, however, there were 38 “Top 5 Warmest Months”. These trends are projected to continue, with serious implications to agriculture, water supply, storm damage, human health, and national security

(<https://climate.rutgers.edu/stateclim/>)

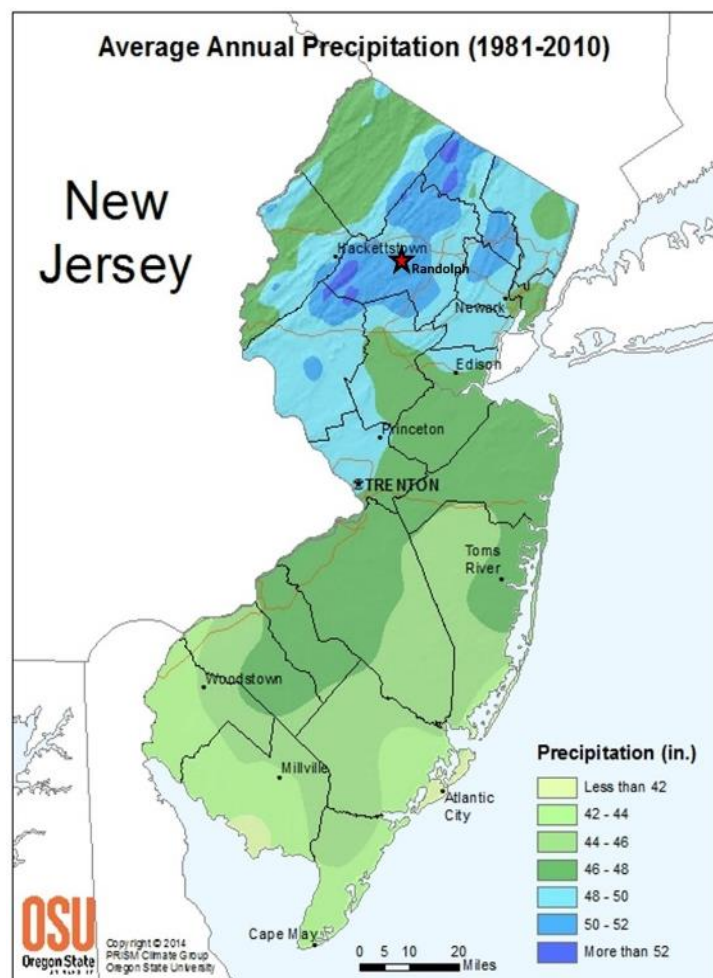


Figure 4: [Average Annual Precipitation in New Jersey \(1981 - 2010\)](https://climate.rutgers.edu/stateclim/)

Source: Oregon State University

Impacts of Climate Changes

Climate change in New Jersey and elsewhere impacts the economy, infrastructure, the environment, as well as placing a greater strain on everyday life. Warmer temperatures are producing more severe heat waves. Sea-level rise and heavy rains are causing more frequent and intense flooding, especially in coastal areas and along waterways. Rutgers University projects a rise in average sea level of 0.7 ft by 2030, 1.3 ft by 2050, and 3.1 ft by 2100. The NJDEP makes similar predications, projecting a rise in average sea level by 2.1 feet or more by 2050 and 5.1 feet by the year 2100 (<https://www.nj.gov/dep/slr/>).

Climate change is a primary source of the following threats and realized problems:

- *Infrastructure (transportation, energy, and communications)* - Roads, power plants, and other critical facilities in low-lying coastal areas or near inland waterways are more vulnerable to flooding because of heavy downpours, sea level rise, and storm tides. High temperatures can damage roadways and rail tracks and reduce the efficiency of power lines. Electricity demand soars during periods of extreme heat, further straining the power grid.
- *Pests, Irritants and Disease* - Warmer winters mean harmful insects are active for longer periods of time, and their populations may not be reduced by severe winter cold. Rising temperatures also encourage the spread of pests and weeds to areas where they previously were not found. Longer warm seasons and heavy rains promote the growth of allergens like mold, mildew, and pollen. Disease-carrying ticks and mosquitoes thrive during extended periods of warm weather and heavy rains, and the range of vector-borne illnesses such as Lyme, West Nile, and chikungunya is changing.
- *Agriculture* - Early spring warming can throw certain crops out of sync with pollinators and is especially damaging to fruit trees when followed by a cold snap. Crops that require long chilling periods for optimum growth, such as cranberries and northern blueberries, may not be as productive as they once were. Other crops might not tolerate longer periods of high summer temperatures.
- *Marine Life* - There is evidence that fish commonly found off the Jersey Shore are shifting north, disrupting the operation of commercial fishing boats and processing plants and complicating fishery regulation. Ocean warming, the principal cause of sea level rise, makes coastal infrastructure vulnerable to flooding.
- *Human Health* - Increased and prolonged heat and extreme heat events pose a significant danger for people with cardiac or respiratory conditions, older adults, young children, pregnant women, and those who work outdoors. It's especially acute in areas where asphalt and dark roofs retain heat (Heat Island Effect).
- *Water* - Climate change can directly impact water supplies through persistent drought and introduction of contaminants to streams, lakes, and rivers due to intense rainfall runoff. Flooding can threaten to inundate wastewater facilities, which are typically sited in low-lying areas near waterways, by causing them to release water that is insufficiently treated.

Responding to Climate Change

Even with mitigating measures in place, humans will need to find ways to adapt to climate change. Adaptions can include changing the way we generate energy, water conservation, drought-resistant landscaping, “green and gray” infrastructure to address flooding and sea-level rise, examining zoning for vulnerability to flooding, providing cooling centers for shelter during intense heat waves for the vulnerable, and other measures.

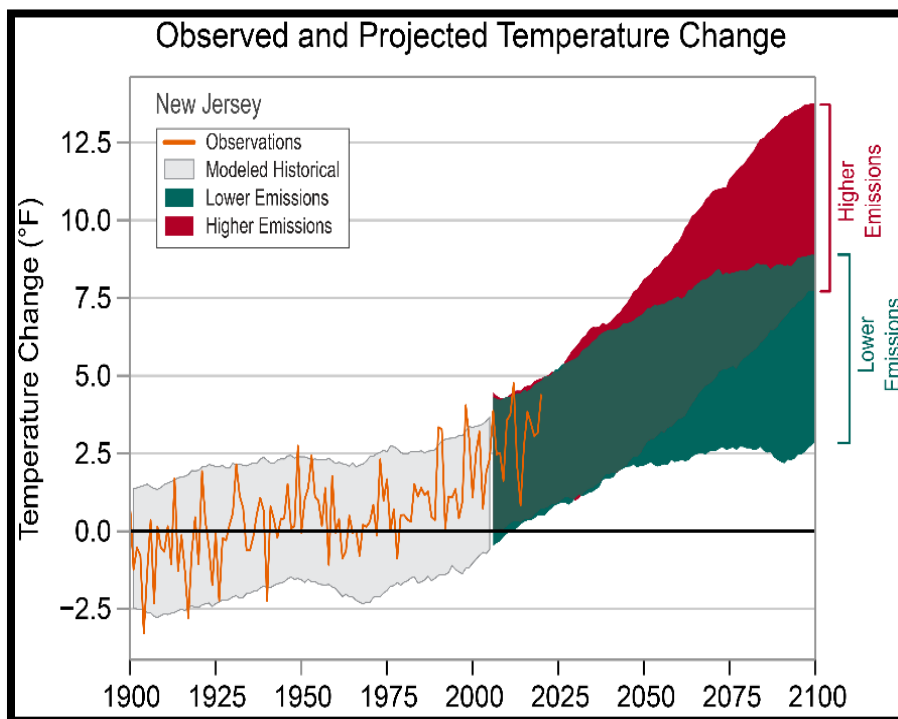


Figure 5: [Observed and Projected Temperature Change](#)
Source: U.S. Climate Resilience Toolkit

The State of New Jersey has developed legislation along with corresponding planning and programs to address climate change, including:

- *New Jersey Global Warming Response Act* – Adopted in 2007, this legislation puts a limit on the emission of greenhouse gases with a goal of reducing the release of carbon to the atmosphere by a total of 80% by the year 2050. Addressing emissions related to transportation, which represents the largest share of the release of greenhouse gases in New Jersey, is at the center of the State’s strategy.
- *New Jersey Global Warming Response Act: 80x50 Report* – In 2020, the NJDEP issued this Report, which outlines the State’s strategy to achieve the goal of limiting the emission of greenhouses gases by 80% by the year 2050. The core strategies include reducing the amount of fossil-fueled passenger vehicles purchased and operating annually, the conversion to electric-powered vehicles, incorporation of hybrid and/or electric technology for diesel-powered trucks, and an increase in ridership for public transportation. The Report also highlights the effect created by the residential and commercial sector by recommending mandatory energy audits on State, County, and Municipal buildings, installing solar panels on new construction, and adopting “net-zero” goals.

- *New Jersey's Climate Change Resilience Strategy* – Adopted via Executive Order #89 on October 12, 2021, the Climate Change Resilience Strategy “provides a suite of forward-looking policy options to promote the long-term resilience of New Jersey to climate change” (<https://www.nj.gov/dep/climatechange/resilience-strategy.html>). This Executive Order also appointed the State's first Chief Resilience Officer and established an Intra-agency Council on Climate Resilience. The final report includes 127 recommendations, all of which address one or more of the identified six priorities for climate resilience, which will build resilience to climate change in New Jersey.



Figure 6: *New Jersey's Six Climate Resilience Priorities*
Source: NJDEP's *Climate Change Resilience Strategy*

- *New Jersey's Office of Clean Energy* – This Office provides funding and incentives for a myriad of projects for residential, commercial, industrial, and government facilities. Eligible projects include free energy audits, community solar, energy efficiency retrofitting and much more.

For more information, please visit: <https://njcleanenergy.com/>

- *It Pay\$ to Plug In* – Operated by the NJDEP, this Program provides reimbursement grant funding for the installation of electric vehicle charging stations. The increase and availability of electric vehicle charging stations will reduce “range anxiety” (the fear of driving an electric car because of the lack of proximate electric vehicle charging stations), thereby encouraging the conversion from fossil-fueled passenger vehicles. Eligible recipients are multi-family dwellings, residential, commercial, industrial, and government facilities.

For more information, please visit: <https://dep.nj.gov/drivegreen/it-pays-to-plug-in/>

As part of the RTEG, the Township has studied climate change, and developed the following projects:

Project 2A: Municipal Climate Awareness Plan

Purpose

A *Municipal Climate Awareness Plan* provides recommendations to Township officials which can then be disseminated to the public to address factors at the local level that contribute to climate change. In most cases, simple and straightforward strategies can be implemented by everyday citizens, creating measurable and impactful change. Developing a *Municipal Climate Awareness Plan* does not require extensive expenditures of municipal resources and can be undertaken by existing staff at Randolph Township.

The main goal of all the recommendations in a *Municipal Climate Awareness Plan* is to reduce Greenhouse Gas Emissions (GHG), the principal contributor to climate change. The principal contributor to GHG is the transportation sector, especially in New Jersey where roadways are frequently congested and there are always an excessive number of personal vehicles in use. There are many strategies that can be employed, ranging from simple and affordable to those requiring engineering work and financing. Below are some examples typically included in a *Municipal Climate Awareness Plan*:

- Carpool whenever feasible and appropriate
- Bike, walk and/or ride the bus instead of driving whenever possible
- Invest in electric vehicles for use by the municipality and private citizens
- Install solar photovoltaic and/or solar hot water panels in municipal buildings and homes
- Adding more insulation and weathering stripping to buildings
- Use LED and compact fluorescent light bulbs
- Plant trees to create shade cooling and absorb carbon dioxide
- Support the production and consumption of local and organic foods to help reduce long distance shipping and the use of petroleum-based fertilizer
- Encourage green building practices and investments in energy efficiency in homes, commercial buildings and industrial facilities
- Reduce impervious surfaces
- Encourage and incorporate green infrastructure at all scales
- Upgrade stormwater management systems

Implementation Strategy

A Municipal Climate Awareness Plan can be tailored to satisfy the overall goals of the project for each municipality. Some municipalities may choose to provide a great deal of foundational data related to GHG inventories, establish a target for the reduction of GHG, and identify a list of recommended projects and

strategies to meet that target. Other municipalities may choose to approach this Plan as more of a community educational and engagement piece, providing general information about GHG and how it affects the municipality, while also providing a list of recommended projects and strategies for reducing GHG.

The recommendation for Randolph Township is to use the latter approach, which will allow for a general study of factors affecting climate change within the municipality and educate the community about simple and affordable projects they can implement to reduce GHG. A section of the *Municipal Climate Awareness Plan* should focus on specific projects, policy changes, and programming that can be implemented by the Township to contribute to positive change along with residents and business owners.

The following tasks can be followed to develop a *Municipal Climate Awareness Plan*:

1. Data can be gathered about the GHG inventory in New Jersey, Morris County, and Randolph Township, if the data can be derived into that much detail. This baseline GHG inventory will provide information about changes in climate over time, and help residents understand the main contributors to climate change.
2. The Environmental and Landmarks Committee can study this data, and make recommendations for projects, policy changes, and programming that can help reduce GHG in and around Randolph Township. Examples of such projects include:
 - a. Improve public transportation to reduce emissions from private vehicles
 - b. Work towards eliminating barriers associated with the “last mile” (getting from public transit stops to the desired location). This can be achieved by implementing bike share programs, partnering with rideshare organizations, and working with Morris County to create connections in gaps.
 - c. Encourage the Randolph Township Council to adopt a Sustainable Land Use Pledge
 - d. Promote energy audits for residents, local businesses, and government offices
 - e. Establish a target for tree plantings within the municipality over time
 - f. Host educational workshops regarding the installation and maintenance of rain barrels, rain gardens, pollinators plants, and smart landscaping materials
3. Once completed, the Township should host a public meeting to present the Plan to the community and describe how the recommendations can be easily implemented to reduce GHG.

Approvals Needed

Once the Township has approved the development of a *Municipal Climate Awareness Plan*, outside approvals are not required as this Plan is not a required element of the *Randolph Township Master Plan*.

If the Township chooses to adopt this Plan as an element of the Randolph Township Plan, compliance with the New Jersey Municipal Land Use Law would be required, specifically as it relates to the holding of at least two, advertised Public Hearings.

Funding Resources Available

This project can be completed through the Township's Planning Department, with guidance and assistance from the Environmental and Landmarks Committee. The cost of developing the *Municipal Climate Awareness Plan* should not be excessive, as most of the data is readily available through the New Jersey Department of Environmental Protection and the United States Environmental Protection Agency.

The New Jersey Highlands Council offers grants for planning, engineering, and design for projects that maximize the environmental and economic benefits of living in the Highlands region of New Jersey. These grants can be used to commission studies that conserve natural resources, reduce pollution and greenhouse gas emissions, promote sustainable land management practices, and more. Planning grants from the New Jersey Highlands Council are non-competitive and do not require a financial match from the municipality or county. No minimum or maximum award thresholds are established, and the application is on a rolling basis, making these grants very flexible and desirable for Highlands communities. More information can be found at:

https://www.nj.gov/njhighlands/grantprograms/plan_conformance/grants_overview.pdf

Sustainable Jersey offers small grants to participating municipalities for projects that further the Actions identified under their Certification Program. If Randolph Township chooses to work towards Certification, it can apply for grant funding in the amount of \$2,000.00 to \$20,000.00 to fund the implementation of the projects and programs that mitigate hazards in the community and identify vulnerable populations for emergency management purposes. More information on grant funding through Sustainable Jersey can be found at: <https://www.sustainablejersey.com/grants/>

Resources

The following are links to existing resources that can be used to implement this project:

- *Greenhouse Gas Emissions and Removals*. United States Environmental Protection Agency.
<https://www.epa.gov/ghgemissions>
- *Municipal Climate Action Plan*. Sustainable Jersey.
<https://www.sustainablejersey.com/actions/#open/action/26>
- *Municipal Climate Resilience Planning Guide*. New Jersey Department of the State – Office of Planning Advocacy. October 2021.
<https://nj.gov/state/planning/assets/docs/meeting-materials/spc/materials/njbac-municipal-climate-resilience-planning-guide.pdf>
- *Planning Grants*. New Jersey Highlands Council.
https://www.nj.gov/njhighlands/grantprograms/plan_conformance/grants_overview.pdf

- *Sustainable Community Plan and Climate Action Plan – Township of Woodbridge*. Prepared for the Township of Greener by Design for the Township of Woodbridge. 2010.
<https://www.twp.woodbridge.nj.us/DocumentCenter/View/2813/Sustainable-Community--Climate-Action-Plan-PDF?bidId=>

Project 2B: Partnership with Morris County's Office of Emergency Management for the 2025 Update to the Multi-Jurisdictional Multi-Hazards Mitigation Plan

Purpose

According to the Federal Emergency Management Agency (FEMA), the purpose of hazard mitigation planning is to “reduce losses of life and property by minimizing the impact of disasters”. This process begins at the local level through a partnership between the county and each of its municipalities. Natural hazards and vulnerabilities are inventoried and documented in one document, known as the “Multi-Hazards Mitigation Plan”. The key to this Plan is that once hazards and vulnerabilities are identified, municipal and county staff and representatives brainstorm and develop long-term strategies to protect people and property from damage during extreme weather events, disease outbreak, drought, infestation, wildfire, and more.

Morris County's Office of Emergency Management updated the existing *2015 Multi-Jurisdictional Multi-Hazards Mitigation Plan* in July 2020 (the [2020 Multi-Jurisdictional Multi-Hazards Plan](#)), with the Plan (HMP) being adopted by FEMA in September 2020. The HMP was developed in accordance with the regulations and guidelines established under the Disaster Mitigation Act of 2000, which required collaboration of counties and municipalities to complete this effort on a five-year timeframe. All of Morris County's municipalities participated in the 2020 update to the HMP by attending information sessions and workshops, providing requested data, reviewing inventory of hazards and vulnerabilities to ensure accuracy, reviewing and editing proposed long-term mitigation strategies for feasibility and accuracy, and providing feedback on the final HMP prior to adoption.

The next required update to the *2020 Multi-Jurisdictional Multi-Hazards Mitigation Plan* is required in 2025 and must satisfy new requirements released by FEMA in April 2023. These significant changes require that HMPs include the consideration of climate change impacts and equity across the municipality and county. Additionally, resiliency for infrastructure because of climate change must be adequately discussed in the next update.

Implementation Strategy

Randolph Township can play a key role in the 2025 update, as it did in the *2020 Multi-Jurisdictional Multi-Hazards Mitigation Plan*. This Plan provides a great opportunity for Randolph Township to accurately and adequately identify for natural and man-made hazards, develop feasible and impactful emergent and long-term mitigation strategies, and protect its residents from loss of life and property damage. The updated HMP will have a main focus on climate change and how that relates to existing hazards, has created new hazards, and what the new affects to residents are. Most importantly, the updated HMP will identify equity disparities and require mitigation to ensure that vulnerable populations are able to be properly prepared and protected.

Randolph Township should continue to partner with Morris County's Office of Emergency Management, as it did for the *2015 and 2020 Multi-Jurisdictional Multi-Hazards Mitigation Plan*. Specifically, the municipality can complete the following tasks to ensure the updated HMP is accurate and impactful:

1. Send appropriate municipal staff (Township Administrator, Engineer, and Municipal Coordinator for the Office of Emergency Management) to information sessions and workshops held by FEMA and/or the Morris County Office of Emergency Management. This staff should provide regular updates to the Township Council on the progress of the Plan.
2. Provide requested data in a complete and timely manner.
3. Carefully review the inventory of natural and man-made hazards prepared by Morris County and provide feedback on hazards that are missing or not fully documented. Ensuring that the inventory is correct and complete is the foundation of the Plan, as it leads to the development of emergent and long-term mitigation strategies.
4. Carefully review the emergent and long-term mitigation strategies developed by Morris County and provide feedback. Randolph Township will have the best on-the-ground knowledge about hazards that affect its people and properties and should ensure that the proposed mitigation strategies make sense and are feasible.
5. Morris County formed a Steering Committee for the development of the *2020 Multi-Jurisdictional Multi-Hazards Mitigation Plan* consisting of County Staff from the Morris County Administrator's Office, Department of Law and Public Safety, Department of Public Works, Information Technology, Park Commission, Human Services, and Health Management, as well as representatives from the Townships of Lincoln Park, Longhill, and Pequannock. For the 2025 HMP update, Randolph Township may want to consider becoming a member of the Steering Committee, so it has a more active role in the development of this Plan.
6. In advance of the planned HMP update, Randolph Township should carefully review [Section 9.33](#) of the *2020 Multi-Jurisdictional Multi-Hazards Mitigation Plan*, which is the chapter specifically designed for Randolph Township. New hazards or previously undocumented hazards should be inventoried to develop a complete, current listing. Additionally, municipal staff should look at these hazards through the lens of climate change impacts and equity disparities, as this will be required in the 2025 update. Specifically, the Township should be focused on:
 - a. Existing hazards that have been amplified due to climate change (extreme temperatures, increased frequency and intensity of storms, drought conditions, flooding, wildfire, and more)
 - b. New hazards that have been identified due to climate change
 - c. Areas within Randolph Township where equity disparities affect people and property during events caused or enhanced by climate change (example: areas zoned for high-intensity development tend to experience hotter temperatures and poorer air quality, leading to health hazards, energy loss, and more).
 - d. Resiliency not only of physical infrastructure, but also of internet infrastructure which is vital for information and communication during hazardous events

Table 9.33-14. Township of Randolph Hazard Ranking Input						
Dam Failure	Drought	Earthquake	Extreme Temperature	Flood	Geological Hazard	
Medium	Medium	Medium	Medium	High	Medium	

Harmful Algal Bloom	Severe Storm	Severe Winter Storm	Wildfire	Hazardous Substances	Disease Outbreak	Infestation
High	High	Medium	Low	Medium	High	Medium

Figure 30: Hazard Ranking Input for Randolph Township

Source: "Section 9.33 – Township of Randolph", [Morris County's Multi-Jurisdictional Multi-Hazards Mitigation Plan \(2020\)](#)

Approvals Needed

Participation in the update to the HMP is required for the municipality, and historically Randolph Township has always acted as a valuable participant. This participation should be coordinated through the Township Administrator's Office.

The final 2025 Morris County Multi-Jurisdictional Multi-Hazards Mitigation Plan must be approved by the Morris County Office of Emergency Management, Morris County Planning Board, and ultimately the Federal Emergency Management Agency.

Funding Resources Available

Morris County is responsible for the facilitation and development of the Plan, as well as the coordination of its municipalities.

The New Jersey Office of Emergency Management provides a variety of training opportunities for local communities. Trainings are frequently updated and have a focus on addressing natural and man-made hazards: <https://nj.gov/njoem/training/index.shtml>

The Federal Office of Emergency Management also provides grant funding for projects that mitigate hazards identified in the HMP. Typically, these grants are applied for at the State and/or County level but can be closely coordinated with the municipality in which the project is proposed. More information can be found at: <https://nj.gov/njoem/mitigation/index.shtml>

The New Jersey Highlands Council offers grants for planning, engineering, and design for projects that maximize the environmental and economic benefits of living in the Highlands region of New Jersey. These grants can be used to commission studies that conserve natural resources, reduce pollution and greenhouse gas emissions, promote sustainable land management practices, and more. Planning grants from the New Jersey Highlands Council are non-competitive and do not require a financial match from the municipality or county. No minimum or maximum award thresholds are established, and the application is on a rolling basis, making these grants very flexible and desirable for Highlands communities. More information can be found at:

https://www.nj.gov/njhighlands/grantprograms/plan_conformance/grants_overview.pdf

Sustainable Jersey offers small grants to participating municipalities for projects that further the Actions identified under their Certification Program. If Randolph Township chooses to work towards Certification, it can apply for grant funding in the amount of \$2,000.00 to \$20,000.00 to fund the implementation of the projects and programs that mitigate hazards in the community and identify vulnerable populations for emergency management purposes. More information on grant funding through Sustainable Jersey can be found at: <https://www.sustainablejersey.com/grants/>

Resources

The following are links to existing resources that can be used to implement this project:

- *Hazard Mitigation Planning*. Federal Emergency Management Agency.
<https://www.fema.gov/emergency-managers/risk-management/hazard-mitigation-planning>
- *Morris County's Multi-Jurisdictional Multi-Hazard Mitigation Plan (2020)*. Morris County Office of Emergency Management.
<https://www.morriscountynj.gov/Departments/Emergency-Management/Mitigation/2020-Mitigation-Plan-Update>
- *New Jersey Office of Emergency Management*. State of New Jersey.
<https://nj.gov/njoem/>
- *Planning Grants*. New Jersey Highlands Council.
https://www.nj.gov/njhighlands/grantprograms/plan_conformance/grants_overview.pdf

CHAPTER 3: COMMUNITY ENGAGEMENT

Public education and engagement of the community is a keystone for the RTEG and its successful implementation. A change in mindset and behaviors is needed community-wide to incorporate sustainable and environmentally friendly practices into each and every project from the resident level through the daily operations of the municipal government. A community that feels knowledgeable and empowered can bring about true and sustained change, while inspiring people well beyond the municipal borders of Randolph Township.

Community engagement is not “one size fits all”. With the benefits of today’s technology, communication can take many forms, making reaching all facets of the population possible. It is imperative to meet people where they are, meaning that some people will be satisfied with receiving an alert on their cell phones or viewing a post on social media, while others will want to attend a public meeting or read an article in the Township’s Newsletter. In engaging the community, Randolph Township should employ many forms of communication, including:

- Discussion at public meetings
- Posting frequent updates about programming, planning and projects on the Township’s website and social media platforms
- Quarterly articles in the Township’s Newsletter, focused on different projects or initiatives each time
- Direct mailings to residents
- Flyers for upcoming events and/or opportunities at kiosks at open space properties and parks, at the Municipal Complex, the Library, and (if possible) in the Randolph Township public schools.
- Subscription opportunities for Nixle and/or news alerts related to RTEG projects
- Hosting tables at local community events to disperse information about the RTEG, environmental projects, and sustainability initiatives.



Source: Public Engagement Guide to Transportation Planning, South Jersey Transportation Planning Organization

<https://www.sjtpo.org/wp-content/uploads/2021/03/2021-Engagement-Guide.pdf>



*Figure 7: Volunteers at Stream Cleanup
Source: Randolph Reporter News (April 2018)*

In addition to the important task of engaging the community at large, the municipal government needs a designated group to shepherd the vision and goals of the RTEG. This can be accomplished by the establishment of a Randolph Environmental Action Team, which can be created as a subcommittee of the existing Environmental and Landmarks Committee. Through this subcommittee, the focus can be the implementation and promotion of recommended projects and initiatives of the RTEG. This approach has proven successful in keeping projects relevant and keeping dialogue open with residents and municipal staff in nearby communities such as Montgomery Township (Somerset County), and the City of Clifton (Passaic County).

Successful community engagement in relation to the RTEG should leave participants feeling informed, confident, and motivated in the recommended projects. Residents should be able to reiterate why the Township has developed the RTEG, and what the anticipated outcomes are. Residents should also feel confident in their abilities not only to discuss sustainable practices with their friends and neighbors but should also feel empowered to implement applicable strategies at their own properties. Over time and documented successes at a variety of scales, the community engagement plan should lead to an overall shift in mindset and behaviors which includes sustainable practices and environmentally friendly practices in all decision-making. Residents of all ages, especially seniors, should be included in RTEG events, programs, and projects.

As part of the RTEG, the Township has developed the following projects related to community engagement:

Project 3A: Create a Randolph Environmental Action Team

Purpose

To properly implement the RTEG, an Environmental Action Team should be established as a sub-committee of the Environmental and Landmarks Committee and should be comprised of municipal Staff and Environmental and Landmarks Committee members who have direct work and experience with the implementation of recommended projects and initiatives, and/or have knowledge and interest in sustainability and environmental issues. This sub-committee will ultimately review and update the RTEG as needed, recommending projects and initiatives for implementation over time. A direct line of communication with the Environmental and Landmarks Committee and the Township Council will be established with this sub-committee, ensuring that all responsible parties are involved in decision-making and next steps.

Implementation Strategy

The Township Manager will begin this process, which can be completed relatively easily. The following steps should be taken to create the Randolph Environmental Action Team:

1. The Township Manager can add this matter for discussion by the Township Council at a public meeting. This will provide the opportunity for the Township Council to understand the purpose of the sub-committee, as well as how the RTEG fits into its responsibilities. It is recommended that the Randolph Environmental Action Team be established as a sub-committee of the existing Environmental and Landmarks Committee.
2. If approved, the Chairperson of the Environmental and Landmarks Committee will solicit interest for members to serve on this subcommittee. Staff members from the Planning Division and Department of Public Works should be assigned to assist this subcommittee with its duties and provide valuable input about the feasibility and process for recommended project implementation.
3. Once membership is established, the Chairperson of the Environmental and Landmarks Committee can develop a meeting schedule and introductory presentation for the initial meetings. This exercise will allow members of the subcommittee to review the RTEG, understand their charge, and begin brainstorming next steps.
4. The Randolph Environmental Action Team should submit a report quarterly to the Environmental and Landmarks Committee for discussion in open session.
5. The Environmental and Landmarks Committee should publicize (discussion at public meetings, in the Township's newsletter, posted on the Township's website and social media) that various projects to protect the environment and incorporate sustainability have been proposed and are available for volunteer assistance from the community.

Approvals Needed

Establishment of this sub-committee will require approval by the Township Council, and Environmental and Landmarks Committee. These approvals can be executed via Resolution or Ordinance.

Funding Resources Available

Establishing the sub-committee will not incur any costs. Existing municipal Staff can be designated to assist the Randolph Environmental Action Team.

Sustainable Jersey offers small grants to participating municipalities for projects that further the Actions identified under their Certification Program. If Randolph Township chooses to work towards Certification, it can apply for grant funding in the amount of \$2,000.00 to fund capacity building activities related to the establishment of a Randolph Environmental Action Team (i.e., startup funding for hosting meetings and events, supplies for an initial project). More information on grant funding through Sustainable Jersey can be found at: <https://www.sustainablejersey.com/grants/>

Resources

The following are links to existing resources that can be used to implement this project:

- *City of Clifton's "Green Team"*
<https://www.cliftonnj.org/318/Clifton-Green-Team>
- *Medford Township's "Environmental Affairs Advisory Committee"*
<https://www.medfordtownship.com/eaac>
- *Montgomery Township's "Sustainable Montgomery"*
<https://www.montgomerynj.gov/bc-ecsm>

Project 3B: Develop a Municipal Communications Strategy for the RTEG and Environmental Issues, Plans, Projects, Initiatives, and Legislation

Purpose

Understanding, acceptance, and incorporation of the vision and goals of the RTEG is imperative to its success. A comprehensive municipal communications strategy provides a framework for educating and engaging the community so that the recommended projects and initiatives from the RTEG can be implemented. Ensuring that residents are informed about the status of current projects, pending environmental legislation, and upcoming events and opportunities related to environmental issues and initiatives is the foundation of causing behavioral change among residents and municipal Staff, ultimately leading to sustainability becoming one permanent step in the decision-making process.

Implementation Strategy

The Township has established a sophisticated “Communication Methods and Policy” adopted January 2020. This plan will serve the purpose of educating and engaging the public about the RTEG and its recommended projects.

To implement a successful municipal communications strategy for the RTEG and other environmental issues in Randolph Township, the following steps should be taken:

1. *Create a separate webpage for the RTEG* – This new webpage can provide a short introduction for residents to understand the project’s intent. A list of all projects within the RTEG can then be listed, with the status provided and updated accordingly.
2. *Publish updates about the RTEG and related projects* – By posting periodic updates about the RTEG, its principles remain relevant and in the minds of residents. These updates should be provided in many different forms of communication with residents, and presented in a clear, concise manner so that residents of all ages and abilities can understand the information. Bilingual publications and postings should be utilized as often as possible.
3. *Promote implementation of related environmental projects and sustainability actions* – When a resident, a local business, the schools, or the municipality successfully implements a project that forwards sustainability, resiliency, or includes environmentally friendly practices, the Township should promote this on its website and social media. If there is an opportunity to have the project recognized at a public meeting of the Environmental and Landmarks Committee and/or Township Council, it should be scheduled in a relevant time frame.



How Does This Project Align with the Requirements of the Municipal Tier-A Stormwater Permit?

Under Randolph Township’s Municipal Tier-A Stormwater Permit and the NJDEP’s Municipal Stormwater Regulation Program, Tier A Municipalities “shall implement a Public Education and Outreach Program that focuses on educational and pollution prevention activities about the impacts of stormwater discharges on surface water and groundwater, and to involve the public in reducing pollutants in stormwater runoff and mitigating flow”. As a Tier A Municipal Permittee, Randolph Township is required to conduct activities that

total at least 12 points annually from at least three of the approved five categories. Projects completed by the Township or by volunteers count towards the satisfaction of this requirement. Below are the eligible activities from the Municipal Tier-A Stormwater Permit that correspond to this project in the RTEG (Project 3B) with a description of the tasks and the point values assigned.

Category 1: General Public Outreach		
Activity	Description	Points
Social Media	Post relevant stormwater materials on a municipal social media site. Include links to stormwater-related resources.	3
Newspaper Ad	Use NJDEP created and approved stormwater education materials available on www.cleanwater.nj.org to publish an ad in a local newspaper or municipal newsletter	1
Radio/TV	Broadcast a stormwater-related radio or television public service announcement from www.cleanwater.nj.org on a local radio station or municipal public service channel.	2
Billboard/Sign	Post and maintain a stormwater-related billboard or sign which can be displayed on a bus, bus stop shelter, recreation field, or other common public venue	2
Category 2: Targeted Audiences Outreach		
Promotion Item	Distribute an item or items (refrigerator magnets, key chains, coloring books, pens, etc.) with a stormwater-related message. The initial minimum available must be equal to at least 10% of the population.	2
Mail/Email Campaign	Distribute any of the NJDEP's educational brochure, tip cards, or a municipally approved equivalent via a mailing to every resident and business.	2
Category 3: School/Youth Education and Activities		
School Presentations	Provide water-related educational presentations and/or activities to a local school using municipal staff and local partners. Topics can include stormwater, non-point source pollution, water conservation, watersheds, and water quality.	5

Approvals Needed

Existing municipal Staff can provide the assistance in creating the webpage and creating content for the Township's social media. Members of the Randolph Environmental Action Team, the Environmental and Landmarks Committee, municipal Staff, and volunteers should be encouraged to draft articles and content for the website and social media to ensure that updates are regularly posted. Per the Township's "Communication Methods and Policy" adopted January 2020, all content should meet with the Township Manager's approval before being posted.

Funding Resources Available

Because existing municipal Staff can complete this work, additional funding is not required.

Sustainable Jersey offers small grants to participating municipalities for projects that further the Actions identified under their Certification Program. If Randolph Township chooses to work towards Certification under the Sustainable Jersey Program, it can apply for grant funding in the amount of \$2,000.00 to fund a comprehensive Municipal Communications Strategy. More information on grant funding through Sustainable Jersey can be found at: <https://www.sustainablejersey.com/grants/>

Resources

The following are links to existing resources that can be used to implement this project:

- *Facebook Page for Randolph Township*
<https://www.facebook.com/RandolphTwpNJ/>
- *Citizen Engagement – A Guide for Local Governments*. GovLaunch. February 2021
<https://cdn.filestackcontent.com/2NP2D56Ta57AzTE2EeEq>
- *News*. Randolph Township.
<https://www.randolphnj.org/CivicAlerts.aspx>
- *Twitter for Randolph Township*
<https://twitter.com/RandolphTwpNJ>
- *Stay Informed*. Township of Randolph.
<https://www.randolphnj.org/145/Sign-Up-For>

CHAPTER 4: ENERGY

Hydrocarbon fuels (coal, gas, and petroleum) currently supply 79% of total energy use in the United States and about 61% of its electricity. While these fuels have been in use to generate energy in nearly every sector of our lives, the cost is harmful byproducts, such as carbon dioxide, methane, nitrogen oxide, sulfur, and other substances that are detrimental to the environment in high concentrations. Other potential impacts from the use of facilities for this type of energy generation include oil spills during extraction, acid drainage from coal mines, removal of large amounts of earth, and the extensive use of water for fracking and watering needs of the power plants. Lastly, airborne substances and particulate matter can cause respiratory health issues, especially for vulnerable populations.

To reduce our dependence on hydrocarbon fuels, the conversion to renewable energy sources is necessary. The term “renewable energy” includes:

- *Hydropower*
- *Solar energy*
- *Wind energy*
- *Biomass that is burned to derive heat*
- *Geothermal energy*
- *Tidal energy*

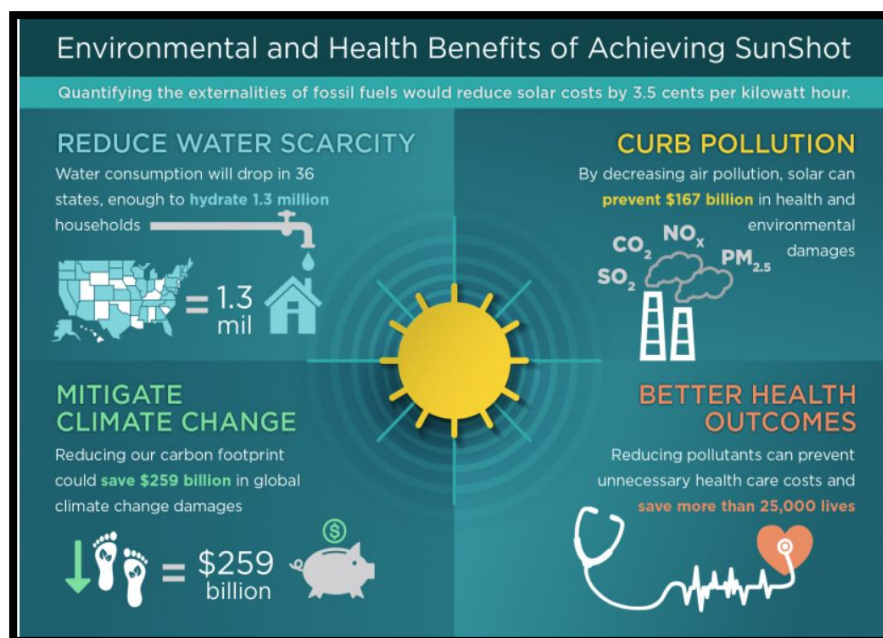


Figure 8: The Environmental and Health Benefits of Solar Energy

Source: The Office of Energy Efficiency & Renewable Energy

<https://www.energy.gov/eere/solar/downloads/environmental-and-public-health-benefits-achieving-high-penetration-solar>

According to the United States Energy Information Administration (USEIA), 4,108 billion kilowatt-hours of electricity were generated by utility-scale energy generation facilities in 2021 alone. Of the 4,108 billion kilowatt-hours, 61% was derived from hydrocarbon fuel sources, 18.9% was derived from nuclear energy, while 19.8% was derived from renewable energy sources. An additional 49 billion kilowatt-hours of electricity were generated from small-scale photovoltaic systems in 2021. Overall, renewable energy generation accounted for 12.4% of the total primary energy production in 2021 in the United States.

Jersey Central Power and Lights (JCP&L) supplies electricity to approximately 10,500 customers in Randolph Township, with New Jersey Natural Gas providing natural gas.

Regulations and Strategic Planning for Renewable Energy Generation

The Federal government, USEPA and the State of New Jersey have set ambitious goals for conversion to renewable energy sources. If this vision can be achieved, the nation will be more resilient and less dependent on fossil fuels, while making significant positive contributions to cleaner air and water. The following highlights just a few of the most recent regulations and Plans that will pave the way for realizing these goals.

- *New Jersey Energy Master Plan (2019)* - New Jersey has adopted one of the most aggressive renewable energy goals in the United States, striving to reach “100% clean energy by 2050”. This goal equates to 100% carbon neutral electricity generation and maximum electrification of the transportation and building sectors. The Plan additionally calls for a reduction of 80% in emissions from 2006 levels. To achieve these goals, the New Jersey Energy Master Plan outlines seven key strategies:
 1. Reduce energy consumption and emissions in the transportation sector.
 2. Accelerate deployment of renewable energy and distributed energy resources.
 3. Maximize energy efficiency and conservation and reduce peak demand.
 4. Reduce energy consumption and emissions from the buildings sector.
 5. Decarbonize and modernize New Jersey’s energy systems.
 6. Support community energy planning and action with an emphasis on encouraging and supporting participation by low and moderate income, and environmental justice communities.
 7. Expand the clean energy innovation economy.

To review the *2019 New Jersey Energy Master Plan*, please visit:

https://www.nj.gov/emp/docs/pdf/2020_NJBPU_EMP.pdf

- *Electric Vehicle Charging Station Law* – signed into New Jersey law in July 2021, the Electric Vehicle Charging Station Law requires that 15% of all new multifamily parking spaces, and 4% of all existing commercial parking spaces be “make-ready” (meaning that they are pre-wired for the installation of an electric vehicle charging station). The Law also amends the Municipal Land Use Law to include electric vehicle charging stations as permitted accessory uses in all zones, and do not require a variance.

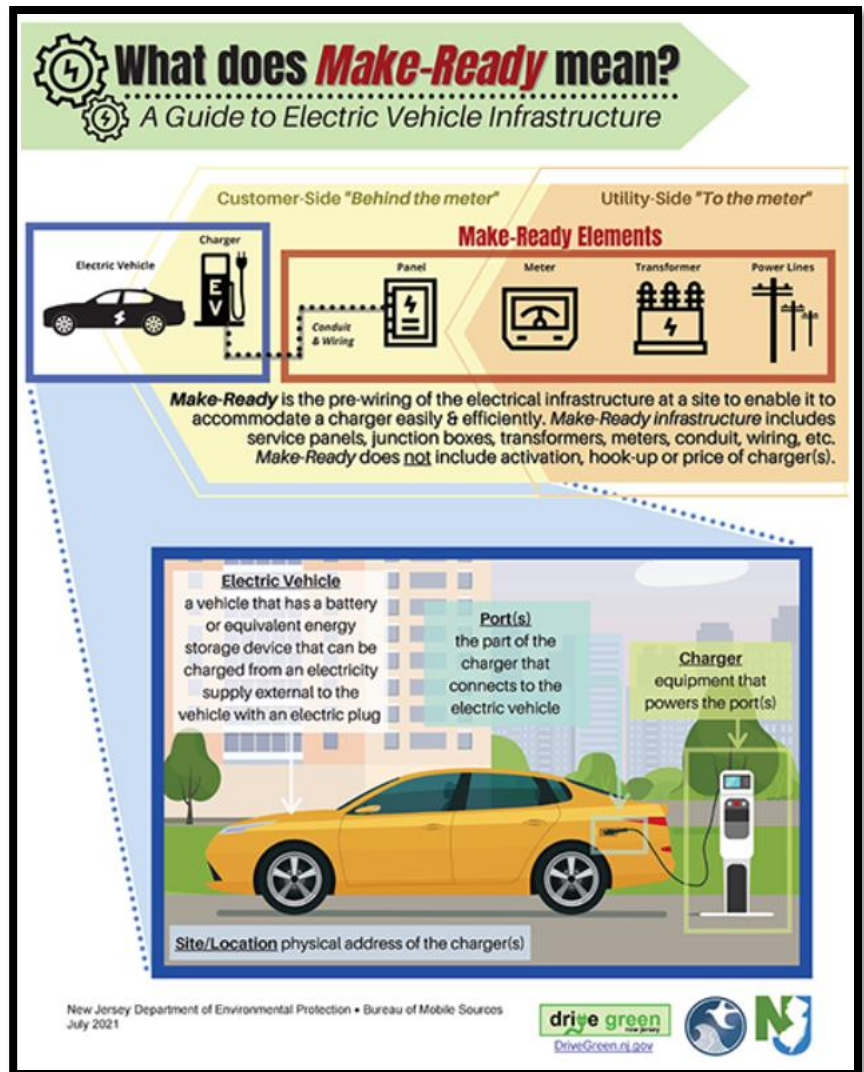


Figure 9: What Does Make-Ready Mean?
Source: It Pay\$ to Plug In Program (NJDEP)
<https://dep.nj.gov/drivegreen/it-pays-to-plug-in/>

To review the Electric Vehicle Charging Station Law, please visit:

<https://www.jdsupra.com/legalnews/new-jersey-department-of-community-5905073/>

- *Solar Ready Warehouse Law* – signed into New Jersey law in November 2021, the Solar Ready Warehouse Law require all new warehouses of 100,000 square feet or larger, built after July 1, 2022, make a minimum of 40% of its roof solar-ready. Because of the increasing square footage of warehouse space since 2020, this law will add a substantial amount of solar-ready space for the implementation of renewable energy in the future.

To review the Solar-Ready Warehouse Law, please visit: <https://casetext.com/statute/new-jersey-statutes/title-52-state-government-departments-and-officers/chapter-5227d-establishment/section-5227d-12319-solar-ready-building-warehouses>

- *Bipartisan Infrastructure Law* – Passed by Congress in November 2021, the Bipartisan Infrastructure Law provides funding for investment into the rebuilding of roads and bridges, developing an electric vehicle charging network, electrifying school bus and government fleets, the modernization of public transportation, and upgrading our power infrastructure with thousands of miles of resilient transmission lines to facilitate the generation of renewable energy. Municipal and County government are eligible for grant funding, which will be passed through agencies such as the New Jersey Board of Public Utilities, the NJDEP, and the New Jersey Department of Transportation.

To learn more about the Bipartisan Infrastructure Law, please visit:
<https://www.whitehouse.gov/bipartisan-infrastructure-law/>

- *Proposed Clean Air Act Rule* – In November 2021, the USEPA proposed comprehensive protections which would sharply reduce pollution from the oil and natural gas industry. If passed, the proposed rule would reduce methane emissions by 41 million tons from 2023 to 2035. The proposal includes requirements for a monitoring program for compressor stations and standards for the elimination of associated venting. A focus on reducing pollution from oil and natural gas facilities located in overburdened communities and/or environmental justice communities has been set as a priority.

To learn more about the Proposed Clean Air Act Rule, please visit:
<https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-industry/epa-proposes-new-source-performance>

How Does Clean Energy Generation and Conservation Work in Randolph Township?

Randolph Township can promote the generation of renewable energy and conservation of energy through public education, incentives for developers who implement renewable energy generation as part of their designs, and the creation of an electric vehicle charging station network within municipal borders. The benefits to the environment include reduced water usage, less direct, non-point source, and air pollution, and increased safety from associated accidents.

Randolph Township can act as a model to its residents using renewable energy generation and energy conservation at its municipal facilities. Free energy audits are available for municipal buildings through the New Jersey Office of Clean Energy, which will allow the Township to pinpoint specific areas where retrofitting energy technologies can conserve energy and save money. The municipality can also obtain grant funding through the NJDEP's It Pay\$ to Plug-In Program and the pass-through funding from the Bipartisan Infrastructure Act to install electric vehicle charging stations and electrify the municipal fleet.

As part of the RTEG, the Township has studied renewable energy generation and conservation, and developed the following projects:

Project 4A: Perform Energy Audits on Municipal Facilities Using the Local Energy Audit Grant Program

Project 4A.1: Prioritize and Implement Recommendations from the Energy Audits

Purpose

Knowledge about the performance of a building in terms of energy efficiency allows government agencies to find solutions that conserve energy, increase efficiency, and reduce costs. Projects in government buildings can serve as a powerful model for residents and businesses to incorporate the same strategies, leading to an overall increase in the generation of renewable energy and conservation practices.

The Local Government Energy Audit (LGEA) Program subsidizes the cost of a full energy audit on eligible municipal facilities, providing them with detailed information about current energy usage and energy conservation measures that can be implemented at a variety of scales and costs. A certified professional will review one year's worth of energy bills and perform an onsite inspection to review all energy consuming appliances and equipment. Having a recent energy audit also opens opportunities for grants through numerous entities to implement energy conservation measures.

Implementation Strategy

To obtain a free energy audit through the LGEA, Randolph Township must apply to the New Jersey Office of Clean Energy and provide the required documentation. The following steps should be taken to apply for a free energy audit through the LGEA:

1. An application must be completed, which must include information about building type, location, use, square footage, utility account information and associated bills, and other requested items. A municipality can apply for multiple municipal facilities under one application.
2. If approved, a Certified Professional retained by the New Jersey Office of Clean Energy will perform the site inspection and prepare an Energy Audit Report. This Report will describe current and historical energy usage, complete benchmarking through the Energy Star Portfolio, identify energy conservation measures, and project energy and cost savings.
3. Following acceptance of the final Energy Audit Report, the Township Manager, the Environmental and Landmarks Committee, Planning Board, and Township Council should review all energy conservation measures and prioritize implementation. This prioritization may be based on cost alone, total projected energy savings, payback period, building, or more. These priorities can be used for future budgeting and to apply for grants from outside entities.

Approvals Needed

Approval to submit the application for the LGEA is required, with signature by the Mayor.

Based upon the findings and prioritization of recommendations of the Audit, approvals may be needed to apply for additional grants or to budget for improvements.

Funding Resources Available

If the application is approved, there is no cost for the Energy Audit.

Based upon the findings and prioritization of recommendations of the Audit, funding will be needed to implement energy conservation measures and energy efficiency best practices.

The Energy Savings Improvement Program (ESIP), administered through the New Jersey Office of Clean Energy, is the next step after completing an Energy Audit. This Program allows municipalities to pay for identified energy conservation measures using the projected energy costs savings in advance. An ESIP Coordinator is assigned to approved applicants and will assist with the process. More information about the ESIP can be found at: <https://njcleanenergy.com/files/file/ESIP/FY23/esip%20intake%20form.pdf>

Sustainable Jersey offers small grants to participating municipalities for projects that further the Actions identified under their Certification Program. If Randolph Township chooses work towards Certification under the Sustainable Jersey Program, it can apply for grant funding in the amount of \$2,000.00 to \$20,000.00 to fund the implementation of these projects. More information on grant funding through Sustainable Jersey can be found at: <https://www.sustainablejersey.com/grants/>

Resources

The following are links to existing resources that can be used to implement this project:

- *Commercial and Industrial Local Government Energy Audit Program Guide*. New Jersey Office of Clean Energy.
<https://www.njcleanenergy.com/files/file/Program%20Guides/FY19%20LGEA%20Program%20Guide%20Final.pdf>
- *Energy Savings Improvement Program*. New Jersey Office of Clean Energy.
<https://njcleanenergy.com/files/file/ESIP/FY23/esip%20intake%20form.pdf>
- *Local Energy Audit Grant Program*. New Jersey Office of Clean Energy.
<https://njcleanenergy.com/commercial-industrial/programs/local-government-energy-audit/local-government-energy-audit>
- *Local Energy Audit Grant Program – Application*. New Jersey Office of Clean Energy.
<https://njcleanenergy.com/files/file/LGEA/FY23/New%20Updates/LGEA%20FY23%20Application.pdf>

Project 4B: Investigate Feasibility of Solar Panels on Municipal Facilities

Purpose

Beyond conservation, it may be feasible and desirable to consider adding rooftop or ground solar electric (photovoltaic) and solar hot water energy arrays to provide energy to some municipal facilities. Solar energy will result in a significant reduction in energy costs for the municipality, allowing this freed up funding to be used for other energy conservation projects. This project would serve as demonstration project for the public, encouraging them to install solar panels on their residences and businesses.

Implementation Strategy

Investigating the feasibility of the installation of solar panels on municipal facilities is the first important step. If the Township completes Project 4A (above), an energy audit will detail the feasibility for solar panels on municipal buildings. The Township can advance these findings if it chooses on selected municipal facilities.

Approvals Needed

This project builds off Project 4A, using the energy audit to complete an investigation of feasibility. The Environmental and Landmarks Committee and existing Staff can review the energy audit, which will fully detail the feasibility of solar panels on municipal facilities and forward its recommendations to the Township Manager.

Funding Resources Available

As referenced above, funding for 100% of the costs of municipal energy audits is available through the New Jersey Office of Clean Energy's Local Government Energy Grant Program. If Randolph Township completes this grant, investigation of the feasibility of installing solar panels on municipal facilities will be clearly detailed in the energy audit findings.

No additional costs are anticipated for completing this portion of the project.

Resources

The following are links to existing resources that can be used to implement this project:

- *"How Solar Panels for Municipal Buildings in New Jersey Energize Communities"*. InfinityEnergy. <https://thenewutility.com/blog/solar-panels-for-municipal-buildings-nj/>
- *Local Energy Audit Grant Program*. New Jersey Office of Clean Energy. <https://njcleanenergy.com/commercial-industrial/programs/local-government-energy-audit/local-government-energy-audit>

Project 4C: Promote New Jersey Board of Public Utilities' Residential and Commercial Clean Energy Programs

Purpose

The New Jersey Office of Clean Energy offers numerous programs and guidance for residential and commercial property owners for the installation of energy efficient appliances and equipment, the installation of electric vehicle charging stations, and applying for rebates. Promoting the use of these programs will increase energy efficiency and conservation within Randolph Township, while educating the public about the importance energy efficiency at the hyperlocal level.

Implementation Strategy

Promoting the use of existing programs through the New Jersey Office of Clean Energy takes little effort but has the potential to realize measurable environmental and financial impacts. The following steps should be taken to complete this strategy:

1. *Add information about the Residential and Commercial Programs available through the NJOCE on the Township's website* – By adding a link to these programs on the Township's website, residents and business owners can easily access information directly from the NJOCE.
2. *Print brochures and flyers for distribution at the Municipal Complex* – free program brochures are available at: <https://njcleanenergy.com/main/public-reports-and-library/program-literature/program-literature>. These program materials should be readily available at the Planning Office, Municipal Building, and Library.
3. *Recommend Residential and Commerical Programs through the NJOCE as part of land development review* – Information about these Programs can be added to land development review reports to applicants from the Planning Board and/or Zoning Board of Adjustment, and the Environmental and Landmarks Committee.

Approvals Needed

No approvals are needed.

These resources are already prepared and updated frequently by the NJOCE using reliable data.

Funding Resources Available

Because the resources are already available, and frequently updated by the NJOCE, no funding is needed for development or maintenance of this educational and alert system. Existing Information Technology Staff would be responsible for creating the new webpage on the existing Randolph Township website.

Resources

The following are links to existing resources that can be used to implement this project:

- *Commercial, Industrial, and Local Government Programs*. New Jersey Office of Clean Energy.
<https://njcleanenergy.com/commercial-industrial/home/home>
- *Program Literature*. New Jersey Office of Clean Energy.
<https://njcleanenergy.com/main/public-reports-and-library/program-literature/program-literature>
- *Residential Programs*. New Jersey Office of Clean Energy.
<https://njcleanenergy.com/residential/home/home>



CHAPTER 5: FOOD

Access and availability to fresh foods is one of many tenets that have a direct impact on health, sustainability, and resiliency. This access and availability are completely dependent on numerous factors such as availability and quality of local farmland, current trends in agriculture as a career, transportation systems, presence, proximity, and quality of natural resources, and awareness about the direct relationship between health and food sources. When studying food as a sector of sustainability, a systems approach is recommended.

Food Systems as a Cornerstone for Sustainability

According to the Food and Agricultural Organization under the United Nations, a Food Systems Approach is defined as, “a way of thinking and doing that considers the food system in its totality, taking into account all the elements, their relationships and related effects”. This approach means looking at all aspects of how food systems impact the local community and the community at large, the environment, health, and the economy. Figure 10 (right), taken from the Food and Agricultural Organization of the United Nation’s Sustainability in Food Systems Report.

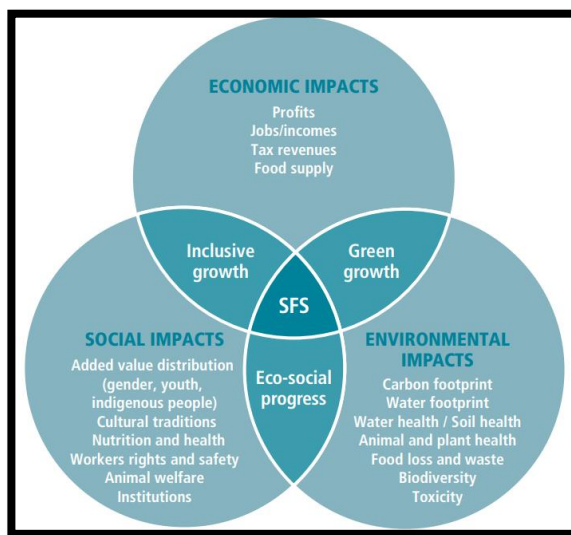


Figure 10: Sustainability in Food Systems
Food and Agricultural Organization of the United Nations
<https://www.fao.org/3/ca2079en/CA2079EN.pdf>

Creating and fostering a sustainable food system begins locally. Randolph Township plays a key role in this food systems approach through its partnership with Morris County in farmland preservation, public education and community engagement, and stewardship of the environment and its natural resources to allow for the retention and advancement of the agricultural industry.

Benefits of Food Systems to the Environment, Health, and the Economy

New Jersey and its municipalities have been working diligently to preserve farmland, retain farmers and the agricultural industry, assist with the implementation of technological advancements in agriculture, distribute fresh and locally grown foods in an equitable manner, and promote stewardship of natural resources. These efforts have led to a large agricultural land base, with programming to support sustainable efforts and food security. The benefits of these efforts can be seen in a variety of ways:

- **Land Preservation:** Since the inception of the New Jersey Farmland Preservation Plan (under the State Agriculture Development Committee (SADC) in 1983, over 240,000 acres of farmland have been permanently preserved across the State. According to the Morris County Comprehensive

Farmland Preservation Plan, over 8,000 acres have been preserved as farmland in Morris County, with 147 of those preserved farmland acres located in Randolph Township:

- Knothe Farm (Millbrook Avenue)
- Sun High Orchard (Canfield Avenue)
- Millers Hill Farm (Combs Hollow Road)

Land preservation is a preferred strategy for protecting the agricultural land base and natural resources needed to effectively operate a farm and grow the agricultural industry. Although Randolph Township does not have many preserved farms, the municipality can stay abreast of potential funding opportunities and policy changes implemented by the SADC and the Morris County Agriculture Development Board (MCADB).



Figure 11: Love Food, Hate Waste"

Source: NJDEP

<https://www.nj.gov/dep/ages/images/infographics/lfhw.jpg>

- *Support of Buy Fresh/Buy Local:* Locally sourced foods are fresher, and often are of higher quality than foods sourced from many miles away. Because the transportation of food is significantly reduced when foods are purchased locally, this practice reduces the carbon footprint of a community as well as further degradation of air quality. Buying fresh and local foods also positively contributes to the local and regional agricultural economy, which provides for retention of these businesses. People who eat fresh nutritious foods experience positive impacts to their health over time, and have reduced rates of obesity, diabetes, dental problems, and related illnesses.
- *Improved Food Security:* Food systems at the local level reduce the dependency on global food systems, which improves the local economy, conserves natural resources, reduces energy and water usage, improves community health. People are able to purchase foods at local and regional farmers markets directly and can also obtain these foods through local restaurants and grocers who purchase from local farmers.
- *Conservation of Natural Resources:* A Food Systems Approach includes the conservation of natural resources as a primary component. The understanding that these natural resources are critical to not only agriculture, but also to the public and the economy is at the center of this theory. The protection of soil characteristics and nutrients, the water supply, and the air quality are all interrelated to farming and food production. Sustainable Agriculture incorporates energy conservation measures, buffering between animals and waterbodies, tilling practices that nourishes the soil, and more.

- *Public Education and Outreach:* Teaching the public about the importance of locally grown foods for their own health, the surrounding environment, and the economy is imperative to using the Food Systems Approach and creating a culture of sustainable agriculture. Through continued working partnerships and coordination with Morris County, the SADC, the NJDEP, and nonprofit organizations, Randolph Township can ensure that residents are aware of opportunities for the purchase of locally grown foods, practices local farmers are implementing to protect natural resources, local businesses that work directly with local farmers, and pending legislation. Promotion of nearby farmers markets (Denville Farmers Market), use of the Community Garden at Veterans Community Park, hosting household composting workshops, and recognition of the Jersey Fresh Program are all ways that Randolph can educate and engage the public in supporting local and sustainable agriculture.

As part of the RTEG, the Township has studied food and food systems, and developed the following projects:

Project 5A: Develop a “Buy Fresh/Buy Local” Program

Purpose

Buy Fresh/Buy Local Programs stimulate the local economy, protect and advance local agriculture, supports local businesses, and provides access to fresh, locally grown, nutritious foods. These types of programs also reduce the amount of “food miles” traveled, which reduces a community’s carbon footprint and emission of greenhouse gases. Buy Fresh/Buy Local Programs are great positive contributors to the overall health of a municipality through the provision of access to fresh, nutritious foods. People often agree that these foods taste better and help in making the community more livable.

Implementation Strategy

To create a Buy Fresh/Buy Local Program in Randolph Township, the following steps should be taken:

1. *Establish a Directory:* This directory should include all local farms, farm stands, farm markets, Community Supported Agriculture, and restaurants and food businesses that purchase, sell, or use agricultural productions produced in New Jersey.
2. *Create a Logo and Marketing Materials:* A logo, tagline, website, and marketing materials are needed to be able to promote the directory, once established. The use of the logo and branding can be permitted in multiple ways, however the use of a “pledge system” seems to be the most efficient and keeps costs down. “Grown in Randolph”, “Randolph Green”, and “Randolph Fresh” are some examples of branding to begin the process. An excellent Buy Fresh/Buy Local Program to draw inspiration from is the Grown in Monmouth Program (<https://www.growninmonmouth.com/>).
3. *Work with the Economic Development Committee (EDC) to Promote the Directory:* Once established, the Township can work with the EDC to advertise the directory on its website, through events, and other available means of communication.
4. *Partner with Outside Entities:* Advertising of this directory outside of Randolph Township will bring in additional interest to the area, increasing profitability and returning consumers. Some of these entities include:
 - Local Harvest (www.localharvest.org)
 - Jersey Fresh (www.nj.gov/jerseyfresh)
 - Edible Jersey (www.ediblecommunities.com/jersey/directories/directories.htm)
 - Slow Food (www.slowfoodnnj.org/resources.php)

Approvals Required

Depending on the scope of the project, various approvals may be needed.

Funding Resources Available

Costs to implement a Buy Fresh/Buy Local Program vary.

The New Jersey Highlands Council offers grants for planning, engineering, and design for projects that maximize the environmental and economic benefits of living in the Highlands region of New Jersey. These grants can be used to commission studies that conserve natural resources, reduce pollution and greenhouse gas emissions, promote sustainable land management practices, and more. Planning grants from the New Jersey Highlands Council are non-competitive and do not require a financial match from the municipality or county. No minimum or maximum award thresholds are established, and the application is on a rolling basis, making these grants very flexible and desirable for Highlands communities. More information can be found at:

https://www.nj.gov/njhighlands/grantprograms/plan_conformance/grants_overview.pdf

Sustainable Jersey offers grants throughout the year for projects that further the Action Items identified through its Certification program. These grants range from \$2,000.00 to \$20,000.00 or provide for technical assistance. If Randolph Township chooses to work towards Certification through the Sustainable Jersey Program, it will become eligible for grant funding to further these projects.

<https://www.sustainablejersey.com/actions/>

Resources

The following are links to existing resources that can be used to implement this project:

- *Buy Fresh, Buy Local Programs - Action*. Sustainable Jersey.
<https://www.sustainablejersey.com/actions/#open/action/48>
- *Find Jersey Fresh*. Jersey Fresh Program – New Jersey Department of Agriculture.
<https://findjerseyfresh.com/>
- *Grant Funding*. Sustainable Jersey.
<https://www.sustainablejersey.com/grants/>
- *Grown in Monmouth*.
<https://www.growninmonmouth.com/>
- *Planning Grants*. New Jersey Highlands Council. 2008.
https://www.nj.gov/njhighlands/grantprograms/plan_conformance/grants_overview.pdf
- *Regional Master Plan*. New Jersey Highlands Council. July 17, 2008.
https://www.nj.gov/njhighlands/master/rmp/final/highlands_rmp_112008.pdf

Project 5B: Promote the “Jersey Fresh” Program for Local Farmers and Consumers

Purpose

The Jersey Fresh Program serves as an effective marketing tool that highlights high-quality, agricultural products grown in and produced in New Jersey. Growers can easily apply for this Program, and if approved, become licensed to use the Jersey Fresh logo and marketing materials. Promoting enrollment in Jersey Fresh to farmers, as well as preferred purchasing to consumers, retains and advances the local agricultural industry, promotes health and nutrition, protects our air, water and soil, improves the economy, and assists in achieving sustainability and resiliency.

Implementation Strategy

Randolph Township’s main role in this project would be the promotion of this program, from enrollment of local farmers to consumers, restaurants, and food-based businesses. To complete this project, the following steps should be taken:

1. *Encourage Enrollment into Jersey Fresh for Local Farmers and Growers:* Township Staff can promote this Program through its work with the Economic Development Committee, an article in its Township newsletter, and postings on the Township’s website. The online application is relatively simple and requires approval from the New Jersey Department of Agriculture. Once approved, a farmer can use all Jersey Fresh logos and marketing materials, clearly distinguishing their products from others.
2. *Encourage the Purchase of Jersey Fresh products from Local Restaurants, Food-Based Businesses, and Residents:* Randolph Township can alert local restaurants and businesses about the Jersey Fresh Program and local producers who are enrolled in it. This task can be achieved through a simple targeted mailing or can be discussed at a planned event. These farmers should be used as priority suppliers for restaurants and food-based businesses in Randolph Township where feasible. Coordination with the Economic Development Committee will be important to spread this message. Information has already been developed by the New Jersey Department of Agriculture for this purpose.
3. *Promote the Denville Farmers Market:* The Denville Farmers Market is located on Bloomfield Avenue in downtown Denville, which is approximately seven miles from the Randolph Township Municipal Building. Residents have access to this established, successful, and very active market year-round, minimizing the need for a municipal Farmers Market. This Market contains over 25 vendors and is held every Sunday between 10:00am and 2:00pm. Randolph should promote this very active Farmers Market on its website and social media channels.

Approvals Required

Approval from the New Jersey Department of Agriculture is required for each farmer to become licensed to use the logo, branding, and marketing materials.

Funding Resources Available

Farmers who wish to become licensed in the Jersey Fresh Program are responsible for all application and inspection fees.

No additional funding is anticipated.

Resources

The following are links to existing resources that can be used to implement this project:

- *Find Jersey Fresh*. New Jersey Department of Agriculture.
<https://findjerseyfresh.com/explore/>
- *How to Participate in Jersey Fresh*. New Jersey Department of Agriculture.
<https://findjerseyfresh.com/users/>



Project 5C: Reduce Food Waste

Purpose

Composting is a simple method of reducing food waste in households and restaurants that can be easily adopted. This simple practice can significantly reduce food waste, which creates methane gas and occupies a vast amount of space in landfills. The compost created promotes a higher yield of crops, enriches the soil, enhances the retention of water, and provides carbon sequestration. Through a partnership with Rutgers Cooperative Extension of Morris County, Randolph Township can easily promote the use of household and commercial food composting as part of the long-term plan.

Implementation Strategy

The Rutgers Cooperative Extension Service offers classes on backyard composting available to residents. Workshops include information on what can and cannot be composted and what cannot, how the composting process works, and what the benefits and outcomes are. This is a free service for the Township and provides immense educational value.

The Master Gardeners of Morris County, also organized under the Rutgers Cooperative Extension of Morris County, are trained volunteers who can provide valuable knowledge and technical assistance related to soils, plant growth, pest management, and composting. Master Gardeners can be requested to speak at community events, again providing valuable information and encouragement for composting.

This knowledge can be furthered by the Township through promotion of composting to local restaurants. This project has the potential for a significant reduction in food waste from the commercial sector, using the same principles as residents. Randolph can assist in this endeavor with guidance from the Rutgers Cooperative Extension of Morris County and the Randolph Township Economic Development Committee.

Approvals Needed

The Randolph Township Council can take this project under its guidance if permissible to host community sessions.

Funding Resources Available

There is no cost to the Township for assistance from the Rutgers Cooperative Extension of Morris County and the Master Gardeners.

Residents and businesses choosing to implement composting will be responsible for the purchase of composters and related supplies.

Resources

The following are links to existing resources that can be used to implement this project:

- *Home Composting*. New Jersey Agricultural Experiment Station.
<https://njaes.rutgers.edu/fs811/>
- *Master Gardeners*. Rutgers Cooperative Extension of Morris County.
<https://morris.njaes.rutgers.edu/master-gardeners/>
- *Reducing the Impact of Wasted Food by Feeding the Soil and Composting*. United States Environmental Protection Agency.
[https://www.epa.gov/sustainable-management-food/reducing-impact-wasted-food-feeding-soil-and-composting#:~:text=Like%20yard%20waste%2C%20food%20waste,of%20wasted%20food\)%20was%20composted.](https://www.epa.gov/sustainable-management-food/reducing-impact-wasted-food-feeding-soil-and-composting#:~:text=Like%20yard%20waste%2C%20food%20waste,of%20wasted%20food)%20was%20composted.)

Project 5D: Expand the Township's Community Garden

Purpose

The Randolph Township Community Garden is located in Veterans Community Park, at 100 Calais Road. This completely organic community garden is home to 168 garden beds. Of these garden beds, 151 were leased at the time of the opening, and all of which were leased in 2021. There has been an enormous amount of support for this Community Garden, which is now already at capacity. The expansion of the area to allow for more gardeners should be investigated as part of the long-term plan.

Implementation Strategy

Based upon the current occupancy, an expansion of the Community Garden would most likely be very successful. If the Township chooses to expand the area and construct more garden beds, the following steps should be taken:

1. *Assess the Feasibility of the Space for Expansion:* In 2017, a site plan was prepared by French and Parrello Associates, entitled, "Calais Road Community Park". This Plan shows the current Community Garden, as well a future expansion area to its west. This area should be studied to determine if the expansion is feasible and desirable based on environmental features (wetlands, habitat), and to determine how many additional garden beds can be added. The Township should be sure to determine additional needs for water and energy infrastructure.
2. *Expand the Community Garden:* If deemed feasible and desirable, the Community Garden can be expanded to allow for additional occupancy.
3. *Determine the Additional Costs and Labor Needs:* Once the Community Garden has been expanded, the Township will need to determine the costs of additional resource needs, labor time, and Staff. These costs should be rolled into the cost for leasing a garden bed, so the Community Garden remains sustainable.

Approvals Needed

Approvals of the existing Community Garden Committee and the Township Council is needed to expand the Community Garden and purchase needed equipment, materials, and supplies.

Funding Resources Available

The cost associated with the expansion of the Community Garden, including infrastructure improvements, materials, supplies, and Staff will need to be investigated to determine if this project is feasible and desirable.

Funding can be offset by raising the cost of leasing garden beds to residents, in a fair and equitable manner.

Because this project calls for the expansion of an existing area, there are no known funding resources available at this time. Technical assistance is available through organizations such as the Master Gardeners and the American Community Gardening Association.

Resources

The following are links to existing resources that can be used to implement this project:

- *American Community Gardening Association.*
<https://www.communitygarden.org/resources>
- *Calais Road Community Park Rendering.* Prepared by French and Parrello Associates for the Township of Randolph. October 6, 2017.
https://www.randolphnj.org/pdf/calais_rd_park_rendering.pdf
- *“How Does Your Garden Grow?”.* *The Randolph Reporter.* July 27, 2020.
https://www.newjerseyhills.com/randolph_reporter/news/how-does-your-garden-grow/image_56334979-e252-5886-878a-28c7ceffd65c.html#utm_campaign=blox&utm_source=twitter&utm_medium=social
- *The Randolph Township Community Garden Continues to Grow.* Township of Randolph.
https://www.randolphnj.org/news/randolph_community_garden_continues
- *“Randolph Community Garden”.* *Facebook.*
<https://www.facebook.com/randolphcommunitygarden/about>



Figure 31: Community Garden at Veterans Community Park
Photo Credit: Lucas Clement – [Tap Into Randolph \(October 19, 2021\)](#)

CHAPTER 6: HOUSING AND ECONOMIC DEVELOPMENT

Typically, housing and economic development are not the first issues that come to mind when the general public thinks about sustainability and environmental action. Realistically, housing and economic development play a crucial role in a community's ability to be sustainable and environmentally sound.

Housing options and location have an impact on a community's livability, which is a priority for the two largest generation groups – Millennials and Baby Boomers (Partnership for Sustainable Communities - https://www.hud.gov/program_offices/economic_development/sustainable_housing_initiative). These groups have an interest in living in walkable neighborhoods with access to shopping, employment, open spaces, schools, and other amenities. The choice of housing is also paramount – variety to allow for smaller living spaces, age-friendly amenities, income ranges, and green infrastructure is necessary to attract people to live and work within the municipality.

Housing has a direct tie-in to economic development. When housing options are available and equitable across the community, people of all income ranges choose to live there. This enables sustainable communities to have a wealth of professionals, skilled laborers, and people of all ages to bring that community into the future. Income generated by residents is more likely spent within the municipal borders at local businesses, restaurants, and entertainment events. Residents are also more likely to approve government spending for open space preservation, park development, and recreation programs. This system creates a resilient local economy, making the community more sustainable for the long-term.



*Figure 12: Morristown's 1st LEED-Certified Building
14 Maple Avenue, Morristown
Photo Credit: New Jersey Future's Green Infrastructure Municipal Toolkit*

In looking at environmental quality through the lens of housing and economic development, communities that offer a range of housing options and have a sustainable economy minimize negative impacts through the reduction in travel time in motor vehicles (lead cause in air pollution), protect trees and other natural resources through strategic planning and siting of housing and businesses, and incorporate health into community planning through the design of walkable neighborhoods and access to open space. To complete the cycle, communities implementing these strategies tend to be places where people want to live, and businesses want to relocate, bolstering the local economy.

How Can Randolph Township Plan for Sustainable Housing and a Resilient Local Economy?

Strategic planning and zoning are the foundation for building sustainable communities. Environmental protection should be at the forefront of decision-making as it pertains to new policies in Randolph Township, amending zoning districts, or planning for housing and commercial development. An audit of the existing Land Development Ordinance may highlight opportunities for inclusion of green design and green infrastructure, varying housing options, or increasing walkability.

Allowing for a variety of housing choices across Randolph Township is another way that the Township can solidify its commitment to being a sustainable community, now and in the future. Amending zoning based on review of current needs and trends affecting the municipality will ensure that the needs of residents are met, and that the municipality remains attractive to potential residents and business owners.

Encouraging and/or requiring green design and green infrastructure is another strategy for building and maintaining sustainable communities. Green design and infrastructure at all scales provide efficient and effective performance, yield long-term cost savings, and provide numerous environmental benefits to the site and surrounding areas. Promoting or requiring green building best management practices through municipal ordinances and/or policies would enhance this initiative and provide developers and future occupants with a variety of benefits. These practices ultimately benefit the Township through the generation of clean energy, reduction of waste, treatment of stormwater runoff, inclusion of native vegetation, creation of habitat, and much more. Recognizing the accomplishments of local residents and business who have successfully implemented green design and infrastructure is an additional strategy to educating the public and promoting this methodology for future landowners and businesses.



*Figure 13: Rain Garden at Randolph Township Middle School
Photo Credit: Rutgers Cooperative Extension of Morris County*

Lastly, but very importantly, is the training of Board members and Staff to incorporate green design, green infrastructure, and smart growth planning principles into land development review and ordinance amendments. If these strategies become part of “business as usual” planning, housing will automatically become more sustainable, yielding a more resilient local economy.

As part of the RTEG, the Township has studied housing and economic development, and developed the following projects:

Project 6A: Review Rutgers University's Water Resources Program's Green Infrastructure Action Plan and Recommend Projects

Purpose

In 2019, the Rutgers New Jersey Agricultural Experiment Station (NJAES) received funding from the New Jersey Highlands Council to assess impervious coverage in Watershed Management Area 8 (North and South Branch of the Raritan River) and provide recommendations for specific green infrastructure projects. This regional planning initiative focused on reducing stormwater runoff volume and pollutant loads at the watershed level in a timely and efficient manner.

In 2020 and 2021, NJAES Water Resources Program completed a *Green Infrastructure Feasibility Study for Randolph Township, Morris County, New Jersey*, which consisted of a suite of three planning documents:

- *Impervious Coverage Assessment for Randolph Township, Morris County, New Jersey* – this Report calculated the current impervious coverage in Randolph Township, as well as the corresponding stormwater runoff volumes and pollutant loads. The information was calculated at the subwatershed level, of which Randolph Township has seven (7). At the time of this Report, the impervious coverage in Randolph Township was calculated at 14.5%, generating 66 million gallons of stormwater runoff in 2020*.
*runoff volume calculated using the New Jersey Water Quality Storm, which is 1.25" of rain over a 2-hour period.
http://water.rutgers.edu/Projects/NJHighlandsCouncil/Highland-ICAs/HIGHLANDS-ICA_RandolphTownship.pdf
- *Impervious Cover Reduction Action Plan for Randolph Township, Morris County, New Jersey*- this second Report in the suite calculates savings in stormwater runoff and pollutant loading based on a projected reduction in impervious coverage. This Report also identified 22 sites throughout Randolph, including schools, churches, firehouses, the library, and more.
http://water.rutgers.edu/Projects/NJHighlandsCouncil/Highlands-RAPs/HIGHLANDS_RAP_RandolphTownship.pdf
- *Green Infrastructure Feasibility Study* – this last Report in the suite details the types of green infrastructure proposed at each site, along with site-specific information about stormwater runoff volume and pollutant saved and the projected cost for each project.
http://water.rutgers.edu/Projects/NJHighlandsCouncil/Highlands-FS/RandolphTownship_FeasibilityStudy-R.pdf

These Reports can be used to identify projects on municipal and private properties, with many being feasible for implementation by volunteer groups and municipal staff. The Green Infrastructure Feasibility Study should be periodically reviewed and updated to implement these projects as a means to realize reductions in impervious coverage, stormwater runoff volume, and pollutant loading.

Implementation Strategy

The Reports have already been drafted and are available for review. In order to implement the recommendations of the Green Infrastructure Feasibility Study, the following steps should be taken:

1. *Periodic Review of the Green Infrastructure Feasibility Study* – the Environmental and Landmarks Committee should review the Reports annually to understand what projects are outstanding, pending, and/or completed. This review can also be used as an opportunity to prioritize projects in preparation of opportunities for implementation by volunteer groups or by municipal staff.
2. *Add a Link to the Municipal Website* – a link to the Reports should be added to Randolph Township’s website so that groups such as the Boy Scouts and Girl Scouts can review the recommended projects and identify opportunities for volunteer work.



How Does This Project Align with the Requirements of the Municipal Tier-A Stormwater Permit?

Under Randolph Township’s Municipal Tier-A Stormwater Permit and the NJDEP’s Municipal Stormwater Regulation Program, Tier A Municipalities “shall implement a Public Education and Outreach Program that focuses on educational and pollution prevention activities about the impacts of stormwater discharges on surface water and groundwater, and to involve the public in reducing pollutants in stormwater runoff and mitigating flow”. As a Tier A Municipal Permittee, Randolph Township is required to conduct activities that total at least 12 points annually from at least three of the approved five categories. Projects completed by the Township or by volunteers count towards the satisfaction of this requirement. Below are the eligible activities from the Municipal Tier-A Stormwater Permit that correspond to this project in the RTEG (Project 6A) with a description of the tasks and the point values assigned.

Category 1: General Public Outreach		
Activity	Description	Points
Green Infrastructure Signage	Post signs at municipally owned green infrastructure sites that describe the function and importance of the green infrastructure, contact phone number, municipal identification number, and/or website for more information. New signs receive 0.5 points per sign. Existing signs that are maintained and/or upgraded receive 0.25 points per sign.	5
Category 3: School/Youth Education and Activities		
AmeriCorps Event	Coordinate an event (presentations, stormwater awareness project) through the AmeriCorps New Jersey Watershed Ambassador Program. In relation to project 6A, the Ambassador could present the findings of the Green Infrastructure Action Plan to the recommended landowners	4

Approvals Needed

Approvals from external entities are not required for this project.

Funding and Funding Resources Available

Funding for this project is not required, as the Report has already been drafted and this project proposes the review and promotion of the existing *Green Infrastructure Feasibility Study*.

Resources

The following are links to existing resources that can be used to implement this project:

- *Green Infrastructure Feasibility Study*. Rutgers New Jersey Agricultural Experiment Station – Water Resources Program. 2020.
http://water.rutgers.edu/Projects/NJHighlandsCouncil/Highlands-FS/RandolphTownship_FeasibilityStudy-R.pdf
- *Impervious Coverage Assessment for Randolph Township, Morris County, New Jersey*. Rutgers New Jersey Agricultural Experiment Station – Water Resources Program. January 7, 2020.
http://water.rutgers.edu/Projects/NJHighlandsCouncil/Highland-ICAs/HIGHLANDS-ICA_RandolphTownship.pdf
- *Impervious Cover Reduction Action Plan for Randolph Township, Morris County, New Jersey*. Rutgers New Jersey Agricultural Experiment Station – Water Resources Program. March 16, 2020.
http://water.rutgers.edu/Projects/NJHighlandsCouncil/Highlands-RAPs/HIGHLANDS_RAP_RandolphTownship.pdf
- *Projects and Programs: Keep the Rain from the Drain*. Rutgers University's Water Resources Program.
<http://water.rutgers.edu/Projects/NJHighlandsCouncil/NJHC.html>

Project 6B: Ensure Local Ordinances and Planning Documents Permit Green Infrastructure and Design

Purpose

In 2020, the NJDEP amended the Stormwater Management Rules (NJAC 7:8) to require the use of green infrastructure as the first approach to stormwater management. All municipalities and developers are bound to these rules, making the incorporation of green infrastructure for stormwater management a requirement for site design and land development review.

Randolph Township can examine its existing Municipal Code and Planning Documents to ensure that green design best management practices and green infrastructure strategies are permitted, encouraged, and in some cases required. This exercise not only reiterates performance standards for high-efficiency buildings, but also demonstrates the Township's commitment to green design and the implementation of green strategies.

Implementation Strategy

New Jersey Future developed the *Green Infrastructure Municipal Toolkit* through their *Mainstreaming Green Infrastructure Program*, which aims to bring green infrastructure planning into all projects at the onset. New Jersey Future assembled a Toolkit Advisory Committee comprised of elected officials, Professional Planners, Professional Engineers, Watershed Associations, the New Jersey Highlands Council and the New Jersey Pinelands Commission, Rutgers University, Sustainable Jersey, and the NJDEP. Through this collaboration, the *Green Infrastructure Municipal Toolkit* was finalized. This online Toolkit provides detailed information for municipalities looking to plan for, mainstream, and implement green infrastructure as a primary practice.

The Implementation Strategy for Randolph should follow the steps outlined in the *Green Infrastructure Municipal Toolkit* (<https://gitoolkit.njfuture.org/plan/>), detailed below. These steps identify a comprehensive approach to amending and creating Planning documents, existing zoning, and site plan review to permit and encourage green design and green infrastructure as the primary approach for the municipality.

1. *Identify Issues* – Randolph Township will look at potential issues that could be mitigated by green design and infrastructure, such as aging infrastructure in need of repair/replacement, Harmful Algal Blooms as a result of increased temperatures, recreation and open space needs, property damage and loss due to flooding, and more. These potential issues should be documented and prioritized by the Environmental and Landmarks Committee, Planning Board, and Governing Body.
2. *Assess and Evaluate Planning Resources* – Randolph Township will identify revisions that can be made to existing Code and Planning documents that will allow or require site developers to minimize impervious cover, eliminate or reduce parking minimums, protect natural resources, and use runoff reduction practices. This exercise can be easily completed using assessment worksheets already available:
 - United States Environmental Protection Agency's (USEPA) Water Quality Scorecard – this tool provides separate “scorecards” for items such as Promoting Efficient/Compact Development, Protecting Open Space, Encouraging Mixed Use Development, Transportation Alternatives, Tree Protection, and more. Township Staff can complete these documents to determine what

the existing conditions are and identify ways to incorporate green design and green infrastructure strategies.

<https://gitoolkit.njfuture.org/wp-content/themes/njf-greeninfrastructure/files/plan/EPA-Water-Quality-Scorecard-for-Toolkit.pdf>

- [Center for Watershed Protection's Code and Ordinance Worksheet](#) – this tool is very similar to the EPA's Water Quality Scorecard, as it provides step by step assessment of Code and Planning documents. This Worksheet assigns points to each item, yielding an overall score for the Township.

<https://owl.cwp.org/mdocs-posts/better-site-design-code-and-ordinance-cow-worksheet-2017-update/>

Through a cursory review of Randolph Township's Code, there is no clear mention of encouragement or requirement of green design practices, LEED-certified buildings, or similar elements that would enhance the performance of new and/or existing buildings. A definition for Green Building Strategies is listed under Section 15.91.3a (Development Fees for Low- and Moderate-Income Housing), there is a definition for *Green Building Strategies*, described as "strategies that minimize the impact of development on the environment, and enhance the health, safety and well-being of residents by producing durable, low-maintenance, resource-efficient housing while making optimum use of existing infrastructure and community services." While this definition is appropriate and encouraging, there is no requirement or recommendations to incorporate such into site design or as part of site development review.

Article 8 (Stormwater Control Ordinance) Section 15-97.1a (Design and Performance Standards for Stormwater Best Management Practices) specifically references the requirements for green infrastructure as promulgated by the New Jersey Stormwater Management Rules (NJAC 7:8):

"Stormwater management measures for major development shall be developed to meet the erosion control, groundwater recharge, stormwater runoff quantity, and stormwater runoff quality standards in this section.

To the maximum extent feasible, these standards shall be met by incorporating green infrastructure and nonstructural stormwater management strategies into the design. If these strategies alone are not sufficient to meet these standards, structural stormwater management measures necessary to meet these standards shall be incorporated into the design."

While these Ordinances are a great starting point, Randolph Township can amend the existing Code and create new incentives and stipulations to strategically plan for and implement green design standards and green infrastructure strategies.

3. *Update and Create Plans* – Randolph Township should review the Planning documents in place, and update or create new Plans where appropriate. These updated or new Plans should

incorporate the promotion or requirement (where appropriate) of green design and infrastructure strategies. Township Staff should begin with the most essential Planning documents first:

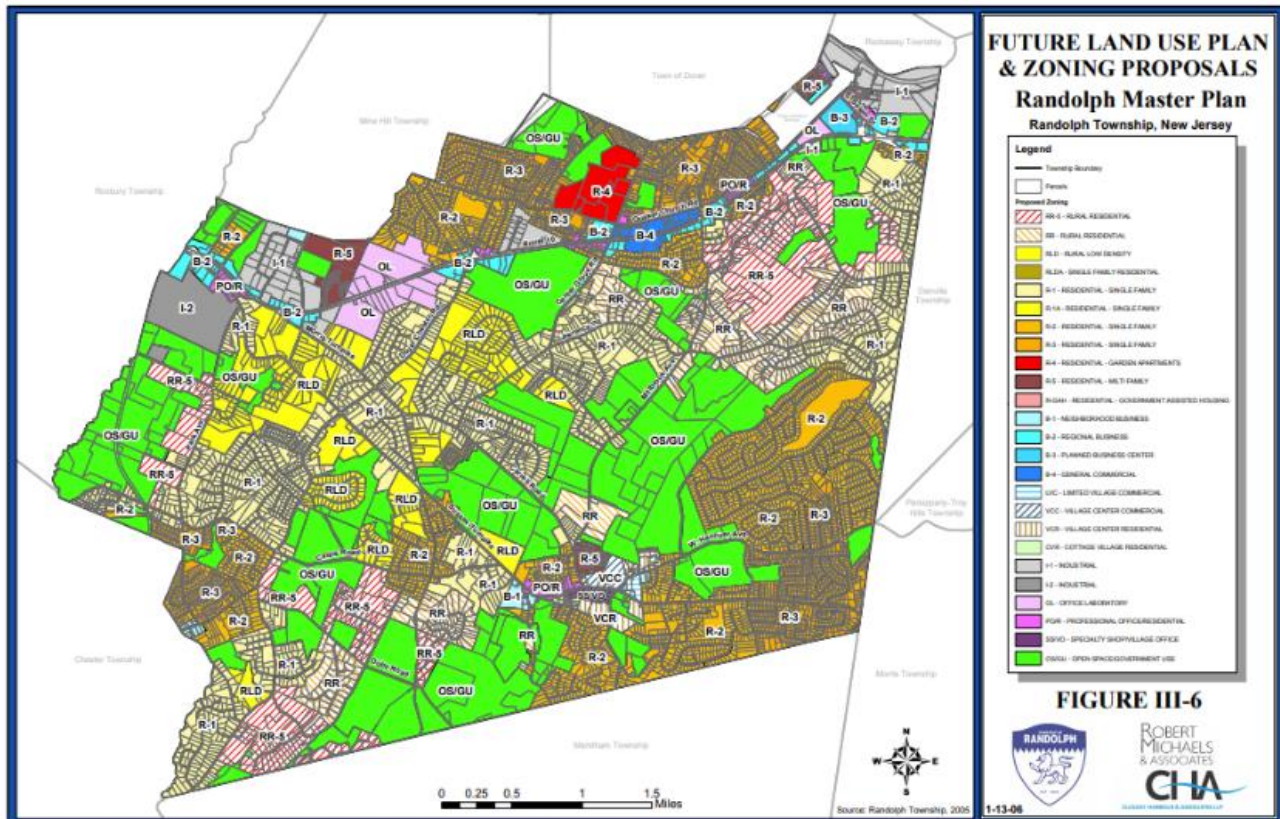


Figure 32: Map of Future Land Use Plan and Zoning Proposals
Randolph Township's Land Use Element (2006)

- Master Plan's Goals and Objectives
- Land Use Element
- Stormwater Management Plan
- Redevelopment Plans
- Sustainability Elements
- Capital Improvement Plans
- Tree Canopy Goals
- Green Infrastructure Plan
- Complete Streets Policy

4. *Update and Improve Ordinances* – Township Ordinances must be reviewed for the same specifications as Planning documents. Ordinances can be updated to promote or require (where appropriate) the use of green design and green strategies as the primary approach. This exercise will dictate how developers design and implement projects, which will lead to significant positive environmental impacts for the municipality as a whole.

One way that Randolph Township can begin this process is to pass a Green Building Policy or Resolution. Sustainable Jersey has three sample resolutions that can be used as a starting point:

- Sample Resolution for Municipal Buildings
 - Sample Resolution for Commercial and Residential Buildings
 - Sample Combined Resolution (Municipal, Commercial, and Residential Buildings)
(<https://www.sustainablejersey.com/actions/#open/action/28>)
5. *Offer Incentives* – Randolph Township can decide if incentives are feasible for developers who incorporate green design and green infrastructure strategies into their projects. Consider incentives such as discounted application fees, prioritized permitting timelines, zoning incentives, and more.
 6. *Improve Municipal Processes* – The process for land development review can be amended to include review of environmental resources and constraints, as well as proposed green design and green infrastructure strategies. Township Planning and Engineering will be familiar with the element that are required to be reviewed under the New Jersey Municipal Land Use Law (NJSA 40:55D) and the New Jersey Stormwater Management Rules (NJAC 7:8). Additional elements such as the use of sustainably sourced materials, conservation of unique habitat, implementation of solar panels, green roofs, and/or cool roof technologies, and more can be added to the existing Land Development Review Checklist or created as a separate Green Land Development Review Checklist (See Project 6B).
 7. *Plan for a Public Project* – Randolph Township can choose a municipal project to begin with, based on available funding, environmental needs, and the public's desire. This project will serve as an example to residents and developers, while reiterating the Township's commitment to green design and green infrastructure strategies.
 8. *Training and Education* – DPW Staff, Planning and Engineering Staff, Board/Commission members, and the general public must be trained on how to properly maintain green infrastructure projects and facilities with green design elements. The proper functioning of these projects will extend its life and ensure their continued success. The understanding of these projects also encourages similar projects at the small and large scale.



How Does This Project Align with the Requirements of the Municipal Tier-A Stormwater Permit?

Under Randolph Township's Municipal Tier-A Stormwater Permit and the NJDEP's Municipal Stormwater Regulation Program, Tier A Municipalities "shall implement a Public Education and Outreach Program that focuses on educational and pollution prevention activities about the impacts of stormwater discharges on surface water and groundwater, and to involve the public in reducing pollutants in stormwater runoff and mitigating flow". As a Tier A Municipal Permittee, Randolph Township is required to conduct activities that total at least 12 points annually from at least three of the approved five categories. Projects completed by the Township or by volunteers count towards the satisfaction of this requirement. Below are the eligible activities from the Municipal Tier-A Stormwater Permit that correspond to this project in the RTEG (Project 6B) with a description of the tasks and the point values assigned.

Category 1: General Public Outreach		
Activity	Description	Points
Social Media	Post relevant stormwater materials on a municipal social media site. Include links to stormwater-related resources. As it relates to Project 6B, this activity could include posting information about new, existing, and/or updated ordinances that permit green infrastructure.	3
Radio/TV	Broadcast a stormwater-related radio or television public service announcement from www.cleanwaternj.org on a local radio station or municipal public service channel. As it relates to Project 6B, this activity could broadcast information about new, existing, and/or updated ordinances that permit green infrastructure.	2
Category 2: Targeted Audiences Outreach		
Ordinance Education	Distribute a letter or email from the Mayor or municipal official to every resident and business in the municipality highlighting the requirements and environmental benefits of the Pet Waste, Wildlife Feeding, Litter Control, Improper Disposal of Waste, Containerized Waste/Yard Waste Collection, Private Storm Drain Retrofitting, Illicit Connection, Tree, and Salt Storage Ordinances.	3

Approvals Needed

The updating and creation of Planning documents require approvals under the New Jersey Municipal Land Use Law (NJSA 40:55D-28), specifically as it relates to Public Notice and adoption by the Planning Board and governing body. Ordinances must be approved by the Randolph Township Planning Board and Zoning Board of Adjustment, as well as the governing body.

Project incorporating green design and green infrastructure strategies into their design must still receive approvals from the Township's Planner and Engineer to ensure compatibility with all construction and safety codes. Additionally, green infrastructure for stormwater management must adequately address runoff volume, as determined by a Professional Engineer.

When developing green infrastructure projects on open space funded through NJDEP's Green Acres Program, approval from the NJDEP may be required.

Funding Resources Available

Funding for planning and projects is available through many different sources. Below are some of the funding and technical resources available to municipalities for planning and implementation, as well as to landowners for green design:

- *USEPA's Environmental Justice Small Grants Program* – This program seeks to “empower communities working on solutions to local environmental and public health issues”. Grants can be requested in an amount up to \$100,000 and can be used to identify potential issues, set priorities, and build community consensus.
<https://www.epa.gov/environmentaljustice/environmental-justice-small-grants-program>

- *Environmental Infrastructure Program* – Eligible government entities can apply for 0% loans over a 20-year period to fund half of the costs of eligible green infrastructure projects. The program accepts applications on a rolling basis, providing between 100 and 200 million dollars annually. https://gitoolkit.njfuture.org/funding/?project_type=Planning&funding_type=All&eligible_activities=All
- *New Jersey Department of Community Affairs Weatherization and Intergovernmental Program* – This grant program is specifically designed to provide funding to weatherize home and conserve energy for low- and moderate-income families. These funds can significantly reduce costs for families in need, while conserving energy and promoting a behavior of energy efficiency. <https://www.nj.gov/dca/divisions/dhcr/offices/wap.html>
- *New Jersey Highlands Council's Planning Grants* – This grant program offers funding for planning, engineering, and design for projects that maximize the environmental and economic benefits of living in the Highlands region of New Jersey. These grants can be used to commission studies that conserve natural resources, reduce pollution and greenhouse gas emissions, promote sustainable land management practices, and more. Planning grants from the New Jersey Highlands Council are non-competitive and do not require a financial match from the municipality or county. No minimum or maximum award thresholds are established, and the application is on a rolling basis, making these grants very flexible and desirable for Highlands communities. More information can be found at: https://www.nj.gov/njhighlands/grantprograms/plan_conformance/grants_overview.pdf
- *Sustainable Jersey* – the Sustainable Jersey Program provides grant funding and technical assistance for municipalities looking to adopt a Green Building Policy or Resolution or complete a Green Infrastructure Study. Grant applications are available twice a year through the Small Grants Program, while opportunities for technical assistance are advertised as staffing and partnerships are arranged. Priority is made for municipalities who are Certified or are in the process of completing a specific Action Item towards Certification. <https://www.sustainablejersey.com/>

Resources

The following are links to existing resources that can be used to implement this project:

- *Case Study of the Maplewood Police and Court Building*
<https://greenmanual.rutgers.edu/wp-content/uploads/2019/03/Maplewood.pdf>
- *New Jersey's Association of Realtors Green Building Cost-Benefit Analysis*
<http://rcgb.rutgers.edu/new-jersey-association-of-realtors-njar-green-building-cost-benefit-analysis/>
- *Planning Grants*. New Jersey Highlands Council.
https://www.nj.gov/njhighlands/grantprograms/plan_conformance/grants_overview.pdf
- *Recommendations for Green Infrastructure for New Jersey Highlands Communities (New Jersey Future's Green Infrastructure Municipal Toolkit)*
<https://gitoolkit.njfuture.org/wp-content/uploads/2018/11/Highlands-SW-and-Land-Use-ord-guidance.pdf>

- *Rutgers Center for Green Design at the Edward J. Bloustein School of Planning and Public Policy*
<http://rcgb.rutgers.edu/>
- *Rutgers University's New Jersey Green Building Manual*
<https://greenmanual.rutgers.edu/>
- *Rutgers University Water Resources Program*
<http://www.water.rutgers.edu/>
- *Sustainable Jersey*
<https://www.sustainablejersey.com/>
- *The United States Green Building Council (USGBC)*
<https://www.usgbc.org/>

Project 6C: Develop a Green Land Development Review Checklist for Use by the Randolph Township Planning Board and Environmental and Landmarks Committee

Purpose

A Green Land Development Review Checklist is a very useful tool for Planning Boards, Zoning Boards of Adjustment, and Township Staff when reviewing development projects. This itemized checklist guides the user through a review that is designed to include green design for the proposed structures and green infrastructure strategies on the proposed site. In addition to verifying the requirements for typical project development and conformance with zoning regulations, a Green Land Development Checklist is thought provoking for both the developer and the reviewer. Recommendations resulting from this review are site-specific in nature but provide comprehensive environmental and community benefits.

Implementation Strategy

Drafting and implementation of a Green Land Development Checklist is a relatively simple project. Templates are available and can be used as drafted or modified to suit the Township's needs. The following steps should be taken to complete this project:

1. *Review the existing Land Development Checklist used by Planning and Engineering Staff* – the Environmental and Landmarks Committee should obtain a copy of the existing Land Development Checklist and identify areas where green design standards and/or green infrastructure strategies have been incorporated.
2. *Review a sample Green Land Development Checklist* – the Environmental and Landmarks Committee should then review samples and develop recommendations for inclusion in the existing Land Development Checklist. Examples of excellent sample Green Land Development Checklists are:
 - a. [Sample Green Land Development Checklist for Site Development and Review](https://gitoolkit.njfuture.org/wp-content/uploads/2018/10/GI-Development-Review-Checklist.pdf) – New Jersey Future's Green Infrastructure Municipal Toolkit
<https://gitoolkit.njfuture.org/wp-content/uploads/2018/10/GI-Development-Review-Checklist.pdf>
 - b. [Environmental Commission Site Plan/Subdivision Checklist](http://anjec.org/wp-content/uploads/2022/04/SitePlanChecklist-April2022.pdf) – Association of New Jersey Environmental Commissions (ANJEC)
<http://anjec.org/wp-content/uploads/2022/04/SitePlanChecklist-April2022.pdf>
 - c. [Chatham Township's Green Development Checklist](https://chathamtownship-nj.gov/vertical/Sites/%7B440F80DF-7E94-40B8-B1AE-CE161FC4406A%7D/uploads/Chatham_Township_Green_Development_Checklist.pdf)
https://chathamtownship-nj.gov/vertical/Sites/%7B440F80DF-7E94-40B8-B1AE-CE161FC4406A%7D/uploads/Chatham_Township_Green_Development_Checklist.pdf
3. *Finalize the Green Land Development Checklist* – Recommendations of the Environmental and Landmarks Committee should be shared with the Township Planner and Township Engineer. Once the final structure (Checklist to be used in review by Planning and Engineering, and/or Checklist to

be completed by Developers) and content are agreed upon, the Planning Board and Zoning Board of Adjustment would need to adopt the Green Land Development Checklist.

4. *Adopt an Ordinance amending the existing Land Development Ordinance to allow for the use of the Green Land Development Checklist for all site plan/subdivision review* – If the Checklist is to be completed by developers and a fee is imposed, that fee must also be amended and approved via Ordinance.
5. *Train Staff and Committee Members How to Use the Green Land Development Checklist* – The Checklist should be distributed to relevant departments and committees in Randolph Township for review. A brief training can be provided with the distribution via an in-person meeting, remote meeting, or written instruction to explain the purpose of the Checklist, how and when it should be used, a reference to the Stormwater Management Rules (NJAC 7:8), and the projected benefits.

Approvals Needed

Recommendations from the Environmental and Landmarks Committee need to be approved by the Township Planner and Township Engineer, as well as the Planning Board and Zoning Board of Adjustment.

The Township's governing body must adopt an Ordinance amending the existing Land Development Ordinance to allow for the use of the newly developed Green Land Development Checklist.

Funding Resources Available

Funding is not required for the implementation of this project. The expertise and time of the existing Staff and Board/Committee members can be used to develop the Green Land Development Checklist.

Resources

The following are links to existing resources that can be used to implement this project:

- *Green Land Development Checklist Model – Sustainable Jersey*
https://www.sustainablejersey.com/fileadmin/media/Actions_and_Certification/Actions/Green_Development_Checklist/Model_Checklist_Final_Upload_2015_10_09-final.pdf
- *Ordinance #2189: Amending Land Development Ordinance for Site Plans and Subdivisions – Township of Westfield*
<https://www.westfieldnj.gov/DocumentCenter/View/1204/Green-Development-Checklist-Ordinance-PDF>
- *Site Plan/Subdivision Review: Environmental Analysis – ANJEC*
<https://anjec.org/wp-content/uploads/2019/07/SitePlanReview10.pdf>

Project 6D: Provide Incentives for Landowners, Renters, and Business Owners to Incorporate Sustainable/Environmentally Friendly Design and Measures

Purpose

Because green design and green infrastructure are new to many people, education and incentives can encourage landowners, renters, and business owners to incorporate these techniques into their projects. These strategies are much more beneficial for the environment but can also save owners and renters time and money. Incentives such as reduced permitting fees and review time, zoning allowances, and tax credits can be the difference between a landowner or renter incorporating these strategies versus using traditional, less sustainable practices.

Implementation Strategy

There is no clear-cut blueprint for incentives to be offered. Depending on the Township's current conditions, different incentives may be viewed more favorably than others. Randolph Township should consider the following issues and incentives when implementing this project:

1. *What are developers and landowners requesting the most in terms of variances and permitting allowances?* – The Environmental and Landmarks Committee should speak with the Township's Zoning Department and Zoning Board of Adjustment to find out about the most current submitted requests. This information will prove valuable when determining what incentives will actually move the needle on this project.
2. *What incentives does the Township feel comfortable offering?* In speaking with the Township Administrator and Governing Body, the Environmental and Landmarks Committee can learn what incentives are realistic to offer, while complying with the regulations and vision for Randolph Township. For example, is offering a waiver to the height requirement under zoning for developers proposing a green roof or solar panels acceptable, and will this impair the intent of the zoning ordinance or the aesthetics of the Randolph Township?
3. *Prepare a list of proposed incentives for owners and renters* - The Environmental and Landmarks Committee can draft a list of potential incentives and submit them to the appropriate entities for review and potential approval. Examples of incentives may include:
 - a. Reduced development fees for projects submitting a complete Green Land Development Checklist (if a Checklist for developers is being used)
 - b. Prioritized permitting for projects proposing green roofs, solar panels, green infrastructure for stormwater management, pervious pavement, and more.
 - c. Waivers of specific elements of site plan approval/zoning permitting for projects that would only require these waivers due to the incorporation of green design and/or green infrastructure strategies (example: exceedance of height restrictions for buildings using solar panels, green roofs, or wind energy generation facilities).

- d. Requiring stormwater fees based on impervious coverage – developments with larger percentages of impervious coverage would pay a higher fee.
 - e. Tax credits for landlords who include green design elements into their rental units and pass on the cost savings to renters.
 - f. One time tax credits for redevelopment area projects that incorporate green design.
4. *Adopt an Ordinance codifying these incentives.*



How Does This Project Align with the Requirements of the Municipal Tier-A Stormwater Permit?

Under Randolph Township's Municipal Tier-A Stormwater Permit and the NJDEP's Municipal Stormwater Regulation Program, Tier A Municipalities "shall implement a Public Education and Outreach Program that focuses on educational and pollution prevention activities about the impacts of stormwater discharges on surface water and groundwater, and to involve the public in reducing pollutants in stormwater runoff and mitigating flow". As a Tier A Municipal Permittee, Randolph Township is required to conduct activities that total at least 12 points annually from at least three of the approved five categories. Projects completed by the Township or by volunteers count towards the satisfaction of this requirement. Below are the eligible activities from the Municipal Tier-A Stormwater Permit that correspond to this project in the RTEG (Project 6D) with a description of the tasks and the point values assigned.

Category 1: General Public Outreach		
Activity	Description	Points
Social Media	Post relevant stormwater materials on a municipal social media site. Include links to stormwater-related resources.	3
Newspaper Ad	Use NJDEP created and approved stormwater education materials available on www.cleanwater.nj.org to publish an ad in a local newspaper or municipal newsletter	1
Category 2: Targeted Audiences Outreach		
Promotion Item	Distribute an item or items (refrigerator magnets, key chains, coloring books, pens, etc.) with a stormwater-related message. The initial minimum available must be equal to at least 10% of the population.	2
Mail/Email Campaign	Distribute any of the NJDEP's educational brochure, tip cards, or a municipally approved equivalent via a mailing to every resident and business.	2
Ordinance Education	Distribute a letter or email from the Mayor or municipal official to every resident and business in the municipality highlighting the requirements and environmental benefits of the Pet Waste, Wildlife Feeding, Litter Control, Improper Disposal of Waste, Containerized Waste/Yard Waste Collection, Private Storm Drain Retrofitting, Illicit Connection, Tree, and Salt Storage Ordinances.	3

Approvals Needed

No external approvals are needed to implement this project.

Funding Resources Available

Funding is not necessary to create a program of incentives. If incentives that reduce fees or offer tax credits are provided, a portion of that revenue will be lost for the Township of Randolph, however the benefits to the community and environment will most likely outweigh this loss.

The New Jersey Highlands Council offers a grant program called “Local Zoning, Local Control”. This program offers up to \$5,000.00 to review zoning to determine what type of development is permitted as of right. All Highlands municipalities are eligible for this non-competitive, non-matching grant. This review can highlight where incentives may be feasible and beneficial in promoting in sustainable/environmentally-friendly design.

Resources

The following are links to existing resources that can be used to implement this project:

- *“Good to Know: Green Building Incentive Strategies”*. United States Green Building Council.
<https://www.usgbc.org/articles/good-know-green-building-incentive-strategies-0>
- *Green Infrastructure Municipal Toolkit*. New Jersey Future.
<https://gitoolkit.njfuture.org/plan/>
- *Green Values Calculator*. Center for Neighborhood Technology.
<https://cnt.org/tools/green-values-calculator>
- *Local Zoning, Local Control Grant*. New Jersey Highlands Council.
https://www.nj.gov/njhighlands/grantprograms/plan_conformance/lzlcgrant_2022.pdf
- *Managing Wet Weather with Green Infrastructure: Incentive Mechanisms*. United States Environmental Protection Agency.
https://www.epa.gov/sites/default/files/2015-10/documents/gi_munichandbook_incentives.pdf
- *Regional Master Plan*. New Jersey Highlands Council. July 17, 2008.
https://www.nj.gov/njhighlands/master/rmp/final/highlands_rmp_112008.pdf

Project 6E: Promote the Self-Registration of Green Businesses on New Jersey's Sustainable Business Registry

Purpose

Recognizing businesses who implement sustainable practices encourages other businesses, institutions, and residents to mirror that behavior, creating a positive domino effect across the community. Businesses tend to have a higher level of visibility so advertising their success in sustainability serves as a strong marketing tool for the continuation of such strategies. Promoting self-registration to the New Jersey Sustainable Business Registry not only will advertise local, sustainable businesses, but also will highlight Randolph Township as a place that supports and promotes sustainability across all sectors. These projects will also create a strong working partnership between the Randolph Township Environmental and Landmarks Committee, Economic Development Committee, and the Randolph Township Economic Development Committee (EDC).

Implementation Strategies

To achieve the overall goal, the Township can provide education about the existing New Jersey Sustainable Business Registry, as well as post a link to the New Jersey Sustainable Business Registry (<http://registry.njsbdc.com/user/register>) so that business owners can register themselves. Recognition on this platform will not serve as marketing for the individual businesses but will also highlight Randolph Township as a place where sustainable business practices are encouraged and celebrated.

The Township can post information promoting self-registration through social media and on flyers to be posted in the municipal building.

Approvals Needed

Applications to the New Jersey Sustainable Business Registry will be completed by the individual business owners and will require satisfaction of all criteria by the New Jersey Department of Environmental Protection.

Funding Resources Available

Registration on the New Jersey Sustainable Business Registry is free and voluntary to the business owner.

Resources

The following are links to existing resources that can be used to implement this project:

- *ConServe Program*. National Restaurant Association
<https://conserve.restaurant.org/>

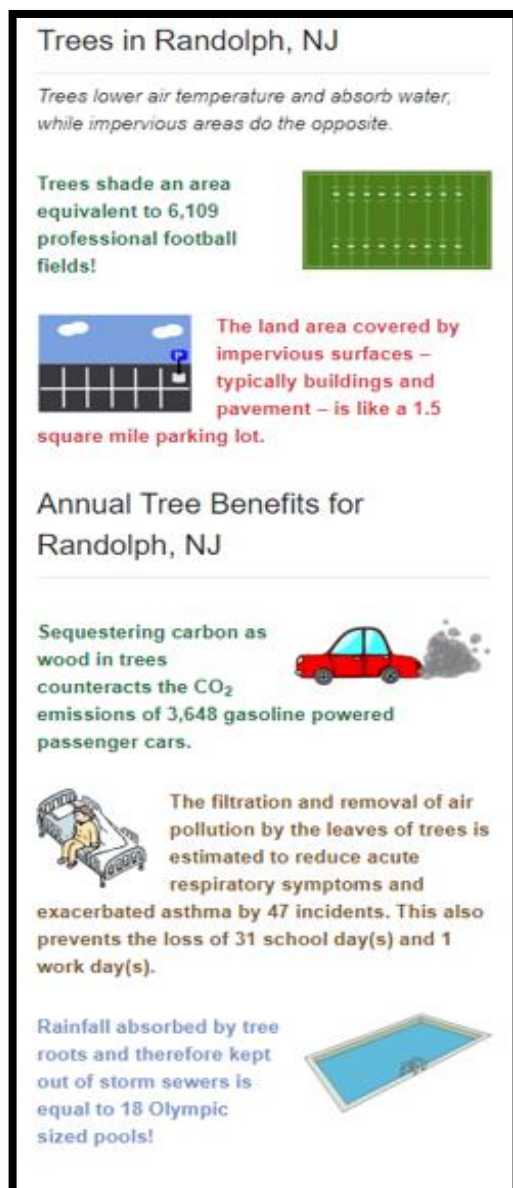
- *Energy Benchmarking for Businesses and Offices*. New Jersey Office of Clean Energy.
<https://www.njcleanenergy.com/benchmarking>
- *Free Counseling for Small Businesses*. New Jersey Small Business Development Center at Fairleigh Dickinson University
<https://clients.njsbdc.com/reg.aspx?mode=counsel¢er=21012&subloc=0>
- *List of Registered Businesses*. New Jersey Sustainable Business Registry.
<http://registry.njsbdc.com/registered-businesses>
- *No-Cost Consulting*. New Jersey Sustainable Business Registry
<http://registry.njsbdc.com/webform/no-cost-consulting>
- *Randolph Area Chamber of Commerce*
<http://randolphchamber.org/>
- *Randolph Township Economic Development Committee*
<https://www.randolphnj.org/223/Economic-Development-Committee>
- *Tools for Calculating Environmental and Economic Benefits*. New Jersey Sustainable Business Registry
<http://registry.njsbdc.com/calculations-tools>



CHAPTER 7: NATURAL RESOURCES MANAGEMENT

The protection and conservation of natural resources is the basis for sustainability in any municipality. Soils, trees, water resources, geology, and habitat are all part of a system of environmental services that are necessary for the livability, sustainability, and resilience of Randolph Township.

Because the Township has the commitment to natural resources protection, as well as the foresight to plan for the continued conservation and enhancement of the same, a range of natural resources essential to the municipality have been studied as part of the RTEG, with corresponding recommendations for projects and initiatives (See Chapter 3 – Action Plan).



Trees

Trees are a vital contributor to the health of the environment and the people within the community. An adequate tree inventory provides numerous measurable benefits, including but not limited to:

- Cleans the air and water
- Reduces temperatures
- Stores and filters rainwater
- Reduces soil erosion and flooding
- Buffers noise and glare from roads and buildings
- Softens harsh building lines and streets
- Provides aesthetically pleasing green spaces
- Increases property values in neighborhood settings.

As the most densely populated State in the nation, New Jersey is constantly under threat of losing trees and forest fragmentation to development. Significant and sustained tree loss poses a serious threat to air quality, water quality, soil stability, wildlife habitat, and ambient temperature. Many municipalities, including Randolph Township, have adopted Tree Removal Ordinances to protect existing woodlands, and require mitigation when trees are removed.

In protecting the existing tree inventory, Randolph Township preserves these environmental and economic services while beautifying local streets, commercial and retail areas, and neighborhoods. Increasing the tree inventory should be a

Figure 14: Infographic about Tree Inventory in Randolph Township
Source: www.itrees.org

priority for Randolph Township and can be accomplished by strategically planting appropriate trees in appropriate places, working with local volunteer groups to host tree plantings, studying the tree canopy, and developing a desired tree canopy specific to Randolph Township, reviewing, and amending the municipal Tree Replacement Ordinance, and becoming a verified “Tree City USA”.

Wildlife Habitat

Habitat is one of the most critical natural resources affected by human interaction and land development patterns. The building up of communities has led to the disconnecting of habitat for many different species. Through this breakdown, food sources, movement and shelter opportunities have become increasingly stressed and led to many species becoming threatened, endangered, or even extinct.

Because of this extreme development and suburban sprawl, New Jersey has the task of not only conserving critical habitat, but also of creating new habitat in an ever-decreasing supply of land. Land supply that is available is typically fragmented by road, utilities, and buildings, producing mobility barriers and life-threatening circumstances for specific species. To study this condition further, and to provide data for decision-making, the State of New Jersey has developed two crucial resources:

- *NJDEP’s Connecting Habitat Across New Jersey (CHANJ)* – Developed in 2012 under the guidance of a working group comprised of over 100 professionals, CHANJ provides detailed information about the presence of wildlife, habitat connectivity, and mobility obstacles for terrestrial wildlife. In April 2019, CHANJ released an interactive mapping tool that allows users to identify areas of connecting habitat, along with areas that pose a threat to existing and potential connections (Figure 15). The mapping allows users to visualize their specific area within the connectivity cores and corridors. In addition to the mapping capabilities, CHANJ released a companion guidance document that helps to put the data into perspective for strategic decision-making.
- *The New Jersey State Wildlife Action Plan* – Originally adopted in 2005 and updated in 2018, the *New Jersey State Wildlife Action Plan* identifies the status and health of wildlife species, current issues related to threatened and endangered species, and recommendations to protect, restore, and enhance habitat for threatened and endangered species across the State. Of particular interest for the RTEG are two of the key underpinnings of the *New Jersey State Wildlife Action Plan*:
 1. “Habitat loss is the greatest threat to New Jersey’s wildlife”
 2. “Stewardship and restoration are critical actions.”

To review the *Connecting Habitat Across New Jersey Program*, please visit:
<https://dep.nj.gov/njfw/conservation/connecting-habitat-across-new-jersey-chanj/>

To review the entire *New Jersey State Wildlife Action Plan*, please visit:
https://www.state.nj.us/dep/fgw/ensp/wap/pdf/wap_plan18.pdf

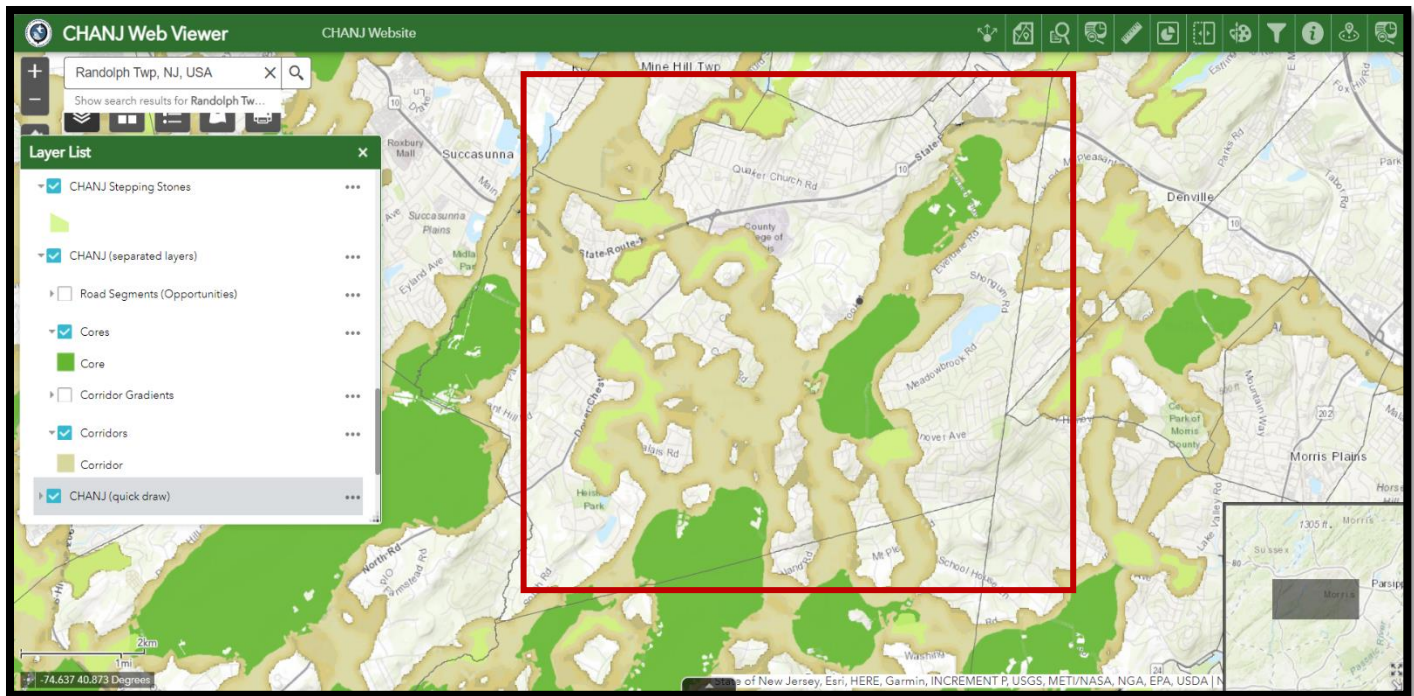


Figure 15: CHANJ Cores and Corridors - Randolph Township
Source: <https://nidep.maps.arcgis.com/apps/webappviewer/>

Land preservation is a powerful mechanism for conserving wildlife habitat. Typically, land preservation and open space development are planned by reviewing proximity to other open space and parkland, development potential, imminence of change, soil quality, and presence of environmental features. This effort should include a review for the presence of threatened and endangered species, as well as presence of critical habitat. Randolph Township has access to data about the location and projected number of threatened and endangered species in the Township and neighboring regions. This data can be overlaid with preserved and targeted open space to guide habitat conservation. More information about this project can be found in Chapter 3 – Action Plan.

Pollinator gardens, native grasslands preserve, rain gardens, and more can be developed to attract pollinator species and conserve spaces for resting, breeding, nesting, and protection. Within these spaces, or through the incorporation in parks, open spaces, and even residential properties, wildlife shelters (specifically bat boxes, bird boxes, and bird houses) can provide cover from predators, food and water sources, and landing spots for resting and nesting. In addition to the primary benefit of wildlife conservation, enhancement of species, and pollination, wildlife shelters also educate the public about the importance of pollinator species and critical habitat. Programs such as Bee City USA and the Mayors Monarch Butterfly Pledge can assist municipalities through providing a framework for the implementation of projects, policies and initiatives that conserve and create wildlife habitat for pollinators.



Figure 16: Master Gardeners of Morris County
 Source: <https://morris.njaes.rutgers.edu/master-gardeners/>



Figure 17: Common Milkweed Plant
 Source: <http://plants.rutgersln.com/12150011/Plant/8359/Common-Milkweed/>

As part of the RTEG, the Township has studied natural resources protection, and developed the following projects:

Project 7A: Protect and Increase Tree Inventory

The “Protect and Increase Tree Inventory” action must be accomplished through a multi-pronged approach consisting of zoning review, planning studies for strategic tree plantings and replacement, partnerships with outside entities, and community education. Each project has its own implementation strategy, funding, and resources, while all are also directly related and will achieve better success when employed together as part of an overall Plan.

Project 7A.1: Become a “Tree City USA.”

Project 7A.2: Study Existing Tree Inventory and Canopy versus the Tree Inventory and Canopy Needed for Environmental and Health Benefits; Relate to Heat Island Effect

Project 7A.3: Host Community Tree Plantings

Purpose

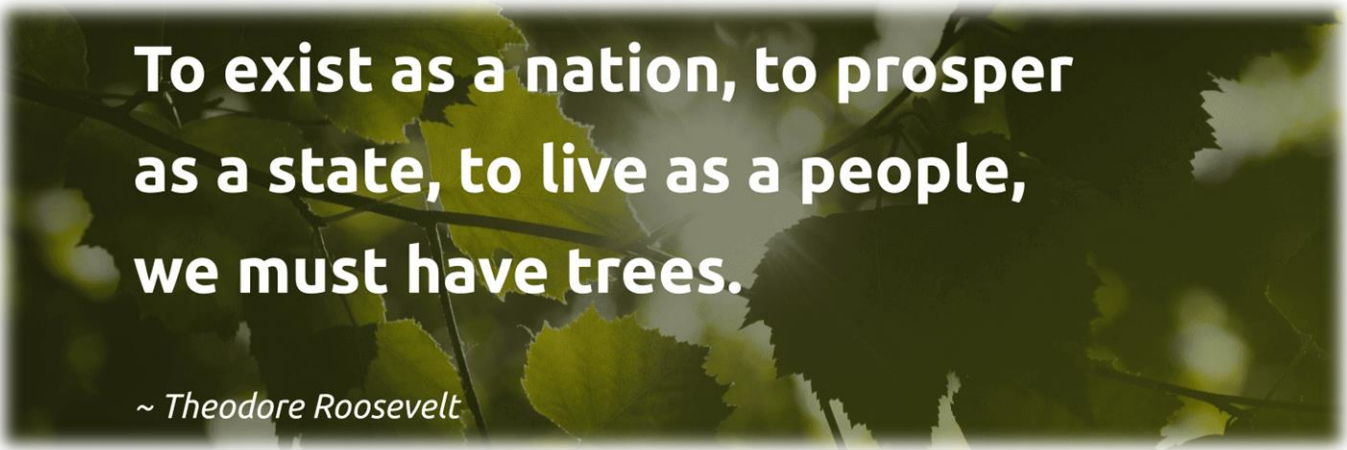
Trees are a vital contributor to the health of the environment and the people within the community. An adequate tree inventory provides numerous measurable benefits, including but not limited to:

- Cleans the air and water
- Reduces temperatures and outcomes of the Heat Island Effect
- Stores and filters rainwater
- Reduces soil erosion and flooding
- Buffers noise and glare from roads and buildings
- Softens harsh building lines and streets
- Provides aesthetically pleasing green spaces
- Increases property values in neighborhood settings.

In protecting the existing tree inventory, Randolph Township preserves these environmental and economic services while beautifying local streets, commercial and retail areas, and neighborhoods. Increasing the tree inventory should be a priority for Randolph Township and can be accomplished by strategically planting appropriate trees in appropriate places, working with local volunteer groups to host tree plantings, studying the tree canopy, and developing a desired tree canopy specific to Randolph Township, reviewing, and amending the municipal Tree Replacement Ordinance, and becoming a verified “Tree City USA”.

Project 7A of this Action Plan describes a comprehensive approach that is rooted in the knowledge of the existing tree inventory and canopy, and then addressing strategies for preserving that inventory while adding to it in a planned fashion. Planning for forest health, habitat protected in woodlands, and the deterrence of climate change are all real issues that can be directly tied to this Action. Involving the

community in this endeavor is important for the continued stewardship and protection of existing and newly planted trees. This Action also recommends Randolph Township's application for designation as a "Tree City USA". This recognition would further the work of the Township in protecting trees, adding to the tree cover and canopy, and promoting the accomplishments of the Township as a method of bolstering the commitment from the government and residents of the municipality.



**To exist as a nation, to prosper
as a state, to live as a people,
we must have trees.**

~ Theodore Roosevelt

Project 7A.1: Become a “Tree City USA”

Implementation Strategy

The first Tree City USA cohort was established in 1976 and comprised of 42 communities. Today over 3,600 communities participate in all 50 states. These cities have realized the benefits of trees in their towns, including the absorption of heat and sound, increased property values, improved habitat, and better physical and mental health for residents. To become a Tree City USA, Randolph Township should implement the following steps:

1. *Maintain a Tree Board or Department*
2. *Adopt a Community Tree Ordinance* – Randolph Township’s Tree Removal and Protection Ordinance is located in Section 15-48, and discusses clearing requirements, tree plantings and maintenance, and the Tree Bank Fund.
3. *Provide Proof that the Township of Randolph Has Expended at Least \$2.00 Per Capita on Urban Forestry* – An easy way to think about this requirement is to ensure that the amount of funding spent on forestry in the Township is equal to twice the population number for the year of the application. Qualified expenses include, but are not limited to, salaries and benefits, leaf and brush pickup, administrative work, trees, supplies for plantings, public education, equipment rental, consulting fees, and Arbor Day expenses. The Arbor Day Foundation has provided a simple worksheet to document these expenditures (<https://www.arborday.org/programs/treecityusa/documents/standard-3-worksheet.pdf>)
4. *Celebrate Arbor Day* – Arbor Day is recognized on the last Friday in April annually. Municipalities can celebrate by passing a resolution, planting a ceremonial tree, passing a Proclamation, hosting a festival, or more.
5. *Submit an Application to the Arbor Day Foundation* – The application is free and takes very little time to complete. Once submitted, the Arbor Day Foundation will review and if eligible approve. From that point forward, the Township will need to submit an annual report to upkeep the Tree City USA designation.



How Does This Project Align with the Requirements of the Municipal Tier-A Stormwater Permit?

Under Randolph Township’s Municipal Tier-A Stormwater Permit and the NJDEP’s Municipal Stormwater Regulation Program, Tier A Municipalities “shall implement a Public Education and Outreach Program that focuses on educational and pollution prevention activities about the impacts of stormwater discharges on surface water and groundwater, and to involve the public in reducing pollutants in stormwater runoff and mitigating flow”. As a Tier A Municipal Permittee, Randolph Township is required to conduct activities that total at least 12 points annually from at least three of the approved five categories. Projects completed by the Township or by volunteers count towards the satisfaction of this requirement. Below are the eligible activities from the Municipal Tier-A Stormwater Permit that correspond to this project in the RTEG (Project 7A.1) with a description of the tasks and the point values assigned.

Category 3: School/Youth Education and Activities		
Activity	Description	Points
AmeriCorps Event	Coordinate an event (i.e., tree planting) through AmeriCorps New Jersey Watershed Ambassador Program.	4
Category 5: Community Involvement Activities		
Community Event	Organize or participate in the organization of a community event to carry out stormwater activities (i.e., tree plantings). The municipality may identify and enter into an agreement with a local group such as a watershed organization, school, youth/faith-based group, scouts, non-profit entity, etc.	3

Approvals Needed

Amendments to the Tree Removal and Protection Ordinance must be adopted by the Governing Body.

Submittal of an application to become a Tree City USA requires a resolution from the Township's Council.

Funding Resources Available

Applying to become a Tree City USA is free and voluntary, however the collection of information will require Staff time, as well as time from the Environmental and Landmarks Committee, Planning Board, and Zoning Board of Adjustment.

Resources

The following are links to existing resources that can be used to implement this project:

- *Tree City USA (Arbor Day Foundation):*

<https://www.arboday.org/programs/treecityusa/> (general information)

<https://www.arboday.org/programs/treecityusa/documents/tree-city-usa-expenses-sheet.pdf> (qualified expenses)

<https://www.arboday.org/programs/treecityusa/documents/new-app.pdf> (application)

<https://www.arboday.org/programs/treecityusa/documents/treecity-checklist.pdf> (application checklist)



Project 7A.2: Study Existing Tree Inventory and Canopy versus the Tree Inventory and Canopy Needed for Environmental and Health Benefits

Implementation Strategy

The first step in understanding if and where additional trees are needed to achieve an adequate Tree Canopy, Randolph Township must first calculate the existing Tree Canopy and the appropriate Tree Canopy to achieve environmental and health benefits for the community. These calculations will be critical in understanding not only how many additional trees are needed, but also in identifying where these trees are needed most.

The i-Tree tool was developed using United States Department of Agriculture (USDA) research through a peer-reviewed process. This free package provides a variety of online, interactive tools for calculating individual trees, community Tree Canopy, and environmental benefits.

1. *Our Trees* – this tool is very easy to use, requiring the user to enter only the location to obtain basic information about the Tree Canopy. The report provided will include basic information about the existing Tree Canopy. In entering “Randolph Township” into the online system, the following information was generated:
 - The current estimated Tree Canopy is 60.62% over 8,078 acres.
 - Annually, 5,087 tons of carbon are sequestered by these trees in Randolph Township.
 - Annually, 328,937 pounds of ozone are removed from the atmosphere by the existing tree inventory.
 - A value of \$1,998,869.00 has been assigned to the environmental services provided by trees in 2021 alone.

Source: <https://ourtrees.itreetools.org/#/>

2. *i-Tree Canopy* – Randolph Township can use the more extensive i-Tree Canopy tool, which classifies land and tree cover across a designated area to determine the existing tree canopy. GIS shapefiles of Randolph Township are uploaded to the online system, which then guides the user through the exercise of calculating the tree canopy, as well as impacts on stormwater mitigation, carbon monoxide uptake, and filtration and reduction of air pollutants. The use of the i-Tree Canopy tool will not only provide valuable data to Randolph Township but will also assist in the completion of a Community Forestry Plan, registration as a “Tree City USA”, and earn points towards the Tree Canopy Goal action item through the Sustainable Jersey Program (should the Township choose to work towards obtaining Certification).

After review of the report generated from the i-Tree Canopy Tool, Randolph Township will be able to make projections about the desired tree canopy to achieve environmental and health goals.

Source: <https://canopy.itreetools.org/>

3. *Identify Priority Sites for Tree Plantings* – If it is determined that additional trees are required to meet the desired tree canopy, the Township should determine priority areas within the municipality, or specific priority sites, where these trees should be planted. When identifying these areas, the

Township should prioritize areas where trees are already limited or in decline and areas where environmental features are present (water bodies, wetlands, critical habitat). The Township should be sure to plant trees in these areas in an equitable fashion, meaning that trees are planted in all areas of town, and that more urban areas are equally targeted for these plantings.

The i-Tree Landscape is another tool in the i-Tree Program and provides priority mapping for tree plantings based on benefits related to climate change and environmental justice.

Source: <https://landscape.itreetools.org/>

The Township can also take the approach of studying the Township's needs based on mapping and onsite inspections, along with review of expenditures from the Shade Tree Fund and required tree replacement from developers. Coordination with the Planning Board and Staff would be required to complete this exercise.

Approvals Needed

Approvals are not required to complete this exercise.

Funding Resources Available

Funding is available through the New Jersey Department of Environmental Protection's Green Communities Grant Program. This funding provides for \$3,000.00 (with a 100% municipal match) for communities looking to create their first Community Forestry Management Plan. The development of a Tree Canopy Calculation serves as the foundation for this project.

The New Jersey Highlands Council offers grants for planning, engineering, and design for projects that maximize the environmental and economic benefits of living in the Highlands region of New Jersey. These grants can be used to commission studies that conserve natural resources, reduce pollution and greenhouse gas emissions, promote sustainable land management practices, and more. Planning grants from the New Jersey Highlands Council are non-competitive and do not require a financial match from the municipality or county. No minimum or maximum award thresholds are established, and the application is on a rolling basis, making these grants very flexible and desirable for Highlands communities. More information can be found at:

https://www.nj.gov/njhighlands/grantprograms/plan_conformance/grants_overview.pdf

Should Randolph Township decide to work towards Certification through the Sustainable Jersey Program, grant funding is available annually for capacity building efforts (\$2,000.00) or for specific projects that relate to action items (\$10,000.00 or \$20,000.00).

Resources

The following are links to existing resources that can be used to implement this project:

- *Air Quality Assessment Report*. New Jersey Highlands Council. 2008.
https://www.nj.gov/njhighlands/master/tr_air_quality_assessment.pdf

- *Ecosystem Management Report*. New Jersey Highlands Council. 2008.
https://www.nj.gov/njhighlands/master/tr_ecosystem_management.pdf
- *i-Trees Suite of Tools*
<https://www.itreetools.org/>
<https://www.itreetools.org/tools>
- *Regional Master Plan*. New Jersey Highlands Council. July 17, 2008.
https://www.nj.gov/njhighlands/master/rmp/final/highlands_rmp_112008.pdf
- *Using Your i-Tree Benefits to Implement Change* – this video resource provides valuable information about using the i-Tree suite of tools
<https://www.itreetools.org/media/watch.php?8Qj3HZA7knl>

Project 7A.3: Host Community Tree Plantings

Implementation Strategy

Tree plantings will help Randolph Township achieve its tree canopy goal, while providing shade, important environmental services, and aesthetic value throughout the community. Tree plantings can be small or large in scale, and could include volunteer work, the purchasing and planting of trees through the Shade Tree Fund or planting of groves of trees near waterways or important habitat through grants. To successfully host community tree plantings, Randolph Township should complete the following steps:

1. Identify an appropriate portion of the Township's Tree Bank to dedicate to the purchase of trees to be used in community tree plantings.
2. Place information about community tree plantings on the Randolph Township website and social media platforms. This information should be consistently available, thereby allowing volunteer groups to search projects such as Community Tree Plantings and coordinate with the Township Staff.
3. Commit to a Township Arbor Day Celebration that includes the ceremonial tree planting of a large tree at a municipal and/or school facility each year.



How Does This Project Align with the Requirements of the Municipal Tier-A Stormwater Permit?

Under Randolph Township's Municipal Tier-A Stormwater Permit and the NJDEP's Municipal Stormwater Regulation Program, Tier A Municipalities "shall implement a Public Education and Outreach Program that focuses on educational and pollution prevention activities about the impacts of stormwater discharges on surface water and groundwater, and to involve the public in reducing pollutants in stormwater runoff and mitigating flow". As a Tier A Municipal Permittee, Randolph Township is required to conduct activities that total at least 12 points annually from at least three of the approved five categories. Projects completed by the Township or by volunteers count towards the satisfaction of this requirement. Below are the eligible activities from the Municipal Tier-A Stormwater Permit that correspond to this project in the RTEG (Project 7A.3) with a description of the tasks and the point values assigned.

Category 3: School/Youth Education and Activities		
Activity	Description	Points
AmeriCorps Event	Coordinate an event (i.e., tree planting) through AmeriCorps New Jersey Watershed Ambassador Program.	4
Category 5: Community Involvement Activities		
Community Event	Organize or participate in the organization of a community event to carry out stormwater activities (i.e., tree plantings). The municipality may identify and enter into an agreement with a local group such as a watershed organization, school, youth/faith-based group, scouts, non-profit entity, etc.	3

Approvals Needed

Tree plantings on privately owned properties must be done with permission of the property owner.

Expenditures from the Township's Tree Bank must be approved by the Township Council.

Funding Resources Available

Funding should be expended from the existing Tree Bank Fund, which is specifically designed to plant trees, provide maintenance, pay professionals, and provide continuing education for employees who handle tree care. This funding is dedicated from development projects, and therefore should be used to plant trees where appropriate.

Resources

The following are links to existing resources that can be used to implement this project:

- *Reforestation, Tree Plantings, and Maintenance Guidelines*. New Jersey Urban and Community Forestry Program.
<https://www.nj.gov/dep/parksandforests/forest/docs/2021-NJUCF-Stewardship-Grant-Tree-Planting-and-Maintenance-Plan-Guidelines.pdf>
- *Randolph Township's Services: Plants for Your Yard*. Township of Randolph.
<https://www.randolphnj.org/services/plants>

Project 7B: Develop Wildlife and Pollinator Habitat

Project 7B.1: Establish Native Grass Areas/Rain Gardens

Purpose

Native grass areas and pollinator plants are a necessity for many bird and insect species. Not only do these areas provide food sources, but they also provide rest areas, shelter, and reproduction areas. Without these habitat areas, reliant species would become threatened and endangered, and plants and crops would not be pollinated as needed.

In addition to the needs of plants and animals, native grass areas and rain gardens with pollinator plants are aesthetically pleasing and require less maintenance than traditionally landscaped areas. Native grasslands attract a variety of birds, making this an opportunity for birding and hiking among residents and visitors.

As referenced in Project 11B.2 in this Action Plan, rain gardens are one strategy in a suite of green infrastructure. Including pollinator plants in rain gardens is a technique that allows for simultaneous environmental services of stormwater management and the provision of pollinator habitat.

Implementation Strategy

Establishing native grasslands areas require the following steps:

1. *Identify an Appropriate Site:* Randolph Township should identify areas of existing parks and open spaces where native grasses would thrive, have access to the resources they need to function properly, and be visible to the public. Entire parks and open spaces do not have to be converted to native grasslands – portions of sites are appropriate, especially as a starting point.
2. *Decide Upon the Native Grasses for Planting:* The Township should determine which native grasslands species to plant at which locations. Warm season and cool season native grasses are available; however, their needs and planting schedule vary greatly. Assistance should be sought from the Master Gardeners and the New Jersey Audubon Society.
3. *Plant Native Grasses:* Following the appropriate native grasses planting schedule, Randolph Township should work closely with the Master Gardeners of Morris County, New Jersey Audubon Society, the Environmental and Landmarks Committee, and volunteers to plant native grasses in the designated areas at the correct times. The Township should advertise this project to the community for an understanding of the environmental benefits of native grasses.
4. *Establish a Maintenance Schedule:* Native grasses must be mowed using specific equipment and on specific schedule. Mowing is typically only required twice a year at the most and should be left at least 6" high. Early in the process, a watering schedule must be adhered to so that the native grasses take root. Encroachment of invasive species is a serious concern for any municipality which may require the use of herbicide treatment, additional mowing, hand-cutting, managed burning, and reseeding.

5. *Install Informative Signage:* The Township should be sure to install signage that explains what the native grasses are, how they improve the environment and increase habitat, and any restrictions put in place for the public. This information should be included on the Township's website as well.

Including pollinator plants in rain gardens is a simple strategy that is easily incorporated into existing or proposed rain gardens. By using a plant list that details pollinator plants that also retain water, rain gardens can achieve both purposes. DPW Staff must be provided with this plant list for future rain gardens and landscaping projects on municipal grounds.



How Does This Project Align with the Requirements of the Municipal Tier-A Stormwater Permit?

Under Randolph Township's Municipal Tier-A Stormwater Permit and the NJDEP's Municipal Stormwater Regulation Program, Tier A Municipalities "shall implement a Public Education and Outreach Program that focuses on educational and pollution prevention activities about the impacts of stormwater discharges on surface water and groundwater, and to involve the public in reducing pollutants in stormwater runoff and mitigating flow". As a Tier A Municipal Permittee, Randolph Township is required to conduct activities that total at least 12 points annually from at least three of the approved five categories. Projects completed by the Township or by volunteers count towards the satisfaction of this requirement. Below are the eligible activities from the Municipal Tier-A Stormwater Permit that correspond to this project in the RTEG (Project 7B.1) with a description of the tasks and the point values assigned.

Category 1: General Public Outreach		
Activity	Description	Points
Green Infrastructure Signage	Post signs at municipally owned green infrastructure sites that describe the function and importance of the green infrastructure, contact phone number, municipal identification number, and/or website for more information. New signs receive 0.5 points per sign. Existing signs that are maintained and/or upgraded receive 0.25 points per sign.	5
Category 5: Community Involvement Activities		
Rain Garden Workshop	Organize or participate in a rain garden training or installation workshop. Partnerships with watershed groups, non-profit entities, scouts, youth/faith-based groups, etc. are encouraged.	3

Approvals Needed

The Township Council would need to approve the use of municipal open space and parks for native grasslands.

Funding and Funding Resources

The main expense with both projects is the purchase of plant materials. Native grasses are purchased as seeds, which should be a relatively low cost to the Township. Plants for rain gardens are typically purchased as larger plants, which will incur a higher cost. Randolph can include these costs as part of the landscaping and open space maintenance budgets.

Existing Staff can perform the maintenance as they would on municipal parks and open space, with modifications made to the schedule. Native grasslands do require mowing to be performed with a specialized mowing equipment, which could require a significant investment. The Township should investigate opportunities to rent or share this equipment with a neighboring municipality.

Sustainable Jersey offers small grants to participating municipalities for projects that further the Actions identified under their Certification Program. If Randolph Township chooses to work towards Certification through the Sustainable Jersey Program, it can apply for grant funding in the amount of \$2,000.00 to fund native grasslands in Randolph Township. This funding could include a widespread public education component, as well as more visible signage and a demonstration area at a Township-owned property. More information on grant funding through Sustainable Jersey can be found at:

<https://www.sustainablejersey.com/grants/>

Resources

The following are links to existing resources that can be used to implement this project:

- *Connecting Habitats Across New Jersey*. New Jersey Department of Environmental Protection.
<https://dep.nj.gov/njfw/conservation/connecting-habitat-across-new-jersey-chani/>
- *New Jersey Audubon Society*.
<https://njaudubon.org/>



Figure 31: Easter Tiger Swallowtail on Native Flower
Source: [Rutgers Gardens](#)

Project 7B.2: Increase Wildlife Habitat via Wildlife Shelters

Purpose

Randolph Township has many existing parks and open spaces where wildlife shelters could be incorporated. The Township also has important relationships with Boy Scouts and Girl Scout Troops, non-profit entities, and volunteer clubs who can assist with the design, construction, and implementation. Appropriate signage, advertising, and programming can bring these wildlife shelters into the forefront of educational experiences and appreciation of the natural environment.

Implementation Strategy

To effectively implement this strategy, a significant number of wildlife shelters will need to be designed, constructed, and installed over time. Attracting and providing shelter for numerous animals/birds/insects of numerous species will be key in conserving the existing species, while enhancing the populations. Randolph Township should begin by completing the following steps:

1. *Identify appropriate areas of vacant and/or natural lands, existing parks and open space, and publicly suitable and visible spaces for wildlife shelters* – Wildlife shelters require access to food, water, trees, grasses, and protection from predators. By identifying suitable lands that also have visibility, Randolph Township can prioritize areas where wildlife shelters should be installed that provide this important ecological service while allowing for public education and engagement. This task can be completed by the Environmental and Landmarks Committee through review of mapping that depicts preserved open spaces, parks, Township-owned lands, and vacant/natural parcels throughout Randolph Township. This exercise should yield a comprehensive list that can be referenced when opportunities for wildlife shelters arise.
2. *Discuss the feasibility of a residential program that encourages the design, construction, and installation of wildlife shelters* – Residential property owners can contribute to this effort in a very significant way by installing wildlife shelters. A network of these wildlife shelters can be developed in an expedited and more cost-effective method by utilizing a combination of land types and uses. Because wildlife shelters do require monitoring and occasional maintenance, residential properties make a great addition to this initiative. Randolph Township can achieve this step through 2 different programs:
 - a. Promote the Certified Wildlife Habitats Program through the National Wildlife Federation – this Program provides an online certification that allows property owners to enter information about wildlife conservation practices being implemented onsite. If approved, that property becomes a Certified Wildlife Habitat. The \$20.00 application fee goes directly to further the mission of the National Wildlife Federation. Randolph Township could promote this program by adding a link to its website and posting flyers in the municipal building and park kiosks. The program could be promoted in the Township's newsletter and through conversation with schools, Girl Scout and Boy Scout Troops, and non-profit entities. Randolph Township may want to investigate the feasibility of reimbursing the initial application fee to property owners who become successfully certified and display the signage from the National Wildlife Federation.

- b. Develop a municipal Wildlife Habitat Program – modeled after the National Wildlife Federation's program, Randolph Township could develop its own program that encourages the installation of wildlife shelters, while providing resources and assistance to interested property owners. These resources and assistance could include standard design plans for bat boxes and bird houses, design plans and planting lists for pollinator gardens amenities, contact information for Boy Scouts and Girls Scouts looking to complete these types of projects, and templates to submit observations and/or measurements during required monitoring periods. The Environmental and Landmarks Committee and Planning Board could potentially map all participating properties, and use that information provided by participants to measure increases of habitat and changes to the populations.
3. *Design, construct and install wildlife shelters annually on Township-owned lands* – Randolph can set aside funding each year to design, construct and install wildlife shelters on Township-owned lands and install signage that identifies what the shelter is and why it is important. Photographs and mapping of locations can be added to the Township's website, as well as existing trails and open spaces maps and kiosks. This project demonstrates the Township's commitment to the community and provides an influx of wildlife shelters to the network over time.
4. *Design Bluebird Trail* – one of Randolph's many trails can easily become a bluebird trail by installing additional bluebird boxes and signage. As some bluebird boxes already exist, the addition of these types of wildlife shelters will substantially increase the population, allowing this trail to become a destination for birding and environmental education. These wildlife shelters should be identified on trails mapping and the Township website, specifically explaining the importance of this network and how the conservation of the bluebird population is a priority. Partnership with New Jersey Audubon Society may be useful in understanding how many bluebird boxes should be installed and at what intervals. The New Jersey Audubon Society also has templates for signage, as well as other interesting advertising and educational materials.

Approvals Needed

Approvals are needed from the Township Council to expend funds, which would be required for the installation of wildlife shelters on Township-owned properties, and to reimburse landowners for the initial application fee for the National Wildlife Federation's Certified Wildlife Habitat Program (if this project is selected).

Property owners who wish to become Certified Wildlife Habitats must submit a certification application online (<https://www.nwf.org/CertifiedWildlifeHabitat/>), which must be approved by the National Wildlife Federation.

Wildlife shelters installed on any property other than those owned by the Township require approval by that property owner.

Funding Resources Available

Funding would be required for wildlife shelters designed, constructed, and installed by the Township on Township-owned lands. These funds should be entered into the Annual Budget, and should account for

building supplies, cost of labor for the Department of Public Works, and the purchase of updated plans (if necessary).

Boy Scout Troops and Girl Scouts Troops typically have some funding for projects undertaken by their Scouts and require the Scout to raise funds to complete higher-level projects such as Silver Award (Girl Scouts) or Eagle (Boy Scouts). Municipalities often donate materials and assistance from the Department of Public Works, which can be considered by Randolph Township.

Sustainable Jersey offers small grants to participating municipalities for projects that further the Actions identified under their Certification Program. If Randolph Township chooses to work towards Certification under the Sustainable Jersey Program, it can apply for grant funding in the amount of \$10,000.00 or \$20,000.00 to fund a network-approach for wildlife shelters. Other grant funding and technical assistance may also become available from Sustainable Jersey over time. More information on grant funding through Sustainable Jersey can be found at: <https://www.sustainablejersey.com/grants/>

Grant funding may also become available through the New Jersey Department of Environmental Protection's Division of Fish and Wildlife's Wildlife Habitat Incentives Program (WHIP). Project costs can be reimbursed up to 75% for eligible projects, with free technical assistance provided by the Natural Resources Conservation Service. More information on this grant funding can be found at: <https://www.nj.gov/dep/fgw/whipart03.htm>

Resources

The following are links to existing resources that can be used to implement this project:

- *Backyard Wildlife Habitats in New Jersey*. Conserve Wildlife New Jersey.
<http://www.conservewildlifenj.org/protecting/backyard/>
- *Birding*. New Jersey Audubon Society.
<https://njudubon.org/gobirding/>
- *Build a Bat House*. National Wildlife Federation.
<https://www.nwf.org/garden-for-wildlife/cover/build-a-bat-house>
- *Building a Bat House*. United States Department of Agriculture's Forest Service.
https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5292123.pdf
- *Certified Wildlife Habitat Program*. National Wildlife Federation.
https://www.nwf.org/CertifiedWildlifeHabitat?campaignid=WH22VSY&utm_source=gfwhomepage&utm_medium=webpage&utm_campaign=default&utm_content=default_gfw_homepagesquare_FY22
- *Connecting Habitat Across New Jersey (CHANJ)*. New Jersey Department of Environmental Protection.
<https://dep.nj.gov/njfw/conservation/connecting-habitat-across-new-jersey-chanj/>

- *Create a Wildlife Habitat*. Jersey Friendly Yards.
<https://www.jerseyyards.org/create-a-jersey-friendly-yard/8-steps/step-7-create-wildlife-habitat/>
- *Ecosystem Management Report*. New Jersey Highlands Council. 2008.
https://www.nj.gov/njhighlands/master/tr_ecosystem_management.pdf
- *How to Build a Barn Owl Nest Box*. Indiana Department of Natural Resources.
https://www.in.gov/dnr/fish-and-wildlife/files/fw-barn_owl_nest_box_building_guide.pdf
- *Regional Master Plan*. New Jersey Highlands Council. July 17, 2008.
https://www.nj.gov/njhighlands/master/rmp/final/highlands_rmp_112008.pdf

Project 7B.3: Identify Areas of Threatened and Endangered Species Through Mapping Analyses, and Develop a Plan of Recommendations for Conservation and Protection

Purpose

Preserving habitat for threatened and endangered species should be considered as part of the open space preservation process. In many instances, wooded areas, properties with ponds or water bodies, and areas with little development are home to many unique, rare, threatened, or endangered species that rely on that specific habitat for survival. Through the exercise of mapping the known presence and habitat of these species, informed decisions can be made when preserving land, or developing parkland. This information can also be used by the municipality's Environmental and Landmarks Committee, Planning Board, and Zoning Board of Adjustment when reviewing applications for development.

Implementation Strategy

Randolph Township can complete this task through its regular update its other Plans. This analysis directly supports the targeting of land prioritized for open space preservation and will incorporate the use of the most recent data from the Landscape Project, Green Acres, and NJDEP's Connecting Habitats Across New Jersey (CHANJ) Project. The Township can also complete this project independent of the update to the Open Space and Recreation Plan, as the data mined and mapping created would be of immediate value to the Environmental and Landmarks Committee, the Planning Board, and the Zoning Board of Adjustment. The following steps must be taken to complete this project:

1. Download the most recent shapefiles and attribute data from Landscape Project or the CHANJ Project for use with the Township's GIS Platform.
2. Overlay this shapefile onto a map of preserved open space and targeted open space properties and/or greenways in Randolph Township.
3. Overlaps can be clipped and analyzed:
 - a. Where a significant presence of threatened and endangered species is found on targeted preserved open spaces, these areas can be prioritized for preservation.
 - b. Where a significant presence of threatened and endangered species is found on existing preserved open spaces, these areas can be prioritized for additional protections (buffers, fencing, etc.) and clearly delineated so that park or trail development does not interfere with the habitat.
4. The Township can also overlay the Threatened and Endangered Species shapefile with the remaining lands that are prone to development (based on zoning). These clearly delineated areas can be provided to Planning Staff, and shared with the Environmental and Landmarks Committee, Planning Board, and Zoning Board of Adjustment for use in land development review.

Approvals Needed

If the mapping and data are to be used for land development review, the Planning Board and Zoning Board of Adjustment may wish to add this element to the Land Development Checklist and/or application documents. These amendments would need to be approved by the Planning Board and Zoning Board of Adjustment.

Funding Resources Available

Current municipal Staff can perform this exercise as part of the update to the Open Space and Recreation Plan, or independently for more immediate use. No additional funding is needed to complete this task.

Sustainable Jersey offers small grants to participating municipalities for projects that further the Actions identified under their Certification Program. If Randolph Township chooses to work towards Certification under the Sustainable Jersey Program, it can apply for grant funding in the amount of \$2,000.00 to \$20,000.00 to fund this mapping analyses and subsequent uses. Other grant funding and technical assistance may also become available from Sustainable Jersey over time. More information on grant funding through Sustainable Jersey can be found at: <https://www.sustainablejersey.com/grants/>

Resources

The following are links to existing resources that can be used to implement this project:

- *Bird Migration Explorer*. New Jersey Audubon Society.
<https://explorer.audubon.org/home?threatOverlay=expand&zoom=3&x=1306099.1620122588&y=2810864.562197212&legend=collapse>
- *Connecting Habitats Across New Jersey*. New Jersey Department of Environmental Protection.
<https://dep.nj.gov/njfw/conservation/connecting-habitat-across-new-jersey-chani/>
- *Ecosystem Management Report*. New Jersey Highlands Council. 2008.
https://www.nj.gov/njhighlands/master/tr_ecosystem_management.pdf
- *Endangered and Non-game Species Program*. New Jersey Department of Environmental Protection.
<https://dep.nj.gov/njfw/wildlife/endangered-and-threatened-species/>
- *Interactive Mapping System and GIS Data*. New Jersey Highlands Council.
https://www.nj.gov/njhighlands/gis/interactive_map/index.html
- *New Jersey's Landscape Project*. New Jersey Department of Environmental Protection.
<https://dep.nj.gov/njfw/conservation/new-jerseys-landscape-project/>
- *Open GIS Data*. New Jersey Highlands Council.
<https://highlands-data-njhighlands.opendata.arcgis.com/>
- *Regional Master Plan*. New Jersey Highlands Council. July 17, 2008.
https://www.nj.gov/njhighlands/master/rmp/final/highlands_rmp_112008.pdf

Project 7B.4: Become a Bee City USA

Purpose

Bee City USA began in North Carolina in 2012 with the goal of engaging as many communities as possible for the cause of pollinator conservation. Since its inception, the Program has grown substantially, including Bee Campus USA specifically designed for universities and college campuses.

The Program provides a framework for participants to develop and conserve habitat for pollinators, especially bees, while providing public education about the importance of bees and pollinators to our environment. One staggering fact is that the value of pollination across the United States has been estimated between \$18 and \$27 billion dollars annually!

Bee City USA designees are listed on the Program's website, have access to Pollinator Conservation Experts and resources for public education, development of habitat, custom logos and artwork, and access to training opportunities. The Commitments implemented by the municipality have a direct impact on the local and regional environment and ecology by increasing bee habitat and populations, improving local food production, and improving soil and water quality due to the reduction in the use of pesticides.

Implementation Strategy

Once ready, Randolph Township can apply to Bee City USA for certification. The following steps must be taken to complete the application:

1. *Form a Committee* – A Committee of volunteers and Staff with knowledge and interest in pollinators should be formed to oversee the application process and ensure that the documented projects move forward. A resolution must be adopted by the Township Council
2. *Designate a Local Government Department as a Sponsor* – This Sponsor may not serve on the Committee but will facilitate communication between the Committee and Government Staff.
3. *Complete the Application*
4. *Complete the Resolution* – Bee City USA provides a fillable template for completion by the Township. The Resolution identifies the “Commitments” required by the municipality, including:
 - a. Establishing a Standing Committee
 - b. Creating and/or Enhancing Pollinator Habitat on Public Land by Increasing the Abundance of Native Plants and Providing Nest Sites.
 - c. Reduce the Use of Pesticides
 - d. Increase Pollinator Conscious Practices into City Policies and Plans
 - e. Host Pollinator Awareness Events

- f. Publicly Acknowledge Bee City USA Affiliations with Signs and an Online Presence
 - g. Pay an Initial Application Fee and Annual Renewal Fee
 - h. Annually Apply for Renewal with Bee City USA
5. *Submit the Application, Fee, and Signed Resolution to Bee City USA for Review and Approval –*
The fee varies based on population size, ranging from \$100.00 to \$500.00 maximum.

Approvals Needed

Submittal of the application and associated fee for designation will be required from the Township Council.

Funding Resources Available

The application fee of \$300.00 will be required for Randolph Township to apply. An annual application fee will be required to maintain designation.

Commitments as outlined above are required to be designated a Bee City USA. These initiatives will have associated costs in terms of plantings, hosting pollinator events, and developing adequate signage. Once these projects are decided upon, the Township will need to decide what actions can be completed by existing Staff and/or equipment, and what new purchases will be required.

Sustainable Jersey offers small grants to participating municipalities for projects that further the Actions identified under their Certification Program. If Randolph Township chooses to work towards Certification under the Sustainable Jersey Program, it can apply for grant funding the amount of \$10,000.00 or \$20,000.00 to fund initiatives to become a designated Bee City USA. Other grant funding and technical assistance may also become available from Sustainable Jersey over time. More information on grant funding through Sustainable Jersey can be found at: <https://www.sustainablejersey.com/grants/>

Additional funding may become available through in-kind services of groups like the Boy Scouts, Girl Scouts, and Master Gardeners. These organizations typically have small budgets to assist participants in satisfying criteria for completion of their goals.

Resources

The following are links to existing resources that can be used to implement this project:

- *Bee City USA:*
 - <https://beecityusa.org/about/> (About)
 - <https://beecityusa.org/apply-to-bee-city-usa/> (Apply)
 - <https://beecityusa.org/bee-city-usa-commitments/> (Commitments)
 - <https://beecityusa.org/webinars-and-videos/> (Recorded Webinars and Presentations)



Project 7B.5: Join Mayor's Monarch Pledge

Purpose

Randolph Township can demonstrate its commitment to the conservation, restoration, and enhancement of Monarch Butterfly habitat, and habitat for other pollinator species, by joining the Mayors Monarch Pledge. The program is easy, online, and user-friendly, and helps prioritize actions that realize this goal. Additionally, the Mayors Monarch Pledge works hand-in-hand with other certifications programs, such as the National Wildlife Federation's Certified Wildlife Habitats and Sustainable Jersey.

Implementation Strategy

The Mayor's Monarch Pledge is an existing, online certification program that outlines specific steps for approval. Once approved, the community is added to the list of participants, and annual reporting is required. To join the Pledge, the following steps must be completed:

1. *Take the Pledge* – Between December 1st and March 31st annually, Randolph Township Staff can create an account and register the community (<https://www.nwf.org/mayorsmonarchportal>). This will first involve getting approval from the Township Council, specifically the Mayor, and entering the required contact information and community details.

The Mayor and Randolph Township Council must then pass the Pledge as a Proclamation at a Council meeting. The Pledge serves as a public acknowledgement of the serious decline in the Monarch Butterfly population and its repercussions to our environment and ecosystems. The Pledge also outlines specific actions that Randolph Township will work towards to conserve, restore, and enhance the necessary habitat.

2. *Identify Action Items* – The Pledge identifies 30 action items in three main categories that can be taken to conserve, restore, and/or enhance habitat for the Monarch Butterfly and other pollinator species. Communities must commit to and implement at least three action items within one year of taking the Pledge (one of the completed action items must be taken from the “Programs and Demonstration Gardens” category). Communities that complete eight actions or more will be recognized as part of the “Mayors Monarch Pledge Leadership Circle”, and those completing 24 actions or more will be recognized as a “Monarch Champion”.

<https://www.nwf.org/MayorsMonarchPledge/About/Pledge-Action-Items>

There appears to be at least nine Actions that the Township is already implementing or could easily implement with little cost or significant increases in labor or workload. The completion of the following nine Actions would add Randolph Township to the “Mayors Monarch Pledge Leadership Circle”. The following Actions are recommended for Randolph Township:

- a. Issue a Proclamation to raise awareness about the decline of the Monarch Butterfly population, and the species need for habitat – This action serves as the starting point and foundation for the Program. A sample Pledge is available, making this Action simple to complete. It also provides a framework and prioritizes the initiative into the Township's everyday work.

- b. Engage with Parks and Recreation, Department of Public Works, and other relevant staff to identify opportunities to revise and maintain mowing programs and milkweed/native nectar planting programs – Changes to mowing schedules and using milkweed and native nectar plants in landscaping, rain gardens, and on appropriate Township lands will allow the Monarch Butterfly to lay eggs at the appropriate times, while having access to a very limited food source.
- c. Engage with gardening leaders and partners to conserve, restore, and enhance habitat for the Monarch Butterfly – The Master Gardeners through the Rutgers Cooperative Extension, New Jersey Audubon Society, and the Northeast Organic Farming Association are initial points of contact that Randolph can work with to achieve this Action.
- d. Host or support a native seed or plant sale, giveaway, or swap** – This Action can be undertaken by the Environmental and Landmarks Committee and can be a great way to engage the community.
- e. Plant or maintain a Monarch Butterfly or pollinator friendly demonstration garden at the Municipal Complex or another prominent community location** – Randolph Township can create a new rain garden to treat stormwater runoff at the Municipal Complex, using pollinator plants that also retain a significant water volume. Signage and photographs will promote the importance of the Monarch Butterfly to the community.
- f. Add or maintain native milkweed and nectar producing plants in community gardens**
- g. Integrate Monarch Butterfly conservation into the Township's Master Plan, Sustainability Plan, Climate Resiliency Plan, or other relevant planning documents – The inclusion of the Monarch Butterfly Pledge into this Plan and the Township's commitment to the Pledge satisfies this Action and will continue to do so for annual reporting purposes.
- h. Remove milkweed from the list of noxious plants and/or weeds from the Township's Ordinance
- i. Adopt Ordinances that support reducing light pollution – Light pollution alters the movement of the Monarch Butterfly, creating barriers to reproduction and safe passage. Ordinances that reduce light pollution will provide protection for the Monarch Butterfly, as well as bats, Lightning Bugs, and other insects.

****** - Action taken from the "Programs and Demonstration Gardens" category (at least one Action required)

Approvals Needed

Approval from the Mayor and Township Council are required to join the Mayors Monarch Pledge and pass the Proclamation at a Township Council Meeting.

To implement some of the Actions listed above, coordination between the Environmental and Landmarks Committee, Planning Department, and Department of Public Works will be crucial to implementation, as well as future decision-making.

Amendments to Ordinances, or the adoption of new Ordinances, will require approval by the Randolph Township Planning Board and the Governing Body. Once approved, all municipal Ordinances must be filed with the Office of the Morris County Planning Board.

Funding Resources Available

Many of these Action items do not require additional funding, but instead a change to the options for purchased items. For example, plants for landscaping at Township facilities still need to be purchased, however milkweed and native nectar plants may be able to be substituted to meet the criteria of the Pledge. Amendments and/or drafting of new Ordinances will still need to be undertaken by the Planning Board and Governing Body, using existing Staff resources.

To create, conserve, restore, or enhance Monarch Butterfly or pollinator-friendly habitat, funding may become available through the New Jersey Audubon Society or other similar resources. Technical assistance will most likely be available through the Master Gardeners or the Rutgers Cooperative Extension of Morris County.

Sustainable Jersey offers small grants to participating municipalities for projects that further the Actions identified under their Certification Program. If Randolph Township chooses work towards Certification under the Sustainable Jersey Program and complete the Mayors Monarch Pledge, it can apply for grant funding in the amount of \$10,000.00 or \$20,000.00 to fund numerous Actions that achieve the tenants of the Pledge. Other grant funding and technical assistance may also become available from Sustainable Jersey over time. More information on grant funding through Sustainable Jersey can be found at:

<https://www.sustainablejersey.com/grants/>

Resources

The following are links to existing resources that can be used to implement this project:

- *Interactive Mapping System and GIS Data*. New Jersey Highlands Council.
https://www.nj.gov/njhighlands/gis/interactive_map/index.html
- *Master Gardeners*. Rutgers Cooperative Extension.
<https://morris.njaes.rutgers.edu/master-gardeners/>
- *Mayors Monarch Pledge*. National Wildlife Federation.
<https://www.nwf.org/MayorsMonarchPledge>
- *Monarch Watch*.
<https://monarchwatch.org/>
- *Northeast Organic Farming Association*.
<https://nofanji.org/>



CHAPTER 8: OPEN SPACE

Preserved open space provides numerous environmental, health, and sustainability services, while simultaneously offering opportunities for active and passive recreation. Preserved open space simply makes communities more livable and aesthetically pleasing. Additional benefits include:

- Reduction of the Heat Island Effect
- Trees and green spaces improve air quality and mitigate stormwater runoff.
- Preserved lands often act as buffers between land uses, transportation, and water resources reduces pollutant loading.
- Trails on preserved open space serve as links for multimodal transportation opportunities.
- Preserved open space and trails offer free options for fitness and have been proven to reduce stress.



Figure 18: Brundage Park

Photo Credit: NJRailWalker (<https://www.traillink.com/trail-gallery/ramdolph-trails/>)

In the early 1960s, the Township began to experience a steep incline in population, leading to increased development and the loss of natural lands. In 1992, Randolph Township established an open space tax via voter referendum to provide a source of dedicated funding to preserve open space in the light of the increasing development trends. Since that point, over 1,400 acres of land have been preserved as open space, at a cost of just over 20 million dollars. The *Open Space and Recreation Plan* was updated in 2016, and a year later, the *Trails Master Plan* was revamped. These

actions demonstrate Randolph's commitment to the preservation of open space and the development of a comprehensive, accessible trails network.

The Randolph Township Parks, Recreation and Community Services Department is responsible for maintenance and programming at the Township's four large parks, three neighborhood parks, and three mini-parks, in addition to over 1,400 acres of open space. Staff is guided by the municipal Parks Advisory Committee and a Recreation Advisory Committee. The Environmental and Landmarks Committee can be a critical partner to these entities in providing recommendations for maximizing the environmental benefits of land preservation.

Existing parks and open spaces can be supplemented in two ways:

- Increasing the preserved open space inventory through the identification and prioritization of targeted open space properties (see Project 8B).
- Exploring and implementing alternative but compatible uses on open space and/or park properties, such as green infrastructure designs, demonstration projects, planting of native grasslands and pollinator plants, trails with variable surfaces, and other strategies. This multiuse approach allows visitors to enjoy one space in many different ways, making those areas more attractive and efficient (see Project 8A).

As with most sustainability programs, education and outreach is a critical action for success. Hosting events at parks and open spaces such as National Trails Day, nature walks, stream cleanups, organized sports leagues, fitness opportunities, and municipal meetings will increase the number of visitors to these areas and impart knowledge about citizen science, environmental features, sustainable practices, and alternative transportation methods. Randolph Township already hosts many of these activities and events and it appears that this intention remains for the near and long term.



Figure 19: *The Power of Parks*
National Recreation and Parks Association

As part of the RTEG, the Township has developed the following projects related to open space preservation:

Project 8A: Review Current Inventory of Open Space and Identify Alternative Uses

Purpose

The protection of open space is the first step toward retaining important lands to protect water quality, air quality, scenic vistas, and wildlife habitat. Preserved open spaces can support multiple uses that provide different environmental services and recreation opportunities. In some cases, management methods can be put into place to enhance these uses - habitat can be developed on open space, stream buffers can be planted, wildlife shelters can be installed, trails can be built, and more.

Implementation Strategy

To implement this project, Randolph Township should consider the following tasks:

1. *Review Existing Open Space Inventory*: Planning Staff and the Environmental and Landmarks Committee should review the existing inventory of preserved open space, and update, if necessary, with newly preserved properties. This review will most likely spawn a review of targeted open space properties to enhance greenbelts and protect habitat.
2. *Brainstorm Alternative Uses*: The Environmental and Landmarks Committee should brainstorm the types of alternative uses to be deployed such as native grass plantings, green infrastructure, habitat conservation, trails, and more. This exercise will allow the Township to understand the uses it is seeking so that the appropriate sites can be chosen.
3. *Study Maps of Sites for Alternative Uses*: The Environmental and Landmarks Committee and Planning Staff should examine maps of targeted open spaces for alternative uses. These maps should have data about threatened and endangered species habitat, wetlands, waterbodies, trails, flood areas, and other relevant data needed to make these decisions. Coordination with local watershed groups, land conservation organizations, and public agencies dedicated to protecting conservation values will be very helpful for Randolph to implement this project.

Approvals Needed

Because this project is exploratory in nature, no additional approvals are anticipated for completion.

Funding Resources Available

Updating and maintaining an open space inventory is part of the normal workload for Planning and relevant Staff. No additional or new funding is needed to implement this project.

The New Jersey Highlands Council offers grants for planning, engineering, and design for projects that maximize the environmental and economic benefits of living in the Highlands region of New Jersey. These grants can be used to commission studies that conserve natural resources, reduce pollution and greenhouse gas emissions, promote sustainable land management practices, and more. Planning grants from the New Jersey Highlands Council are non-competitive and do not require a financial match from the municipality or county. No minimum or maximum award thresholds are established, and the application is on a rolling basis, making these grants very flexible and desirable for Highlands communities.

More information can be found at:

https://www.nj.gov/njhighlands/grantprograms/plan_conformance/grants_overview.pdf

Resources

The following resources are available for the implementation of this project:

- *Building Community Through Parks: A Master Plan for Parks and Recreation*. Township of Randolph in consultation with Brandstetter Carroll, Inc. 2016
<https://www.randolphnj.org/369/Master-Plan>
- *Conservation Element*. Randolph Township Master Plan.
<https://www.randolphnj.org/DocumentCenter/View/466/X-Conservation-Element-PDF>
- *Interactive Mapping System and GIS Data*. New Jersey Highlands Council.
https://www.nj.gov/njhighlands/gis/interactive_map/index.html
- *Land Preservation and Stewardship Report*. New Jersey Highlands Council. 2008.
https://www.nj.gov/njhighlands/master/tr_land_pres_and_stewardship.pdf
- *Open Space Acquisitions*. Township of Randolph.
<https://www.randolphnj.org/455/Open-Space-Acquisitions>
- *Open GIS Data*. New Jersey Highlands Council.
<https://highlands-data-njhighlands.opendata.arcgis.com/>
- *Planning Grants*. New Jersey Highlands Council.
https://www.nj.gov/njhighlands/grantprograms/plan_conformance/grants_overview.pdf
- *Parks, Recreation, and Open Space Element*. Randolph Township Master Plan.
<https://www.randolphnj.org/DocumentCenter/View/458/IX-Parks-Recreation-and-Open-Space-Element-PDF>
- *Randolph Township Trails Master Plan*. Township of Randolph. 2017.
<https://www.randolphnj.org/DocumentCenter/View/484/View-the-Trails-Master-Plan-PDF?bidId=>
- *Regional Master Plan*. New Jersey Highlands Council. July 17, 2008.
https://www.nj.gov/njhighlands/master/rmp/final/highlands_rmp_112008.pdf
- *Trails System*. Township of Randolph.
<https://www.randolphnj.org/402/Trail-System>

Project 8B: Identify Targeted Open Space for Preservation

Purpose

Because the permanent protection of open space is a highly effective strategy in ensuring environmental resilience of a community, future opportunities to add to Randolph Township's current inventory of open space should be considered as they become available. Funding is limited when it comes to open space preservation, so identifying priority lands for open space preservation is an important exercise. By developing and maintaining a Targeted Open Space List, the Township can be prepared to act on a project when it becomes available for preservation through estate change, presence of a willing seller, or threat of development.

Implementation Strategy

Identifying targeted open space is a requirement for Green Acres funding and will provide the Township with a strategic approach to open space preservation. To develop a Targeted Farm List, Randolph Township should take the following steps:

1. *Review a Map of Existing Preserved Open Space and Land Use:* This exercise will reveal where open space preservation should be a priority to connect open spaces and trails, create greenbelts, protect sensitive environmental features, conserve habitat, and more. Lands that are identified as potential targeted farms should be noted, along with a reason as to why that land would be a priority for open space preservation.



Figure 35: Randolph Lake

2. *Discuss the List of Proposed Targeted Open Space Properties and Narrow Down:* The Environmental and Landmarks Committee and Planning Board should review the proposed Targeted Open Space Inventory and Mapping to finalize the recommendations. Use of a mapping platform such as the New Jersey Conservation Foundation's Conservation Blueprint or Morris County Parks Commission's MCPC Explorer is recommended to review the proposed Inventory and verify any changes that should be made. This subjective review is important because it may bring to light reasons that a proposed Targeted Open Space Property should be added or removed from the final list.
3. *Prepare a final Targeted Open Space Inventory with Mapping:* This final Inventory will detail property information for each targeted property and should have a corresponding map showing the location of all Targeted Open Space Properties in relation to existing Preserved Open Space and important environmental features.

Appendices 1 and 2 are the Land Uses Map and Preserved Open Space Map, respectively.

Approvals Needed

If Randolph Township plans to apply to NJDEP's Green Acres Program for funding, this Targeted Open Space List and mapping would be required for approval as part of the complete application. Additionally, this information will be required for an update of the municipal *Open Space and Recreation Plan*.

Funding Resources Available

The NJDEP Green Acres Program offers grant funding and loans to eligible municipalities and nonprofit organizations for the acquisition of public open space. Municipalities that have enacted an open space tax and have a current Open Space and Recreation Plan are eligible for Planning Incentive Grant funding, which covers a substantial share of the acquisition costs and related fees. Low-interest loans and grants are also available for the development of parks and outdoor recreation facilities. More information about this grant funding can be found at: <https://dep.nj.gov/greenacres/local-government-and-nonprofit-assistance/>

The New Jersey Highlands Council offers the Highlands Open Space Partnership Grant for the purposes of open space preservation. This funding is available on a rolling basis for open space acquisitions that protect sensitive environmental resources within the Highlands Region. A 50% match is required from the Township at the time of closing. The application can be found at: <https://www.nj.gov/njhighlands/grantprograms/#4>

Morris County's Planning and Preservation Division oversees the Preservation Trust Fund, which provides grant funding to municipalities for open space acquisition projects, trail development, and flood mitigation through green infrastructure and open space planning. Applications are typically due in June of each year. <https://www.morriscountynj.gov/Departments/Planning-and-Preservation/Divisions/Preservation-Trust-Fund>

Morris County's Trail Program also provides grants to municipalities for the construction of trails on preserved, public land. In 2022, nearly \$1.5 million dollars was made available for eligible projects within

Morris County. Applications are typically due in July annually, and can be found at:
<https://www.morriscountynj.gov/Departments/Trail-Construction-Grant-Program>

Resources

The following resources are available for the implementation of this project:

- *Building Community Through Parks: A Master Plan for Parks and Recreation*. Township of Randolph in consultation with Brandstetter Carroll, Inc. 2016
<https://www.randolphnj.org/369/Master-Plan>
- *Conservation Blueprint (mapping platform)*. New Jersey Conservation Foundation.
<https://njmap2.com/>
- *Grant Programs*. New Jersey Highlands Council.
<https://www.nj.gov/njhighlands/grantprograms/>
- *Green Acres Program Regulations (NJAC 7:36)*.
https://dep.nj.gov/wp-content/uploads/greenacres/pdf/njac7_36.pdf
- *Interactive Mapping System and GIS Data*. New Jersey Highlands Council.
https://www.nj.gov/njhighlands/gis/interactive_map/index.html
- *Land Preservation and Stewardship Report*. New Jersey Highlands Council. 2008.
https://www.nj.gov/njhighlands/master/tr_land_pres_and_stewardship.pdf
- *Local and Nonprofit Assistance Program*. NJDEP's Green Acres Program.
<https://dep.nj.gov/greenacres/local-government-and-nonprofit-assistance/>
- *MCPC Explorer (mapping platform)*. Morris County Parks Commission.
<https://data-morrisparks.opendata.arcgis.com/apps/mcpc-explorer/explore>
- *Open Space Acquisitions*. Township of Randolph.
<https://www.randolphnj.org/455/Open-Space-Acquisitions>
- *Open GIS Data*. New Jersey Highlands Council.
<https://highlands-data-njhighlands.opendata.arcgis.com/>
- *Planning Grants*. New Jersey Highlands Council.
https://www.nj.gov/njhighlands/grantprograms/plan_conformance/grants_overview.pdf
- *Planning and Preservation Division*. County of Morris.
<https://www.morriscountynj.gov/Departments/Planning-and-Preservation/Divisions/Preservation-Trust-Fund>

- *Regional Master Plan*. New Jersey Highlands Council. July 17, 2008.
https://www.nj.gov/njhighlands/master/rmp/final/highlands_rmp_112008.pdf
- *Resources/Other Funding*. Morris County's Planning and Preservation Division.
<https://www.morriscountynj.gov/Departments/Open-Space-Preservation/ResourcesOther-Funding>
- *Trail Construction Grant Program*. Morris County's Trail Program.
<https://www.morriscountynj.gov/Departments/Trail-Construction-Grant-Program>

Project 8C: Review the Randolph Township Trails Master Plan for Maximum Environmental Benefits

Purpose

In 2017, Randolph Township updated its *Trails Master Plan* to include a comprehensive review of existing trails, as well as to recommend new trail segments and connections. A continuous, carefully planned trails network not only adds to passive recreation opportunities, but also incorporates multimodal transportation methods, reducing greenhouse gases, and contributes to better health for users. This Plan should be treated as a “living document”, meaning that is reviewed annually to prioritize recommendations for new trails, connectors, and trail maintenance. This annual review will ensure that the existing trails are managed to the best of the Township’s ability, while also extending the trails network and maximizing environmental benefits.

Implementation Strategy

The Randolph Township Trails Committee already sets its priorities for new trails and connecting trail segments on an annual basis. In anticipation of this action each year, the Environmental and Landmarks Committee can review the Trails Master Plan each year and provide its recommendations on which segments might provide the most environmental benefits. Trail segments that have the most potential to reduce vehicle miles, improve air quality, prevent soil erosion, and increase resident use should be prioritized.



Figure 36: Dedication Marker for Randolph Trails

Recommendations from the Environmental and Landmarks Committee should be forwarded to the Trails Committee and Planning Board via a memo each year.

Additionally, an annual joint meeting of the Trails Committee and the Environmental and Landmarks Committee is recommended.

Approvals Needed

No approvals are needed to complete this project.

Funding Resources Available

This project does not require any funding, and will be completed by the standing Trails Committee, Environmental and Landmarks Committee, and Planning Board.

The New Jersey Highlands Council offers grants for planning, engineering, and design for projects that maximize the environmental and economic benefits of living in the Highlands region of New Jersey. These grants can be used to commission studies that conserve natural resources, reduce pollution and greenhouse gas emissions, promote sustainable land management practices, and more. Planning grants from the New Jersey Highlands Council are non-competitive and do not require a financial match from the municipality or county. No minimum or maximum award thresholds are established, and the application is on a rolling basis, making these grants very flexible and desirable for Highlands communities. More information can be found at:

https://www.nj.gov/njhighlands/grantprograms/plan_conformance/grants_overview.pdf

Resources

The following resources are available for the implementation of this project:

- *Benefits of Trails*. Rails to Trails Conservancy.
<https://www.railstotrails.org/experience-trails/benefits-of-trails/>
- *How Trails Benefits the Environment*. American Trails.
<https://www.americantrails.org/resources/how-trails-benefit-the-environment>
- *Interactive Mapping System and GIS Data*. New Jersey Highlands Council.
https://www.nj.gov/njhighlands/gis/interactive_map/index.html
- *Land Preservation and Stewardship Report*. New Jersey Highlands Council. 2008.
https://www.nj.gov/njhighlands/master/tr_land_pres_and_stewardship.pdf
- *Open GIS Data*. New Jersey Highlands Council.
<https://highlands-data-njhighlands.opendata.arcgis.com/>
- *Randolph Township Trails Master Plan*. Township of Randolph in consultation with Greener by Design. 2017.
<https://www.randolphnj.org/DocumentCenter/View/484/View-the-Trails-Master-Plan-PDF?bidId=>

Project 8D: Host National Trails Day Events

Purpose

National Trails Day is organized by the American Hiking Society on the first Saturday of June each year. National Trails Day is “a day of public events aimed at advocacy and trail service” and is held around the country to promote the importance and use of trails. Participants in National Trails Day are encouraged to hike a trail, host an event, commit to trail service, and/or give a pledge to advance trails across the nation.

Implementation Strategy

Randolph Township already holds a National Trails Day event each year. Rather than hosting a formal hike at one designated trail on the first Saturday of June, the Parks and Recreation Department has adopted the approach of developing a “passbook”, which allows residents to log the miles of trail segments hiked over the course of the entire summer. This activity promotes increased usage of the trails and yields a high participation rate. It is anticipated that this event will continue for the near future.

Randolph Township should continue to advertise this activity on its website and social media platforms for the spring and summer seasons. An article should also be published in the Spring edition of the Township’s newsletter, and flyers posted at the municipal building, Library, and in the kiosks at open space and parks. This event should also be registered with the American Hiking Society at:

<https://americanhiking.org/national-trails-day/host-information/>

Approvals Required

As this is an existing activity already organized by Staff of the Parks and Recreation Department, no additional approvals are required.

Funding Resources Available

Depending on the scope of the activities and/or events, the cost of this project can be free to low-cost, or can higher if transportation is needed, people must be hired, or equipment and supplies are required. The Township will determine which types of activities are planned, which will in turn determine the costs.

Registering an activity with the American Hiking Society is free and voluntary. The American Hiking Society also provides stickers, bug repellent wipes, and other promotion materials to registered entities at no cost on a first-come, first-served basis.

Resources

The following are links to existing resources that can be used to implement this project:

- *National Trails Day*. American Hiking Society.
<https://americanhiking.org/national-trails-day/>

- *Randolph Township Trails Master Plan*. Township of Randolph. 2017.
<https://www.randolphnj.org/DocumentCenter/View/484/View-the-Trails-Master-Plan-PDF?bidId=>
- *Trails System*. Township of Randolph.
<https://www.randolphnj.org/402/Trail-System>



Figure 37: Trail Entrance at Heisteins Park
Photo Credit: teresa.rose.5203 – [Trail Link](#)

CHAPTER 9: TRANSPORTATION

Transportation in the United States, and especially in many areas of New Jersey, is often only thought of in terms of cars, trucks, buses, trains, airplanes, and ships. A sustainable transportation network includes safe, continuous, and variable transportation options for pedestrians and bicyclists, and includes strategic planning for walkable communities, sidewalks, trails, bicycle and pedestrian lanes, ridesharing opportunities, and more. These options not only attract new residents and business owners, but also create safer, sustainable, healthier, and more resilient communities.

The conversion of petroleum fueled motor vehicles is a major step in addressing the reduction of greenhouse gas emissions and the dependence on fossil fuels. Legislation, programming, and grant funding has been made available through many Federal and State entities, as well as non-profit organizations like Sustainable Jersey. Municipalities can play a key role in this initiative by inventorying the existing fleet of municipal vehicles and machinery and converting to clean technology where appropriate. Municipalities can also encourage the personal use of electric and/or hybrid vehicles by installing electric vehicle charging stations at municipal facilities and educating the public about the ease of this technology.

Planning for alternate transportation is a critical task for all municipalities. Walkable communities allow residents to walk or bike to destinations, eliminating the use of passenger vehicles for those specific trips. Each time this occurs, that trip reduces greenhouse gas emissions by 100%. Ensuring that residents feel comfortable biking, walking, and using public transportation is imperative to reducing the dependence on passenger vehicles, especially in densely populated areas. Municipalities can create walkable and safe communities by:

- Adopting and Implementing a Complete Streets Policy
- Creating a comprehensive sidewalk network
- Requiring the installation of bicycle and pedestrian lanes on municipal roads (where safe and appropriate)
- Making connections to nature trails on municipal open spaces and parks
- Installing simple bicycle repair stations and bicycle racks
- Providing shelter, shade, and benches along specific pedestrian routes to permit people of all ages and abilities to comfortably move in this way.
- Providing connections between public transportation and residential areas (“the last mile”)



Figure 20: Crosswalk Improvements at the Intersection of Dover Chester Road and Calais Road

How Does Transportation Fit into Sustainability?

The current condition of motorized transportation in the United States contributes negatively to the condition of the environment. Greenhouse gas emissions led to climate change, pose significant dangers to human health through the emission of harmful chemical byproducts, and use an immense amount of petroleum fuel. Transportation as it is currently utilized is not sustainable and detrimental to the environment.

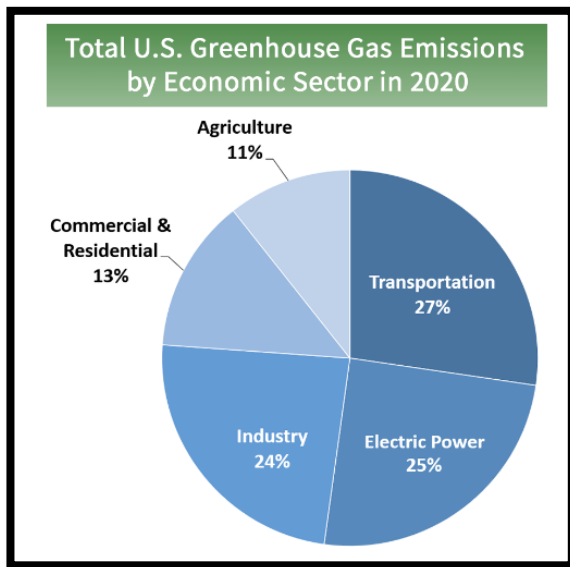


Figure 21: Total Greenhouse Gas Emissions in the United States by Economic Sector (2020)

Source: USEPA

<https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>

The good news is that motorized transportation can become more sustainable and environmentally friendly, and because of new regulations and policy changes, is well on its way. The UESPA, United States Department of Transportation, NJDEP, New Jersey Department of Transportation, and other entities have developed regulations, policies, programming, and grant funding to begin the needed conversion of transportation vehicles to clean energy. As this change occurs, a significant reduction in the release of greenhouse gases and dependence on petroleum fuel will be realized. These outcomes will have a direct positive impact on air quality, human health, and livability factors.

Environmental and Health Impacts

At 27%, the sector contributing the most to greenhouse gas emissions is the transportation sector. Over 90% of the fuel used for transportation vehicles (cars, trucks, trains, airplanes, and ships) is petroleum based, which release pollutants into the atmosphere during combustion. The emissions are a key contributing factor in climate change.

Greenhouse gas emissions directly cause climate change, warming the Earth and creating significant problems for humans, our environment, and ecology:

- Harmful emissions have even more significant health impacts (asthma, respiratory conditions, cardiac conditions, skin conditions, heat stress) on vulnerable populations.
- Increased heat leads to more extreme heat days, which is especially dangerous for the elderly, young children, people working outside, people experiencing homelessness, and those with pre-existing respiratory and/or cardiac conditions.

- Increased ambient temperatures heat up stormwater runoff and water temperatures which increases the growth of algae and Harmful Algal Blooms, all of which create unlivable environments for specific marine life.

What is Randolph Township Doing to Address Transportation as a Safety and Sustainability Issue?

On June 7, 2012, Randolph Township's Council adopted Resolution # 157-12 entitled, "Complete Streets Policy". This Resolution detailed the Township's commitment to create street corridors that facilitate safe mobility for all users. This Policy is the first step in addressing transportation as a safety and sustainability issue. Implementation of the principles of Complete Streets should be planned for all new projects or during appropriate roadwork.

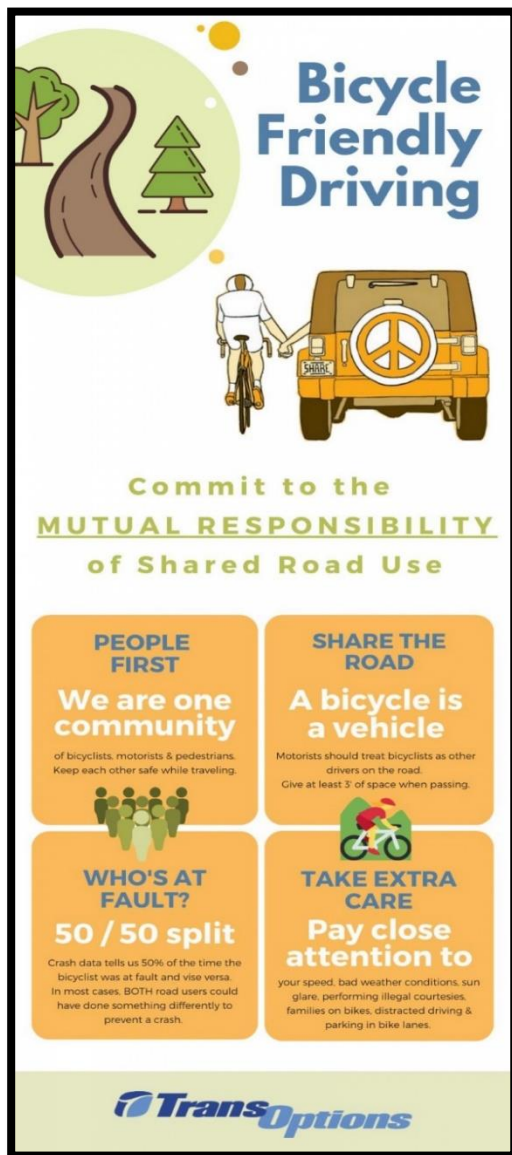


Figure 22: Bicycle Friendly Driving

Source: Avenues in Motion

<https://avenuesinmotion.org/cms/resources/media/imported/bicycle%20friendly%20driving.jpg>

Randolph Township has already recognized the importance of sidewalks and a comprehensive sidewalk network for safe pedestrian and bicycle safety in its planning strategies and documents. *The Randolph Township Master Plan (2006)* stated that "Future residential and commercial developments are recommended to include pedestrian linkages particularly in the Village Center". The *2016 Master Plan Re-Examination and Update* reiterated this priority, stated, "As was stated in the previous Master Plan, pedestrian linkages between residential concentrations and commercial centers should be encouraged and developed." Most recently, the *Randolph Township Trails Master Plan (2017)*, highlighted in detail the importance of sidewalks, as well as the linkages between trails and sidewalks to extend the network. A survey conducted as part of the development of this Plan highlighted the desire of residents to expand upon and/or create new sidewalks, especially those that connected to trails.

Randolph Township has also committed to the use of clean energy in its municipal fleet. As vehicles and machinery reaches the end of its useful life, electric, hybrid, and/or CNG replacements should continue to be considered. Randolph Township should also compile the savings in emissions and cost and publish this information on the municipality's website. This information will educate the public about the government's commitment to clean transportation, as well as promote the purchase of these vehicles for residents and businesses.

Randolph Township should continue its partnership with Avenues in Motion (Morris County's Transportation Management Agency). This organization can provide guidance and technical assistance regarding transportation safety, alternate modes of transportation, available funding opportunities, assist in educating the public about electric

vehicles, shared roadways, and safety matters. Finally, Randolph Township should remain alert as to when funding opportunities become available through the Bipartisan Infrastructure Law and the NJDEP's "It Pay\$ to Plug In Program". Grant monies through these avenues are specifically dedicated for projects that further the use of clean energy transportation, electrification of municipal vehicles and equipment and public transportation, and the implementation of traffic calming and safety measures on local roadways.

As part of the RTEG, the Township has studied transportation, and developed the following projects:

Project 9A: Inventory Municipal Fleet, Machinery, and Equipment to Determine Where Additions/Replacements Can Be Made

Project 9A.1: Convert Appropriate DPW Machinery to CNG, Hybrid, and/or Electric Vehicle Technology

Purpose

To properly determine the best path forward with alternative fuel vehicles for the municipal fleet, an inventory is needed. Through understanding the vehicles, machinery, and equipment owned and operated by the Township, Staff can determine replacements that can be made and plan for conversion to CNG, Hybrid, and/or Electric Vehicle technologies.

Implementation Strategy

The DPW Director and Township Manager have an inventory for capital budget purposes, and the Township's Chief Financial Officer maintains an inventory as part of the Fixed Asset Inventory. Using this data as a starting point, Randolph Township can complete a comprehensive inventory of the municipal fleet to assess opportunities for eventual conversion to clean technologies.

Once the fleet has been inventoried, the following information should be gathered for all vehicles:

- Age
- Condition
- Function
- Frequency of Use
- Anticipated Replacement Date
- Suitability for the Replacement Being an Alternative Fuel Vehicle
- Potential Issues with the Conversion to an Alternative Fuel Vehicle

During the annual budget cycle, a review of Municipal Fleet Inventory should be conducted to determine which vehicles and equipment are nearing the end of their life cycle and may be suitable for replacement with an alternative fuel powered version. It should be noted that not all vehicles will be suited for electrification. For instance, a DPW pickup truck that is used often for towing will not be a suitable candidate given the limited run time of an EV used for towing equipment and other heavy materials.

Review of smaller, municipal machinery and equipment is very important given the pollution levels of small combustion engines compared to motor vehicles. Replacement of machinery and equipment will in many

cases be less capital intensive, but significantly contribute to energy conservation and pollution reduction in Randolph Township.

Approvals Needed

Township Council approval is needed for all capital expenses. These expenses must be included in the annual budget cycle after being reviewed and endorsed by the using municipal department.

Funding Resources Available

The New Jersey Board of Public Utilities offers the “Clean Fleet Electric Vehicle Incentive Program”. The Program allows local and state government entities in New Jersey to apply for \$4,000 grants toward the purchase of battery electric vehicles, \$5,000 grants for public Level-II chargers, and \$4,000 grants toward the purchase of a fleet Level-II electric vehicle charging stations.

The NJDEP’s Drive Green Program provides reimbursement funding to municipalities who install Level-II Electric Vehicle Charging Stations on municipal properties. EV chargers will be required for electric vehicles, machinery, and equipment as it is converted in the municipal fleet.

Sustainable Jersey offers grants throughout the year for projects that further the Action Items identified through its Certification program. These grants range from \$2,000.00 to \$20,000.00 or provide for technical assistance. If Randolph Township chooses to work towards Certification under the Sustainable Jersey Program, it will become eligible for grant funding to further these projects.

<https://www.sustainablejersey.com/actions/>

<https://www.sustainablejersey.com/grants/>

Resources

The following are links to existing resources that can be used to implement this project:

- *Clean Fleet Electric Vehicle Incentive Program*. New Jersey Board of Public Utilities.
https://www.nj.gov/bpu/pdf/publicnotice/Updated_Application_Clean%20Fleet%20Electric%20Vehicle%20Incentive%20Program.pdf
- *Drive Green*. New Jersey Department of Environmental Protection.
<https://dep.nj.gov/drivegreen/>
- *Fleet Inventory Action*. Sustainable Jersey.
<https://www.sustainablejersey.com/actions/#open/action/84>
- *Transportation System Preservation and Enhancement*. New Jersey Highlands Council. 2008.
https://www.nj.gov/njhighlands/master/tr_transportation.pdf

Project 9B: Inventory and Map Existing Electric Vehicle Charging Stations and Identify Potential Locations to Establish a Network of Electric Vehicle Charging Station Network

Purpose

Making information readily available to the public about existing electric vehicle (EV) charging stations will reduce range anxiety (fear of owning an electric vehicle due to the lack of a comprehensive network of EV charging stations) and promote the purchase and/or conversion of electric and hybrid vehicles. This information can be easily found across many different websites but can be improved through the submission of additional data from municipalities.

Implementation Strategy

There is an existing, robust network of data on the internet for finding EV charging stations, including Google Maps, Waze, ChargePoint, and PlugShare. All have the capability to locate nearby charging stations for EVs. In addition, most electric vehicles have mapping for this built into the vehicle's technology for this purpose. Randolph Township can provide leadership in the identification of locations for future charging stations within the municipality. Comprising an inventory of appropriate sites for future EV charging stations at municipal facilities will allow Randolph Township to prioritize these sites and apply for funding as it becomes available.

Approvals Needed

Approvals from outside entities are not required to implement this project.

Funding Resources Available

The New Jersey Board of Public Utilities' "Clean Fleet Electric Vehicle Incentive Program" allows local and state government entities in New Jersey to apply for \$4,000 grants towards the purchase of battery electric vehicles, \$5,000 grants for public Level II chargers, and \$4,000 grants towards the purchase of a fleet of Level II electric vehicle charging stations.

The NJDEP's Drive Green Program provides reimbursement funding to municipalities who install Level-II Electric Vehicle Charging Stations on municipal properties. EV chargers will be required for electric vehicles, machinery, and equipment as it is converted in the municipal fleet.

Resources

The following are links to existing resources that can be used to implement this project:

- *Clean Fleet Electric Vehicle Incentive Program*. New Jersey Board of Public Utilities.
https://www.nj.gov/bpu/pdf/publicnotice/Updated_Application_Clean%20Fleet%20Electric%20Vehicle%20Incentive%20Program.pdf
- *Drive Green*. New Jersey Department of Environmental Protection.
<https://dep.nj.gov/drivegreen/>

Project 9C: Identify Existing and Targeted Bike Lanes

Identifying existing bike lanes and publishing their locations is important for the safe transportation of bicyclists in and around Randolph Township. Having this information available allows bicyclists to carefully plan their route for the safest, most connected trips.

This information is also foundational for the Township so that additional bike lanes can be targeted. Knowing where bike lanes exist will allow the Township to plan for important connections and the development of a safe, uninterrupted route. The Township should coordinate its planning efforts with Morris County, and obtain guidance from the local Transportation Management Agency, Avenues in Motion.

Purpose

Sidewalk networks serve as “pedestrian lanes” where people can safely walk to local retail establishments, work, school, to visit neighbors, or for fitness. Sidewalks, like roadways, must be accessible and continuous to be used as an effective means of circulation in the municipality. Because of the importance of a local sidewalk network, Randolph Township must ensure that sidewalks are included in all newly proposed development, as well as retrofitted where feasible.

Randolph Township has already recognized the importance of sidewalks and a comprehensive sidewalk network in its planning strategies and documents, including the *Randolph Township Master Plan (2006)* the *2016 Master Plan Re-Examination and Update*, and the *Randolph Township Trails Master Plan (2017)*. Ensuring that these sidewalks are in good condition and that proposed connections are being planned is key to creating a safe, well-maintained, and comprehensive sidewalk network.

Implementation Strategy

Randolph Township can take some simple steps to ensure the sidewalk network is connected and in good condition, as well as to require to the installation of sidewalks as part of new development:

1. *Develop a GIS Layer of the Existing Sidewalk Network and Audit Existing Conditions* – Randolph Township Staff can develop a useable Geographic Information Systems (GIS) layer and audit the condition of sidewalks at the same time. Use of the Field Maps Application through the existing ArcGIS license held by the Township can allow designated users to plot points of the sidewalks, while they are reviewing and reporting on the sidewalk’s condition.
 - a. The Field Maps Application can be downloaded to any smartphone from the App Store. Credentials are created by the Township Staff, with a destination in the Cloud for the data to be uploaded.
 - b. Users then walk the sidewalk network while holding their phone with the Field Maps Application open. As they walk, points are plotted along the route.
 - c. Once a user has finished their route, they simply hit the “submit button” which sends the data to the designated location in the Cloud.
 - d. The Township’s GIS Technician (or designated Staff member) can then access this data and develop a GIS layer of the route. If there are areas where the user went off course,

this can be edited by the GIS Technician.

- e. Simultaneously, the User can note areas where the sidewalk is in disrepair or is disconnected. This data can be reported back to the Township, where a database of all feedback can be collected and organized to prioritize repairs and installation of new sidewalks. Issues noted should include:
 - i. Areas where there is a disconnection in the sidewalk network.
 - ii. Areas where the sidewalk is in disrepair and why.
 - iii. Areas where a sidewalk could lead to a trail but does not at the time of the audit.
 - iv. Areas where the sidewalk is not wide enough (a properly functioning sidewalk should be between 5 to 6 feet, with a minimum total clearance of 36").
2. *Create a Sidewalk Network Map* – Using the newly developed Sidewalk Network GIS Layers, a map of the entire sidewalk network in Randolph Township can be created. This map should show the existing sidewalks and can be enhanced with proposed additions. If the Township wishes, a series of maps can be created to show conditions of existing sidewalks (by color), as well as priority for new sidewalks (by color or line weights).

Because the GIS layer can be used with other existing GIS layers, it is recommended that the Sidewalk Network Map include the most recent Trails layer to show where sidewalks can connect to existing and proposed trails in the municipality. This will also assist with prioritization of new sidewalks and trails. The *2017 Trails Master Plan* can be found at:

https://www.randolphnj.org/parks_and_recreation/trail_system

The Township should also coordinate with Morris County Planning Division to coordinate the development of this data with Morris County roads. The County may already have some of this data available or may provide assistance with the collection of data to further this project.

3. *Establish a Resident Feedback Page* – Residents often provide the most up to date information when it comes to sidewalk repair. Randolph Township should establish a simple form on its website that allows residents to provide information about sidewalks in need of repair. This form should include the following information:
 - a. Address or nearest cross street
 - b. Problem that needs to be addressed
 - c. Photos (if available)
 - d. Contact information for the reporter.

Approvals Needed

The recommended projects do not require approval to complete for municipal sidewalks.

Coordination is highly recommended with the Randolph Township Planning Division, as well as the Morris County Planning Division.

Funding Resources Available

Funding for planning and projects is available through many different sources. Below are some of the funding and technical resources available to municipalities for planning and implementation of the above-referenced projects and initiatives:

- *The New Jersey Highlands Council's Planning Grants* – This grant program offers funding for planning, engineering, and design for projects that maximize the environmental and economic benefits of living in the Highlands region of New Jersey. These grants can be used to commission studies that conserve natural resources, reduce pollution and greenhouse gas emissions, promote sustainable land management practices, and more. Planning grants from the New Jersey Highlands Council are non-competitive and do not require a financial match from the municipality or county. No minimum or maximum award thresholds are established, and the application is on a rolling basis, making these grants very flexible and desirable for Highlands communities. More information can be found at:
https://www.nj.gov/njhighlands/grantprograms/plan_conformance/grants_overview.pdf
- *Safe Streets and Roads for All (SS4A)* - Bipartisan Infrastructure Law – Five billion dollars has been allocated in discretionary funding for projects that prevent roadway death and serious injury. This funding is to be allocated over a period of five years, with the initial announcement of funding anticipated for early 2023. Eligible projects include developing Action Plans, planning and design of projects, and carrying out strategies and initiatives identified in the Action Plan.
<https://www.transportation.gov/grants/SS4A>
- *Sustainable Jersey*: Sustainable Jersey offers grants throughout the year for projects that further the Action Items identified through its Certification program. These grants range from \$2,000.00 to \$20,000.00 or provide for technical assistance. Specifically related to safe and connected travel, Sustainable Jersey recognizes the following projects:
 - Bicycle and Pedestrian Safety Audits
 - Bicycle and Pedestrian Plans
 - Bicycle and Pedestrian Safety Improvement Projects
 - Complete and Green Streets for All Policy

If Randolph Township chooses to work towards Certification under the Sustainable Jersey Program, it will become eligible for grant funding to further these projects.

<https://www.sustainablejersey.com/actions/>

- *Avenues in Motion*: Avenues in Motion is one of eight Transportation Management Agencies that serves Morris County. As such, this agency is charged with implementing strategies and programming that address traffic congestion, safety, economic development, air quality and livability issues. Their staff would provide immeasurable assistance to Randolph Township by providing data and technical assistance, speaking/tabling at municipal events, and assisting with public education and engagement. Avenues in Motion can also keep the municipality apprised of funding opportunities made available through the Federal government and State of New Jersey.
<https://avenuesinmotion.org/>

Resources

The following are links to existing resources that can be used to implement this project:

- *Avenues in Motion*.
<http://avenuesinmotion.org/>
- *Interactive Mapping System and GIS Data*. New Jersey Highlands Council.
https://www.nj.gov/njhighlands/gis/interactive_map/index.html
- *Open GIS Data*. New Jersey Highlands Council.
<https://highlands-data-njhighlands.opendata.arcgis.com/>
- *Randolph Township's Circulation Element*. Township of Randolph.
<https://www.randolphnj.org/DocumentCenter/View/463/VI-Circulation-Element-PDF>
- *Randolph Township's Trails Master Plan*. Township of Randolph. 2017.
<https://www.randolphnj.org/DocumentCenter/View/484/View-the-Trails-Master-Plan-PDF?bidId=>
- *Regional Master Plan*. New Jersey Highlands Council. July 17, 2008.
https://www.nj.gov/njhighlands/master/rmp/final/highlands_rmp_112008.pdf
- *Safe Streets and Roads for All*.
<https://www.transportation.gov/grants/SS4A>
- *Transportation System Preservation and Enhancement*. New Jersey Highlands Council. 2008.
https://www.nj.gov/njhighlands/master/tr_transportation.pdf

CHAPTER 10: WASTE MANAGEMENT

The first step in waste management is to reduce the generation of waste. The sheer amount of waste generated in the United States is the largest problem for managing proper disposal, available space at landfills, and high costs. In New Jersey alone, 21.8 million tons of solid waste was generated for calendar year 2019, with 9.7 tons (44.5%) of that total being produced at the municipal level (NJDEP – 2022).

Reducing waste provides numerous benefits:

- *Pollution Prevention*: less trash means more land available for other uses, and less leaching/emitting of toxins into the soil, water, and air.
- *Energy Savings*: less waste generation means reduced use of incinerators, compactors, and recycling plant resources.
- *Reduction of Greenhouse Gas Emissions*: the incineration of trash emits harmful chemical byproducts into the atmosphere – reducing the amount of waste to incinerate significantly lowers the amount of greenhouse gases emitted through this process.
- *Money Savings*: costs are lowered for municipalities and residents when there is less trash to pick up. Correct recycling means less sorting and discarding of non-recyclable items at the recycling plants.
- *Allows Products to be Used to the Fullest Intended Extent*: many discarded products still have a lot of life remaining at the time they are discarded. Reuse allows these products to be reused or reinvented for the continued use for many years.

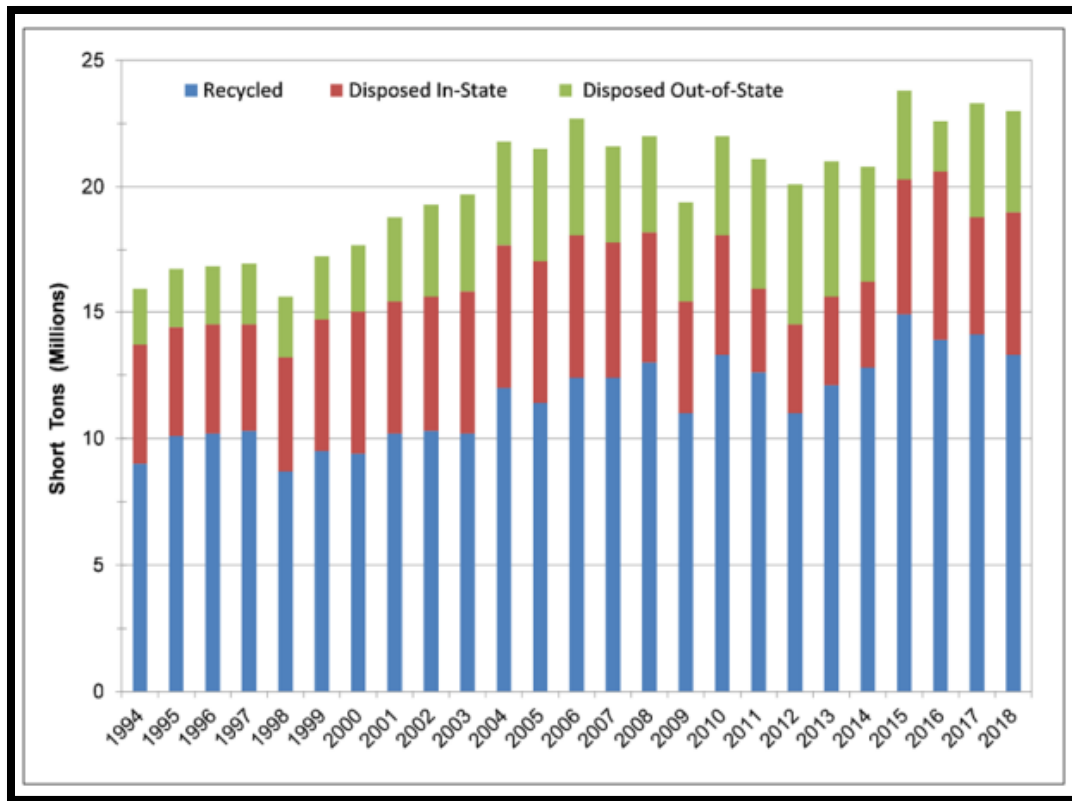


Figure 23: "The Fate of Solid Waste in New Jersey"- NJDEP Trends in Solid Waste and Recycling
<https://www.nj.gov/dep/dsr/trends/trends-solid-waste-recycling.pdf>

The next steps are recycling and reuse. Since the passage of the *New Jersey Statewide Mandatory Source Separation and Recycling Act* in 1987, residents have been focused on required recycling for plastics, glass, aluminum, paper, and cardboard. Most New Jersey residents understand this requirement; however, many still do not understand the details such as which plastics can be recycled or not recycled, and why. A focus on education and community engagement is necessary to bridge this gap so that correct recycling is achieved.

Reuse is an equal and important step in the chain of waste management. This practice means giving another life, whether it's for the designed function or a new function altogether, for items that would normally be discarded. Reuse includes donation, reduced sale, renting, and sharing programs, and upcycling. Reuse is a way to keep these items out of landfills and recycling plants completely, meaning that there is zero waste generated at the time. This practice also provides items to people who may not have the means to obtain them.

Educating the general public, businesses, and institutions is the cornerstone to achieving waste reduction, as well as a high-functioning recycling and reuse program. By developing an understanding about the importance of waste elimination at all levels, municipalities can play a major role in reducing excess waste. This can be accomplished in many ways:

- Working with municipal, County, school district, and non-profit partners to host community events and programs, such as upcycling workshops, “lunch and learns”, prescription medication drop-off events, composting, and more.
- Establishing a frequent flow of information about waste reduction, recycling, and reuse using multiple communication methods.
- Encouraging small but impactful changes at the residential level, such as paying bills online to reduce paper bills, using reusable bags, and opting out of junk mail flyers and postcards.
- Promotion of community-wide programs such as Grass Clippings Cut-It-and-Leave-It, Household Hazardous Waste Drop-Off events, and Community Paper Shredding Days.



Figure 24: Prescription Drop-Off Boxes

Source: [Project Medicine Drop](#)

LANDSCAPE MATERIAL DELIVERY SERVICES

ABOUT THE PROGRAM

THE MORRIS COUNTY MUNICIPAL UTILITIES AUTHORITY (MCMUA) DELIVERS LANDSCAPING MATERIALS YEAR-ROUND TO RESIDENTIAL AND COMMERCIAL PROPERTIES WITHIN MORRIS COUNTY AND ITS NEARBY COUNTIES.

ALL MATERIAL IS MADE ONSITE AT OUR TWO VEGETATIVE WASTE RECYCLING FACILITIES.

OUR VEHICLES CAN ONLY DELIVER TO PAVED SURFACES, AND MATERIALS CANNOT BE PICKED UP ONCE DELIVERED TO THE SITE. PLEASE PLAN ACCORDINGLY.

MATERIALS AND PRICING

WOOD MULCH (DOUBLE-GROUND)	WOOD CHIPS
• \$150.00 FOR 5 CY	• \$100.00 FOR 5 CY
• \$210.00 FOR 10 CY	• \$125.00 FOR 10 CY
SCREENED COMPOST	UNSCREENED COMPOST
• \$155.00 FOR 5 CY	• \$100.00 FOR 5 CY
• \$220.00 FOR 10 CY	• \$125.00 FOR 10 CY

PRODUCT CERTIFICATIONS

TO SCHEDULE YOUR DELIVERY CALL: 973-285-8389
OR, VISIT: WWW.MCMUA.COM TO ORDER ONLINE

SCREENED COMPOST

HARDWOOD MULCH

MADE IN MORRIS COUNTY

DIRT CHEAP PRICING!

Figure 25: Compost Sales - Morris County MUA

As part of the RTEG, the Township has studied waste management, and developed the following projects:

Project 10A: Educate the Community About Waste Reduction, Recycling, and Proper Disposal of Medicines and Hazardous Substances

Project 10A.1: Recycling Education Program

Purpose

Creating a recycling education program is key to increasing participation rates. Most people understand that recycling is a requirement and the reasons why it is important, however many still are not familiar with the details, such as what plastics can and cannot be recycled and why. By developing a comprehensive recycling program that is comprised of multiple communication methods, residents will choose to recycle correctly more often, leading to a healthier, more sustainable environment.



Figure 38: Morris County Municipal Utility Authority's Recycling Center

Implementation Strategy

Building a recycling education program requires the use of different approaches and the implementation of a variety of projects and programming. To implement this overall task, Randolph Township should take the following steps:

- *Implement Projects 10A.2 through 10A.6:* The projects listed in the “Waste” category of this Action Plan describe in detail how each of these projects can be implemented. Many of these projects require little funding and additional time, and all would contribute to a comprehensive recycling education program.
- *Frequent Information Distribution to Residents:* The Township should publish a standing article in its quarterly newsletter, place a permanent link on its website to access the Morris County Municipal Utilities Authority, and post recycling information and events on its municipal social media channels. This constant flow of information will keep recycling opportunities fresh in the minds of the public.
- *Upgrade Status on Recycle Coach:* Randolph is currently designated as “Stage 3” under the Recycle Coach Program, meaning that it is taking action to reduce contamination in the community, and is up to date on the application with the most current recycling information available. To advance to “Stage 4”, which is the highest level achievable, Randolph needs to hold

more advanced, modern educational opportunities for the public. Coordination with Morris County's Municipal Utilities Authority is highly recommended. Additionally, residents should be reminded often to download the Recycle Coach application to stay up to date with current recycling practices, programs, and events.

- *Promote Workplace Recycling*: The Environmental and Landmarks Committee can work with the Economic Development Committee to distribute this information to local workplaces. This information can also be shared on the municipal website and social media channels.

Approvals Required

Projects 10A.2 through 10A.6 outline the approvals needed for each specific task.

Funding Resources Available

Projects 10A.2 through 10A.6 outline the approvals needed for each specific task.

Existing Staff can assist with many of these tasks, all which contribute to the building of a comprehensive recycling education program.

Resources

The following are links to existing resources that can be used to implement this project:

- *Additional Information for Recycling and Helpful Links*. New Jersey Department of Environmental Protection.
<https://www.state.nj.us/dep/dshw/recycling/educationandlinks.html>
- *Association of New Jersey Recyclers*.
<https://anjr.com/>
- *Morris County Recycling*. Morris County Municipal Utilities Authority.
https://mcmua.com/sw_recy.asp
- "Murphy Administration Awards 16+ Million to Reduce Waste and Promotes Recycling Across New Jersey". *News*. New Jersey Department of Environmental Protection.
https://www.nj.gov/dep/newsrel/2022/22_0006.htm#:~:text=Likewise%2C%20New%20Jersey%20generated%209.7,6%20million%20tons%20of%20it.
- *RecycleCoach – Randolph Township*. RecycleCoach.
<https://recyclecoach.com/cities/usa-nj-township-of-randolph/>
- *Source Reduction (Waste Reduction)*. New Jersey Department of Environmental Protection.
https://www.nj.gov/dep/dshw/recycling/source_red.htm
- *Workplace Resource Center*. RecycleCoach. (Free Printables for Education Campaigns).
<https://recyclecoach.com/companies/workplace-resource-center/>

Project 10A.2: Community Paper Shredding Day

Purpose

People often have many documents that contain personal and sensitive information. As these documents become outdated, converted to digital format, or are stored elsewhere and duplicative in the household, they need to be destroyed in a manner that is safe and prevents identity theft. Community Paper Shredding Days offers the safe destruction and disposal of such documents.

Implementation Strategy

Randolph Township's Health Department currently organizes an Annual Clean Communities Day (in 2022, this event was held on September 24th at the Randolph Township Municipal Building) that provides paper shredding for household personal papers for residents. The effort is specifically for personal papers and not home business or any business records.

Randolph Township should continue to offer paper shredding services through the Annual Clean Communities Day, using the vendor that is a member of the *International Secure Information Governance and Management Association* (formerly the National Association of Information Destruction). The truck used must have an external camera to allow residents to view the shredding. Additionally, Randolph Township should request a weight of shredded materials from the vendor for data or reporting purposes.

Randolph Township should consider expanding the scope of the paper shredding services to allow local businesses to shred documents for a fee. To ensure that the events are efficient and easy for all residents, it is recommended that paper shredding services for local businesses be held on a separate day. The municipality should also consider holding at least one additional event, potentially held in conjunction with the in-town Household Hazardous Waste Day or separately. These events do not require intensive planning or labor and can be funded through the existing Clean Communities Grant.

Approvals Required

The use of Clean Communities Grant funding for an additional Community Paper Shredding Day would require approval by the Township Council.

Funding Resources Available

Clean Communities Grant funding can be used to host an additional Community Paper Shredding Day, including the hiring of a vendor who is a member of the International Secure Information Governance and Management Association (formerly the National Association of Information Destruction), promotional materials, and supplies for Staff and volunteers.

Existing Township Staff would provide assistance with advertising, preparing for, and assisting with the use of the permanent facility this additional event.

Resources

The following are links to existing resources that can be used to implement this project:

- *Community Paper Shredding Day Action*. Sustainable Jersey.
<https://www.sustainablejersey.com/actions/#open/action/101>
- *Fall Clean Communities and Paper Shredding Event*. Township of Randolph.
<https://www.randolphnj.org/ArchiveCenter/ViewFile/Item/93>
- *International Secure Information Governance and Management Association (joining of National Association of Information Destruction PRISM Privacy)*.
<https://isigmaonline.org/>

Project 10A.3: Prescription Medication Dropoff

Purpose

The past practices of improper disposal of drugs has led to continued negative environmental impacts. Flushing of drugs has clearly contributed to findings of trace amount of antibiotics, mood stabilizers, and other pharmaceuticals in our drinking water supply. Disposing of drugs into the regular trash has increased landfill waste and led to soil contamination through the leaching of drugs into the earth. Municipalities can encourage the proper disposal of drugs by implementing a permanent drop-off location, and/or holding drop-off events. This practice will promote proper disposal of medications, reduce negative impacts on the environment, and improve safety for residents.

Implementation Strategy

To encourage residents to dispose of their prescription medications safely and efficiently, the municipality should install a permanent drop-off location at the Randolph Township Police Department. This action is relatively simple, as Morris County Sheriff's Office has already implemented a county-wide program through its Medication Collection Unit.

1. *Install a Permanent Prescription Drop-Off Location:* Randolph should work with the Police Department to install a permanent drop-off location at the Police Station. This drop-off box should be located in an area that is easy to access for residents, but also easy to monitor for the Police. These boxes are affixed to the floor and have door similar to a mailbox so that medications can be dropped in, but not taken out.
2. *Partner with Morris County's Sheriff's Office:* Each municipal Police Department having a permanent location can contact this Office to arrange for collection of prescription medicines from the locked boxes of the Prescription Drop-Off Boxes. This medication is stored in the County's Evidence Unit until destruction. To date, the Morris County Sheriff's Office has destroyed over 12,000 pounds of prescription medication. Data can be recorded by municipality so Randolph can easily gauge the success of the collection.
3. *Promote the Use of the Drop-Off Location:* Once installed, Randolph Township can post signage in the municipal building (templates available through the New Jersey Division of Consumer Affairs. A standing article in the Township's newsletter, a permanent link on the Township's municipal website, and frequent postings on the municipal social media channels will be important in reaching all populations to properly dispose of their medications.

Approvals Needed

Approval of the Township Police will be required to install the drop-off box in the Police Station. Monitoring of the box and its collection and disposal will need to be coordinated between the municipal Police and the Morris County Sheriff.

Funding Resources Available

Once Randolph Township partners with Morris County, the cost of the drop-off box should be free or of little cost. Existing Police would be responsible for the monitoring of the location, and the Sheriff's Office would be responsible for collecting and disposing of the contents.

Resources

The following are links to existing resources that can be used to implement this project:

- *Prescription Drug Safety and Disposal*. Sustainable Jersey.
<https://www.sustainablejersey.com/actions/#open/action/505>
- *Project Medicine Drop – Brochures and Flyers*. New Jersey Division of Consumer Affairs.
<https://www.njconsumeraffairs.gov/meddrop/Pages/Media.aspx>
- *Project Medicine Drop – Home*. New Jersey Division of Consumer Affairs.
<https://www.njconsumeraffairs.gov/meddrop/Pages/default.aspx>
- *Project Medicine Drop – FAQs*. New Jersey Division of Consumer Affairs.
<https://www.njconsumeraffairs.gov/meddrop/Pages/FAQ.aspx>
- *Project Medicine Drop – For Law Enforcement*. New Jersey Division of Consumer Affairs.
<https://www.njconsumeraffairs.gov/meddrop/Pages/Requirements.aspx>

Project 10A.4: Grass Clippings Cut-It-and-Leave-It Program

Purpose

Grass clippings provide a natural fertilizer for lawns, making grass lusher and greener over time. Many times, landowners will bag their grass clippings not realizing that they are removing these nutrients that can make their lawns more aesthetically pleasing. The extra time and manual labor it requires to bag these clippings can be saved for each individual, while they simultaneously remove added waste to the system. A final added benefit is a reduction in chemical fertilizer, which pollutes stormwater runoff and our waterways.

The basis of a Grass Clippings Cut-It-and-Leave-It Program is rooted in public education. By working on producing documents, social media postings, and hosting learning sessions, residents will understand the benefits of leaving grass clippings for their individual properties, their individual time, and the environment.

Implementation Strategy

To promote a Grass Clippings Cut-It-and-Leave-It Program, the Township should publish an article in its Spring and Summer newsletters explaining the benefits of this practice. Social media postings, postings on the municipal websites, and the posting of paper flyers in the Municipal Building and Library will also promote the use of this practice, while educating the general public about its benefits. Lastly, the Township should consider putting together some basic short videos, which can be posted on YouTube, the municipal website and social media platforms, and the Township's local public access television channel.

Morris County owns and operates two vegetative waste facilities, where neutral vegetative waste from contracting municipalities, contractors, and landscapers is accepted throughout the year:

- Waterloo Road, Mount Olive Township
- 500 West Hanover Road, Parsippany

This vegetative waste is taken from municipalities and ultimately converted into compost, which is sold and delivered to residents of Morris County.

The Township can ensure its coordination with Morris County so that it is a contracting municipality for this program. This will allow Randolph residents to have access to this compost, which would be delivered upon request directly to their property.



Figure 39: Grasscycling
Source: [Livingston Township, New Jersey](#)

Approvals Needed

No approvals are needed to promote the use of this generally accepted practice.

Funding Resources Available

The cost associated with the promotion of this program are negligible.

Flyers can be produced in-house, and many templates are available (see ***Resources*** below).

The creation of a short video may incur costs, depending on the equipment and Staff available for this project. If video recording equipment is available (a cell phone with a camera will suffice), and Staff is available to participate, no additional cost is anticipated.

Clean Communities Grant funding can be used to fund aspects of this Program, if needed.

Resources

The following are links to existing resources that can be used to implement this project:

- *Grass – Cut It and Leave It Program*. Sustainable Jersey.
<https://www.sustainablejersey.com/actions/#open/action/104>
- *Grass – Cut It and Leave It: Environmentally Friendly Lawn Care*. New Jersey Department of Environmental Protection.
<https://www.nj.gov/dep/dshw/recycling/Grass%20Cut%20It%20and%20Leave%20It.pdf>
- *Grasscycling – Cut It and Leave it*. Middlesex County, New Jersey.
<https://www.middlesexcountynj.gov/government/departments/department-of-business-innovation-education-and-opportunity/middlesex-county-improvement-authority/recycling/grasscycling-cut-it-leave-it>
- *Vegetative Waste Recycling*. Morris County Municipal Utilities Authority.
https://mcmua.com/sw_veg.asp

Project 10A.5: Investigate Methods for Increasing Reuse Among Residents

Purpose

After eliminating sources of waste, reuse is the second priority for effective waste management strategies. Reuse of items reduces the amount of waste entering the system and ultimately the landfill, while making quality products available to people with limited means.

Reuse can be as simple as it sounds – reusing the item rather than discarding it. Another method of reuse is repurposing, meaning that the original item is used for a different, but useful purpose. People often want to have their items reused or repurposed rather than thrown away, so creating a variety of opportunities is imperative in encouraging this practice:

- *Donation*: Non-profit organizations, schools, community centers, religious organizations, and more are often in need of used items in good condition, but do not have the financial means to purchase these items. Donation is a great opportunity to unite residents with these organizations to arrange for the donation of items that would otherwise be discarded.
- *Resale*: Opportunities for resale include garage sales and consignment shops
- *Rental*: Residents should be alerted of opportunities to rent tools and equipment for projects rather than buying them outright. This saves money, reduces the need to store these large and/or expensive items, and allows many people to use the same tool and/or piece of equipment.
- *Freecycling*: This practice allows members of the community to give unwanted items away to other community members for free. Facebook groups and website listings are free and easy methods in promoting this practice.

Implementation Strategy

Randolph Township should create a culture of reuse for its residents by promoting the above-referenced strategies. The following steps should be taken to implement this task:

1. *Educate Residents About Opportunities for Reuse*: The Morris County Municipal Utilities Authority has developed a comprehensive webpage outlining available physical stores, consignment shops, non-profit organizations, and internet exchanges that accept items for reuse. Randolph Township should create a permanent link on its municipal website that provides quick access to this directory. A standing article in the Township's newsletter, as well as frequent postings on municipal social media channels should be developed to increase participation in reuse strategies.
2. *Continue to Host a Township-wide Yard Sale*: Randolph's Township-wide Yard Sale is a successful event that reduces waste and promotes reuse. An expansion of this idea would be to provide pickups for all leftover items for delivery to the Habitat for Humanity ReStore or similar accepting organization (Lupus Foundation, Goodwill, the Salvation Army).
3. *Work with the Morris County Library System to Host Repurposing/Upcycling Events*: The library is a great place to host educational, community events. Repurposing and upcycling events help

people make new items out of those that would typically be discarded. Participants would bring the required items and learn how to repurpose/upcycle them onsite.

Approvals Needed

Approvals related to parking allowances, street closures, or other safety items related to a Township-wide Yard Sale may be required from the Chief of Police, Township Manager, and Township Council.

Funding Resources Available

The promotion of this strategy will not require funding, as Morris County Municipal Utilities Authority has developed a comprehensive directory for residents. The existing publications, websites, and social media can be used to promote this page, as well as events held to promote reuse.

Hosting educational and community events with the library may require a small amount of funding for supplies needed for each event. This cost is negligible; however, the benefits would be far-reaching. These types of events are critical for public education, which is the foundation of this program.

Resources

The following are links to existing resources that can be used to implement this project:

- *"Buy Nothing - Randolph Township, NJ".* Facebook (private group).
www.buynothingproject.org
- *Habitat for Humanity's ReStore – Randolph Township Location.*
<https://www.morrisrestore.org/>
- *Reuse, Donation, and Upcycle Resources.* Morris County Municipal Utilities Authority.
https://mcmua.com/sw_reduction.asp
- *Source Reduction (Waste Reduction).* New Jersey Department of Environmental Protection.
https://www.nj.gov/dep/dshw/recycling/source_red.htm

CHAPTER 11: WATER

Water is essential for sustenance, and one of our most important natural resources. As a provider of survival for humans, animals, fish, and plants, water has been at the center of natural resource conservation and protection for decades and will continue to be long into the future. Land development, energy usage, transportation, agricultural uses, heat, and pollutants all have a daily and direct effect on water supply and water quality. This Chapter of the RTEG will specifically look at protecting water quality for drinking water purposes, as well as environmental needs, as well as the conservation of water supply through planning, programming, and public outreach.

Randolph Township's Drinking Water Supply

Water supply ultimately comes from a larger water source (most often surface water sources), which is then pumped to a water treatment plant where it is filtered to meet water quality standards established by the Safe Drinking Water Act of 1974. Once the drinking water is acceptable for human consumption, it is distributed through water mains and pipes to residences and businesses within the community. Water sources are replenished by rain and groundwater recharge which maintains water supply.

Randolph Township's municipal water supply is purchased from the Morris County Municipal Utilities Authority (MCMUA). MCMUA is a bulk water provider, meaning that it provides water to its wholesale customers (municipalities and local water companies) who then distribute it to individual properties. The MCMUA draws water from a total of eight wells within two wellfields – the Alamatong wellfield in Randolph and Chester Townships and the Flanders Valley wellfield in Mount Olive and Roxbury Townships. These public supply wells extract ground water from the glacial and limestone aquifers in the Raritan and Lamington River Valleys. The water is disinfected at its source to ensure it remains potable throughout its distribution system.

Randolph Township's water distribution system is comprised of 145 miles of potable water mains. Daily water samples are submitted to an outside laboratory for purity testing, ensuring any potential water quality issues are detected immediately so that mitigation could begin. The municipality is also proud to report that water loss is reported well below the established standards due to an aggressive leak detection program that has been implemented.

According to the *Annual Drinking Water Report* prepared by the Randolph Township Water Department, all federal and state requirements for water quality have been satisfied for the reporting year of 2021. No exceedances in concentrations of all monitored contaminants were found during the reporting year of 2021. This Report is prepared annually using data from MCMUA's *2022 Consumer Confidence Report*, and is posted on the Township's website at: https://www.randolphnj.org/services/water_quality_report

Randolph Township provides its Annual Drinking Water Report on its website:
https://www.randolphnj.org/services/water_quality_report



Figure 26: Water Conservation
Source: [NJDEP – Office of Air Quality, Energy, and Sustainability](#)

Water Conservation

Water is a finite resource, but one that is relied upon heavily for many uses. Lack of adequate water supply would have a direct and immediate impact on drinking water, energy usage, agricultural operations, habitat, recreation, and much more.

Practicing water conservation is a necessity that must be implemented by people at all levels, from the federal government to large industries to residential property owners. This practice must be frequently promoted to the community at large so that it becomes part of everyday life, and “business as usual”.

Conserving water can involve many tiers of strategies, ranging from in-home practices to large environmental projects. The common thread is that each tier must implement water conservation practices for these strategies to be impactful. The following are examples of some of the initiatives and projects that can be utilized to conserve water at all levels:

- **Fix Water Leaks:** According to New Jersey American Water, even the smallest leak in water mains and pipes can lead to a loss of thousands of gallons of water per day. In 2017, the American Water Works Association compiled data from every water utility in New Jersey, and shockingly found that 130 million gallons of treated drinking water are lost each day in New Jersey alone due to leaking infrastructure. Randolph Township’s Water Department has implemented an advanced leak detection system, which has proven to be a financially sound decision and successful over time. Municipalities should implement this technology, and property owners should be sure to report leaks immediately.

- **Promote the Use of USEPA’s WaterSense Program:** This voluntary program identifies water-efficient products and labels them for ease of purchase by consumers. The simple replacement of a showerhead can save up to 4 gallons of water with each shower, and the replacement of inefficient and leaky faucets can save up to 700 gallons of water per year. Residents should be made aware of the WaterSense Program, how they can purchase these products, and what the benefits are to them directly, as well as the overall environment.

- *Encourage Smart Landscaping:* Adjusting sprinklers so they water the lawn only, rather than sidewalks, driveways, and roads, conserves the amount of water used and the time for watering for that specific purpose, and reducing runoff and nonpoint source pollution. Using vegetative buffers and plants that retain water are still aesthetically pleasing while filtering and storing water that would otherwise contribute to runoff and require frequent watering. This practice can be implemented on small and large properties. At the municipal scale, this practice will save Staff time for the Department of Public Works, save money for the water and energy usage, reduce mowing when vegetative buffers are installed, and protect our waterways from nonpoint source pollutant and excess stormwater runoff volume.



Figure 27: Fixture Replacement Savings
Source: [Water Sense \(USEPA\)](#)

Randolph Township mandates certain water-saving measures addressing lawn water annually from May 1 through September 30. During that period, properties that receive water from the Township or the Town of Dover must follow a watering protocol, consisting of:

- Properties with even street addresses can water on even numbered days of the month.
 - Properties with odd addresses are allowed to water on odd numbered days of the month.
 - No residential property is allowed to water on the 31st of any month.
 - Watering is only permitted from 5:00 a.m. to 9:00 a.m. and from 5:00 p.m. to 9:00 p.m.
- *Establish Partnership to Educate the Community About Water Conservation Measures:* Municipalities should work directly with schools, businesses owners, and residential property owners to educate about current water saving technologies, equipment, and fixtures. Simple behavioral changes can be promoted (turning water off when brushing teeth, reducing shower times, checking for leaking fixtures and pipes, etc.) to the public via advertising via municipal channels and posting information at the Municipal Building. Randolph Township can continue to serve as a role model by ensuring water conservation measures are implemented at municipal facilities (low-flow toilets, water sensors on faucets, refillable water bottle stations).

Stormwater Management

When precipitation falls on the land surface, it can take a few different pathways:

- *Evaporation* – water is changed from liquid form to vapor, and transmitted back into the water cycle
- *Infiltration* – water is absorbed into the ground where it is naturally filtered, and released back into the water cycle
- *Runoff* – water literally runs off impervious surfaces like paved street, rooftops, and parking lots where it becomes contaminated with nonpoint source pollutants (salt, antifreeze, motor oil,

gasoline, fertilizers). This stormwater runoff volume enters our waterways, including the picked up nonpoint source pollutants and sediments. Stormwater runoff leads to polluted waterways, cloudy water, and harmful conditions for humans and wildlife.

Protecting water resources against contaminated stormwater requires the adoption of stormwater management controls. The most effective of these are called Best Management Practices (BMPs). BMPs, which are designed to filter out pollutants and/or prevent pollution by controlling it at its source. In 2020, the State of New Jersey adopted amendments to the Stormwater Management Rules (NJAC 7:8) specific rules and design requirements for stormwater facilities that are mandatory for new development (N.J.A.C. 7:8) that require the use of green infrastructure to the maximum extent feasible. This means that developers meeting the criteria established in the regulations must incorporate green infrastructure as the primary treatment for stormwater, followed by “gray infrastructure” (detention basins, underground tanks, outfall pipes, etc.) for stormwater volume that cannot be handled using low-impact design and/or nonstructural management projects.

Green infrastructure strategies treat stormwater runoff onsite by disconnecting runoff from impervious surfaces that would go directly to sewer systems and waterways, and rerouting that volume, along with its non-point source pollutants, to rain gardens, bioswales, underground drainage, and more. If this infrastructure is not functioning properly due to the buildup of debris, sedimentation, lack of adequate planting, erosion, or other issues, the volume cannot be retained, filtered, stored, and released as cleaner water.

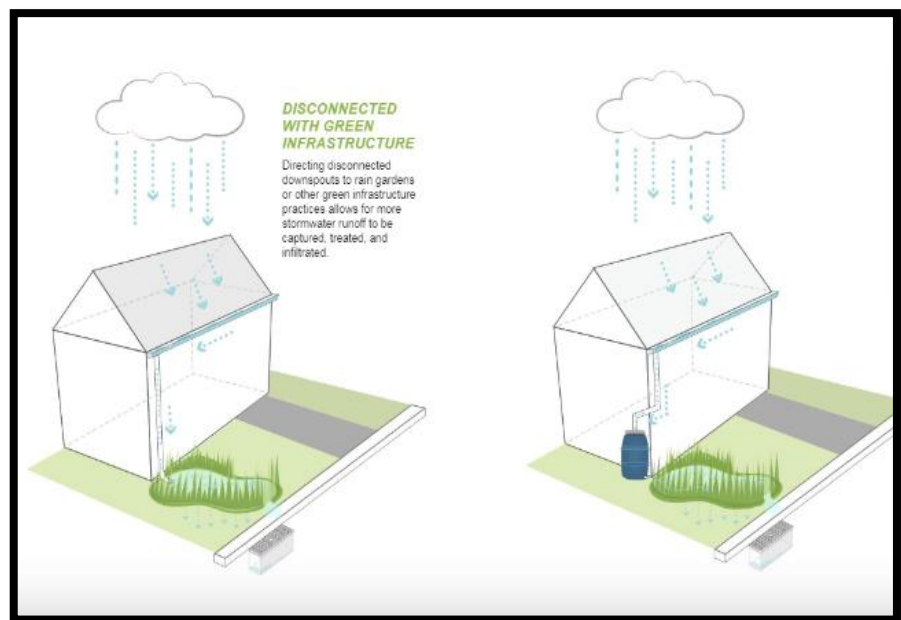


Figure 28: Disconnection with Green Infrastructure
Source: Green Infrastructure Guidance Manual for New Jersey (Rutgers Cooperative Extension Water Resources Program)
<https://issuu.com/rutgerswater>

Benefits of green infrastructure include:

- Promoting evaporation and infiltration of water
- Improving air quality and reducing ambient air temperatures
- Absorbing of carbon
- Filtering of nonpoint source pollutants

Green infrastructure can be incorporated into a community at several scales, ranging from simple rain barrels to creating parkland along stream corridors. Residents, business owners, and government facilities can all benefit from the planting of rain gardens at varying properties. The retrofitting or initial installation of pervious pavement at large parking areas eliminates large volumes of stormwater runoff by allowing water to infiltrate to a holding tank, which is dissipated over time. Larger projects to address stormwater management through green infrastructure include preserving open space, township wide tree plantings, greening of steep hillsides, and installation of green roofs.

What Can Randolph Do More to Properly Manage Stormwater Runoff?

Stormwater management requires many different strategies and projects and locations. The foundation of green infrastructure for stormwater management is disconnecting the path of stormwater runoff from the impervious coverage directly to waterways by treating it at the source. Randolph can continue to install and maintain rain gardens at municipal facilities across the Township. One rain garden on a property may not be enough to effectively treat the stormwater volume onsite – these calculations should be completed to ensure that the existing and projected volume is properly treated.

Randolph Township should investigate additional green infrastructure options such as green roofs, the use of cool roof technology, pervious pavement, bioswales, and return of unnecessary impervious coverage back to natural vegetation. Additionally, these practices should be recommended to developers, where feasible and reasonable, as part of Planning and Zoning review.

Lastly, Randolph Township should adequately educate the public about the use, installation, maintenance, and benefits of green infrastructure and stormwater management. Effective stormwater management requires buy in from residents, as the treatment at the source is the cornerstone. Residents should be encouraged to look at the following strategies for their properties:

- Reduce the size of driveways.
- Incorporate pervious pavement into driveways and walkways.
- Allow for the growth of vegetative buffers before stormwater reaches the street.
- Plant a rain garden near downward sloping land on their properties.
- Reduce or eliminate the use of fertilizers.

As part of the RTEG, the Township has studied water, water conservation, and stormwater management and developed the following projects:

Project 11A: Stormwater Management of Public Facilities

Stormwater management is paramount for water quality, protection of marine habitat, and pollution prevention. Municipalities have a responsibility to implement a stormwater management program, typically administer by the Department of Public Works.

In 1999, the USEPA promulgated rules that established the Municipal Stormwater Regulation Program. In 2004, the NJDEP issued final stormwater rules which authorized stormwater discharges from Tier A and Tier B municipalities, as well as public complexes, and highway agencies that discharge stormwater from municipal separate storm sewers systems (MS4s). The NJDEP made enhancements to the Municipal Stormwater Regulation Program including training, green infrastructure, public outreach, and best management practices. These amendments became effective on January 1, 2023 (https://www.nj.gov/dep/dwq/msrp_home.htm).

Randolph Township is a Tier A Municipality, and as such is required to meet the requirements of the MS4 Permit, which includes a public education and outreach program. A comprehensive guidance document has been developed by the NJDEP, and is available at: https://www.nj.gov/dep/dwq/tier_a_guidance.htm

Project 11A.1: Send Municipal Staff and Volunteers to Green Infrastructure Champions Program

Purpose

Education and training are paramount to efficient and sustainable green infrastructure. When municipal Staff and volunteers understand how green infrastructure works, why it has been implemented, and how to properly maintain it, green infrastructure can serve as a long-term, aesthetically pleasing, and successful treatment for stormwater runoff.

The Green Infrastructure Champions Program is a regional program that provides valuable information to attendees, ultimately leading to a certification in green infrastructure design, management, and maintenance. This Program is free of charge, and is taught by leading professionals in the industry, making it worthwhile for municipal Staff.

Implementation Strategy

Registering for the Green Infrastructure Champions Program is simple and free! For 2023, all classes are held remotely, with each class running approximately two hours in length. After completion of at least 50% of the course (ten classes offered from January through May), participants are listed as certified Green Infrastructure Champions and have the knowledge implement green infrastructure within the municipality.

Department of Public Works Staff, Planners, Engineers, and members of the Planning Board and Zoning Board of Adjustments are prime candidates to attend this Program. In addition to understanding the technical aspects of Green Infrastructure, participants learn about the recently updated Stormwater Management Regulations and Stormwater Control Ordinances.

The following courses are outlined for the 2023 Green Infrastructure Champions Program:

1. How to Identify Green Infrastructure Projects in Your Town

2. Moving from Planning to Implementation on Green Infrastructure
3. Maintaining Green Infrastructure Practices/Projects
4. Stormwater Management Regulations, Policies, and Ordinances
5. Green Infrastructure Planning and Implementation for Sustainable Jersey Points
6. Green Infrastructure Projects for Schools
7. How to Design and Build a Rain Garden
8. Retrofitting Traditional Detention Basins with Green Infrastructure
9. Developing Green Infrastructure Master Plans for an Entire Site or Neighborhood
10. Using Green Infrastructure to Promote Climate Resiliency

Registration can be completed online at:

<http://water.rutgers.edu/Projects/GreenInfrastructureChampions/GIC.html>

Approvals Needed

Volunteers can register themselves, but if are attending on behalf of the Township, should be recommended and approved by municipal Staff.

Funding Resources Available

There is no cost for participation in the Green Infrastructure Champions Program.

Projects that may arise from participation in this Program, such as the development of a Green Infrastructure Plan or the implementation of specific green infrastructure projects range in cost.

- *Water Quality Restoration Grants for Non-Point Source Pollution*: the New Jersey Department of Environmental Protection awards approximately 10 million dollars in funding for watershed restoration projects that address non-point source pollution. Projects previously funded have included retrofitting of detention basins to promote infiltration, installation of tree filter boxes, rain gardens, and bioswales, and more.
<https://www.state.nj.us/dep/wms/bears/npsrestgrants.html>
- *Sustainable Jersey*: Sustainable Jersey offers grants throughout the year for projects that further the Action Items identified through its Certification program. These grants range from \$2,000.00 to \$20,000.00 or provide for technical assistance. Specifically related to Green Infrastructure, Sustainable Jersey recognizes the following projects:
 - Green Infrastructure Planning
 - Green Infrastructure Implementation

If Randolph Township chooses to work towards Certification under the Sustainable Jersey Program, it would become eligible for grant funding to further these projects.

Resources

The following are links to existing resources that can be used to implement this project:

- *Green City, Clean Waters: Green Infrastructure Maintenance Manual for the City of Philadelphia*. City of Philadelphia's Water Department. 2014.
<https://water.phila.gov/green-city/>
- *Green Infrastructure Planning (Action)*. Sustainable Jersey.
<https://www.sustainablejersey.com/actions/#open/action/568>
- *Green Infrastructure Champions Program*. Rutgers University Water Resources Program.
<http://water.rutgers.edu/Projects/GreenInfrastructureChampions/GIC.html>
- *Green Infrastructure Guidance Manual for New Jersey*. Rutgers Cooperative Extension Water Resources Program. 2005.
<https://issuu.com/rutgerswater>
- *Green Infrastructure Operations and Maintenance*. United States Environmental Protection Agency.
<https://www.epa.gov/green-infrastructure/green-infrastructure-operations-and-maintenance>



Figure 40: Plants for Naturalization of Retention Basin at Freedom Park

Project 11A.2: Educate Municipal Planning Board, Zoning Board of Adjustment, Environmental and Landmarks Committee, and Township Council about updated Stormwater Management Rules which Require Green Infrastructure as First Line of Treatment

Purpose

In March 2020, the New Jersey Department of Environmental Protection adopted amendments to the Stormwater Management Rules (NJAC 7:8A). One of the major changes was the requirement for non-structural stormwater management strategies to the “maximum extent possible” to meet groundwater recharge standards and stormwater runoff quality standards. This amendment further required that green infrastructure be utilized as a first line of treatment, rather than traditional structural, “gray infrastructure”, to meet these same standards. Developers are required to demonstrate adherence to these regulations in all Major Stormwater Projects, and in turn, Planning Board Members, Members of the Zoning Board of Adjustment, and Environmental Commissioners are required to review site plans for conformance with the same. These significant amendments require an understanding not only of the Stormwater Management Rules, but also of what green infrastructure is, how it operates, what maintenance is required, and how stormwater runoff volume will be treated using these strategies.

Implementation Strategy

The United States Environmental Protection Agency (USEPA), the New Jersey Department of Environmental Protection (NJDEP), and many non-profit entities offer comprehensive, online, free trainings in a variety of learning styles regarding stormwater management. These trainings are designed specifically for municipal Staff, Planning Board Members, Members of the Zoning Board of Adjustment, and Environmental Commissioners, providing the general information needed in a user-friendly manner. (See *Resources below for links to these trainings*).

Randolph Township can take some simple steps to ensure that its Staff, Board Members, and Committee Members, and Councilmembers are properly trained and updated on stormwater regulations and strategies:

1. *Establish a Policy Requiring Training* – Randolph Township Council can establish a policy requiring relevant municipal Staff (Department of Public Works employees, Planners, Engineers), and existing Members of the Planning Board and Zoning Board of Adjustment, and Environmental and Landmarks Committee members, and Councilmembers to view online trainings for stormwater management every two years. New members should be required to view an online training prior to participation in their first meeting. A database should be established to document completed courses, and to notify those that need to complete the requirement.
2. *Maintain an Inventory of Available Trainings* – a database of available online trainings in stormwater management should be maintained by a designated office of the municipality. Municipal Staff, Members of the Planning and Zoning Board, Members of the Environmental and Landmarks Committee, and Councilmembers can choose from these available trainings to satisfy the above-referenced requirement.
3. *Designate a Municipal Employee to serve as a “Trainer”* – Randolph Township should designate a Staff member to “train” other Staff, Members of the Planning Board and Zoning Board of Adjustment, Members of the Environmental and Landmarks Committee, and Councilmembers, as

needed. This designated Staff member will also be a “go-to” person for questions related to site plan review and proposed green infrastructure.

Approvals Needed

If Randolph Township is to establish a policy requiring training in stormwater management for municipal Staff, Members of the Planning Board and Zoning Board of Adjustment, Members of the Environmental and Landmarks Committee, and Councilmembers approval will be required by Township Council and Department Heads.

Trainings should be reviewed and designated “acceptable” by the Township Engineer and/or Planner to ensure that the inventory of available trainings to choose from is relevant.

Funding Resources Available

While there are many private entities to provide training in stormwater management online, these courses tend to be designed more for Engineers and Planners. Courses suited for municipal Staff, Members of the Planning Board and Zoning Board of Adjustment, Members of the Environmental and Landmarks Committee, and Councilmembers are available online and free of charge through the USEPA, NJDEP, and non-profit organizations. These resources are available in a variety of learning styles, making them user-friendly and educational for those that participate.

It is recommended that these free resources be utilized.

Resources

The following are links to free, online trainings that can be used to implement this project:

- *Green Infrastructure Municipal Toolkit*. New Jersey Future. (ONLINE READING AND RESOURCES)
<https://gitoolkit.njfuture.org/nj-stormwater-rules/>
- *FAQs for Green Infrastructure Rules*. New Jersey Department of Environmental Protection. (FAQs)
https://www.nj.gov/dep/stormwater/pdf/FAQ_Green_Infrastructure.pdf
- *More Bang for the Buck: Integrating Green Infrastructure into Existing Public Works Projects*. United States Environmental Protection Agency. May 6, 2014. (PODCAST)
<https://www.epa.gov/green-infrastructure/more-bang-buck-integrating-green-infrastructure-existing-public-works-projects>
- *More Bang for the Buck: Integrating Green Infrastructure into Existing Public Works Projects* (SLIDES)
https://www.epa.gov/sites/default/files/2015-10/documents/webcast_slides05062014.pdf
- *More Bang for the Buck: Integrating Green Infrastructure into Existing Public Works Projects* (TRANSCRIPT)
https://www.epa.gov/sites/default/files/2015-10/documents/webcast_transcript05062014.pdf

- *Municipal Employee Training Videos*. New Jersey Pollution Discharge Elimination System (NJPDDES). (ONLINE MODULES)
<https://njmel.org/mel-safety-institute/webinars/>
- *New Jersey Stormwater Best Management Practices Manual*. New Jersey Department of Environmental Protection. (ONLINE, SECTIONED MANUAL)
https://www.nj.gov/dep/stormwater/bmp_manual2.htm
- *NJAC 7:8 – Stormwater Management*. (OFFICIAL RULES, LAST AMENDED MARCH 2, 2020)
https://www.nj.gov/dep/rules/rules/njac7_8.pdf
- *NJAC 7:8 – An Overview of the Recent Rule Changes*. New Jersey Department of Environmental Protection. November 17, 2020. (RECORDED PRESENTATION)
<https://www.youtube.com/watch?v=HE0j5sjf-F0>
- *Stormwater Management Design Review Course*. New Jersey Department of Environmental Protection. (ONLINE MODULES WITH SLIDES AND QUIZZES)
https://nj.gov/dep/stormwater/smdrc_training.html#handouts
- *Stormwater Training*. New Jersey Department of Environmental Protection. (DIRECTORY OF TRAININGS AND RESOURCES)
<https://www.nj.gov/dep/stormwater/training.htm>

Project 11B: Provide Opportunities for Residents to Incorporate Green Infrastructure on Their Properties

Effectively managing and treating stormwater requires implementing green infrastructure strategies at varying locations, in varying scales. Green infrastructure on residential properties will have a significant positive impact on the Township's stormwater volume and pollutant load. For residents to consider using such techniques, they must understand the purpose, and have access to technical assistance and support for the construction, installation, and maintenance required.

Project 11B.1: Host Rain Barrel Workshops

Purpose

Rain barrels collect stormwater runoff from rooftops, which can later be used for non-potable purposes, or released slowly into a vegetative area for infiltration and filtration. Residents can easily install and use rain barrels at very little cost. This simple project disconnects a large source of stormwater from our waterways, and because of its visibility, promotes others to implement the same strategy.

Implementation Strategy

Rain barrels can be purchased in most hardware stores or online. Rain barrels can also be provided through an educational program hosted by a municipality or nonprofit organization, with optional rebates available to those who participate. Randolph Township could easily host a rain barrel workshop, and promote the use of rain barrels at residential properties, by taking the following steps:

1. *Decide the Format for a Rain Barrel Workshop:* Randolph Township's Environmental and Landmarks Committee can host a Rain Barrel Workshop on its own or can partner with Raritan Headwaters or Rutgers Cooperative Extension of Morris County. A partnership with either of these organizations is recommended because they have experienced Staff, are familiar with hosting rain barrel workshops, and may be able to assist with implementing a rebate program.
2. *Investigate a Rebate Program:* Offering participants a monetary rebate for the building, installation, and use of rain barrels will lead to more participation and less stormwater runoff in Randolph Township. Coordination with Raritan Headwaters or Rutgers Cooperative Extension of Morris County is recommended to understand how a rebate program is established, and where that funding could come from.
3. *Advertise for Workshop and Register Participants:* Once the format has been decided, the Township should advertise the Rain Barrel Workshop on its website and social media. Registration will be required to ensure that enough rain barrels and supplies are ordered.
4. *Procure Supplies:* If Randolph Township is working with a Raritan Headwaters or Rutgers Cooperative Extensions of Morris County, they will most likely bring the rain barrels themselves. Randolph Township may procure at a charge the necessary supplies for each participant to

complete the building of the rain barrel:

- a. $\frac{3}{4}$ inch brass faucet
- b. $\frac{3}{4}$ inch garden hose adapter
- c. $\frac{3}{4}$ inch diameter electrical conduit locknuts
- d. Plumber's tape
- e. Caulk
- f. Window screen
- g. Pond basket

If the Randolph Township Environmental and Landmarks Committee chooses to host a rain barrel workshop without a partner, the 55-gallon food grade barrels will need to be procured in advance as well. Many resources are available to teach Environmental and Landmarks Committee members to host this workshop, such as Train the Trainer Programs, PowerPoint presentation, fact sheets, and more (see [Resources](#) below). Randolph Township's Department of Public Works should be able to provide the necessary drills and other tools.

5. *Host the Rain Barrel Workshop*: On the day of the workshop, participants should be presented with information about the purpose of rain barrels, how they work, and what is required to maintain them. Following this brief presentation, Staff and/or Environmental and Landmarks Committee members will go through each step of building a rain barrel with participants and assist as needed. Following the workshop, the Township should follow up with residents to see if they installed the rain barrel and obtain feedback about the workshop and other issues.



How Does This Project Align with the Requirements of the Municipal Tier-A Stormwater Permit?

Under Randolph Township's Municipal Tier-A Stormwater Permit and the NJDEP's Municipal Stormwater Regulation Program, Tier A Municipalities "shall implement a Public Education and Outreach Program that focuses on educational and pollution prevention activities about the impacts of stormwater discharges on surface water and groundwater, and to involve the public in reducing pollutants in stormwater runoff and mitigating flow". As a Tier A Municipal Permittee, Randolph Township is required to conduct activities that total at least 12 points annually from at least three of the approved five categories. Projects completed by the Township or by volunteers count towards the satisfaction of this requirement. Below are the eligible activities from the Municipal Tier-A Stormwater Permit that correspond to this project in the RTEG (Project 11B.1) with a description of the tasks and the point values assigned.

Category 1: General Public Outreach		
Activity	Description	Points
Green Infrastructure Signage	Post signs at municipally owned green infrastructure sites that describe the function and importance of the infrastructure, contact phone number, municipal identification number, and website for more information. New signs receive 0.5 points per sign. Existing signs that are maintained and/or upgraded receive 0.25 points each.	5
Mural	Produce and maintain the planning and painting of a stormwater pollution themed mural, storm drain stenciling, or other artwork. As it relates to Project 11B.1, this could be accomplished through painting of rain barrels.	2
Category 3: School/Youth Education and Activities		
School Presentations	Provide water-related educational presentations and/or activities to a local school using municipal staff and local partners. Topics can include stormwater, non-point source pollution, water conservation, watersheds, and water quality.	5
Category 4: Watershed/Regional Collaboration		
Green Infrastructure Workshop	Organize or participate in a rain barrel, rain garden, or other green infrastructure workshop on a regional or watershed basis.	3
Category 5: Community Involvement Activities		
Rain Barrel Workshop	Organize or participate in a rain barrel workshop. This could be through a partnership with a watershed group, youth/faith-based group, scouts, etc.	3

Approvals Needed

The implementation of a rebate program would require approvals from the Township Council.

Funding Resources Available

55-gallon food grade drums can usually be recovered from other sources at no cost. The cost of supplies to convert these drums into rain barrels is estimated to be between \$25.00 and \$35.00. Participating residents should be charged at registration to provide the funding for supplies.

Existing Staff and Environmental and Landmarks Committee members could work on holding a Rain Barrel Workshop. A partnership with Raritan Headwaters and Rutgers Cooperative Extension of Morris County is highly recommended.

Resources

The following are links to free, online trainings that can be used to implement this project:

- *Build a Rain Barrel Workshop*. New Jersey Water Savers.
https://njwatersavers.rutgers.edu/MunicipalGuideforRainwaterHarvesting/ForMunicipalities_GuideRainwaterHarvesting_1BuildaRainBarrelWorkshop.html

- *Rain Barrels – Part 1: How to Build a Rain Barrel.* New Jersey Agricultural Experimentation Station.
<https://njaes.rutgers.edu/E329/>
- *Rain Barrels – Part 2: Installation and Use.* New Jersey Agricultural Experiment Station.
<https://njaes.rutgers.edu/pubs/publication.php?pid=FS1118>
- *Rain Barrels – Train the Trainer Programs.* New Jersey Agricultural Experiment Station.
<https://njaes.rutgers.edu/environment/rain-barrel-trainer-program.php>
- *Saving Water and Money with Rain Barrels.* World Wildlife Organization.
<https://www.worldwildlife.org/blogs/sustainability-works/posts/saving-water-and-money-with-rain-barrels#:~:text=According%20to%20the%20EPA%2C%20rain,made%20of%20plastic%20or%20wood.>
- *Types of Rain Barrels.* Home Depot.
<https://www.homedepot.com/c/ab/types-of-rain-barrels/9ba683603be9fa5395fab90dbd15e17>

Project 11B.2: Host Rain Garden Workshop

Purpose

Rain gardens are small areas constructed on a portion of a property that use specific plants to retain water. These rain gardens, when situated and constructed correctly, will significantly reduce ponding and flooding onsite, as well as stormwater runoff into our waterways. In addition to providing this important environmental service, rain gardens are aesthetically pleasing and require less maintenance from the landowner.

Implementation Strategy

Rain gardens must be planned and designed before installation. Plants must be carefully chosen to ensure it functions properly. Randolph Township's role in this project is more of a support role, and should implement it as follows:

1. *Form a Partnership with Rutgers University's Water Resources Program:* Randolph Township should partner with Rutgers University's Water Resources Program to host a rain garden workshop for residents. The Staff of these organizations are well-versed in the development of rain gardens and can assist interested landowners in developing a concept design, plant materials list, and cost estimate.
2. *Advertise the Rain Garden Workshop:* Once a date is set, Randolph Township can promote this event on its website and social media platforms. Follow-up with these residents is imperative to keep the public interested and to have installations completed.



How Does This Project Align with the Requirements of the Municipal Tier-A Stormwater Permit?

Under Randolph Township's Municipal Tier-A Stormwater Permit and the NJDEP's Municipal Stormwater Regulation Program, Tier A Municipalities "shall implement a Public Education and Outreach Program that focuses on educational and pollution prevention activities about the impacts of stormwater discharges on surface water and groundwater, and to involve the public in reducing pollutants in stormwater runoff and mitigating flow". As a Tier A Municipal Permittee, Randolph Township is required to conduct activities that total at least 12 points annually from at least three of the approved five categories. Projects completed by the Township or by volunteers count towards the satisfaction of this requirement. Below are the eligible activities from the Municipal Tier-A Stormwater Permit that correspond to this project in the RTEG (Project 11B.2) with a description of the tasks and the point values assigned.

Category 1: General Public Outreach		
Activity	Description	Points
Green Infrastructure Signage	Post signs at municipally owned green infrastructure sites that describe the function and importance of the infrastructure, contact phone number, municipal identification number, and website for more information. New signs receive 0.5 points per sign. Existing signs that are maintained and/or upgraded receive 0.25 points each.	5
Category 3: School/Youth Education and Activities		
School Presentations	Provide water-related educational presentations and/or activities to a local school using municipal staff and local partners. Topics can include stormwater, non-point source pollution, water conservation, watersheds, and water quality.	5
Category 4: Watershed/Regional Collaboration		
Green Infrastructure Workshop	Organize or participate in a rain barrel, rain garden, or other green infrastructure workshop on a regional or watershed basis.	3
Category 5: Community Involvement Activities		
Rain Garden Workshop	Organize or participate in a rain garden training or installation workshop. This could be through a partnership with a watershed group, youth/faith-based group, scouts, etc.	3

Approvals Needed

A partnership to host a Rain Garden Workshop should be explored first by the Environmental and Landmarks Committee and may require approval from the Township Manager.

Funding Resources Available

The cost of hosting a Rain Garden Workshop is negligible.

Landowners who choose to pursue the installation of a rain garden with assistance from Rutgers University's Water Resources Program will be responsible for costs associated with the project.

Resources

The following are links to free, online trainings that can be used to implement this project:

- *Install a Rain Garden*. New Jersey Water Supply Authority.
<https://www.raritanbasin.org/rain-garden>
- *Rain Garden Information Center*. Rutgers University's Water Resources Program.
http://www.water.rutgers.edu/Rain_Gardens/RGWebsite/rqinfo.html

Project 11C: Improve Water Quality at the Local Level

Water quality improvements must begin locally. Projects that clean up our waterways, remove trash and debris from storm drains, disconnect stormwater runoff at the source, and reduce pollutant loading have major positive impacts on water quality throughout the water body. These projects range in size, intensity, and income, but all are necessary to adequately address problems associated with New Jersey's waterways.

Project 11C.1: Host Stream Cleanup Events with Local Volunteer Groups

Purpose

Stream cleanups are events that can be held frequently by volunteers of all ages and abilities. These events are impactful in removing trash and debris from entering the waterway and leaching pollutants. Stream cleanups also serve as a source of community engagement and citizen science in demonstrating to the public that everyone can improve water quality and the effects that pollution has on waterways.

Implementation Strategy

Randolph Township can easily host stream cleanups throughout the year, or partner with outside organizations to do the same. To host stream cleanup events, Randolph Township should consider the following tasks:

- *Choose Dates and Locations:* The Randolph Township Environmental and Landmarks Committee can choose various locations and dates for stream cleanups. These events can be held throughout the year, and sites should vary based on need. Committee members should be onsite to assist with the event and interact with the public.
- *Partner with Local Community and Volunteer Groups:* Boy Scouts, Girl Scouts, Environmental Clubs, Watershed Organizations, and Corporate Social Responsibility Divisions are often looking for projects to advance their missions and satisfy requirements for badges, certifications, and service hours. Randolph Township could put a call-out to such organizations through its website, newsletter, and social media channels.
- *Organize a Stream Cleanup with Local Officials and Municipal Representatives:* Hosting a stream cleanup where the Township Council and Municipal Staff are available to assist with the cleanup and engage the public will demonstrate the Township's commitment to the environment and encourage members of the public to do the same.



How Does This Project Align with the Requirements of the Municipal Tier-A Stormwater Permit?

Under Randolph Township's Municipal Tier-A Stormwater Permit and the NJDEP's Municipal Stormwater Regulation Program, Tier A Municipalities "shall implement a Public Education and Outreach Program that focuses on educational and pollution prevention activities about the impacts of stormwater discharges on

surface water and groundwater, and to involve the public in reducing pollutants in stormwater runoff and mitigating flow”. As a Tier A Municipal Permittee, Randolph Township is required to conduct activities that total at least 12 points annually from at least three of the approved five categories. Projects completed by the Township or by volunteers count towards the satisfaction of this requirement. Below are the eligible activities from the Municipal Tier-A Stormwater Permit that correspond to this project in the RTEG (Project 11C.1) with a description of the tasks and the point values assigned.

Category 3: School/Youth Education and Activities		
Activity	Description	Points
Clean Up	Sponsor or organize a litter cleanup for scout troops, local school districts, faith-based organizations or community youth groups along a local waterway, public park, stormwater facility, or in an area with storm drains that discharge to a local waterway.	3
Category 5: Community Involvement Activities		
Community Event	Organize or participate in the organization of a community event to carry out stormwater-related activities.	3

Approvals Needed

Events held on land held by other government entities or nonprofit organizations will require approval from that landowner.

In the event that stream cleanups are held on municipal property by volunteer groups, a Certificate of Insurance or waiver forms may be required prior to the stream cleanup occurring.

Funding Resources Available

The cost of hosting a stream cleanup is negligible. Trash bags and gloves should be distributed to all volunteers. This cost can be covered by Randolph Township’s Clean Communities Grant.

Resources

The following are links to free, online trainings that can be used to implement this project:

- *Annual Stream Cleanup*. Raritan Headwaters.
<https://www.raritanheadwaters.org/get-involved-2/stream-cleanup-page/>
- *Clean Communities Grant - Guidelines*. New Jersey Department of Environmental Protection.
<https://www.njclean.org/images/grants/Grant-Guidelines.pdf>

Project 11C.2: Implement an Adopt-A-Drain Program

Purpose



Figure 41: How to Keep a Storm Drain Clear
Source: [Stormwater Report - Water Environment Federation](#)

The Adopt-A-Drain Program provides a free and voluntary framework for participants to adopt a storm drain and keep it free of trash and debris. Nationally, 10,000 adopters have adopted 20,000 storm drains, leading to the removal of 500,000 pounds of debris. Adopters are encouraged to clean the top grates of the storm drain and around it prior to an anticipated storm event, and at least once a month. A simple online system allows adopters to report what they removed, which is reported to the Township and all participants at the end of the year. The Adopt-A-Drain Program saves time and money for the Department of Public Works

and gives participants a sense of responsibility for local water quality. Due to a robust community engagement program within the Adopt-A-Drain Program, neighbors are often inspired to participate, leading to a significant reduction in pollution and debris in our waterways.

Implementation Strategy

The Adopt-A-Drain Program was developed by Hamline University in Minnesota, where the program is still administered as the nation's largest public engagement and outreach program. If Randolph Township chooses to implement this Program, coordination with Hamline University is required.

1. *Contact Hamline University for Introductory Consultation and Proposal Development:* Randolph Township should contact Hamline University to discuss the Township's needs and characteristics. During this conversation, Staff from Hamline University will explain how the program works, what services they offer, associated costs, and how the program should be implemented specifically for Randolph.
2. *Implement the Adopt-A-Drain Program:* If approved by the Township Council, Hamline University will request GIS shapefiles related to waterways, watershed features, location of storm drains, and other relevant data. This data is used to create the interactive online mapping used to adopt available drains. Hamline University will send welcome packets and lawn signs to adopters directly, eliminating the need for administrative services from the Township. Municipal Staff will be able to review adoptions and cleanings via a live online dashboard made available to them. At the end of each year, Hamline University will produce an annual report for Randolph Township detailing the number and locations of adopted drains, amount and type of debris removed, and changes that occurred throughout the year.

3. *Include the Results of Program into MS4 Reporting:* The Adopt-A-Drain Program complies with public education and outreach requirements in the required Municipal Separate Storm Sewer Systems (MS4) Permit.
4. *Create a Data Driven Report to Evaluate Efficacy:* Randolph Township can use the annual report submitted by Hamline University to create a data driven report that describes time and money saved by the Department of Public Works, feedback from Staff and residents, and noticeable changes to flooding, ponding, or other relevant issues.



How Does This Project Align with the Requirements of the Municipal Tier-A Stormwater Permit?

Under Randolph Township's Municipal Tier-A Stormwater Permit and the NJDEP's Municipal Stormwater Regulation Program, Tier A Municipalities "shall implement a Public Education and Outreach Program that focuses on educational and pollution prevention activities about the impacts of stormwater discharges on surface water and groundwater, and to involve the public in reducing pollutants in stormwater runoff and mitigating flow". As a Tier A Municipal Permittee, Randolph Township is required to conduct activities that total at least 12 points annually from at least three of the approved five categories. Projects completed by the Township or by volunteers count towards the satisfaction of this requirement. Below are the eligible activities from the Municipal Tier-A Stormwater Permit that correspond to this project in the RTEG (Project 11C.2) with a description of the tasks and the point values assigned.

Category 1: General Public Outreach		
Activity	Description	Points
Social Media	Post relevant stormwater materials on a municipal social media site. Include links to stormwater-related resources.	3
Newspaper Ad	Use NJDEP created and approved stormwater education materials available on www.cleanwater.nj.org to publish an ad in a local newspaper or municipal newsletter. As it relates to Project 11C.2, this advertisement would promote the Adopt-A-Drain Program.	1
Radio/TV	Broadcast a stormwater-related radio or television public service announcement from www.cleanwater.nj.org on a local radio station or municipal public service channel. As it relates to Project 11C.2, this advertisement would promote the Adopt-A-Drain Program.	2
Billboard/Sign	Post and maintain a stormwater-related billboard or sign which can be displayed on a bus, bus stop shelter, recreation field, or other common public venue. As it relates to Project 11C.2, this advertisement would promote the Adopt-A-Drain Program.	2
Mural	Produce and maintain the planning and painting of a stormwater pollution themed mural, storm drain stenciling, or other artwork. As it relates to Project 11B.1, this could be accomplished through painting of rain barrels.	2
Category 2: Targeted Audiences Outreach		
Mail/Email Campaign	Distribute any of the NJDEP's educational brochure, tip cards, or a municipally approved equivalent via a mailing to every resident and business. As it relates to Project 11C.2, this advertisement would promote the Adopt-A-Drain Program.	2

Category 3: School/Youth Education and Activities		
Activity	Description	Points
School Presentations	Provide water-related educational presentations and/or activities to a local school using municipal staff and local partners. Topics can include stormwater, non-point source pollution, water conservation, watersheds, and water quality. As it relates to Project 11C.2, this advertisement would promote the Adopt-A-Drain Program.	5
Category 5: Community Involvement Activities		
Community Event	Organize or participate in the organization of a community event to carry out stormwater-related activities.	3

Approvals Required

Approvals will be required by the Township Council for the entering into a contract with Hamline University, and the associated expenditure of funds.

The Director of the Department of Public Works will need to play a key role in this project.

Funding Resources Available

The cost for implementing an Adopt-A-Drain Program is based off the municipality's population. An initial setup fee is required in addition to the annual fee. These fees include the setup and maintenance of the interactive, online mapping and municipal dashboard, administrative services from Hamline University for mailings and advertising, and the development of an annual report.

A portion of Randolph Township's Clean Communities Grant can be used to fund the Adopt-A-Drain Program. The remainder of the funding could be obtained through the municipal budget and/or grant sources.

The New Jersey Highlands Council offers grants for planning, engineering, and design for projects that maximize the environmental and economic benefits of living in the Highlands region of New Jersey. These grants can be used to commission studies that conserve natural resources, reduce pollution and greenhouse gas emissions, promote sustainable land management practices, and more. Planning grants from the New Jersey Highlands Council are non-competitive and do not require a financial match from the municipality or county. No minimum or maximum award thresholds are established, and the application is on a rolling basis, making these grants very flexible and desirable for Highlands communities. More information can be found at:

https://www.nj.gov/njhighlands/grantprograms/plan_conformance/grants_overview.pdf

Sustainable Jersey offers small grants to participating municipalities for projects that further the Actions identified under their Certification Program. If Randolph Township chooses to work towards Certification under the Sustainable Jersey Program, it can apply for grant funding in the amount of \$2,000.00 to \$20,000.00 to fund the implementation of the Adopt-A-Drain Program. More information on grant funding through Sustainable Jersey can be found at: <https://www.sustainablejersey.com/grants/>

Resources

The following are links to free, online trainings that can be used to implement this project:

- *Adopt-A-Drain: New Jersey*
<https://nj.adopt-a-drain.org/>
- *Bring Adopt-A-Drain to Your City*. Hamline University
<https://ms4.adopt-a-drain.org/contact>
- *Interactive Mapping System and GIS Data*. New Jersey Highlands Council.
https://www.nj.gov/njhighlands/gis/interactive_map/index.html
- *Municipal Stormwater Regulation Program*. New Jersey Department of Environmental Protection.
https://www.nj.gov/dep/dwq/msrp_home.htm
- *Open GIS Data*. New Jersey Highlands Council.
<https://highlands-data-njhighlands.opendata.arcgis.com/>
- *Planning Grants*. New Jersey Highlands Council.
https://www.nj.gov/njhighlands/grantprograms/plan_conformance/grants_overview.pdf
- *Regional Master Plan*. New Jersey Highlands Council. July 17, 2008.
https://www.nj.gov/njhighlands/master/rmp/final/highlands_rmp_112008.pdf

Project 11C.3: Promote EPA's WaterSense Program

Purpose

According to the United States Environmental Protection Agency (EPA), the average American family uses 300 gallons of water per day in the home.

The United States Environmental Protection Agency's (EPA) WaterSense Program is an initiative aimed at conserving household water use (along with the energy needed to produce water supply) and saving money. This voluntary program represents a partnership with manufacturers, retailers, distributors, utilities, home builders, and homeowners. The labeling of water-efficient appliances, equipment, and/or devices with information about how water is wasted in similar devices, and how water can be conserved by using that particular appliance, equipment, and/or device. WaterSense labeled products are certified to use at least 20% less water, save energy, and perform just as well, if not better, than regular models.



Implementation Strategy

The EPA's WaterSense Program is a comprehensive educational program for the public, which can be promoted by Randolph Township to its residents and business owners. More participants in this program will save water and energy within the municipality, while saving money for the community. The WaterSense Program has identified interesting and easy ways to promote the use of water-efficient appliances, equipment, and/or devices:

1. *Promote Participation of the EPA's WaterSense Program on the Township's Website:* Randolph Township can educate the community about the WaterSense Program and its benefits by adding a link to its website. If customers are aware of where to purchase water-efficient appliances, equipment, and/or devices and the benefits that come along with them, they are more apt to search specifically for these items and install them in their homes.
2. *Promote the Use of the "WaterSense for Kids" Resources with the School Community:* The EPA has developed activity sheets, a Family Pledge, ways to track water usage to promote conservation, and more. These resources can be forwarded to the Township schools and distributed at municipal events.
<https://www.epa.gov/watersense/watersense-kids>

Approvals Required

This project calls for the promotion of an existing, reputable program developed and implemented by the EPA. No additional approvals are needed to promote this project.

Funding Resources Available

The WaterSense Program is existing, voluntary, and free. No funding is needed to promote this Program using the Township's existing print and digital resources.

Resources

The following are resources that can be used to implement this project:

- *About WaterSense*. United States Environmental Protection Agency.
<https://www.epa.gov/watersense/about-watersense>
- *WaterSense for Kids*. United States Environmental Protection Agency.
<https://www.epa.gov/watersense/watersense-kids>

Project 11C.4: Educate the Public About the Importance of Fixing Water Leaks

Purpose

Many homes have pipes or appliances that leak water, which leads to the loss of over one trillion gallons of water per year nationally. The most common leaks are easily mitigated, and often stem from worn toilet flappers, dripping faucets, and leaking valves. Many homeowners and business owners do not realize that fixing water leaks does not take much skill or experience, only requires some minor tools, and pays for itself in water savings. Educating the public about the importance of fixing water leaks will lead to a savings in water, energy, and money, while empowering residents and conserving one of most important natural and finite resources.

Implementation Strategy

As referenced in Project 11C.3, the EPA has developed a comprehensive website which includes resources for conserving water using water-efficient appliances, equipment, and/or devices. A major component of this Program is addressing water leaks, especially in homes where up to 10,000 gallons of water annually can be lost through faulty pipes and inefficient appliances and machinery. Randolph Township can easily educate the public about the importance of fixing water leaks by:

1. *Promote the Tools and Resources in the EPA's WaterSense Program for Fixing Leaks:* The EPA has compiled a variety of tools and resources for homeowners and business owners to identify and mitigate leaks. These tools include checklist for detecting and identifying leaks in the home, videos on how to fix leaks (step-by-step), how to install water-efficient faucets, and more. Randolph Township can encourage residents and business owners to use these resources by providing a link directly to the EPA's WaterSense Program on its municipal website and social media.
2. *Fix-A-Leak Week:* The EPA's Annual Fix-A-Leak Week is held in mid-March annually and serves as an opportunity to educate the public about the severe water loss associated with common household leaks. This week can also empower local homeowners and business owners to find and fix leaks in their buildings, ultimately saving water, energy, and money. Randolph Township can promote this practice by posting information to its website, newsletters, and social media, especially during Annual Fix-A-Leak Week. The EPA has compiled many resources, which can be found at: <https://www.epa.gov/watersense/fix-leak-week>

Approvals Required

This project calls for the promotion of an existing, reputable program developed and implemented by the EPA. No additional approvals are needed to promote this project.

Funding Resources Available

The WaterSense Program is existing, voluntary, and free. No funding is needed to promote this Program using the Township's existing print and digital resources.

Resources

The following are resources that can be used to implement this project:

- *Detect and Chase Down Leaks*. United States Environmental Protection Agency.
<https://www.epa.gov/sites/default/files/2017-02/documents/ws-ourwater-detect-and-chase-down-leaks-checklist.pdf>
- *Fix-A-Leak Week*. United States Environmental Protection Agency.
<https://www.epa.gov/watersense/fix-leak-week>

Project 11C.5: Promote Sustainable Landscaping Techniques

Purpose

Sustainable Landscaping Techniques are those that reduce harmful inputs, conserve water, and protect soil quality, all while maintaining a beautiful and ecologically robust landscape. Sustainable Landscaping can save time and money and be implemented on a small or large scale. Many of the projects already referenced in this *Guidebook* are comprised of Sustainable Landscaping Techniques, such as harvesting rainwater, composting food waste, creating habitat for wildlife, and reducing nonpoint source pollution. When these techniques are employed on individual residential lawns, commercial landscapes, and industrial and institutional campuses, the benefits are cumulative and magnified to the community.

Implementation Strategy

Randolph Township can promote the implementation of Sustainable Landscaping Techniques in a variety of easy ways:

1. *Post Information on the Municipal Website:* Randolph Township can post information about Sustainable Landscaping Techniques on its website, or on a page dedicated to the *Guidebook*. Residents and commercial landowners will be able to review this information in one place, providing them with ideas and guidance for implementation at their properties.
2. *Continue to Incorporate Sustainable Landscaping Techniques on Township-Owned Properties:* Municipal properties can benefit from Sustainable Landscaping Techniques such as reduced fertilizer usage, modified watering schedule, use of pollinator and native plants, and more. In addition to the realization of a cost and labor savings, these projects will serve as a model for residential and commercial property owners in the Township.
3. *Host Rain Barrel and Rain Garden Workshops:* As referenced in Projects 11B.1 and 11B.2, educating the public about rainwater harvesting through the use of rain barrels, and the creation of wildlife habitat, stormwater runoff retention, and pollination sites through the planting of rain gardens will bring these smaller-scale green infrastructure projects to the Township at a variety of scales. This education and practice will significantly increase the benefits of Sustainable Landscaping over time.
4. *Promote Backyard Composting:* As referenced in Project 5C.1, composting not only reduces food waste, but also creates the “black gold” of soil which provides valuable nutrients to existing soil. Working with entities such as Rutgers Cooperative Extension of Morris County to host composting workshops for residents is a great way to promote this practice, which goes hand in hand with Sustainable Landscaping Techniques.
5. *Encourage “Grass Clippings Cut-It-and-Leave-It”:* As referenced in Project 10A.4, encouraging residents to leave grass clippings after mowing returns valuable nutrients to the lawn, making it appear lusher, while reducing yard waste. This practice results in a more aesthetically pleasing landscape, and yields cost savings for property owners, as well as space savings in landfills.

6. *Promote Reduced Mowing and Watering Schedules:* Many property owners “over-mow” their lawns simply as a matter of habit or standard practice. By reducing the frequency of mowing, landscapes have an opportunity to serve as wildlife habitat and pollination sites. Reducing mowing also limits the amount of energy used and emissions created. Watering is also typically done too often, leading to a waste of water. Reduced watering will teach property owners the value of water conservation and limit soil erosion, while maintaining a beautiful landscape.
7. *Tools for Fertilizer Input:* The New Jersey Agricultural Experiment Station (NJAES) has developed a tool for landowners to calculate the amount of fertilizer needed based on the size of the lawn. Randolph Township can add a link to its website promoting this tool, which will reduce costs for landowners while also reducing nonpoint source pollutants.
<http://rutgersnjfertilizerapp.blogspot.com/>

Approvals Required

Approvals from external entities are not required for this project.

Funding Resources Available

A portion of Randolph Township’s Clean Communities Grant can be used to fund projects such as the Grass Clippings Cut-It-and-Leave It Program, Composting, and Water Conservation Projects.

Sustainable Jersey offers small grants to participating municipalities for projects that further the Actions identified under their Certification Program. If Randolph Township chooses to work towards Certification, it can apply for grant funding in the amount of \$2,000.00 to \$20,000.00 to fund the implementation of the projects and programs that promote Sustainable Landscaping Techniques. More information on grant funding through Sustainable Jersey can be found at: <https://www.sustainablejersey.com/grants/>

Resources

The following are links to free, online trainings that can be used to implement this project:

- *10 Ideas for a Sustainable Landscape.* Love Your Landscape.Org.
<https://www.loveyourlandscape.org/expert-advice/eco-friendly-landscaping/designing-your-landscape-for-wildlife/10-ideas-for-a-sustainable-landscape/#0>
- *Lawns and Landscaping.* New Jersey Agricultural Experiment Station.
<https://njaes.rutgers.edu/home-lawn-garden/lawns-landscapes.php>
- *Principles of Sustainable Landscaping.* The Landscaping Network.
<https://www.landscapingnetwork.com/landscape-design/sustainable/principles.html>
- *Sustainable Landscaping.* CalRecycle.
<https://calrecycle.ca.gov/organics/landscaping/#:~:text=How%20to%20Landscape%20Sustainably,habitat%2C%20mulching%2C%20and%20composting.>

Project 11C.6: Designate an “Ambassador” to Attend Watershed Meetings

Purpose

Randolph Township has two major river basins within its borders:

- *Passaic River Basin* - The tributaries within the Township that drain into the Passaic River basin include Jackson Brook, Wallace Brook, Mill Brook, and Den Brook. The Passaic River Basin is comprised of Watershed Management Areas 4, 5, and 6.
- *Raritan River Basin* - The tributaries that drain into the Raritan River Basin include the tributaries of the Black River, Burnett Brook, Dawson’s Brook and India Brook. The Raritan River Basin is comprised of Watershed Management Areas 8 and 9.

Planning at the watershed-scale captures the true impact of conservation measures as they are implemented in and along our waterways. To understand efforts that are underway not just through neighboring local governments, but also through environmental stewardship groups, non-profit entities, and volunteers, the Township needs to maintain a close partnership with Watershed Groups. These groups tend to have a clear understanding of such projects and initiatives, and are happy to share their technical expertise, experiences, and methodologies. Designating an ambassador to attend meetings of Watershed Groups and other pertinent entities will bring this important knowledge back to Randolph, while demonstrating the Township’s commitment to watershed protection in the municipality.

Implementation Strategy

The Passaic River Coalition and the Raritan Headwaters Association are the two non-profit organizations focused on the watersheds associated with Randolph Township. An ambassador from the municipality should regularly attend meetings of these organizations and report their findings to the Environmental and Landmarks Committee. This ambassador role may not require membership on the Board of Trustees of each organization but will be a “liaison” from a watershed municipality that has access to meetings and project activities of the organization.

The Raritan Headwaters Association has as part of its strategic plan a strategy to strengthen municipal outreach and education by implementing the Watershed Tools for Local Leaders and Watershed Champions programs.

Approvals Needed

The Chairperson of the Environmental and Landmarks Committee can appoint an ambassador to one or both watershed organizations.

Funding and Funding Resources

This Project does not require any funding to fully implement.

Resources

The following are links to existing resources that can be used to implement this project:

- *New Jersey's Watersheds, Watershed Management Areas, and Water Regions*. Rutgers University.
<https://rucore.libraries.rutgers.edu/rutgers-lib/32864/PDF/1/play/>
- *Passaic River Coalition*.
<https://passaicriver.org/>
- *Raritan Headwaters Association*.
<https://www.raritanheadwaters.org/>

Project 11D: Create a Municipal Water Story

Purpose

A Municipal Water Story is a data and community driven project that comprehensively analyzes a community's challenges with water access, usage, quality, and conservation measures. A Municipal Water Story looks at drinking water, stormwater, and wastewater through the lens of its existing infrastructure, impacts on environmental features, and how this water is regulated. This project allows the municipality to assess its own challenges with water within its borders, leading to impactful recommendations for water conservation, improved water quality, and equitable access for all residents.

Although municipalities typically have governance and ownership of infrastructure and systems that retain, treat, and deliver water to its residents, water does not naturally follow or can be entirely contained within municipal boundaries. Communities who understand their strengths and weaknesses as it relates to potable water, stormwater runoff, and wastewater are more resilient, and will contribute to benefits for neighboring municipalities.

Implementation Strategy

Randolph Township's Environmental and Landmarks Committee, Planning Board, and Department of Public Works can create a Municipal Water Story with assistance from Morris County and local watershed associations, using data readily available at the municipal level. This data will be used to draft the beginning sections of the Municipal Water Story, with community input being sought to understand water challenges, access, and conservation measures directly affecting residents.

A Municipal Water Story consists of six sections, as well as a comprehensive community outreach strategy. Randolph Township can customize this Study as it sees fit:

1. *Water Resources in the Municipality* – This section provides a “big picture” view of the water resources in Randolph Township. Information about watersheds, subwatersheds, wetlands, stream classifications, water quality, location of headwaters, and more will be discussed here.
2. *Community Access to Water* – This section identifies how people access water for recreation (fishing, wildlife enjoyment, boat launches, beaches, water sports, etc.). Review of the Open Space and Recreation Plan will be helpful in drafting this portion of the Municipal Water Story. A focus on equitable access should be incorporated. Additionally, discussion regarding health advisories and harmful algal blooms that have occurred over the last five – ten years should be discussed here.
3. *Drinking Water Supply and Quality* - This section will identify the sources of the municipal water supply, how the drinking water is treated and delivered, and what existing and/or potential threats affect Randolph Township now or in the future. This section should also have a focus on private wells, and how they are permitted and regulated within the municipality.
4. *Wastewater* – This section will identify how wastewater is permitted, treated, and regulated in the municipality. A listing and map of sewage treatment plants should be provided as part of the Report. A focus on private septic systems should also be included, along with a map showing

where Sewer Service Areas are delineated. Lastly, this section should identify discharges to groundwater and surface waters, as well as Known Contaminated Sites.

5. *Stormwater and Flooding* – This section will discuss how stormwater is managed within the municipality. Review of Randolph Township's Municipal Separate Storm Sewer Systems (MS4) permit, Stormwater Management Plan, and Stormwater Control Ordinance will be the foundation for assessment in this section of the Report. New requirements from the updated New Jersey Stormwater Management Rules (NJAC 7:8) should be addressed here. Flooding events over the last ten years should be listed, along with a review of major damages endured. This section is a good place to look at increased frequency and/or intensity of flooding events as a means to provide recommendations for green infrastructure and climate change resiliency plans.

***Community Outreach* – Prior to the closing section of the Municipal Water Story, the draft Report including sections 1-5 should be shared with the community. At least two community-wide meetings should be held to validate the data as presented, understand water challenges and themes affecting the community, and inspire local action and projects for conservation and improved water quality. This community input should be documented and used in drafting Section 6.

6. *Synthesis of Ranking of Water Issues* – This last section of the Municipal Water Story assesses all data and community feedback obtained and identifies and prioritizes water challenges affecting Randolph Township. Ideally, this section would include a list of recommended projects and strategies to address these water challenges, promote water conservation, improve water quality, and incorporate sustainability and resiliency. As with the previous sections, equitable access and environmental justice should be a priority.

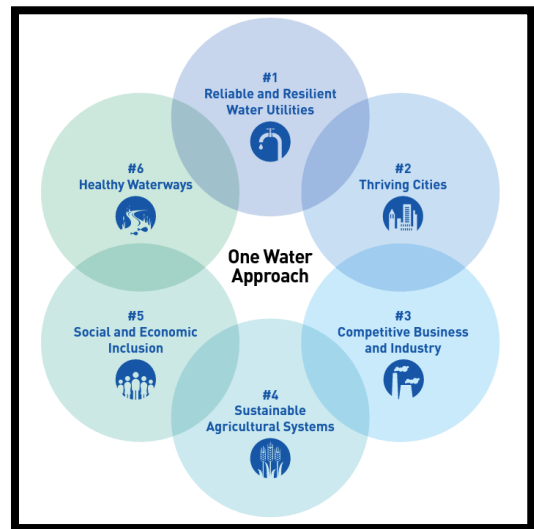


Figure 42: One Water Approach
Source: [US Water Alliance](#)

Approvals Needed

Approvals are not required for this project, however coordination with Environmental and Landmarks Committee and municipal staff will be integral to the completion of a Municipal Water Story.

Funding Resources Available

The New Jersey Highlands Council offers grants for planning, engineering, and design for projects that maximize the environmental and economic benefits of living in the Highlands region of New Jersey. These grants can be used to commission studies that conserve natural resources, reduce pollution and greenhouse gas emissions, promote sustainable land management practices, and more. Planning grants from the New Jersey Highlands Council are non-competitive and do not require a financial match from the municipality or county. No minimum or maximum award thresholds are established, and the application is on a rolling basis, making these grants very flexible and desirable for Highlands communities. More

information can be found at:

https://www.nj.gov/njhighlands/grantprograms/plan_conformance/grants_overview.pdf

Sustainable Jersey offers small grants to participating municipalities for projects that further the Actions identified under their Certification Program. If Randolph Township chooses to work towards Certification, it can apply for grant funding in the amount of \$2,000.00 to \$20,000.00 to fund the implementation of the projects and programs that mitigate hazards in the community and identify vulnerable populations for emergency management purposes. More information on grant funding through Sustainable Jersey can be found at: <https://www.sustainablejersey.com/grants/>

Resources

The following are links to existing resources that can be used to implement this project:

- *Interactive Mapping System and GIS Data*. New Jersey Highlands Council.
https://www.nj.gov/njhighlands/gis/interactive_map/index.html
- *Jersey WaterCheck: A Tool to Help You Be Informed About Your Water System*. Jersey Water Works.
<https://www.jerseywaterworks.org/latest-news/informed-customers/>
- *Municipal Stormwater Regulation Program*. New Jersey Department of Environmental Protection's Bureau of NJPDES Stormwater Permitting and Water Quality Management.
<https://dep.nj.gov/njpdes-stormwater/municipal-stormwater-regulation-program/>
- *Municipal Water Story (Action)*. Sustainable Jersey.
https://www.sustainablejersey.com/actions/?type=1336777436&tx_sjcert_action%5BactionObject%5D=581&tx_sjcert_action%5Baction%5D=getPDF&tx_sjcert_action%5Bcontroller%5D=Action&cHash=140ee8eae6d5674ae6542f112585eefd
- *New Jersey Watershed Organizations*. Rutgers University's New Jersey Agricultural Experimentation Station.
https://njwri.rutgers.edu/watershed_orgs.htm#morris
- *One Water Roadmap: The Sustainable Management of Life's Most Essential Resource*. US Water Alliance.
<https://uswateralliance.org/sites/uswateralliance.org/files/publications/Roadmap%20FINAL.pdf>
- *Open GIS Data*. New Jersey Highlands Council.
<https://highlands-data-njhighlands.opendata.arcgis.com/>
- *Post Construction Stormwater Management (NJAC 7:8)*. New Jersey Department of Environmental Protection.
<https://dep.nj.gov/stormwater/>
- *Regional Master Plan*. New Jersey Highlands Council. July 17, 2008.
https://www.nj.gov/njhighlands/master/rmp/final/highlands_rmp_112008.pdf

- *Telling Your Municipal Water Story*. Sustainable Jersey.
www.sustainablejersey.com/fileadmin/media/Events_and_Trainings/Sustainability_Summit/2022/FINAL_Water_Story.pdf
- *Water Quality Assessment*. New Jersey Department of Environmental Protection's Division of Water Monitoring and Standards.
<https://www.state.nj.us/dep/wms/bears/assessment.htm#/>
- *Water Quality Management Planning Program*. New Jersey Department of Environmental Protection – Division of Water Quality Management Planning.
<https://www.state.nj.us/dep/wqmp/wqmps.html>

CHAPTER 12: NEXT STEPS

The RTEG has made achieving the Vision and Goals possible by identifying 49 projects that will lead to significant positive, measurable changes. In developing this Guidebook, common threads have been found and several priority issues have risen to the top. This Chapter provides initial recommendations for implementation of the RTEG.

The following initial recommendations are offered for consideration when implementing the goals and projects of the RTEG:

- *Begin with Waste Management:* The projects identified under the Waste Management category are relatively simple to complete, and many are low-cost. Additionally, these projects are measurable and provide immediate assistance to residents, which will serve as an early win for the project. Stakeholder input has also demonstrated that waste management is a priority, which follows the priorities of the New Jersey Department of Environmental Protection and the United States Environmental Protection Agency. An added bonus is that partners are readily available for Randolph Township in this area – Habitat for Humanity’s ReStore, the Morris County Municipal Utilities Authority, and Township Staff.
- *Review Available Grant Funding and Funding Programs:* Numerous funding sources are available for the projects identified the RTEG, with many overlapping opportunities. The funding of one project may be a step in obtaining more funding for the subsequent projects. A complete review of the projects identified in the RTEG should be conducted by the Environmental and Landmarks Committee and Township Council, with a focus on funding sources that complement each other. For example, funding allocated through the Bipartisan Infrastructure Law for electric vehicles can work with funding through the NJDEP’s Drive Green Program, which could cover costs for the installation of the charging stations and the purchase of new municipal electric vehicles.
- *Invest in Trainings and Equipment for Municipal Staff:* Sustainability projects and green infrastructure require knowledge of how they function, how and when they need to be maintained, and how to repair/replace typical components. Involving and training staff through available online resources (i.e., NJDEP’s Stormwater Management Training Modules), in-person trainings (i.e., Green Infrastructure Champions), and projects identified in the RTEG (i.e., performing a waste audit at the Municipal Building) will immediately advance these projects, while sustaining the momentum to achieve sustainability, natural resources protection, and environmental protection.
- *Community Engagement is Key:* Many of the projects identified in the RTEG contain a community engagement component. Behavioral changes are at the center of many of these projects, along with participation at the hyperlocal level. The use of multiple communications strategies is imperative to the success of the RTEG.

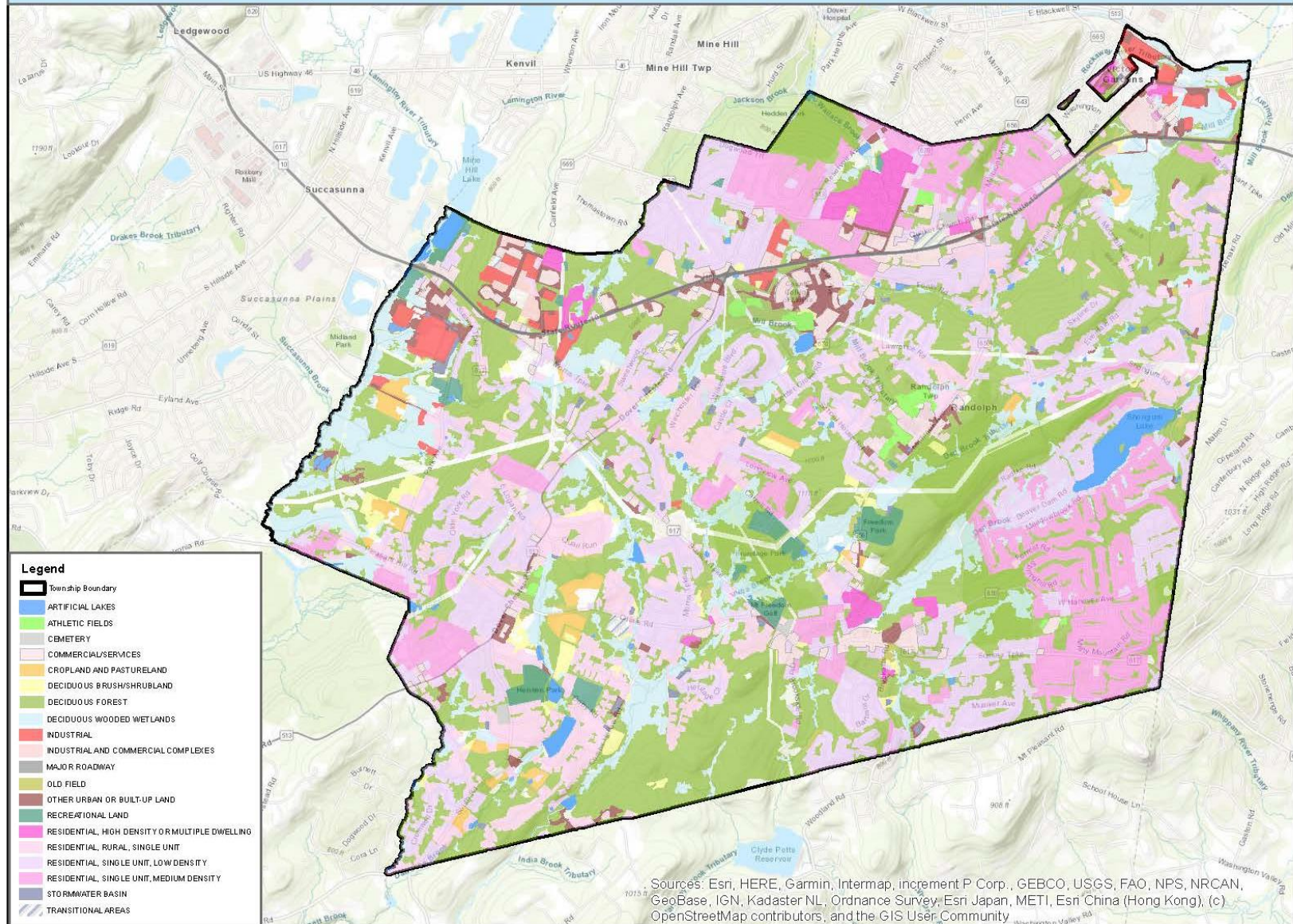
APPENDICES

1. Map of Land Uses in Randolph Township
2. Map of Preserved Open Space in Randolph Township
3. Maps of Existing and Proposed Trail Networks in Randolph Township
(*2017 Randolph Township Trails Master Plan*)
4. Map of Presence of Threatened and Endangered Species in Randolph Township

APPENDIX 1

Map of Land Uses in Randolph Township

Randolph Township - Land Use/Land Cover - 2015 NJDEP GIS Coverage



APPENDIX 2

Map of Preserved Open Space in Randolph Township

[illegible]

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri (The Swis), Swis, OpenStreetMap contributors, and the GIS User Community

APPENDIX 3

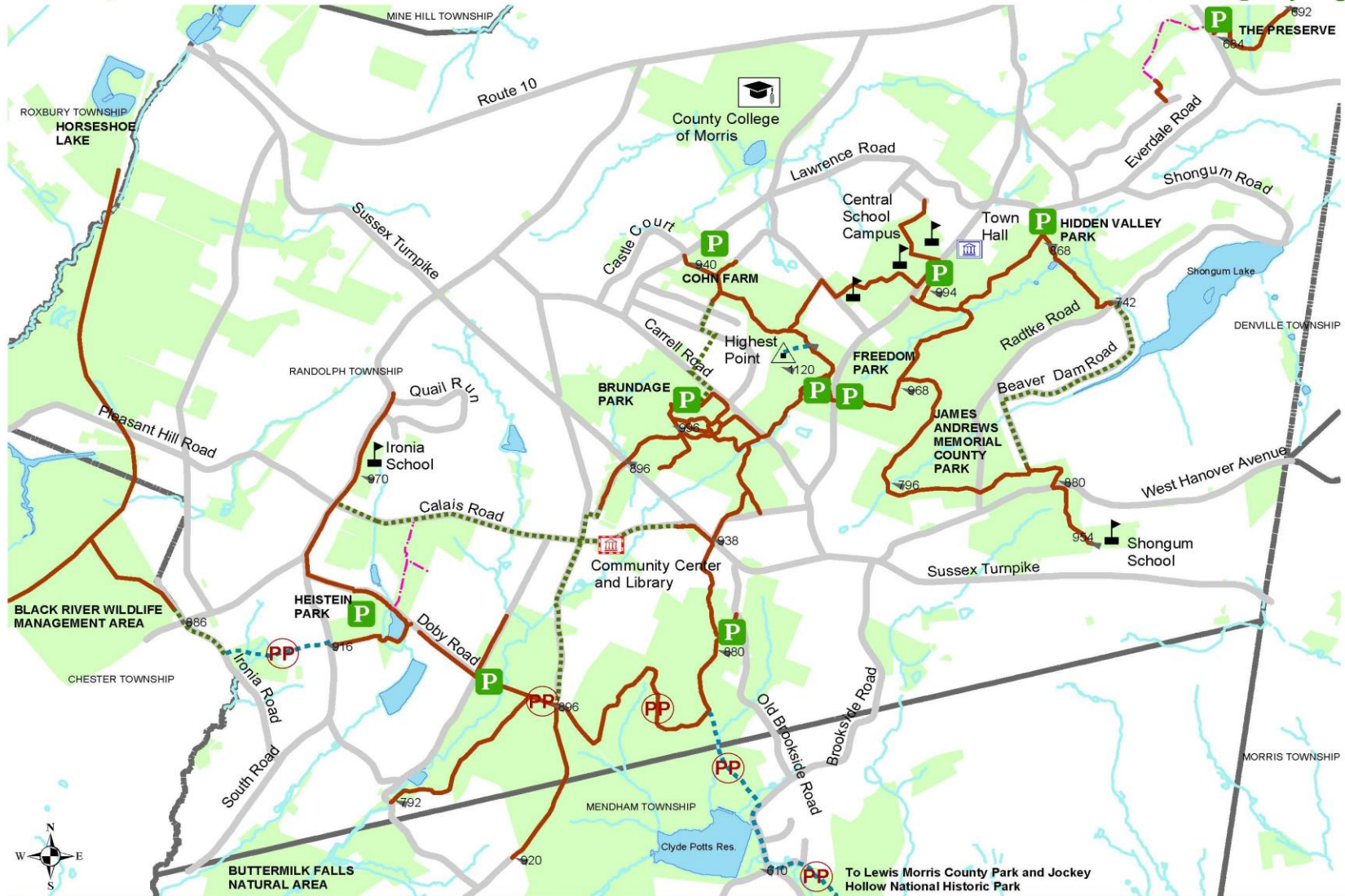
Maps of Existing and Proposed Trail Networks in Randolph Township
2017 Randolph Township Trails Master Plan

Map 4A: Existing Trail Network

Map 4B: Proposed Trail Network

Randolph Trails

www.randolphnj.org



LEGEND

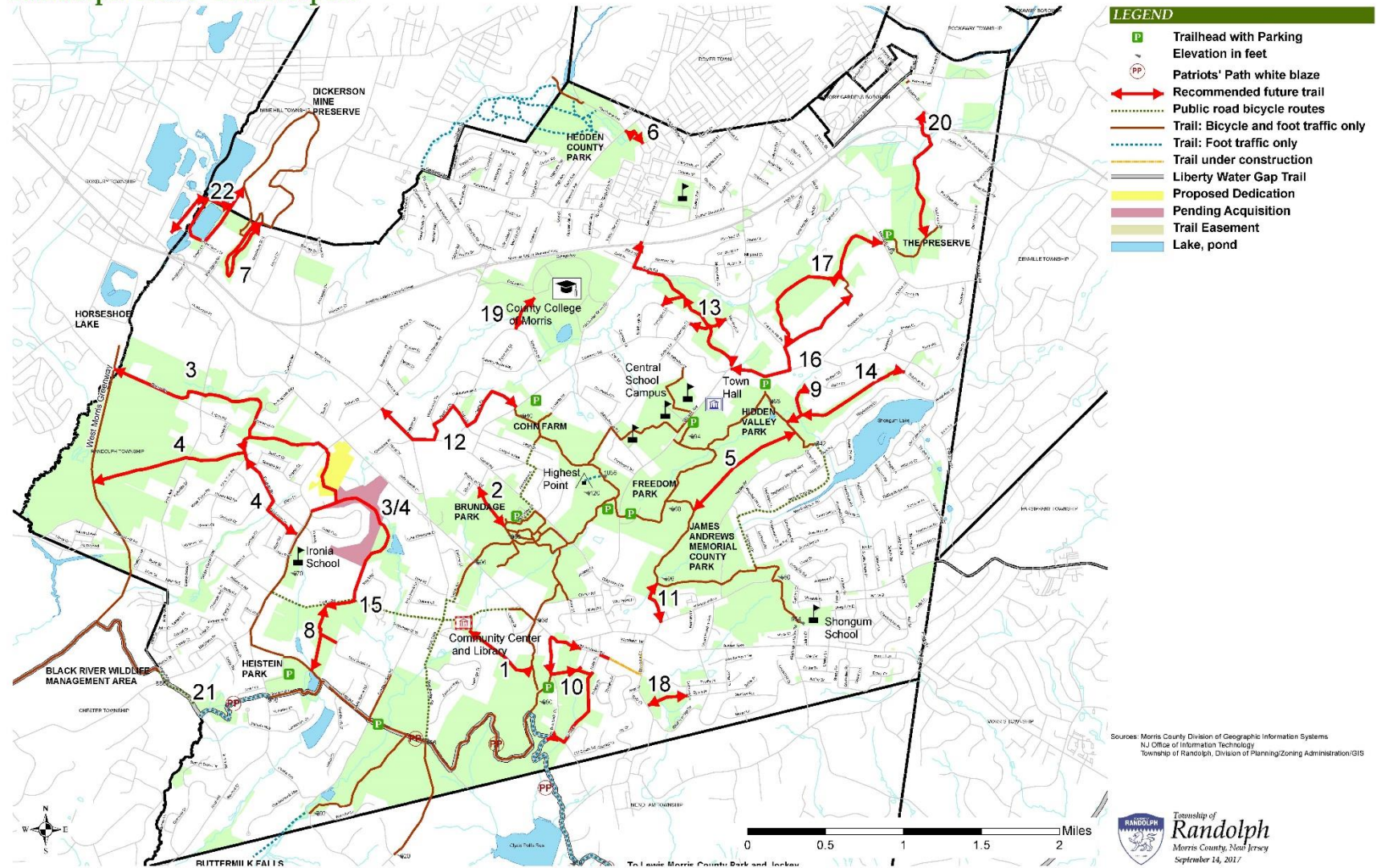
- Public road bicycle routes
- Trail: Bicycle and foot traffic only
- Trail: Foot traffic only
- Proposed trail
- Public road
- Lake, pond
- Public open space
- Trailhead with Parking
- Patriot's Path white blaze

Elevation in feet

0 0.25 0.5 0.75 1 Miles



Randolph Trails- Final Report



APPENDIX 4

Map of the Presence of Threatened and Endangered Species in Randolph Township

Suitable Habitat for State Threatened and Endangered Species, Vernal Habitat and Public Open Space

