



Highlands Regional Master Plan

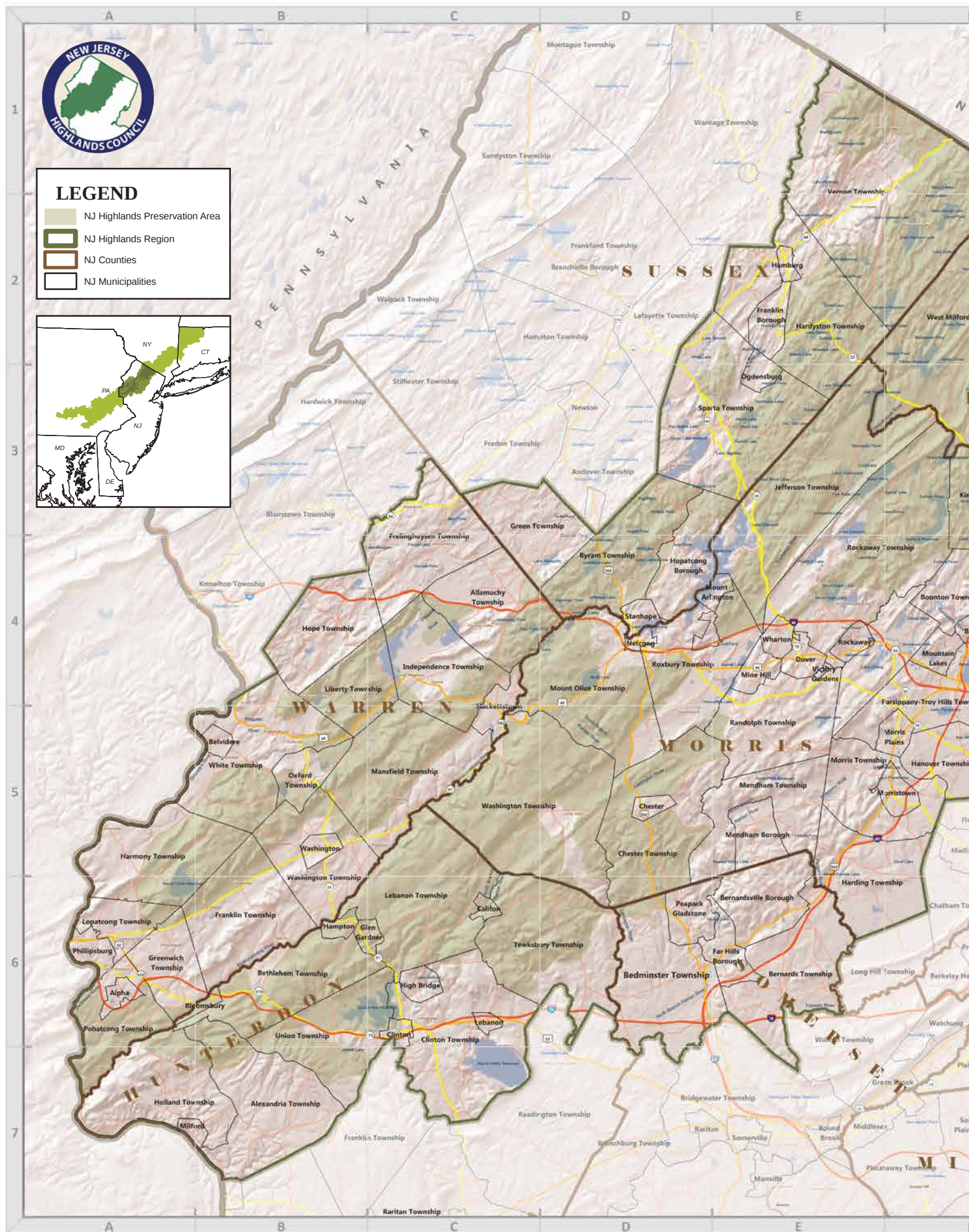
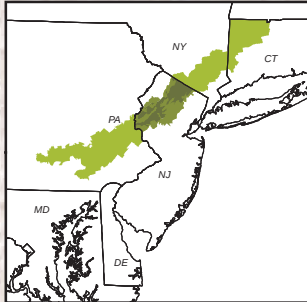
Monitoring Program Recommendation Report

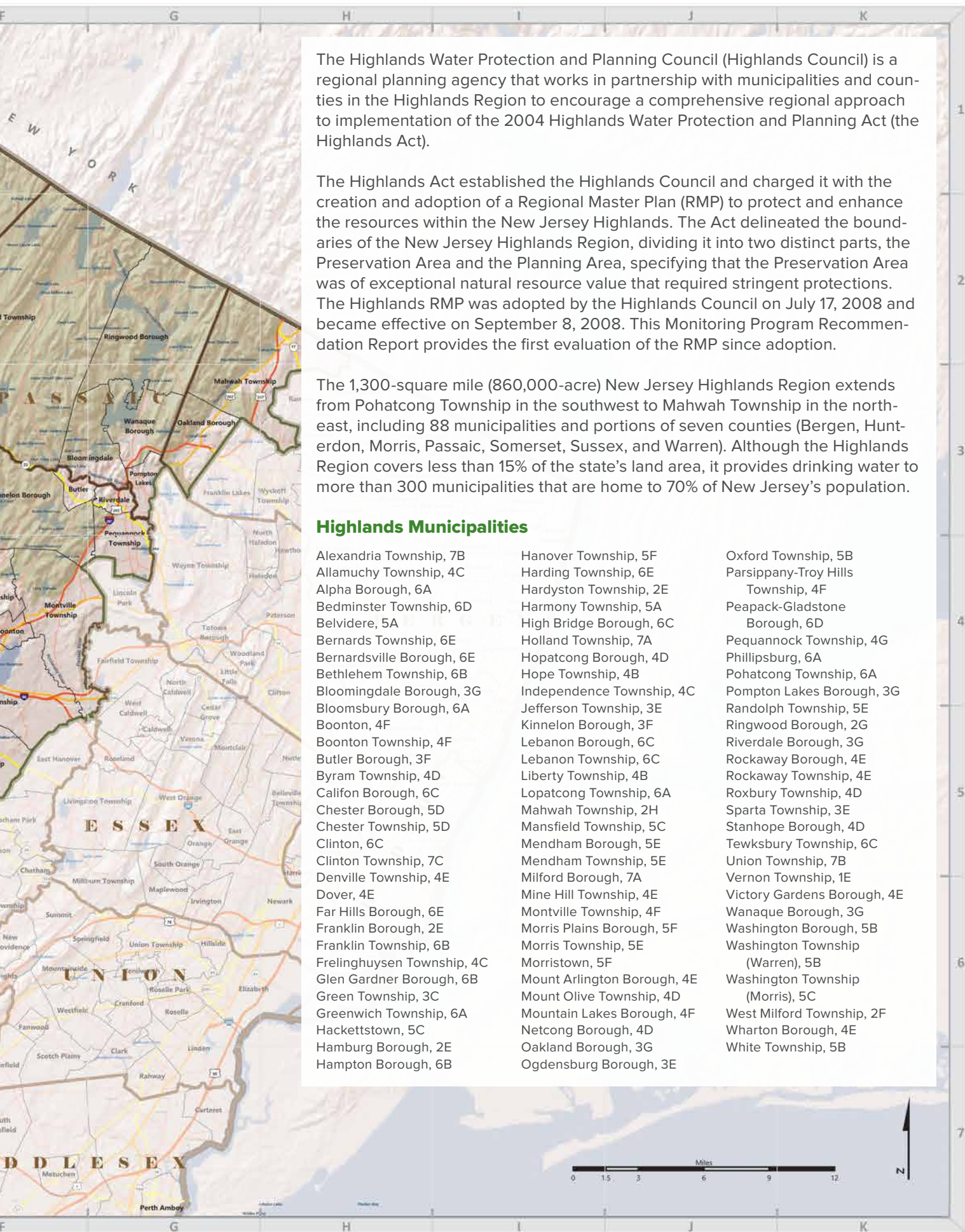
Draft: 2026 FOR PUBLIC COMMENT ON RECOMMENDATIONS

New Jersey Highlands Water
Protection and Planning Council

LEGEND

-  NJ Highlands Preservation Area
-  NJ Highlands Region
-  NJ Counties
-  NJ Municipalities





The Highlands Water Protection and Planning Council (Highlands Council) is a regional planning agency that works in partnership with municipalities and counties in the Highlands Region to encourage a comprehensive regional approach to implementation of the 2004 Highlands Water Protection and Planning Act (the Highlands Act).

The Highlands Act established the Highlands Council and charged it with the creation and adoption of a Regional Master Plan (RMP) to protect and enhance the resources within the New Jersey Highlands. The Act delineated the boundaries of the New Jersey Highlands Region, dividing it into two distinct parts, the Preservation Area and the Planning Area, specifying that the Preservation Area was of exceptional natural resource value that required stringent protections. The Highlands RMP was adopted by the Highlands Council on July 17, 2008 and became effective on September 8, 2008. This Monitoring Program Recommendation Report provides the first evaluation of the RMP since adoption.

The 1,300-square mile (860,000-acre) New Jersey Highlands Region extends from Pohatcong Township in the southwest to Mahwah Township in the northeast, including 88 municipalities and portions of seven counties (Bergen, Hunterdon, Morris, Passaic, Somerset, Sussex, and Warren). Although the Highlands Region covers less than 15% of the state's land area, it provides drinking water to more than 300 municipalities that are home to 70% of New Jersey's population.

Highlands Municipalities

Alexandria Township, 7B	Hanover Township, 5F	Oxford Township, 5B
Allamuchy Township, 4C	Harding Township, 6E	Parsippany-Troy Hills Township, 4F
Alpha Borough, 6A	Hardyston Township, 2E	Peapack-Gladstone Borough, 6D
Bedminster Township, 6D	Harmony Township, 5A	Pequannock Township, 4G
Belvidere, 5A	High Bridge Borough, 6C	Phillipsburg, 6A
Bernards Township, 6E	Holland Township, 7A	Pohatcong Township, 6A
Bernardsville Borough, 6E	Hopatcong Borough, 4D	Pompton Lakes Borough, 3G
Bethlehem Township, 6B	Hope Township, 4B	Randolph Township, 5E
Bloomington, 3G	Independence Township, 4C	Ringwood Borough, 2G
Bloomsbury Borough, 6A	Jefferson Township, 3E	Riverdale Borough, 3G
Boonton, 4F	Kinnelon Borough, 3F	Rockaway Borough, 4E
Boonton Township, 4F	Lebanon Borough, 6C	Rockaway Township, 4E
Butler Borough, 3F	Lebanon Township, 6C	Roxbury Township, 4D
Byram Township, 4D	Liberty Township, 4B	Sparta Township, 3E
Califon Borough, 6C	Lopatcong Township, 6A	Stanhope Borough, 4D
Chester Borough, 5D	Mahwah Township, 2H	Tewksbury Township, 6C
Chester Township, 5D	Mansfield Township, 5C	Union Township, 7B
Clinton, 6C	Mendham Borough, 5E	Vernon Township, 1E
Clinton Township, 7C	Mendham Township, 5E	Victory Gardens Borough, 4E
Denville Township, 4E	Milford Borough, 7A	Wanaque Borough, 3G
Dover, 4E	Mine Hill Township, 4E	Washington Borough, 5B
Far Hills Borough, 6E	Montville Township, 4F	Washington Township (Warren), 5B
Franklin Borough, 2E	Morris Plains Borough, 5F	Washington Township (Morris), 5C
Franklin Township, 6B	Morris Township, 5E	West Milford Township, 2F
Frelinghuysen Township, 4C	Morristown, 5F	Wharton Borough, 4E
Glen Gardner Borough, 6B	Mount Arlington Borough, 4E	White Township, 5B
Green Township, 3C	Mount Olive Township, 4D	
Greenwich Township, 6A	Mountain Lakes Borough, 4F	
Hackettstown, 5C	Netcong Borough, 4D	
Hamburg Borough, 2E	Oakland Borough, 3G	
Hampton Borough, 6B	Ogdensburg Borough, 3E	

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Public Comments are currently being accepted on the updated **Recommendations** sections included in the **Topic Area** chapters above.

Indicator Analysis Reports and other supporting documentation will be included in the final document.

Introduction

The 2008 Highlands Regional Master Plan (RMP) is continually updated as a result of new or corrected information received from municipalities as part of the Plan Conformance process. In addition, the Highlands Water Protection and Planning Act requires a more substantive review take place every six years. The RMP outlined a Monitoring Program to meet this requirement:

“The RMP Monitoring Program and associated Monitoring Review Report will evaluate the progress in achieving the goals of the RMP through implementation of policies and programs. The implementation of a monitoring program will ensure that the RMP remains effective and current.”

— Highlands Regional Master Plan, pg. 416

This Monitoring Program Recommendation Report (MPRR) provides an update to the 2018 MPRR. An analysis of updated indicators along with a review of the implementation activity since the 2018 MPRR provides a basis for this report. The MPRR provides a framework for potential amendments to the RMP along with a six-year work plan for the Highlands Council.





Monksville Reservoir / Ringwood Borough

Report Structure

Topic Areas

Topic Area Chapters are organized around program areas of the RMP and provide the recommendations found in this Report. Each chapter is structured as follows:

- **Background and Introduction** – A discussion of the significance of a particular topic area to the Highlands Region, followed by prescribed Highlands Act Goals (see the Highlands Act “Goals of regional master plan,” N.J.S.A. 13:20-10) and resulting RMP Programs.
- **Indicators** – A listing of program-relevant indicators that were identified through the public participation process and refined by Technical Advisory Committees. (Full analysis of all indicators is included in the “Indicator Analysis Reports” section.)
- **Recommendations** – Recommendations are drawn from a combination of implementation experience and analysis of identified indicators. The Recommendations section of each chapter is organized by a program area of the RMP and provides a summary of implementation activity and indicator findings, followed by program issues and recommendations. Items that require further study and investment are included under the heading, “Science and Research Agenda.”

Indicator Analysis Reports

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Topic Areas



South Branch Raritan / Clinton Township



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Water Resources / 20



Water and Wastewater Utilities / 26



Agricultural Resources / 32



**Historic, Cultural, Archaeological,
and Scenic Resources / 36**



Transportation and Air Quality / 40



Future Land Use / 46



Landowner Equity / 54



Sustainable Economic Development / 60

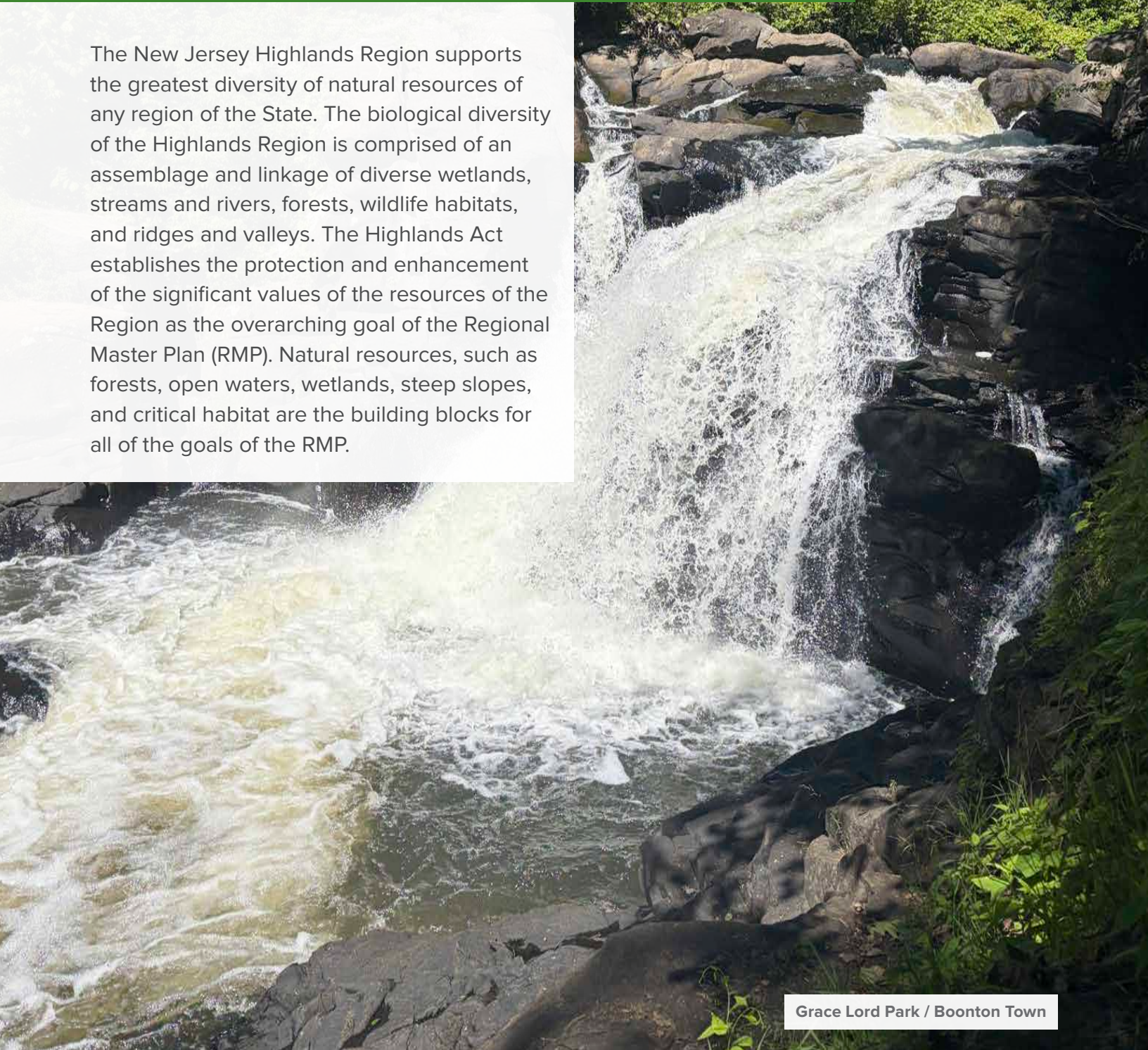


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Natural Resources

The New Jersey Highlands Region supports the greatest diversity of natural resources of any region of the State. The biological diversity of the Highlands Region is comprised of an assemblage and linkage of diverse wetlands, streams and rivers, forests, wildlife habitats, and ridges and valleys. The Highlands Act establishes the protection and enhancement of the significant values of the resources of the Region as the overarching goal of the Regional Master Plan (RMP). Natural resources, such as forests, open waters, wetlands, steep slopes, and critical habitat are the building blocks for all of the goals of the RMP.



Grace Lord Park / Boonton Town

Highlands Act Goals

The Highlands Act charges the Highlands Council with the following goals for natural resource protection in the Highlands Regional Master Plan:

- ▶ Protect, restore and enhance the quality and quantity of surface and ground waters.
- ▶ Preserve extensive, and to the maximum extent possible, contiguous areas of land in its natural state.
- ▶ Protect and enhance the natural, scenic, and other resources of the Highlands Region, including but not limited to contiguous forests, wetlands, vegetated stream corridors, steep slopes, and critical habitat for fauna and flora.
- ▶ Preserve to the maximum extent possible any environmentally sensitive lands and other lands needed for recreation and conservation purposes.
- ▶ Protect and maintain the essential character of the Highlands environment.
- ▶ Preserve outdoor recreation opportunities, including hunting and fishing on publicly owned land.

Highlands Regional Master Plan

The RMP establishes overall strategies necessary to preserve, maintain, and enhance natural resource values. Each resource is interrelated and part of interdependent systems, administered within an integrated ecosystem protection and management framework. The Highlands RMP uses a watershed-based assessment to evaluate resource integrity and protection needs.

Highlands RMP Programs

The RMP includes several programs designed to identify, categorize, assess and thereby effectively manage the natural resources of the region. The full list appears below.

Forest Resource Management and Sustainability

Forests are a defining visible and functional feature of the Highlands Region. The Highlands Region contains some of the most important forests in the state. These forests are vitally important to every element of the Highlands Region. Subprograms included in the RMP in

this area broadly describe forest resource management as a part of the regional system of forest stewardship and guidance.

- ▶ Forest Sustainability
- ▶ Model Municipal Tree Ordinance
- ▶ Guidance for Community Forestry Plans for Highlands
- ▶ Guidance for Forest Conservation and Mitigation Plans
- ▶ Guidance for Forest Stewardship Plans for Preserved Lands

Restoration of Streams and Riparian Areas

Highlands Open Waters and Riparian Areas are a primary focus of the Highlands Act. All springs, streams, intermittent streams, wetlands, and bodies of surface water, whether natural or artificial (e.g. reservoirs), are identified as Highland Open Waters. Riparian Areas are the lands associated with and bordering Highlands Open Waters that provide critical ecologic and hydrologic functions for the Open Waters. The subprograms outlined here provide guidance for the evaluation, monitoring, planning, and restoration of Highland Open Waters.

- ▶ Stream and Riparian Functional Assessment
- ▶ Stream Corridor Protection/Restoration Plans
- ▶ Development of Stream Restoration Guidance
- ▶ Development of Riparian Restoration Guidance
- ▶ Implementation of Stream and Riparian Area Restoration Projects

Critical Habitat Conservation and Management

Habitat for rare, threatened or endangered species, regionally significant ecological communities, and vernal pools and associated buffers are evaluated together to assess critical habitat in the Highlands Region. RMP subprograms related to Critical Habitat provide for the evaluation, management, and planning for critical habitat conservation on a local and regional scale.

- ▶ Development of Municipal Conservation and Management Overlay District Ordinance
- ▶ Development of Critical Habitat Conservation and Management Guidance
- ▶ Ensuring Implementation of Critical Habitat Conservation and Management
- ▶ Implementation of Critical Habitat Conservation, Restoration and Management Projects



Abram S. Hewitt State Forest / West Milford

Land Preservation and Stewardship

Maintaining the land in a natural condition is necessary to preserve and enhance ecosystem integrity and to protect drinking water supplies. The subprograms for Land Preservation present guidance for the evaluation, categorization, valuation, and preservation planning for lands of superior natural resources.

- ▶ Identification of Critical Lands
- ▶ Establishment of Land Preservation Priorities and a Special Environmental Zone
- ▶ Implementation of Strategies for Land Preservation by Maximizing Current Land Preservation Funding Programs
- ▶ Determine the Cost of Five- and Ten-Year Priorities for Land Acquisition Within the Confidential Inventory
- ▶ Implementation of Strategies for Land Stewardship by Maximizing Current Land Stewardship Funding Programs
- ▶ Establishment of New/Alternative/Innovative Land Preservation Programs
- ▶ Development of Cluster/Conservation Design Development Standards
- ▶ Identification of Willing Sellers
- ▶ Establishment of a Land Preservation and Stewardship Technical Assistance Program
- ▶ Establishment of Dedicated Sources of Funding for Land Preservation and Stewardship in the Highlands Region
- ▶ Establish, adopt and implement Highlands specific forestry Best Management Practices designed to increase overall forest coverage and improve forest soil health in the region.
- ▶ Establish a source of stewardship funding to underwrite the costs of land management practices that are designed to improve the water protection characteristics of lands in the Highlands region.

Carbonate Rock (Karst) Topography

The term “karst” describes a distinctive topography that indicates dissolution of underlying carbonate rocks, such as limestone and dolomite, by surface water or ground water over time. This dissolution process can cause surface depressions and the development of features such as sinkholes. Sinkholes can act as funnels, directing surface water runoff to underground water sources, potentially introducing contaminants. The subprograms related to Carbonate Rock provide guidance for identification of critical features, inventorying these features, and developing ordinance provisions for karst areas.

- ▶ Identification of Critical Requirements for Development Ordinances
- ▶ Development of Carbonate Rock Area Guidance Manual
- ▶ Establishment and Maintenance of Karst Inventory

Lake Management Areas

Overdeveloped, damaged, and poorly managed shoreland areas can result in the degradation of water quality, harm a lake ecosystem, decrease natural aesthetic values, and cause an overall loss of property values for lake communities. The subprograms outlined in the RMP related to Lake Management Areas provide local management guidance, mapping of critical management areas, planning for lakes management, and regional outreach.

- ▶ Shoreland Protection Tier
- ▶ Water Quality Management Tier
- ▶ Scenic Resources Tier
- ▶ Implementation of Lake Restoration Plans
- ▶ Lake and Dam Management
- ▶ Education and Awards Program

Steep Slopes

Although no specific program or subprograms were set forth in the RMP to address steep slopes, the identification and classification of steep slopes is important to the effective management of critical natural resources of the Highlands Region.

Steep slopes provide specialized habitats as well as offer popular recreational opportunities. Protection of steep slopes is important in minimizing erosion, degradation of habitats, siltation of waterbodies, loss of topsoil, and prevention of land slumping and landslides. Goal 1E in the RMP provides for the protection and enhancement of the natural, scenic, and other resources of the Highlands Region through protection of steep slopes from inappropriate development and disturbance. The RMP also provides specific project review standards for steep slopes that have been incorporated into the municipal land use ordinances to be adopted through Plan Conformance. The Highlands Council conducted two-foot elevation aerial mapping of the entire region to further refine data for steep slope areas.

In the Recommendations section that follows, a “Steep Slope Protection Areas” program is proposed.

Indicators

Full analyses of indicators listed below are available in the Indicator Reports chapter. Please note that not all indicators identified by the public and Technical Advisory Committees received a full analysis for this report due to data limitations and/or applicability to the RMP. A complete list of all identified indicators is available at the end of this document. Potential future indicators may be noted in the Recommendations section that follows, under “Science and Research Agenda.”

Indicators analyzed for Natural Resources:

- ▶ **Critical Habitat:** Measures change in extent, preservation, or development of Critical Habitat.
- ▶ **Forest Impacts:** Measures the change in Forest Integrity (total forest area, core forest area and total proportion forest), and preservation and development within total and core forest areas.
- ▶ **Preservation Priority:** Measures changes in preservation and development in the Special Environmental Zone, Conservation Priority Area, and Agricultural Priority Area.
- ▶ **Watershed Resource Value:** Measures change in Watershed Resource Value Class by HUC14 subwatershed.

Indicators that support Natural Resource goals by incorporating appropriate standards into local development projects:

Indicators Related to Natural Resources

- ▶ **Highlands Project Reviews:** A summary of Highlands Project Reviews.
- ▶ **Municipal Plan Conformance:** A matrix of Municipal Plan Conformance Petition data, including submission and Highlands Council disposition, as well as approved Petition components and the current status of municipal completion.

Recommendations

The recommendations that follow are organized by RMP programs and/or sub-programs. Where appropriate, multiple programs have been combined for this discussion. Additionally, some program names have been modified to more accurately reflect the program’s purpose in practical application. Please note that not all RMP programs and sub-programs have associated recommendations in this report. Items under “Science and Research Agenda” are recommendations that require further study and investment.

Forest Resource Management and Sustainability

Implementation Activity

The Highlands Council coordinates with appropriate local, state and federal agencies on forest management/stewardship plans and forest resiliency advocacy. The Model Highlands Plan Conformance Ordinance seeks to implement the RMP Goals, Policies, and Objectives (GPOs) applicable to forests. However, technical guidance documents and ordinances are required to fully implement article(s) through Plan Conformance at the municipal level.

Since the issuance of the 2018 Monitoring Program Recommendations Report, the Highlands Council has made significant progress in addressing many of the recommendations. Those efforts that are on-going remain as recommendations while recommendations that have been completed or are no longer relevant have been removed. Completed Recommendations include:

- ▶ An update of the Forest Resource Area Mapping
- ▶ Field testing of the Functional Ecosystem Valuation (FEV) methodology
- ▶ Update and incorporation of state Natural Heritage Priority Site data.

Summary findings of related indicator:

- ▶ **Forest Impacts:** Forest impacts were evaluated based on a calculated change in forest integrity score, as defined in the RMP, and also by how the preservation of forested lands has changed since adoption of the RMP. Data analyzed for this indicator showed a slight change in forest integrity

score for the region, with some areas positive and others negative. The preservation of forested lands has increased significantly since adoption of the RMP.

Program Issues

- ▶ Limited implementation through Plan Conformance.
- ▶ Delayed development of forest guidance and forest stewardship documents.
- ▶ Lack of sufficient support from agencies directly responsible for promulgating rules to implement the Forest Stewardship Act.

Recommendations

- ▶ Develop an outreach and education program focused on the natural resources of the Highlands Region.
- ▶ Practical application of FEV methodology, where warranted and appropriate.

Science and Research Agenda

- ▶ **Forest Sustainability:** For long-term sustainability of the forest resources in the Highlands Region, there must be proactive management of deer populations, non-native invasive species, and reduction in the rate of forest fragmentation. The Highlands Council should:
 - Develop incentives to encourage invasive species control and deer management.
 - Develop models to evaluate and determine the value of carbon sequestration, including the potential use of forest biomass assessment technology.
- ▶ **Forest Restoration:** Often development projects attempt to mitigate for forest impacts by proposing to restore forest in a landscape that is not currently forested. These projects often fail for numerous reasons, such as soil compaction, complete disturbance of soil horizons, loss of appropriate soil biome due to historic agricultural use, and intense invasive species infestation. The Highlands Council should:
 - Develop guidance for reforestation based on site specific characteristics.
 - Identify and inventory old growth forests to target protection and restoration.
 - Forest Mitigation: Develop more succinct and effective guidance when requiring forest mitigation as part of Highlands project review.



Yellow Warbler / Lord Stirling Park



Musconetcong River / Lebanon Township

Restoration of Streams and Riparian Areas

Implementation Activity

The Model Highlands Plan Conformance Ordinance seeks to implement the Goals, Policies, and Objectives (GPOs) applicable to Highlands Open Waters and Riparian Areas (namely, to include a protection buffer of 300 feet from the edge of the discernable bank of the Highlands Open Waters feature and to prohibit or restrict modifications to Highlands Riparian Areas). The Highlands Council encourages restoration of streams and riparian areas by public and private landowners, government agencies, non-profit organizations, and other interested parties wherever feasible.

The Highlands Council provided a grant to the Township of Roxbury to develop a streambank stabilization and habitat enhancement engineering study for a section of the Musconetcong River. In addition, funding has been provided to develop several watershed-based lake assessment studies (see Lake Management Areas section below for additional information).

In 2025, the Highlands Council developed a Quality Assurance Project Plan (QAPP) for a Highlands water quality monitoring program (Program). Subsequently,

the QAPP was approved by the NJDEP and monitoring throughout the region commenced in May 2026. The purpose of the program is to help the NJDEP fill gaps in data where their staff or designees are either only able to visit sites once every five (5) years on a rotating basis, where specific data will be valuable to them for incorporation into the Integrated Water Quality Assessment Report (Integrated Report) or for research purposes. To meet requirements under the Clean Water Act, the NJDEP prepares the Integrated Report as a biennial assessment of statewide water quality that identifies and prioritizes waters for protection, restoration, and additional monitoring or research.

Summary findings of related indicator:

Watershed Resource Value

The Highlands RMP provides policies designed to establish and maintain an inventory of Highlands Open Waters and their integrity. Watershed Resource Value is defined in the Ecosystem Management Technical Report (2008) as an indicator of watershed condition for the Highlands Region. The Watershed Resource Value is the weighted score of five metrics: 1) percentage of developed lands, 2) percentage habitat for species of concern, 3) percent total forest area, 4) percent total core forest area, and 5) proportion of total forest cover within a given geographic

area. Net change in the number of Highlands Region HUC14 subwatersheds with an increase in Watershed Resource Value Class was evaluated.

Program Issues

- ▶ Limited implementation of stream corridor protection plans.
- ▶ Municipalities lack incentives to use available funding for the development of restoration plans, which are often not prioritized.
- ▶ Limited funding is available for restoration plan implementation.

Recommendations

- ▶ Work with municipalities to incentivize the development of stream corridor and/or subwatershed-based Stream Corridor Protection/Restoration Plans. This would include assisting municipalities in identifying areas where existing development, land disturbances, or land uses within Highlands Open Waters buffers Riparian Areas have removed or substantially impaired natural vegetation and have significantly reduced or impaired the functional values of Highlands Open Water buffers.
- ▶ Continue support for the development of subwatershed-based Stream Corridor Protection/Restoration Plans across municipal boundaries.
- ▶ Work with relevant state and federal agencies to focus restoration project funds on Highlands stream corridors that have approved restoration and protection plans.

Science and Research Agenda

- ▶ **Continue the expansion of the Ambient Biological Monitoring Network in Highlands Region:** The Ambient Biological Monitoring Network (AMNET) program, initiated by NJDEP in 1992, established sampling stations in every subwatershed of the state to evaluate the health of instream benthic macroinvertebrate communities. There are approximately 200 AMNET stations within the Highlands Region. The intent of this agenda item is to coordinate with NJDEP to expand and establish a consistent AMNET to include additional stations or more frequent monitoring at established sites in the streams and waterbodies of the Highlands Region. The Highlands Council will use the data as input into the continued development of a Regional Stream Integrity model to further refine protection requirements of Highlands Open Waters based on biological and water quality indicators. While this item was on the Science and Research Agenda in the 2008 RMP, limited resources (funding and

NJDEP and Highlands Staff) precluded its investigation and implementation. It is recommended that expansion of the AMNET remains on the Highlands RMP Science and Research Agenda.

▶ Highlands Open Waters and Riparian Areas

Inventory: The Highlands Council should develop methods for continued development and refinement of Highlands Open Waters and Riparian Areas inventories with an emphasis on identification of headwater streams and headwater seeps and springs. This should include the development of a database derived from project review results, which require identification of on-site Highlands Open Water features.

- ▶ Adopt and incorporate Conservation Blueprint data.



Walking Path / Lord Stirling Park

Critical Habitat Conservation and Management

Implementation Activity

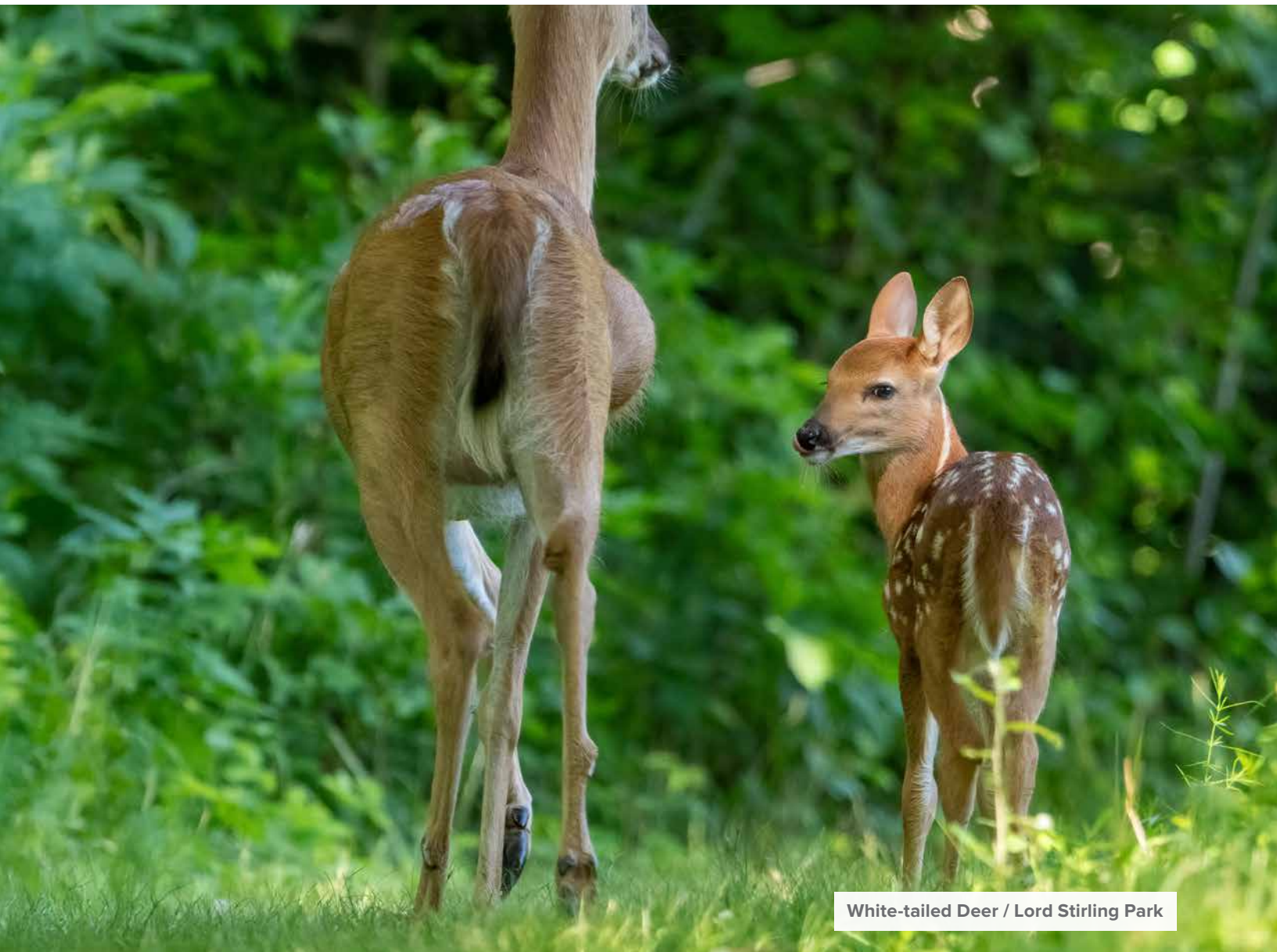
The Highlands Council coordinates with appropriate state and federal agencies on critical wildlife habitat evaluations and impact discussions. The Highlands Plan Conformance program seeks to implement the Goals, Policies, and Objectives (GPOs) applicable to critical habitat; however, technical guidance documents are required to fully implement the Plan Conformance Ordinance article(s) at the municipal level. Work on the Critical Habitat Conservation and Management Program, and eventual plans which each municipality shall adopt, is currently only in the initial phases.

Summary findings of related indicator:

- **Critical Habitat:** Changes to Critical Habitat, with regard to extent, preservation or development, were analyzed for the entire region. Data analyzed for this indicator showed an increase in the extent of Critical Wildlife Habitat across the region, no change in the extent of Significant Natural Areas, and an increase in vernal pool buffers. Preservation is outpacing development in areas of Critical Habitat.

Program Issues

- Limited implementation through Plan Conformance.
- Delayed development of critical habitat management guidance.
- Delayed development of habitat mitigation standards.
- Limited coordination with agencies directly responsible for expanding mapped critical habitat.



White-tailed Deer / Lord Stirling Park

Recommendations

- ▶ Reevaluate the Critical Habitat Goals, Policies, and Objectives of the Regional Master Plan to better encourage implementation of the same.
- ▶ Reevaluate methodology for identification and ranking of critical habitat.

Science and Research Agenda

- ▶ Continue participation and coordination with NJDEP Endangered Non-Game Species Program (ENSP) on refinement of the Highlands Region specific Landscape Project Data.
- ▶ Continue participation and coordination with NJDEP ENSP on the Connecting Habitat Across New Jersey (CHANJ) project.



Luna Moth

Carbonate Rock Areas

Implementation Activity

Developed GIS methodology to identify karst features in carbonate rock areas. The Highlands Council maintains a Potential Sinkholes layer based on this methodology.

Program Issues

- ▶ Lack of standards for stormwater management in carbonate rock areas.
- ▶ Limited opportunities to coordinate with NJGS and USGS on updated mapping, if applicable.

Recommendations

- ▶ Coordinate with NJGS and USGS when carbonate rock mapping is updated
- ▶ Compile a database of municipal carbonate rock ordinances already enacted on a local level.

Science and Research Agenda

- ▶ With respect to Carbonate Rock Areas and the RMP requirements regarding green infrastructure/low-impact development (LID)/best management practices (BMPs) (particularly regarding enhanced groundwater recharge through stormwater management), it is recognized that concentrated infiltration of water on sites that are underlain by karst geology is challenging and must be carefully assessed because infiltrated water may erode the limestone and create more karst conditions. However, the RMP and state Stormwater Management Rules at N.J.A.C. 7:8 mandate that green infrastructure must be investigated and used to the maximum extent feasible.
- ▶ As a key element of the Highlands Science and Research Agenda, the Highlands Council should develop a unified approach for stormwater design in karst terrain and establish a database of municipal carbonate rock ordinances already enacted.
- ▶ Implementation of GIS methodology to confirm karst features.

Lake Management Areas

Implementation Activity

The RMP seeks to manage land development around lakes. Since its adoption, however, little new development has been occurring, or appears likely to occur, in close proximity to Highlands lakes. The development that is occurring is limited to redevelopment of existing properties that fall under Highlands Act exemptions or outside the scope of review of the Council.

In 2014, the Highlands Council released Lake Management Plan guidance documents to aid municipalities in planning for the management and protection of lakes.

- Development of Lake/Watershed Management Plans with specific focus on Lake Hopatcong and Greenwood Lake as well as municipal-based plans. In addition, through a Request for Proposal (RFP) process, additional watershed-based restoration and protection plans have been developed for subwatersheds throughout the Highlands region.

Summary findings of related indicator:

Municipal Plan Conformance

- Several Lake/Watershed Management Plans or related plans have been adopted or are currently in development. Seven (7) municipalities and one (1) county received grants to develop watershed-based lake management plans and one (1) municipality received a grant to develop a beach restoration plan. These grants covered a total of 85 lakes in the region and awards totaled almost \$1.5 million.

Program Issues

- Limited implementation through Plan Conformance.

Recommendations

- Assist municipalities in identifying funding opportunities, including the USEPA Section 319 (Clean Water Act, Section 319, Nonpoint Source Pollution Program) program for lake water quality remediation activities.
- Continue to maintain a Highlands Region Lake/Watershed Management plan database.
- Provide funding for monitoring and maintenance of small and private lakes and make the data publicly available.

Science and Research Agenda

- Coordinate with NJDEP and other relevant agencies and organizations to improve understanding of Harmful Algal Bloom (HAB) occurrences in the Highlands, their underlying causes, and whether these conditions are significantly different than those occurring in other regions of New Jersey.

Steep Slope Protection Areas

Proposed new program.

Implementation Activity

Data on the extent of steep slopes throughout the region is provided through the Highlands Council's Resource Explorer (REX) available through the Highlands Council website. Steep slope requirements are included in the Model Highlands Plan Conformance Ordinance for adoption by municipalities.

Program Issues

No current program exists.

Recommendations

- Develop model documents and maintain a database of steep slope protection ordinances, ridgeline ordinances, or other such regulations already in place in various Highlands municipalities.
- Provide model ordinance language for municipalities interested in protection of ridgelines.

Science and Research Agenda

Improve documentation of the hydrological, ecological and water quality impacts of steep slope disturbance.



Box Turtle



Water Resources

The water resources of the Highlands Region are important not only as a potable water supply source, but as a defining element of ecosystem form and function within the Highlands. They include extensive reservoirs with the capacity to provide more than 600 million gallons per day of drinking water, large rivers and lakes, streams that support trout production and offer local recreation opportunities, forested headwater streams and springs, and ephemeral waterbodies that are critical to the survival of a variety of the Region's wildlife.

Most of the water in Highlands Region reservoirs is exported to urban and suburban areas of northern and central New Jersey. The water needs of the Highlands Region itself are primarily served by withdrawals of ground water from local aquifers and by smaller surface water bodies. Maintaining the integrity of water resources of the Highlands Region provides for the protection and sustainability of these resources and the communities that rely upon them.



Spruce Run / Hunterdon County

Highlands Act Goals

The Highlands Act charges the Highlands Council with the following goals related to water resources in the implementation of the Highlands Regional Master Plan:

- ▶ Protect, restore, and enhance the quality and quantity of surface and ground waters.
- ▶ Preserve extensive contiguous areas of land in its natural state.
- ▶ Protect the natural, scenic, and other resources of the Highlands Region, including but not limited to contiguous forests, wetlands, vegetated stream corridors, steep slopes, and Critical Habitat for fauna and flora.
- ▶ Promote conservation of water resources.
- ▶ Prohibit or limit construction/development which is incompatible with protection of the Preservation Area.
- ▶ Protect and maintain the essential character of the Highlands environment.

Highlands Regional Master Plan

The Highlands RMP addresses five fundamental issues with regard to water resources in the Highlands Region:

- ▶ The availability of water resources for human and ecological use;
- ▶ The protection and restoration of water resource availability;
- ▶ The protection, restoration, and enhancement of water quality;
- ▶ The management of land development patterns and densities to ensure that the carrying capacity of water resources are not exceeded; and
- ▶ The cost-effective and efficient provision and use of water utility capacity in a manner that ensures compatibility with the carrying capacity of water resources.

Highlands RMP Programs

The RMP includes a variety of programs intended to assist in the achievement of the Water Resource Protection Goals, Policies, and Objectives (GPOs). There are three main programs detailed in the RMP associated with Water Resource Protection. Each is described separately below.

Highlands Restoration: Water Deficits

Where water resources are stressed, management strategies are necessary to reduce and, where feasible, eliminate deficits and ensure that supplies are not further depleted. The Highlands Restoration: Water Deficits program consists of the following subprograms:

- ▶ Analysis of Net Water Availability
- ▶ Verification of Net Water Availability
- ▶ Strategic Approaches to Mitigating Water Deficits
- ▶ Development of Municipal Water Use and Conservation Management Plans
- ▶ Development of HUC14 Water Management Strategies
- ▶ Coordination with the NJDEP Water Allocation Program

The Efficient Use of Water

It is important that New Jersey obtain the maximum benefit from its Highlands water resources through efficient use and, where feasible and appropriate, beneficial reuse and recycling of water. The subprograms under the Water Use Efficiency program include the following:

- ▶ Analysis of Water Use Efficiency for:
 - Public Water Supplies
 - Agriculture and Irrigation
- ▶ Identification of Water Use Efficiency Metrics and Targets
- ▶ Implementation of Water Use Efficiency Measures:
 - General
 - Deficit Areas and Deficit Utilities
- ▶ Ensuring Implementation of Water Use and Conservation Management Plans

Water Quality Restoration

One way to protect and enhance water in the Region is to restore water quality. Water quality is affected by both current and historic land uses. Consistent and reliable assessment and characterization of the water quality in the Region is imperative to implementing management strategies in appropriate areas. Assessment is followed by management planning, which then leads to the implementation of various management practices depending on the types of contaminants, their sources, and the restoration needs identified. The subprograms of the Water Quality Restoration program are listed below.

- ▶ Water Quality Assessment
- ▶ Development and implementation of:

- Total Maximum Daily Loads (in coordination with NJDEP)
- Watershed Restoration Plans (either directly or in cooperation with other affected interests for approval by NJDEP)
- Groundwater Restoration Plans (working with NJDEP and USGS)
- ▶ Implementation of Water Quality Restoration Projects:
 - Agricultural Best Management Practices
 - Stormwater Management Plans
 - Streambank and Riparian Restoration
 - Wildlife
 - Septic System Management
 - Contaminated Site Remediation
- ▶ Education/Outreach

Prime Groundwater Recharge Areas

Although no program or subprograms were set forth in the RMP to directly address Prime Groundwater Recharge Areas (PGWRAs), protection of these lands and the quality and quantity of recharge provided by them is a high priority.

Groundwater recharge does not occur uniformly in all areas of the Highlands Region. Recharge varies by soil type, precipitation, land cover and other factors. Some land areas will provide greater recharge than others, and the best of these have been mapped by the Highlands Council as PGWRAs. They are defined as the areas in each subwatershed that have the highest recharge rates and, in total, provide 40 percent of the total recharge for that subwatershed. RMP Goal 2D (Maintenance of Hydrologic Integrity through the Protection of Groundwater Recharge) contains several policies addressing the protection of PGWRAs. The RMP also sets forth specific project review standards for PGWRAs that were further incorporated into the municipal land use ordinances adopted as part of Plan Conformance.

In the Recommendations section that follows, a “Prime Groundwater Recharge Areas” subprogram is proposed under the Highlands Restoration: Water Deficits program.

Indicators

Full analyses of indicators listed below are available in the Indicator Report chapter. Please note that not all indicators received a full analysis for this report due to data limitations and/or applicability to the RMP. Poten-

tial future indicators may be noted in the Recommendations section that follows, under “Science and Research Agenda.”

Indicators Analyzed for Water Resources:

- ▶ **Critical Water Resource Areas:** Measures the change in preservation and development within Wellhead Protection Areas, Prime Ground Water Recharge Areas and Open Water Protection Areas.
- ▶ **Impervious Surface Cover by Subwatershed:** Measures change in impervious surface coverage by HUC14 subwatershed.
- ▶ **Surface Water Quality:** Measures change in designated use support status and impairment by HUC14 subwatershed.
- ▶ **Water Use:** Measures change in water withdrawal by HUC14 subwatershed for major use types, including agricultural, commercial, industrial, irrigation, mining, potable supply, and power generation.

Recommendations

The recommendations that follow are organized by RMP programs and/or subprograms. Where appropriate, multiple subprograms have been combined for this discussion. Additionally, some program names have been modified to more accurately reflect the program’s purpose in practical application. Please note that not all RMP programs and subprograms have associated recommendations in this report. Items listed under “Science and Research Agenda” are recommendations that require further study and investment.

Highlands Restoration: Water Deficits

Implementation Activities

The Highlands Council has identified the HUC14 subwatersheds that have a deficit water availability. Through the development of Water Use and Conservation Management Plans (WUCMPs), HUC14 subwatershed Net Water Availability and its associated deficits are verified and updated.

Several municipal-wide WUCMPs have been developed or are in progress. A total of six (6) have been adopted. The Highlands Plan Conformance Ordinance and project review procedures require Highlands Council review for municipal development applications proposing a new or increased use of potable or non-potable water averaging 6,000 gallons per day

or more. In addition, deficit mitigation measures are required to achieve 125-200% recharge depending on the deficit magnitude and proposed water use.

The Highlands Council continues to coordinate with NJDEP on new and major modifications to water allocation permits to support the reduction and elimination of water deficits.

Summary findings of related indicators:

- ▶ **Water Use:** A HUC14 subwatershed analysis reveals that nearly 70% of HUCs in the Highlands Region experienced either no significant change in water use or a decrease in water use between 2003 and 2020. In addition, overall consumptive uses throughout the region are down 13% for the same period resulting in a positive trend.
- ▶ **Critical Water Resource Areas:** In general, positive trends were observed in both preservation and development within the Critical Water Resource Areas of the region.

Program Issues

- ▶ Limited development and implementation of WUCMPs through Plan Conformance due to cumbersome and complicated methodology.
- ▶ Limited number of USGS streamflow gauging stations throughout the Highlands Region, which makes it difficult to assess changes to total (natural) water availability
- ▶ No formal programs or subprograms were set forth in the RMP to directly address PGWRAs.

Recommendations

Reevaluate the WUCMP program to ensure effectiveness in both development and implementation, including the details of a county-wide WUCMP.

- ▶ Update RMP net water availability based on data from completed WUCMPs, and more recent withdrawal and consumptive use data from NJDEP's NJWaTr program.
- ▶ Continue monitoring water withdrawals throughout the region using data catalogued by the NJG&WS.
- ▶ Evaluate the potential for Highlands Council taking responsibility for net water availability data updates and deficit reduction options analyses for subwatersheds with deficit water availability, especially for subwatersheds that are shared by municipalities, and providing those analyses to the municipalities for use in WUCMP development.

- ▶ Prior to the adoption of any revision to the New Jersey Statewide Water Supply Plan, consult with the NJDEP concerning the possible impact of the Plan on the region, including the improvement of the efficient use of Highlands water resources both within and outside the region.
- ▶ Formalize an RMP subprogram to directly address PGWRAs.
- ▶ Promote, in conjunction with the Department of Environmental Protection and the Department of Agriculture, conservation of water resources in areas outside of the Highlands Region for which the Highlands is a source of drinking water.
- ▶ Review Statewide Water Supply Plan to identify where methodologies can be more closely aligned.

Science and Research Agenda

Update the Water Resource Assessment Technical Reports.

"Streamflow" was identified as a Water Resources indicator, but was not analyzed for this report due to data limitations. The following recommendations are designed to provide a foundation for monitoring streamflow.

- ▶ Determine the feasibility of updating the Low Flow Characteristics of Streams in the Highlands Region report to determine if any measurable change has been observed in the base flows of the Highlands Region.
- ▶ Evaluate and suggest locations for new gauging stations that would allow for a more effective and accurate analysis of streamflow conditions in the Region. Potential locations may be based on the following criteria:
 - Location of current gauging stations
 - Type of gauging station
 - Installation of stations on more critically vulnerable/important streams (i.e. C1, trout production, etc.)
 - Other recommendations of the USGS.
- ▶ Identify potential funding sources to support the installation, operation and long-term maintenance needs associated with new gauges situated in the region.

The Efficient Use of Water

Implementation Activities:

Through the project review process, the Highlands Council ensures that stormwater is managed using Low Impact Development (LID) strategies to the maximum extent practicable on all new development projects. The Highlands Council has also developed a Stormwater Management Program that is implemented through the Plan Conformance process which includes guidance materials specific to the region. The Highlands Plan Conformance Ordinance incorporates water conservation requirements applicable to all new developments and adoption of WUCMPs, as referenced above, help further the goals of the water use efficiency program.

Summary findings of related indicator:

- ▶ **Water Use:** As stated above, the overall trend in the region for this indicator is towards a decrease in overall water use, resulting in a positive trend.

Program Issues:

- ▶ Limited development of WUCMPs (see above).
- ▶ Limited public education regarding water conservation strategies.
- ▶ Lack of water use efficiency metrics and targets.
- ▶ Lack of standards for high-volume water uses in the Region.

Recommendations

- ▶ Prioritize development of municipal-wide WUCMPs through Plan Conformance implementation. Develop a system for prioritization and coordinate outreach efforts to municipalities to aid in the development and implementation of WUCMPs.
- ▶ Encourage integration of water use efficiency strategies into WUCMPs, such as:
 - Supply-side conservation
 - Demand-side conservation
 - Utility rate schedules that encourage customers to make efficient use of water and discourage excessive use
 - Beneficial reuse of reclaimed water
 - Recycling of water (e.g. closed-loop cooling systems)
 - Develop guidance for high-volume water uses, including data centers, applicable throughout the Region.

- ▶ Enter into a Memorandum of Understanding with the NJDEP on water allocation permit and safe drinking water permit actions.
- ▶ Continue monitoring water withdrawals throughout the Region using data catalogued by the NJG&WS.
- ▶ Continue to ensure, through the project review process, that all proposed new development incorporates LID design, minimizes irrigation needs, relies on stormwater for irrigation purposes to the maximum extent practicable, and includes water conservation measures in site layout and structures (e.g., water efficient landscaping, rain collection systems, use of gray water); and new commercial development uses internal recycling or beneficial reuse of reclaimed water to the maximum extent practicable.
- ▶ Develop and/or provide educational materials to Highlands municipalities regarding water use efficiency and conservation practices for distribution. Educational materials should also be made publicly available on the Highlands Council website.
- ▶ Determine feasibility of enacting a water user fee imposed on water purveyors who derive water from Highlands Region sources and dedicating funds raised by such fee to assist in compensating landowners in the Highlands Region whose future land use expectations have been considerably reduced by the Highlands Act, through the purchase of Highlands Development Credits or lands in fee simple for preservation.
- ▶ Collaborate with the NJDEP (all uses), the NJDA (agricultural uses) and other appropriate stakeholders through an advisory group to select the most appropriate metrics for water use efficiency and guide the development of a water conservation education campaign.
- ▶ Collaborate with the NJDEP to determine existing water use rates for all public community water supply systems using Highlands water, categorize the systems for comparison purposes, and assess the relative efficiency of water uses among common classes of public community water systems. Private potable well water use rates should also be considered as part of this assessment.
- ▶ Coordinate with NJDA on the development of Agricultural water use efficiency standards and BMPs.
- ▶ Collaborate with communities outside the Highlands Region that rely on Highlands-sourced water to promote adoption of water conservation strategies and implement community education initiatives

Water Quality Restoration

Implementation Activity

Nonpoint source pollution associated with stormwater runoff leads to water quality degradation of Highlands water resources. Through the project review process, the Highlands Council ensures that stormwater is managed using LID strategies to the maximum extent practicable on all new development projects. The Highlands Council has also developed a Stormwater Management Program that is implemented through the Plan Conformance process, which includes guidance materials specific to the region.

The Highlands Council has funded 42 Lake/Watershed-Based Plans throughout the region both through plan conformance grants as well as the RFP process. To date, these plans cover all or portions of 35 Highlands municipalities. In addition, plans funded by other entities cover all or portions of 31 Highlands municipalities. In addition, 27 municipalities are covered by more than one plan. Once finalized, projects identified in the plans can be implemented to improve water quality.

It is important to note that over the monitoring period, the NJDEP has adopted several changes to the Stormwater Management Rules at N.J.A.C. 7:8 with the goal of improving water quality. These updates included mandatory use of green infrastructure to manage stormwater runoff (March 2021), updated precipitation data (July 2023) and Resilient Environments and Landscapes Rules (January 2026). In addition, the Municipal Separate Storm Sewer System (MS4) permits require adoption of enhanced stormwater ordinances and development of Watershed Improvement Plans.

Summary findings of related indicators:

- ▶ **Surface Water Quality:** A significant number of subwatersheds having insufficient data in previous analysis years, now largely have available data across all designated use types (e.g. potable water, aquatic health). Using this newer data, in addition to original baseline data, the trend is negative over most designated use types. Additionally, there is a strong negative attainment status trend for drinking water since 2006.
- ▶ **Impervious Surface Cover:** Though there is no statistically significant increase or decrease in impervious surface across the Region, pockets of increased coverage exist throughout the Region.
- ▶ **Critical Water Resource Areas:** In general, positive trends were observed in both preservation and development within the Critical Water Resource Areas of the region. A positive trend is desirable in preservation while a positive trend in development is considered undesirable.

Program Issues

- ▶ Insufficient programs to support an enhanced Highlands Stormwater Management Program.
- ▶ Lack of RMP standards for impervious surfaces in the Planning Area.
- ▶ Lack of development and implementation of Regional Stormwater Management Plans.
- ▶ Lack of water quality standards for discharges from high-volume water users such as data centers.

Recommendations

- ▶ Coordinate with NJDEP to ensure amendments to stormwater management rules are consistent with Highlands standards.
- ▶ Develop, adopt and implement RMP standards for impervious surfaces at the sub-watershed and region-wide levels..
- ▶ Establish a program to assist landowners with impervious surface reduction and reforestation.
- ▶ Establish long-term goals for region-wide forest coverage.
- ▶ Develop guidance for reforestation and stewardship along stream corridors.
- ▶ Develop discharge standards for high-volume water users such as data centers.
 - Continue to identify and catalogue all existing watershed-based management plans associated in the Highlands Region and determine their implementation status. Provide support for their implementation in conforming municipalities. Create a Forestry and Wetlands Best Management Practices (BMP) program in support of forest stewardship and water quality enhancement.

Science and Research Agenda

- ▶ “Groundwater Quality” was identified as a Water Resources indicator but was not analyzed for this report due to data limitations. The following recommendations are designed to provide a foundation for monitoring groundwater quality.
- ▶ Improve existing monitoring networks and use additional data sources, in coordination with the NJDEP, NJGS and USGS, for monitoring and evaluating both natural conditions and anthropogenic factors in water quality. Additional data sources may include those collected by non-governmental partners so long as it is quality assured. Develop a Highlands monitoring program to fill data gaps in the region with quality assured data that can be used in the development of the Integrated Report.
- ▶ Determine, based on sufficient available data, where water quality improvements would be beneficial. Develop and implement watershed-based management plans based on the results.
- ▶ Develop a methodology for assessing the extent to which storm flows exceed natural levels (peak and total) and targets for flow reductions that will reduce stream bed and bank erosion.



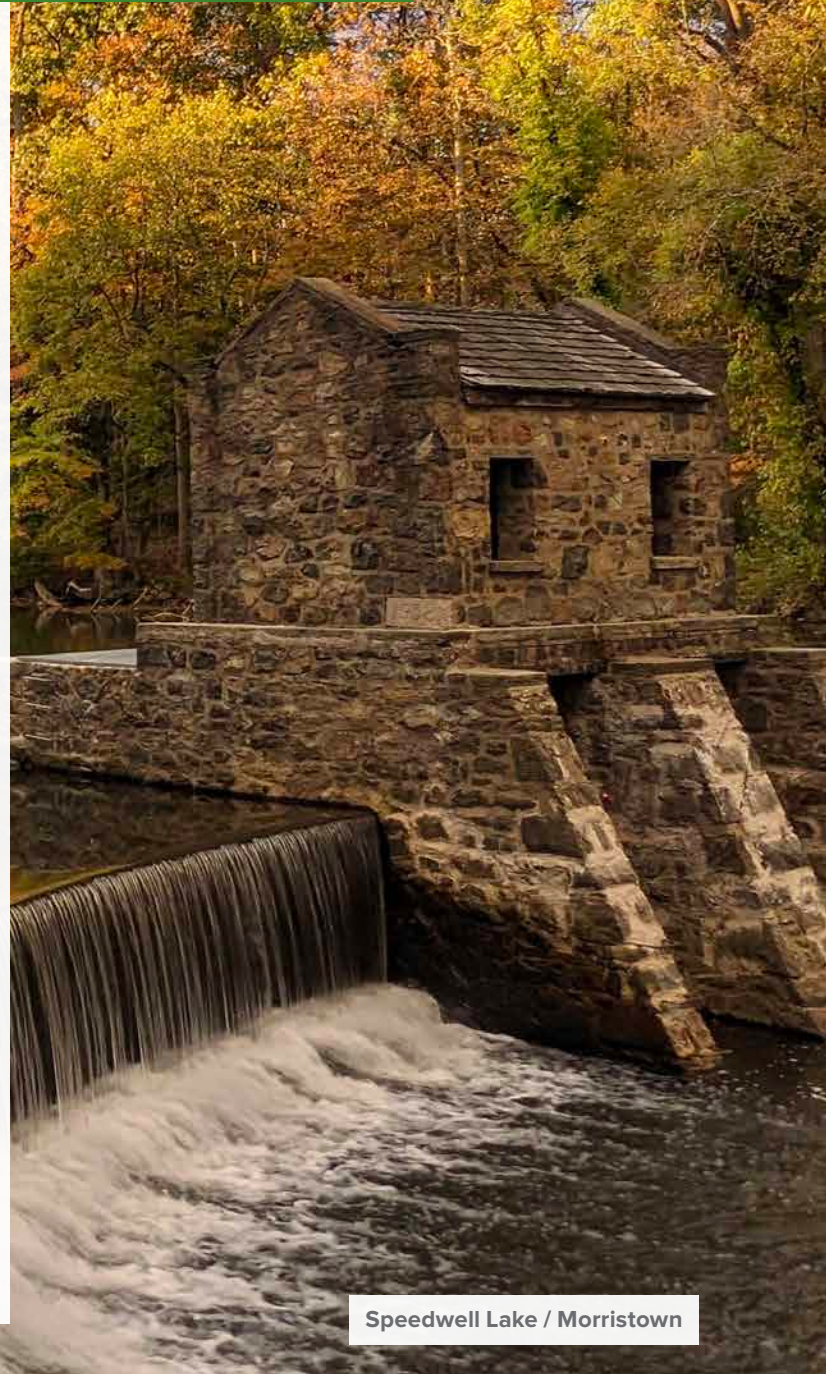
Water and Wastewater Utilities

Two critical components of sustainable communities in the Highlands Region are a reliable supply of potable water and a dependable method of wastewater disposal. Like much of New Jersey, the region is served with potable water through a combination of domestic water sources (typically wells) and public utility systems. Similarly, the disposal of wastewater includes a combination of wastewater treatment plants and individual septic systems.

Of great relevance to the smart growth vision of the Regional Master Plan (RMP) are the “public community water systems (PCWS),” which may be owned and operated by governmental entities (either as municipal operations or utility authorities) or investor-owned utilities. These community systems, whether their source consists of groundwater or surface water withdrawals, may also have the potential for inducing or supporting growth.

The public wastewater collection systems in the Highlands Region predominantly treat residential wastewater. A Highlands Domestic Sewerage Facility (HDSF), which includes publicly owned and investor owned domestic wastewater treatment facilities, provides wastewater treatment to municipalities and has collection systems that may be capable of supporting redevelopment and regional growth opportunities.

Determining the location and amount of utility capacity available to support communities within the Highlands Region will help encourage redevelopment, regional development, economic growth, revitalization and identify areas that may allow densities to support the use of the Highlands Transfer of Development Rights (TDR) program. Planning for future water supply and wastewater service areas requires knowledge of the areas served by existing infrastructure, current levels of use, and an analysis of planned infrastructure.



Speedwell Lake / Morristown

Highlands Act Goals

The Highlands Act charges the Highlands Council with the following goals related to water supply and wastewater utilities in the implementation of the Highlands Regional Master Plan:

- ▶ Protect, restore, and enhance the quality and quantity of surface and ground waters.
- ▶ Preserve extensive contiguous areas of land in its natural state.
- ▶ Protect the natural, scenic, and other resources of the Highlands Region, including but not limited to contiguous forests, wetlands, vegetated stream corridors, steep slopes, and Critical Habitat for fauna and flora.
- ▶ Promote conservation of water resources.
- ▶ Prohibit or limit construction/development which is incompatible with protection of the Preservation Area.
- ▶ Protect and maintain the essential character of the Highlands environment.
- ▶ Encourage, consistent with the State Development and Redevelopment Plan and smart growth strategies and principles, appropriate patterns of compatible residential, commercial, and industrial development, redevelopment, and economic growth, in or adjacent to areas already utilized for such purposes, and discourage piecemeal, scattered, and inappropriate development, in order to accommodate growth and economic development in an orderly way while protecting the Highlands environment from adverse impacts.

Highlands Regional Master Plan

The Highlands RMP addresses the following fundamental issues with regard to water supply and wastewater utilities in the Highlands Region:

- ▶ Identify areas currently served by existing water supply and wastewater facilities;
- ▶ Identify proposed wastewater service areas for wastewater facilities;
- ▶ Limit the expansion of water and wastewater infrastructure in the Preservation Area;

- ▶ Ensure all existing and future development in the Highlands Region that use public water supply systems and/or public wastewater systems¹ are served by adequate and appropriate infrastructure;
- ▶ Ensure that onsite wastewater system discharges do not: exceed the natural carrying capacity of groundwater to attenuate pollutant loadings, exacerbate existing nitrate impairment, or contribute to potential nitrate impairment for subwatersheds of the Highlands Region; and
- ▶ Improve and refine the groundwater resource management element.

Highlands RMP Programs

The RMP includes a Water and Wastewater Utility program and a Wastewater System Maintenance program intended to assist in the achievement of the water and wastewater utilities Goals, Policies, and Objectives.

Water and Wastewater Utilities

The Water and Wastewater Utilities program provides a sequenced approach to determining the existing and potential capacity for service provision within the Highlands Region, appropriate and inappropriate areas for utility services, and how capacity will be allocated among Existing Areas Served and proposed areas for new services both adjacent to and distinct from Existing Areas Served. Provision is made for incorporation of resource constraints and the protection of sensitive environmental features. The Water and Wastewater Utilities program consists of the following subprograms:

- ▶ Verification of Available Facility Capacity for Water Supply and Wastewater Utilities
- ▶ Identification of Resource and Regulatory Constraints on Utility Capacity
- ▶ Identification of Additional Constraints on Utility Capacity
- ▶ Protection of Environmental Resources Within Service Areas
- ▶ Build-out Analysis for the Existing Area Served in the Highlands and Non-Highlands Approved Service Areas
- ▶ Proposed Service Areas, Infrastructure Needs and Densities in Highlands Existing Community Zones

1. In this regard, “public” utilities are those that have residential customers, potentially with non-residential customers. Public utilities can be owned by governmental and private-sector entities.

Topic Area: **Water & Wastewater Utilities**

- ▶ Build-out Analysis for Proposed Services Areas in Highlands Existing Community Zones
- ▶ Proposed Service Areas, Infrastructure Needs and Densities in Highlands Protection and Conservation Zones
- ▶ Potential Service Areas for Clusters, Redevelopment Areas, Exempt Parcels and Public Health Exemptions
- ▶ Utility Series Element (planning analysis including updating water and wastewater utility services elements of municipal and county master plans)
- ▶ Project Review Standards

Wastewater System Maintenance

This program helps ensure that on-site and small community wastewater treatment systems are properly maintained, using methods that complement the NJDEP's regulatory programs and requirements. The Wastewater System Maintenance program consists of the following subprograms:

- ▶ Routine Maintenance of Residential Septic Systems
- ▶ Life-cycle Maintenance of Residential Septic Systems
- ▶ Upgrading & Replacement of Residential Cesspools and Other Inadequate Wastewater Systems

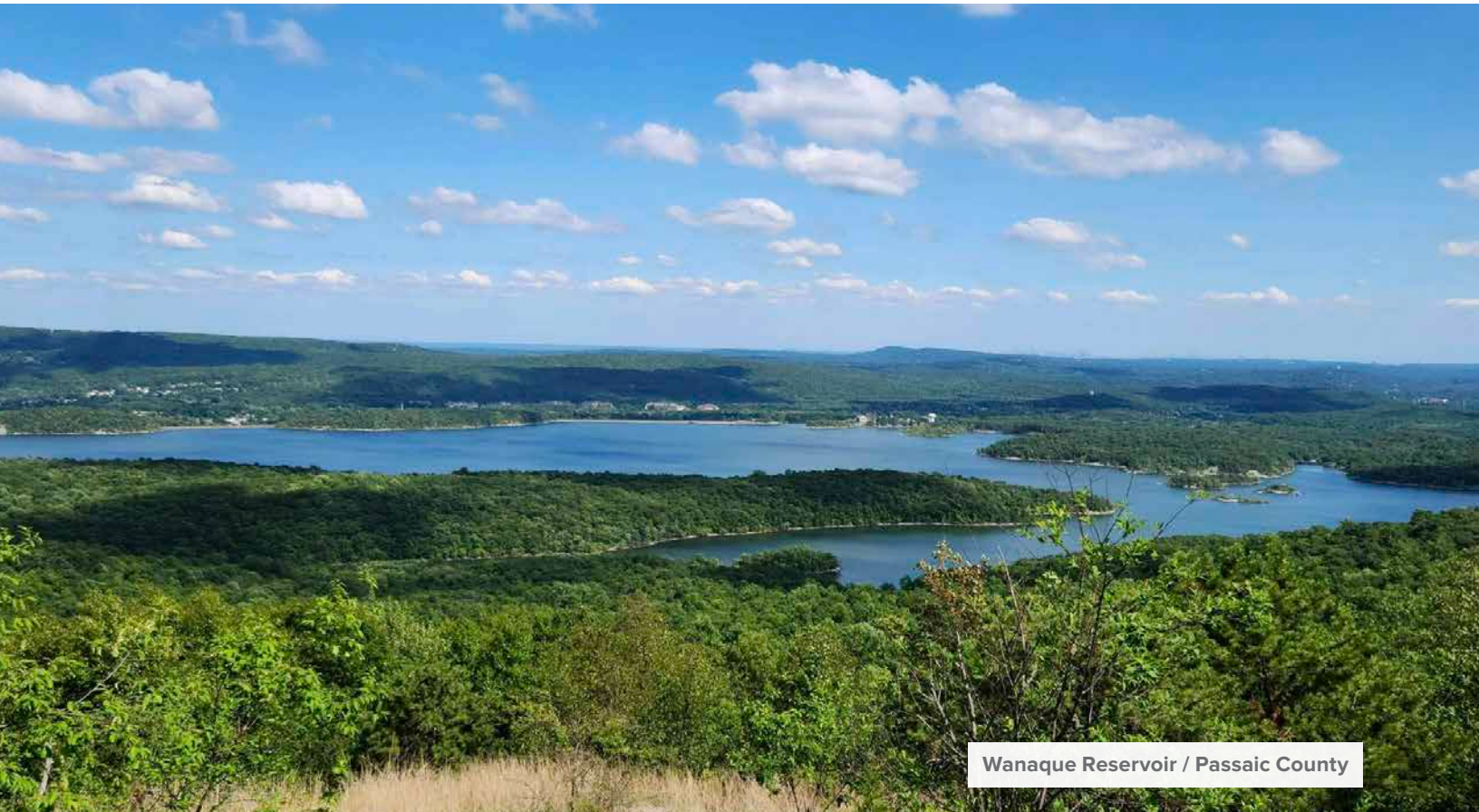
- ▶ Upgrading of Septic Systems to Address Threats to Human Health and Ground Water Quality
- ▶ Alternative Management Approaches for New Septic Systems
- ▶ Requirements for New Small Community Wastewater Systems
- ▶ Management of Existing Small Community Wastewater Systems

Indicators

Full analyses of indicators listed below are available in the Indicator Report chapter. A complete list of all identified indicators is available at the end of this document. Potential future indicators may be noted in the Recommendations section that follows, under "Science and Research Agenda."

Indicators Analyzed for Water & Wastewater Utilities:

- ▶ **Domestic Sewerage Facilities Capacity and Demand:** Measures change in domestic wastewater sewerage facility current available capacity and discharge by facility.



Wanaque Reservoir / Passaic County

- **Public Community Water Systems Capacity and Demand:** Measures change in public community water systems monthly capacity and demand.

Indicators Related to Water & Wastewater Utilities:

- **Municipal Plan Conformance:** A matrix of Municipal Plan Conformance Petition data, including submission and Highlands Council disposition, as well as approved Petition components and the current status of municipal completion.

Recommendations

The recommendations that follow are organized by RMP programs and/or subprograms. Where appropriate, multiple programs have been combined for this discussion. Additionally, some program names have been modified to more accurately reflect the program's purpose in practical application. Please note that not all RMP programs and subprograms have associated recommendations in this report. Items under "Science and Research Agenda" are recommendations that require further study and investment.

Water and Wastewater Utilities

Implementation Activity

The Highlands Council has been coordinating with utilities, municipalities, counties, and the NJDEP on the development of Wastewater Management Plans (WMPs). WMPs verify available facility capacity for water supply and wastewater capacity, and direct growth to the Existing Community Zones and Lake Community Zones, where utilities are more readily provided and away from sensitive environmental features. Municipalities and utilities provide feedback on the accuracy of the EAS since they have more reliable local knowledge. The Highlands Council will be taking a more limited role in the development of WMPs going forward. The Highlands Council will provide assistance through grants to municipalities and counties to coordinate with NJDEP in the development and adoption of WMPs. Should the NJDEP move to adopt new regulations or procedures for the approval of WMPs, the Highlands Council will coordinate with the NJDEP to attempt to develop a more streamlined approach toward the finalization of WMPs. Summary findings of related indicators:



Lake Solitude Dam / High Bridge

- ▶ **Public Community Water Systems Capacity and Demand:** The analysis indicates that larger facilities tend to have more available capacity (known as firm capacity), while smaller facilities are more likely to have a capacity deficit. Of all the public community water systems in the Highlands, 12% of all facilities have no remaining capacity. In general, the demand trend among large systems is seasonally consistent year over year. Demand among smaller systems appears to be declining since 2007. However, there is some concern that large data centers could create additional demands in areas with limited or no firm capacity and/or with limited or no net water availability.
- ▶ **Domestic Sewerage Facilities Capacity and Demand:** Data indicates that since adoption of the RMP in 2008, most Highlands Domestic Sewerage Facilities (HDSFs) have seen negligible variability in available capacity. On average between 2020 and 2024, only nine facilities out of 41 HDSFs had a deficit in available capacity using NJDEP's method of Maximum 12 month rolling average over 5-years.

Program Issues

- ▶ The development of Highlands WMPs has been delayed due to a complex and lengthy coordination process and changes in NJDEP regulations; therefore, the Highlands Council plans on taking a more limited role on the development of WMPs. The Highlands Council will provide assistance through grants to municipalities and counties to coordinate with NJDEP in the development and adoption of WMPs. Wastewater Utility EAS and Water Supply EAS indicators were both removed due to the lack of updated data. NJDEP's data includes existing areas served as well as future service areas combined for public water and sewer service areas for wastewater; neither breaks out existing served areas from areas to be served in the future. Without current data on which areas are currently being served by public water, wastewater facilities or both, neither dataset can be used as an indicator of growth or conservation.
- ▶ Limited funding for upgrading infrastructure.
- ▶ Difficulties in providing new sewerage facilities to replace areas of highly concentrated septic systems that are causing surface water or groundwater contamination, or both.

Recommendations

- ▶ Identify and implement a methodology for assessing existing service areas for water supply and wastewater utilities that can be and is updated on a regular schedule. A Federal Lead and Copper

Rule and NJSA 58:12a-40 et seq. require public water systems to provide an inventory of service lines. This data should be used to update the Public Water EAS data. As of the date of this report a complete dataset was not available.

- ▶ NJDEP and the HC should explore a formal agreement and procedure where the HC acceptance of a WMP for a fully conforming municipality will be accepted by NJDEP as an adopted WMP under their rules.
- ▶ Enter into a Memorandum of Understanding with NJDEP to outline responsibilities related to consistency with the Water Supply Management Act on water allocation decisions and project reviews that increase demand for Highlands water supplies, for tracking compliance with allocation permit conditions relevant to Highlands water resources.
- ▶ Identify and prioritize areas that are in need of upgraded infrastructure or creation of infrastructure to mitigate pollution from highly concentrated septic systems or to reduce the potential for private well contamination in areas of highly concentrated private (i.e., domestic) wells.
- ▶ Investigate opportunities for creating grant, low-interest loan or creative finance programs to assist with infrastructure upgrades and creation.



Storm Grate / Tewksbury Township

- ▶ Assist in and provide funding for the development of wastewater alternative treatment plans, particularly for developed Preservation Area municipalities currently not serviced by adequate wastewater treatment facilities, to address issues of public health and safety.
- ▶ Prohibit extension of new sewer and water service areas in the Conservation and Protection Zones of the Planning Area regardless of conformance status of the municipality in which the land is located except for instances where it is required for public health, safety, and welfare.

Science and Research Agenda

- ▶ Link deficit public water utilities with critical resources to identify the areas where water quality or stream ecosystem integrity is degraded due to over-pumping for public water supply.
- ▶ Coordinate with NJDEP to analyze water efficiency to gauge and predict the amount of non-revenue water for public water systems that rely on Highlands water resources.

Wastewater System Maintenance

Implementation Activity

The Highlands Council is working with municipalities to develop alternative and innovative Wastewater Treatment Plans to address wastewater issues. The Council continues to coordinate with NJDEP and local municipalities in the development of these plans and plan conformance grants are available to defray municipal costs.

Summary findings of related indicator:

- ▶ **Municipal Plan Conformance Implementation:** No municipalities have adopted a Highlands Municipal Septic Management Plan and ordinance.

Program Issues

- ▶ Lack of final Highlands Municipal Septic System Maintenance Plan Ordinance.
- ▶ Difficulty identifying septic system failures.
- ▶ Administration and enforcement of septic system management programs are cost prohibitive for municipalities, resulting in a reluctance to adopt such programs.
- ▶ Municipalities with failing systems and no access to treatment can lead to a public health and safety risk.

- ▶ Some municipalities may perceive a septic system maintenance ordinance as an undue burden on property owners.

Recommendations

To spur the implementation of the septic maintenance program of the RMP, the following is recommended:

- ▶ Maintain an inventory of existing municipal septic system maintenance plans and ordinances.
- ▶ Develop a septic system best management practices manual for municipalities, including:
 - Educational materials on the proper operation and maintenance for property owners who have septic systems;
 - Model septic management and maintenance ordinances; and
 - Work with funding partners to develop a residential loan program to replace or repair failing septic systems. This may include the development of infrastructure loan programs through the I-Bank at the state level, or county or regional utility authorities.
- Track new and/or repaired septic systems through local health department cooperation.
- ▶ Provide guidance to municipalities to assist in identifying sites appropriate for wastewater facilities.

Science and Research Agenda

- ▶ Develop a GIS mapping protocol for inventorying the locations of septic system failures to identify and prioritize areas that may need infrastructure investments.



Agricultural Resources

Agriculture is a vital component of the economy, culture and landscape of the Highlands Region. It provides economic benefits through agricultural production and helps maintain the rural character of Highlands communities. The loss of both farmland and farmers over recent decades emphasizes the crucial need to promote and encourage a positive agricultural business climate. In order to encourage such a climate and enhance agricultural viability, agricultural operations need to have the ability to adapt to ever-changing market conditions.



Horse / Alexandria Township

Highlands Act Goals

The Highlands Act charges the Highlands Council with providing for the following goals related to agriculture in the implementation of the Highlands Regional Master Plan:

- ▶ Preserve farmland (“and historic resources,” per the Act).
- ▶ Promote compatible agricultural, horticultural, recreational, and cultural uses and opportunities within the framework of protecting the Highlands environment.

Highlands Regional Master Plan

The RMP’s approach to agricultural resources focuses on both the preservation of agricultural lands and the support of agriculture as an industry in the Highlands Region. The goals, policies and objectives contained within the RMP are designed to preserve lands for farm operations, protect and strengthen agriculture as an industry, and provide incentives and funding opportunities to encourage best management practices (BMPs) that protect and enhance the resources of the Highlands Region.

Highlands RMP Programs

The RMP recommends a variety of programs to assist in the achievement of the Agricultural Resources goals, policies, and objectives. These programs range from inventorying agricultural lands and monitoring easements, to establishing preservation and stewardship programs, to developing initiatives to expand Highlands farmers’ consumer base and thus the demand for Highlands agricultural products. In cases where development is approved on farmland, the RMP requires use of cluster development standards as a means to retain a the majority (80-90%) of the acreage for continued agricultural use. The RMP recommends various educational and technical assistance programs, as well as coordination with other county, state, and federal agencies where existing roles and missions align. The full list appears below, organized according to program type.

Agricultural Sustainability, Viability, and Stewardship

Cataloguing Lands/Acquisition Activities

- ▶ Inventory of Agricultural Lands

- ▶ Willing Sellers
- ▶ Funding Opportunities
- ▶ Monitoring
- ▶ Stewardship

Preservation and Stewardship Programs

- ▶ Implementation of Strategies to Promote Preservation in the Agricultural Resource Areas and the Agricultural Priority Areas
- ▶ Cluster/Conservation Design Development
- ▶ Establishment of Alternative/Innovative Agriculture Preservation Programs
- ▶ Establishment of Alternative/Innovative Agriculture Stewardship Programs with funding to underwrite the costs of implementation.
- ▶ Implementation of Strategies to Sustain and Enhance the Viability of the Agricultural Industry
- ▶ Identification of Subwatersheds with Elevated Nitrate Levels and Development of Management Plans
- ▶ Establishment of Incentives for Voluntary Impervious Cover Limitations on Agricultural Lands
- ▶ Establish pilot program with the SADC to preserve lands with a combination of agricultural uses and natural resources.

Coordination Efforts

- ▶ Serve as a Regional Clearinghouse for Farmland Preservation, Stewardship and Technical Assistance
- ▶ Right to Farm Issues

Indicators

Indicators analyzed related to Agricultural Resources are summarized below. Full analyses of indicators listed below are available in the Indicator Report chapter. Potential future indicators may be noted in the Recommendations section that follows, under “Science and Research Agenda.”

Indicators Analyzed for Agricultural Resources:

- ▶ **Agricultural Land Use and Preservation Index:** Measures change in acreage of total farmland, preserved farmland, and the share of total farmland that is preserved, as well as the change in total farmland and preserved farmland within the Highlands Agricultural Resource Area.

Indicators Related to Agricultural Resources:

- ▶ **Implementation Funding:** Indicates investments made toward the implementation of the Regional Master Plan (RMP) and a breakdown of how funding is used toward implementation of the RMP.
- ▶ **Open Space Program:** Tracks Highlands Open Space Partnership Funding Program applications, approved acquisitions, and funding availability.
- ▶ **Transfer of Development Rights (Highlands Development Credit) Program:** Tracks Highlands Development Credit (HDC) allocations, number and status of applications for purchase of HDCs, and funding availability for purchase. Tracks Transfer of Development Rights (TDR) feasibility grants and eligible/designated TDR receiving areas.

Past Actions and Recommendations

The recommendations that follow are organized by RMP programs and/or subprograms. Where appropriate, multiple programs have been combined for this discussion. Additionally, some program names have been modified to more accurately reflect the program’s purpose in practical application. Please note that not all RMP programs and subprograms have associated recommendations in this report. Items under “Science and Research Agenda” are recommendations that require further study and investment.

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Agricultural Sustainability, Viability, and Stewardship

Implementation Activity

- ▶ Established a Sustainable Agricultural Grant Program funding six entities pursuing diverse crop initiatives, innovative farming techniques, and food processing facilities. Total grant awards exceeded \$800,000.
- ▶ Continue function of the Agricultural Advisory Committee including farmers representing a broad range of agricultural activities.
 - Kurt Alstede- Alstede Farms (Fruit and Produce, PYO, Tourism, Council Representative)
 - Michael Beneduce Jr.- Beneduce Vinyards (Wine)
 - Peter Melick- Melick’s Farms (Orchards, PYO)
 - Adam Furlong- Veterinary Medicine
 - James Borgeois

- ▶ Preservation of 1,866 acres of farmland through the Highlands Development Credit Purchase Program at the cost of \$14,028,000. The Highlands Conservation Act, through the U.S. Fish and Wildlife Service, provided \$6,072,000.
- ▶ Preservation of 855 acres of farmland through the Highlands Open Space Partnership Program at the cost of \$8,603,577. Approximately a quarter of this (\$2,247,624) was provided from the Highlands Conservation Act through the U.S. Fish and Wildlife Service.

Summary findings of indicators:

- ▶ **Agricultural Land Use and Preservation Index:** Although the amount of farmland within the Highlands Region and in the portions of Highlands counties falling outside the Region is roughly similar (107,000 and 110,000 acres respectively), more farmland is being preserved and protected within the Highlands Region. The amount of farmland within the Highlands has increased by 22%, compared with 15% in the county area outside the Region. Loss of farmland is also slower within the Highlands region compared with areas just outside, decreasing by only 9% in the Highlands compared with 11% just outside. Both within and outside the Region, 49% of the farmland was preserved per State Agriculture Development Committee (SADC) standards for preserved farmland.
- ▶ In the nearly 100,000 acres of farmland in the Highlands Agricultural Resource Area (ARA), 51% is preserved per SADC standards. This is particularly notable since 69% of the ARA is in the Planning Area, and of the total preserved, the majority (63%) is also in the Planning Aea.

Summary findings of Related indicators:

- ▶ **Implementation Funding:** Hunterdon, Sussex and Warren counties have received a total of \$418,000 in grant funding for the county-based farming assistance programs mentioned above.

Program Issues

- ▶ Lack of dedicated funding and staff for continued support of Agricultural Sustainability and Preservation.

Recommendations

- ▶ Promote sustainable agriculture and the expansion of agricultural uses and opportunities within the framework of protecting the Highlands Region. This should include continued technical and funding assistance to Highlands municipalities, counties,

and County Agriculture Development Boards (CADBs) that demonstrate the ability to fulfill the goals of the program. Program areas could include:

- ▶ Integrated Crop Management and Integrated Pest Management: maintain and expand the program for farmers throughout the Highlands Region.
- ▶ Market Development/Niche Crops: develop and promote new markets for Highlands agricultural products (new products, value-added products, and niche crops) and develop and promote agritourism initiatives and activities.
- ▶ Evaluate the extent to which the Sustainable Agriculture program has materially benefited Highlands agriculture. If successful, add additional funding to this program.
- ▶ Agritourism: Identify opportunities for development and deployment of Highlands agritourism initiatives through use of the Highlands region tourism brand.
- ▶ Value-Added Facilities: The Region serves as an important source of fresh, high quality, local food for northern New Jersey and the surrounding metropolitan region. The Highlands Council should inventory, advocate for, and assist with the siting of value-added facilities responsible for aggregating, processing, and distributing multiple products grown in the Region and beyond:
 - Community Kitchens
 - Co-packing facilities
 - Freezer/cooler capacity
 - Animal processing facilities
- ▶ Agricultural Loan Bank: Coordinate with SADC to establish an Agricultural Loan Bank to collateralize debt for farm equipment purchases based on the pre-Act value of the subject property where said value was reduced by the Highlands Act.
- ▶ Highlands Agricultural Specialist: Add a dedicated Highlands Council staff member to support the agricultural industry in the region and to manage the Council's agriculture programs, seek out grant funding, promote local agriculture, administer a grant program to promote sustainable agricultural land management practices including installation of best management practices to protect and/or improve water quality, and advise the Council on additional measures that may be necessary or valuable to the goals of the RMP.
- ▶ Establish a program to incorporate Highlands-grown food into regional food banks including a system for ensuring excess agricultural products are utilized.
- ▶ Support development and redevelopment of agricultural infrastructure and support services.

- ▶ Establish a program for assisting young and upcoming farmers to acquire land, machinery, and knowledge needed for success.
- ▶ Establish a Pesticide Container Recycling facility within the Highlands Region.
- ▶ Advocate for a revolving fund, using Corporate Business Tax Revenue, to support stewardship and best management practices for water quality protection on preserved farms.

Science and Research Agenda

- ▶ Research the economic factors favoring or restricting agricultural viability in the Highlands region, including whether these conditions differ for Highlands versus non-Highlands farms, and identify the drivers of profitability of farming.
- ▶ Assess the extent to which Highlands farms are engaged in higher-revenue production agriculture, value-added processing and agritourism operations, and the extent to which Highlands farms are used for minimal-value commodity production indicating a priority for farmland easements over agriculture production value.
- ▶ Identify methods of converting farmland currently in production of commodity crops to more profitable farm products, including food crops, value-added products, direct supply to retail and restaurants and other practices that would help ensure economically sustainable methods of farming.
- ▶ Undertake a long-term study of the impacts of climate change on agriculture in the Highlands that includes changes in growing season, precipitation changes and the threats from new diseases or pests that impact the agricultural industry.





Historic, Cultural, Archaeological, and Scenic Resources

The Highlands is endowed with abundant natural, cultural, historic, scenic, and recreational resources. These resources are important for preserving the Region's heritage, for the beauty they provide, for their contribution to the character of the region, and for the benefits they bring for recreation and tourism.

The Region contains important historic, cultural, and archaeological resources that provide an understanding of how the land and the people of the Highlands have changed over time. These resources are also important for fostering an appreciation for the events that contributed to the development of the towns, villages, and cities of the Highlands Region. Historic resources, including buildings, structures, districts, areas, and sites are significant to the history and culture of the region over time, and connect communities with their pasts.

Scenic resources come from a variety of visual compositions. There is a unique topography forming ridgelines and mountainsides, contributing interesting formations and scenic panoramas. The landscape is full of streams and rivers, forested lands, agricultural settings, and long-ago established settlements.



Solitude House / High Bridge

Highlands Act Goals

The Highlands Act charges the Highlands Council with the following goals related to historic, cultural, archaeological, and scenic resource protection in the Highlands Regional Master Plan:

- ▶ Preserve extensive contiguous areas of land in its natural state.
- ▶ Protect the natural, scenic, and other resources of the Highlands Region, including but not limited to contiguous forests, wetlands, vegetated stream corridors, steep slopes, and Critical Habitat for fauna and flora.
- ▶ Preserve farmland and historic resources.
- ▶ Preserve outdoor recreation opportunities on publicly owned land.
- ▶ Promote compatible agricultural, horticultural, recreational, and cultural uses and opportunities within the framework of protecting the Highlands environment.
- ▶ Protect and maintain the essential character of the Highlands environment.
- ▶ For the Planning Area, encourage, consistent with the State Development and Redevelopment Plan and smart growth strategies and principles, appropriate patterns of compatible residential, commercial, and industrial development, redevelopment, and economic growth.

Highlands Regional Master Plan

The RMP's approach to protecting and advancing historic and scenic resources in the Highlands Region focuses on preservation and protection activities. The goals, policies, and objectives enumerated in the RMP involve identifying and inventorying historic and scenic resources, preventing negative impacts from outside development, reliance on established standards for protection and preservation, and coordinating with existing organizations and all levels of government. Both historic resources and scenic resources are recognized as critical for Highlands tourism opportunities, heritage tourism, agritourism, and ecotourism.

Highlands RMP Programs

Historic, Cultural, and Archaeological Resource Protection

The RMP includes several programs designed to identify where historic, archaeological, and cultural resources exist and to provide guidance and support to local government in managing and protecting resources within their borders. The full list appears below:

- ▶ Identification of Historic, Archaeological and Cultural Resources
- ▶ Protection and Management of Historic Resources
- ▶ Education and Outreach

Scenic Resource Protection

The scenic resource protection programs listed below establish a procedure for identifying regionally significant scenic resources within the Highlands Region and provide methods to preserve these vistas, byways, ridgelines, rivers and streams, cultural landscapes, and natural features.

- ▶ Inventory of Highlands Scenic Resources
- ▶ Scenic Resource Protection Mechanisms

Indicators

Full analyses of indicators listed below are available in the Indicator Report chapter. Please note that not all indicators identified by the public and Technical Advisory Committees received a full analysis for this report due to data limitations and/or applicability to the RMP. A complete list of all identified indicators is available at the end of this document. Potential future indicators may be noted in the Recommendations section that follows, under "Science and Research Agenda."

Indicators analyzed for Historic, Cultural, Archaeological, and Scenic Resources:

- ▶ **Preserved Lands and Trails:** Measures change in preserved lands and publicly accessible trails.
- ▶ **Note:** Because implementation of RMP programs related to Historic, Cultural, Archaeological, and Scenic Resources has been so limited, no directly related indicators have been identified at this time. Should the recommendations on the following pages proceed to implementation, indicators should be identified for tracking and monitoring.



Recommendations

The recommendations that follow are organized by RMP programs and/or sub-programs. Where appropriate, multiple programs have been combined for this discussion. Additionally, some program names have been modified to more accurately reflect the program's purpose in practical application. Please note that not all RMP programs and sub-programs have associated recommendations in this report. Items under "Science and Research Agenda" are recommendations that require further study and investment.

Historic, Cultural, and Archaeological Resource Protection

Implementation Activity

New Jersey's Historic Preservation Office (HPO) maintains an inventory of historic resources that includes properties and historic districts in New Jersey for which a formal action was taken by the State Historic Preservation Officer or designee. The listings are updated quarterly to reflect ongoing additions and corrections. The RMP establishes a Historic and Cultural Resource Inventory, which is a subset of HPO's inventory

including only those resources that are in the Highlands Region. The Highlands inventory is updated whenever the HPO inventory is updated.

Funding is available through the Highlands Plan Conformance Grant Program for historic preservation initiatives, such as Historic Preservation Master Plan elements, historic surveys, historic preservation ordinances, and heritage tourism planning. Additionally, the Model Highlands Land Use Ordinance includes an optional historic preservation component; however, this section is not currently required as part of Plan Conformance.

The Highlands Plan Conformance Grant Program has funded historic preservation initiatives in one county (Passaic County) and four municipalities (Phillipsburg, Califon, High Bridge and Chester Borough). No municipalities have adopted a historic preservation component of the Highlands Land Use Ordinance.

Program Issues

- ▶ Historic, cultural, and archaeological resource protection requirements contained within the RMP have not been included as a mandatory requirement in the Model Highlands Land Use Ordinance.
- ▶ Highlands Council does not have a current inventory of historic preservation measures that municipalities have adopted outside of Plan Conformance, so there is no accounting for the number of historic preservation ordinances that have been implemented in the region.
- ▶ Lack of outreach and education related to historic, cultural, and archaeological resources.

Recommendations

- ▶ Amend the Plan Conformance Program (including model municipal documents) to make the review of impacts on historic, cultural, and archaeological resources a required component, in compliance with the stated goals, policies, and objectives of the RMP as well as the Secretary of the Interior's Standards for the Treatment of Historic Properties. For Archaeological Resources follow the NJ Historic Preservation Office Guidelines for Phase I Archaeological Investigations, and based on the findings require the protection of identified resources.
- ▶ Establish a program commemorating the 250th anniversary of the Constitution (1788) and the role of the Highlands in the Revolutionary War, and develop programming to make it valuable for tourism initiatives.
- ▶ Consider amending the language of the RMP to more strongly reflect the intention of the Highlands Act goal to "preserve . . . historic sites and other historic resources."



Cross Estate Gardens Water Tower / Bernardsville

- ▶ Gather information related to historic preservation efforts in each Highlands municipality and county; prepare and keep up to date, an inventory of Certified Local Governments, historic preservation plans, surveys, and ordinances for Highlands municipalities and counties.
- ▶ In coordination with HPO, initiate an education and outreach program for the Highlands Region, as described in the RMP.
- ▶ In coordination with the NJ Historic Trust, establish a mechanism for tracking public spending on historic, cultural, and archaeological resources.
- ▶ Monitor the preservation and development of historic, cultural and archaeological resources.
- ▶ Work with State partners to develop an assessment of the economic impact of heritage tourism on the Regional economy.
- ▶ Work with the Sustainable Jersey program to foster municipal actions supporting historic, cultural, and archaeological resources.

Scenic Resource Protection

Implementation Activity

The Highlands Council adopted a Procedure for Nomination, Evaluation and Inventory of Highlands Regionally Significant Scenic Resources in October 2008, subsequent to the adoption of the RMP in July 2008. No new scenic resources have been proposed under this procedure.

Summary findings of related indicators:

- ▶ **Preserved Lands and Trails:** According to the most recent data available, 38.8% of the Highlands Region is permanently preserved. Of these lands, 37% are state-owned open space. Many of these properties are currently included in the baseline inventory of scenic resources.

Program Issues

- ▶ Lack of outreach to constituent municipalities and counties to encourage nomination of significant scenic resources.
- ▶ The Highlands Scenic Design Advisory Board, as defined in the *Procedure for Nomination, Evaluation and Inventory of Highlands Regionally Significant Scenic Resources*, has not yet been established.
- ▶ The Baseline Scenic Resource Inventory has not been updated as new lands are preserved.

Recommendations

- ▶ Update the *Procedure for Nomination, Evaluation and Inventory of Highlands Regionally Significant Scenic Resources*.
- ▶ Develop an outreach effort to assist in the identification and nomination of potential Highlands scenic resources.
- ▶ Establish a protocol for monitoring and updating the Scenic Resource Inventory as lands are preserved.
- ▶ Initiate an outreach effort to each of the Highlands Counties and other interested organizations to assist in the identification and nomination of potential Highlands scenic resources, including scenic byways.



Transportation and Air Quality

The Highlands Regional transportation system is a complex network of roads, highways, railways, and bridges, which support various modes of travel, including private automobile, buses, truck, passenger and freight rail, airport, bicycle, and walking. The Regional Master Plan recognizes that mobility is a key element of the character of the Highlands Region and includes a goal in the Planning Area for the promotion of a sound, balanced transportation system that is consistent with smart growth strategies and principles.

Clean air is a defining element of the unique character of the Highlands Region and air quality is influenced by mobile and stationary sources both within and outside the Region. Air quality is directly correlated with on-road mobile sources such as automobiles, buses and trucks; however, air toxins come from many other sources, including industrial facilities, utilities, commercial businesses, residential activities, and non-road mobile sources. While air quality is affected by activities in areas beyond the borders of the Highlands Region and the State, it is important that municipalities and counties address local air quality concerns to ensure that National Ambient Air Quality Standards (NAAQS) are met.



Bernardsville, NJ

Highlands Act Goals

The Highlands Act charges the Highlands Council with the following goals related to transportation and air quality in the implementation of the Highlands Regional Master Plan:

- ▶ Protect and maintain the essential character of the Highlands environment.
- ▶ Encourage, consistent with the State Development and Redevelopment Plan and smart growth strategies and principles, appropriate patterns of compatible residential, commercial, and industrial development, redevelopment, and economic growth, in or adjacent to areas already utilized for such purposes, and discourage piecemeal, scattered, and inappropriate development, in order to accommodate local and regional growth and economic development in an orderly way while protecting the Highlands environment from the individual and cumulative adverse impacts.
- ▶ Promote a sound, balanced transportation system that is consistent with smart growth strategies and principles and which preserves mobility in the Highlands Region.

Highlands Regional Master Plan

RMP transportation goals, policies, and objectives focus on safe and efficient transportation modes and levels of service, coordination with state and regional transportation agencies, and protection against adverse effects to natural resources and community character.

The goal for air quality focuses on reduction of air pollution.

Highlands RMP Programs

Transportation Safety and Mobility

The Transportation program of the RMP addresses multiple areas such as identifying roadway capacity constraints, addressing safety concerns, assessing agricultural and freight needs, and promoting efficient land use patterns that look comprehensively at land use and transportation planning. The program also looks to enhance a multi-modal transportation system that facilitates the movement of people and goods without

adversely affecting ecosystem integrity and community character. The Transportation Safety and Mobility program consists of the following subprograms:

- ▶ Linking Transportation and Land Use
- ▶ Regional Transportation Safety and Pedestrian Security
- ▶ Mobility of Agriculture and Freight Access
- ▶ Transportation and Tourism Economy
- ▶ Transportation Project Review
- ▶ Roadway Capacity Monitoring

Air Quality

The Air Quality program focuses on meeting the National Ambient Air Quality Standard (NAAQS). This program also supports the State Energy Master Plan as a means to plan and evaluate for energy efficiency and greenhouse gas reductions. The program includes both development and redevelopment strategies that can indirectly enhance air quality. The Air Quality program consists of the following subprograms:

- ▶ Encourage Capital Facilities That Meet Standards
- ▶ Monitoring
- ▶ Land Use Planning
- ▶ Resource Protection and Site Design Standards

Indicators

Full analyses of indicators listed below are available in the Indicator Report chapter. Please note that not all indicators identified by the public and Technical Advisory Committees received a full analysis for this report due to data limitations and/or limited applicability to the RMP. A complete list of all identified indicators is available at the end of this document. Potential future indicators may be noted in the Recommendations section that follows, under “Science and Research Agenda.”

Indicators Analyzed for Transportation and Air Quality:

- ▶ **Air Quality Index:** Measures change in the number of days, annually, that air quality fails to meet satisfactory National Ambient Air Quality Standards, by standard.
- ▶ **Commutation Patterns Index:** Measures change in commuting behavior, including travel mode and commute time.
- ▶ **Freight Index:** Measures change in active freight lines and spurs.

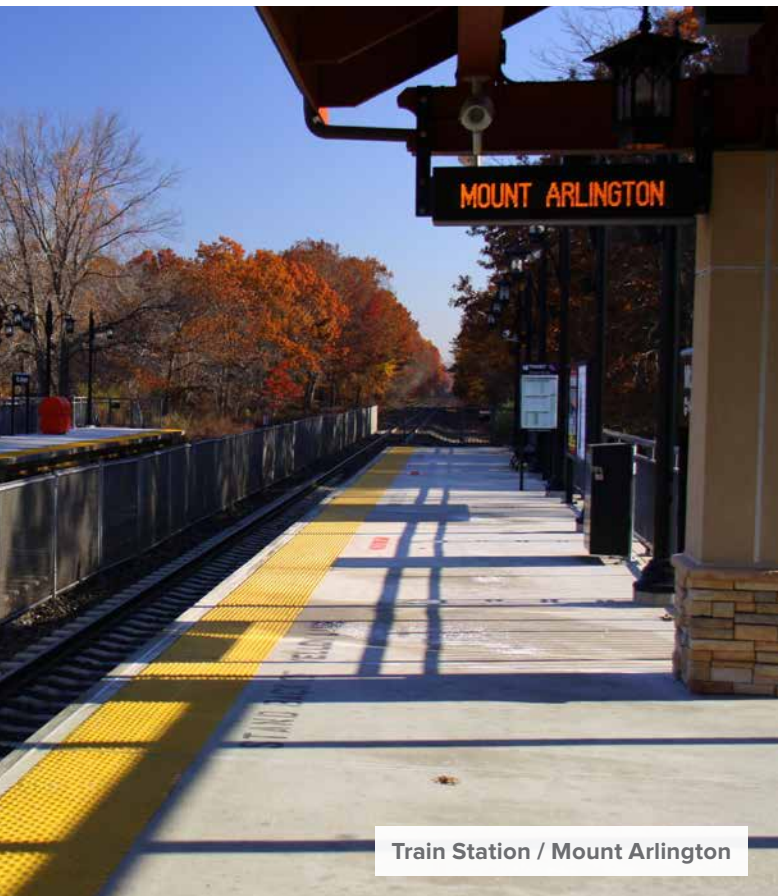
- **Transit Lands Area:** Measures change in Transit Lands Area; change in land use, construction activity, population density, and jobs within the Transit Lands Area.

Indicators Related to Transportation and Air Quality:

- **Participation and Outreach:** Measures the number and type of events, meetings, and activities the Highlands Council has held for public outreach, education, interagency coordination, site visits, and the like.

Past Actions and Recommendations

The recommendations that follow are organized by RMP programs and/or subprograms. Where appropriate, multiple programs have been combined for this discussion. Additionally, some program names have been modified to more accurately reflect the program's purpose in practical application. Please note that not all RMP programs and subprograms have associated recommendations in this report. Items under "Science and Research Agenda" are recommendations that require further study and investment.



Train Station / Mount Arlington

Transportation Safety and Mobility

Implementation Activity

Each of the Transportation programs described in the RMP identifies areas where the Highlands Council may coordinate with various other agencies. These agencies include New Jersey Transit, New Jersey Department of Transportation (NJDOT), North Jersey Transportation Planning Authority (NJTPA), New Jersey Economic Development Authority (NJEDA), NJ Division of Travel and Tourism, and more broadly, state agencies, local governments, and stakeholders. Implementation in this area has been limited due to staffing limitations.

In addition, the RMP identified multiple existing and planned transportation studies in the Highlands Region for further evaluation. There has been no formal evaluation of these projects and studies since the adoption of the RMP. At the time the RMP was written, each of the referenced projects anticipated results (construction or study completion) by 2017 or earlier.

Summary findings of related indicators:

- **Commutation Patterns:** From 2000 to 2024, there has been a decline in the use of single-occupancy vehicles for work commute and an increase in bus and bicycle use for commuting. Additionally, data suggests more people work from home.
- **Freight Index:** Active freight lines and freight spurs have declined in the Highlands Region from 2009-2024.

Program Issues

- Undefined role of Highlands Council in influencing strategic plans for other agencies.
- Lack of Highlands Region specific recommendations and requirements in strategic plans for other agencies.
- Highlands Act Exemptions #9 (repair of transportation or infrastructure systems) and #10 (transportation safety projects) eliminate Highlands Act or RMP consistency reviews, such that the Act generally has no effect on most transportation projects. Few projects involve the creation of new facilities or expansions (e.g. added highway lanes) that do not have a safety component.
- Lack of evaluation criteria or guidelines for how to monitor transportation projects and studies impacting the Highlands Region, such as those identified in the RMP.

Recommendations

- Coordinate with NJ Transit, NJDOT, NJDEP, NJTPA, NJEDA, NJ Division of Travel and Tourism, and other agencies in transportation planning and design standards. This may include the establishment of Highlands Region specific considerations and how they may be incorporated into larger scale strategic plans. Specifically, take an active role in the development of Region-wide transportation planning initiatives including NJTPA's Long-Range Transportation Plan and Transportation Improvement Plan.
- Define an evaluation criteria and methodology for transportation projects and studies impacting the Highlands Region.
- Evaluate stormwater runoff pollution from roadways and update the RMP in accordance with the MS4 permitting program
- Update the status of the specific transportation projects and studies identified in the RMP. Further evaluation of these projects and studies, including the local and regional impact of the projects on economic and environmental Highlands resources.
- Using a defined evaluation criteria, identify and evaluate projects and studies that will have a significant impact in the Highlands Region and may be influenced by the RMP.

- Understand how evolving commuting practices, complete streets programs and EV improvements (e.g. fast-charge batteries) will modify Highlands transportation capacity.

Linking Transportation and Land Use, Regional Transportation Safety and Pedestrian Security, Transportation Project Review

Implementation Activity

As of April 2025, two conforming municipalities have developed a circulation plan element for Plan Conformance. Several jurisdictions are examining scenic byway designations and Passaic County has incorporated its own scenic byway standards into its Heritage Tourism Plan.

Highlands Trail - The Highlands Council hired the NY/ NJ Trail Conference to map the 150 Mile Highlands Trail, a long distance hiking trail that traverses the entire Highlands region. The project included the development of an interactive map and associated mobile application of the entire New Jersey portion of the Highlands Trail, development of promotional maps



Loantaka Brook Reservation / Morris County

and materials to promote the use of the Highlands Trail; and implementation of a trail and roadside signage program.

Highlands Trail Town study – Development of a study of a Highlands Trail Town Program in New Jersey is underway. The study will recommend how to design, develop, and implement a Trail Town program associated with the Highlands Trail. The objective is to strengthen the relationship between the Highlands Trail and the communities it passes through by connecting trail users to services, amenities, and attractions.

Open Space and Recreation Plan- A Highlands Regional Open Space and Recreation Plan is underway. This plan will provide a database of existing preserved lands, and a mapping system that will prioritize future lands for preservation. This plan will assist in showing current trailways, and the potential for linkages to promote accessibility and other forms of transportation.

Summary findings of related indicator:

- ▶ **Commutation Patterns Index:** From 2000 to 2024, there is a decline in the use of single-occupancy vehicles for work commute and an increase in bus and bicycle use for commuting. Since the COVID-19 pandemic more people work remotely than ever before.
- ▶ **Transit Lands Area:** From 2013 to 2024 the transit lands area has show an increase in overall population and housing density.

Program Issues

- ▶ Lack of adoption of a circulation plan element for conforming municipalities.
- ▶ Highlands Council RMP program relies on inter-agency coordination, which generally limits the Council’s impact related to on-the-ground projects.
- ▶ There are no walkable and bicycle-friendly site design standards defined for RMP consistency through Highlands Project Review.
- ▶ Transportation is not addressed in assessing Highlands tourism needs and opportunities. Scenic byways and Highlands Region amenities are not linked meaningfully in planning efforts.

Recommendations

The Highlands Act and RMP intend to promote a sound and balanced transportation system that is consistent with smart growth strategies and principles and looks to enhance a multi-modal transportation system. By regulatory and enforcement responsibility, the Highlands Council is limited in its ability to provide new opportunities and enhancement of existing walkable and bicycle-friendly transportation networks. It is

recommended that the RMP incorporate additional avenues for the Highlands Council to implement these networks:

- ▶ Develop site design guidelines related to walkable and bicycle-friendly design to be incorporated into Highlands Project Review. This may include Complete Streets planning, sidewalk specifications, bicycle considerations, proper lighting, and other items. Review standards for potential inclusion as amendment to the NJ Residential Site Improvement Standards.
- ▶ Review and incorporate Local Safety Action Plans into Regional Master Plan guidance.
- ▶ Establish an EV charging network plan capable of supporting changing technologies with a specific focus on trailheads and state parks where appropriate.
- ▶ Establish design standards for new and existing development that implements shared EV charging networks.
- ▶ Ensure inclusion of scenic byways in Highlands tourism planning and consider a program to provide Highlands trail blazing signage that appropriately unifies tourism travel networks.
- ▶ Ensure inclusion of significant natural and historic resources and landmarks in Highlands tourism planning.
- ▶ Coordinate with NJTRANSIT to establish greater weekend service to Highlands municipalities and to expand service to additional communities along existing active rail lines that currently do not have passenger service in support of tourism, visitation and transit oriented development..

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Freight Access

Implementation Activity
Warehousing Amendment

Summary findings of related indicator:

- ▶ **Freight Index (rail):** Active freight lines and freight spurs have declined in the Highlands Region from 2009-2024.

Program Issues

- ▶ The RMP Warehousing Amendment is based on distance from transportation access points. Further refinement is needed to consider capacity and locational factors.

Recommendations:

The Highlands Act and the RMP recognize the importance of sustainable economic development in areas with access to existing infrastructure. In an effort to improve both transportation congestion and air quality, the RMP looks towards the use of the existing freight rail system. To increase the likelihood of directing future development and redevelopment to areas with access to this infrastructure, it is recommended that a program be developed to expand the current Highlands Center designation process to include review of areas with significant freight rail access, with the potential for inclusion of such areas within Center boundaries. The recommendation is to include the following in the RMP and the center designation procedures adopted by the Highlands Council:

- ▶ Refine the Warehousing Amendment to include additional datasets and location factors.
- ▶ Coordinate with NJDOT and NJTPA to identify freight rail access points and their relationship to existing infrastructure to support development consistent with the RMP.
- ▶ Develop commercial and industrial specific procedures for Highlands Centers and Redevelopment Areas and include, in guidance documents, a particular focus on developing in close proximity to existing rail (freight) access points.
- ▶ Identify opportunities for retaining existing (unused) rail rights of way for potential reuse.

Air Quality

Implementation Activity

Indirect activities that are considered to improve local air quality, including the requirement of native landscaping and low impact development practices through Highlands Project Review, and preservation of forested land through Landowner Equity and land preservation programs.

Summary findings of related indicators:

- ▶ **Air Quality Index:** Since the adoption of the RMP, the trend for Highlands counties is fewer unhealthy Air Quality Index (AQI) days over time. By the data used in this indicator, all of Northern New Jersey has improved since 2004, which is the earliest date in the analysis.

Program Issues

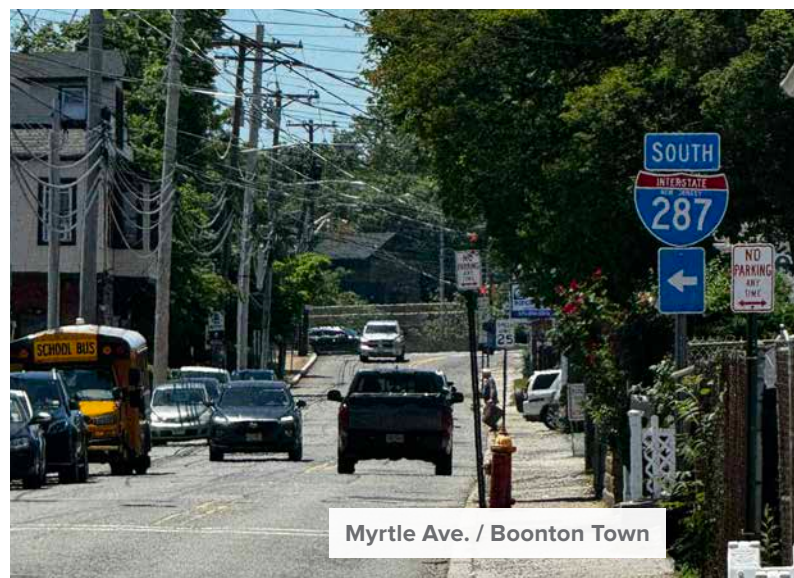
- ▶ Highlands Council action items outlined in the program are redundant with other topic areas of the RMP.

- ▶ Standards are established and monitored by other agencies, including the United States Environmental Protection Agency (USEPA) and NJDEP.
- ▶ Third party green building certification entities typically deal directly with landowners and developers.

Recommendations

Clean air is a defining characteristic of the Highlands Region. Maintaining this high quality resource is captured by the sound land use planning established in greater detail throughout the RMP. The RMP also defers to meeting NAAQS and State Energy Master Plan Goals, without defining specific practices or standards to go above and beyond state and federal guidelines. It is recommended that the Highlands Council coordinate with agencies to establish additional criteria and incentives for improving air quality in the Highlands Region, with a clearly defined role for the Highlands Council.

- ▶ Coordinate with NJDEP and USEPA to identify specific causes of air quality pollution in the Highlands Region and specific activities the Highlands Council can take to work toward alleviating these problems, including air quality monitoring.
- ▶ Develop guidance for overburdened communities.
- ▶ Develop additional warehousing guidance that co-locates shared support facilities to help limit the number of warehouse development sites and mitigates the impacts of warehousing operations.
- ▶ Develop standards for locating solar facilities, battery storage, and data centers.
- ▶ Develop a clean energy infrastructure implementation plan for the Region (solar, wind, battery, nuclear) and coordinate with BPU, DEP, and other agencies.



Myrtle Ave. / Boonton Town



Future Land Use

The Highlands Act recognizes the significant natural resource and economic value of the New Jersey Highlands Region and the risks inherent in existing land use patterns and environmental regulation trends. The increase in development between 1995 and 2004 and the resulting loss of forested lands and wetlands spurred passage of the Highlands Act to protect this nationally significant area through a regional approach to land use planning.

Balancing the need to protect and preserve Highlands resources with the need for a sustainable quality of life means providing for smart growth, improved transportation, protection of local economies, preservation of open space and recreational areas, and promotion of sustainable agriculture.



W McFarlan St. / Dover

Highlands Act Goals

The Highlands Act charges the Highlands Council with the following goals related to future land use in the implementation of the Highlands Regional Master Plan in the Preservation Area:

- ▶ Preserve extensive and, to the maximum extent possible, contiguous areas of land in its natural state, thereby ensuring the continuation of a Highlands environment that contains the unique and significant natural, scenic, and other resources representative of the Highlands Region.
- ▶ Preserve farmland and historic sites, and other historic resources.
- ▶ Preserve outdoor recreation opportunities, including hunting and fishing, on publicly owned land.
- ▶ Promote brownfield remediation and redevelopment.
- ▶ Prohibit or limit to the maximum extent possible construction or development that is incompatible with preservation of this unique area.

The Highlands Act charges the Highlands Council with the following goals related to future land use in the implementation of the Highlands Regional Master Plan in the Planning Area:

- ▶ Preserve to the maximum extent possible any environmentally sensitive lands and other lands needed for recreation and conservation purposes;
- ▶ Protect and maintain the essential character of the Highlands environment;
- ▶ Preserve farmland and historic sites, and other historic resources;
- ▶ Preserve outdoor recreation opportunities, including hunting and fishing, on publicly owned land;
- ▶ Promote brownfield remediation and redevelopment;
- ▶ Encourage, consistent with the State Development and Redevelopment Plan and smart growth strategies and principles, appropriate patterns of compatible residential, commercial, and industrial development, redevelopment, and economic growth, in or adjacent to areas already utilized for such purposes, and discourage piecemeal, scattered, and inappropriate development in order to accommodate local and regional growth and economic development in an orderly way while protecting the Highlands environment from the individual and cumulative adverse impacts.

Highlands Regional Master Plan

The Regional Master Plan (RMP) serves as a foundation to guide future land use planning decisions related to resource protection, conservation of agricultural landscapes, and economic growth and development. The RMP contemplates a future regional and community character that is a measured extension of existing conditions where the functional values of the land and water resources of the Region are maintained and, wherever possible, restored and enhanced. Five fundamental principles govern the future of the Highlands Region:

- ▶ Protect and preserve the resources of the natural and built environment, especially land and water resources;
- ▶ Restore and enhance those aspects of the natural and built environment that have been compromised by prior use and development;
- ▶ Maintain and enhance the fiscal and economic viability of the Region and its constituent communities;
- ▶ Distribute the benefits and burdens of implementing the Regional Master Plan equitably among all affected interests both within and outside the Highlands Region; and
- ▶ Ensure that all new growth and development is sustainable over the long term based on water, energy, and other critical resources, is complementary to its environment, harmonious with historical settlement patterns, and is compatible with the history and character of the regional communities of place.

Highlands RMP Programs

The RMP establishes six programs and several subprograms to implement the Goals, Policies and Objectives related to Future Land Use.

Land Use Capability Analysis

Land use capability mapping resulted in a series of five maps intended to provide information sufficient to determine, at a regional scale, the potential for land use based on a variety of factors. These maps include:

- ▶ Land Use Capability Zone Map
- ▶ Land Use Capability Water Availability Map
- ▶ Land Use Capability Public Community Water Systems Map

- ▶ Land Use Capability Domestic Sewerage Facilities Map
- ▶ Land Use Capability Septic System Yield Map
- ▶ Additionally, the program provides technical and planning assistance, calculation of land use capability and natural resource limitations based on land use factors, and the opportunity for RMP updates and adjustments.

Cluster/Conservation Design Development

Cluster design allows development on lots smaller than that typically required by zone standards, as long as there is no increase in the total number of lots permitted. Remaining land areas are aggregated and set aside for open space, passive recreation, or agricultural purposes. The program is intended to balance multiple needs, including, but not limited to, maximizing the protection of environmental and agricultural resources, accommodating limited development, and ensuring consideration of existing community character. The Cluster/Conservation Design Development program includes the following subprograms:

- ▶ Develop Cluster/ Conservation Development General Provisions
- ▶ Cluster Design for Environmental Protection and Agricultural Preservation
- ▶ Buffer Strips, Setbacks, and Protection of Natural Lands

Redevelopment

Future growth in the Highlands Region is directed toward reuse and redevelopment of previously developed areas. The redevelopment program assists interested parties, municipalities, counties, state, and federal agencies in identifying where redevelopment opportunities may exist and pursuing appropriate redevelopment within each RMP zone in both the Planning and Preservation Areas. The Redevelopment program consists of the following subprograms:

- ▶ Preservation Area Redevelopment
- ▶ Planning Area Redevelopment
- ▶ Redevelopment and Infill Analysis Tool
- ▶ Site Development Standards – Redevelopment
- ▶ General Assistance for Eligible Projects

Smart Growth and Community Design Handbook

Guidance toward future community development is to be provided through a collaborative effort between state and local agencies and technical and planning experts to prepare a handbook on smart growth and community design. The handbook, along with an outreach program, is intended to be shared throughout

the Highlands Region with municipal planners, landscape architects, architects, property owners, and local officials.

Housing and Community Facilities

The housing program facilitates a range of housing opportunities, specifically including affordable housing, farm labor housing, green alternatives, and housing suited to the various types of communities located in the Highlands Region. A jobs to housing balance and monitoring of development activity are envisioned, as well as planning incentives to support necessary smart growth and community facilities. The Housing and Community Facilities program consists of the following subprograms:

- ▶ Housing Affordability
- ▶ Farm Labor Housing
- ▶ Housing Approaches - Smart Growth, Housing Diversity, Community Facilities, Green and Energy Efficient Facilities
- ▶ Housing Metrics - Jobs to Housing Balance and Regional Development Activity Monitoring
- ▶ General Assistance for Eligible Projects

Low Impact Development

Low impact development (LID) includes a variety of site development and landscaping techniques that lessen the negative environmental impacts of development. The program operates through Plan Conformance requirements, Highlands Project Review, and the development and dissemination of guidance to encourage use of green techniques for all types of development. The overall intent of LID is to allow the natural features of the land to guide site design, stormwater management, and resource protection. The LID program consists of the following subprograms:

- ▶ Site Design and Development
- ▶ Open Space and Landscaping
- ▶ Water Conservation
- ▶ Stormwater Management
- ▶ Pervious Pavements
- ▶ Green Roofs
- ▶ Narrower Roads
- ▶ Rain Gardens
- ▶ Native Landscaping
- ▶ Rain Barrels
- ▶ Re-Use Basins
- ▶ Curbless Roads
- ▶ Swale Blocks
- ▶ Reverse Soil Compaction



Indicators

Full analyses of indicators listed below are available in the Indicator Report chapter. Please note that not all indicators identified by the public and Technical Advisory Committees received a full analysis for this report due to data limitations and/or applicability to the RMP. A complete list of all identified indicators is available at the end of this document. Potential future indicators may be noted in the Recommendations section that follows, under “Science and Research Agenda.”

Indicators Analyzed for Future Land Use:

- **Protection Zone:** Measures change in the Land Use Capability Map - Protection Zone of business activity, sewer service areas, developed lands, and Transit Lands. Also measures agricultural, forested, and preserved lands.
- **Conservation Zone:** Measures change in the Land Use Capability Map - Conservation Zone of business activity, sewer service areas, developed lands, and Transit Lands. Also measures change in agricultural, forested, and preserved lands.
- **Existing Community Zone:** Measures change in the Land Use Capability Map - Existing Community Zone (ECZ) of business activity, sewer service areas, developed lands, and Transit Lands. Also measures change in agricultural, forested, and preserved lands.

- **Highlands Centers and Redevelopment Areas:** Measures change in Highlands Designated Centers and Redevelopment Areas of business activity, sewer service areas, developed lands, and Transit Lands. Also measures change in agricultural, forested, and preserved lands.

Indicators Related to Future Land Use:

- **Highlands Project Reviews:** A summary of Highlands Project Reviews.
- **Implementation Funding:** Indicates investments made toward the implementation of the Regional Master Plan (RMP) and breakdown of how funding is used toward implementation of the RMP.
- **Transit Lands Area:** Measures change in Transit Lands Area; change in land use, construction activity, population density, and jobs within the Transit Lands Area.

Past Actions and Recommendations

The recommendations that follow are organized by RMP programs and/or subprograms. Where appropriate, multiple programs have been combined for this discussion. Additionally, some program names have been modified to more accurately reflect the program’s purpose in practical application. Please note that not all RMP programs and subprograms have associated recommendations in this report. Items under “Science and Research Agenda” are recommendations that require further study and investment.

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Land Use Capability Analysis

Implementation Activity

In 2019 and 2024, the Highlands Council updated the region wide zoning layer. The intention is to update this data on a minimum 5-year schedule.

In 2024, the Highlands Council adopted an Amendment to the RMP updating the Land Use Capability Zone Technical Report and Map to reflect current conditions. Included in the amendment was a modification to the methodology to incorporate the 500-year flood plain to recognize potential impacts of climate change.

Summary findings of related indicators:

- **Land Use Capability Zones (Existing Community Zone, Conservation Zone, and Protection Zone):** The analysis indicates a higher concentration of newly developed land within the Existing Community Zone, coupled with minimal

development occurring in the Conservation and Protection Zones. Increased land preservation was noted within the Protection and Conservation Zones, while minimal land preservation occurred within the Existing Community Zone.

- **Transit Lands Area:** The Highlands RMP provides policies designed to encourage the use of smart growth principles and promote an integrated approach to addressing transportation and land use planning. To quantify these smart growth principles, the *RMP Transportation System Preservation and Enhancement Technical Report* assigned transportation scores to the region based on access to the existing transportation system. For this indicator, land use, construction activity, population density, and jobs were analyzed within the Highlands Region, as well as Transit Lands Area within the Preservation and Planning Areas, to assess change over time.

Program Issues

- Need for updates to water and wastewater utility existing and approved service area data.
- Delays in production of statewide Land Use Land Cover data results in delays to LUCZ mapping updates.

Recommendations

Revisit Smart Growth Strategies in the Regional Master Plan to ensure effectiveness and utility.

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Redevelopment

Implementation Activity

In 2019, the Highlands Council adopted an RMP Amendment of Highlands Redevelopment Area Procedures for the Preservation and Planning Areas.

To date, 14 Highlands Redevelopment Areas have been designated.

In April 2024, the Highlands Council approved the Policy Standards for Warehousing in the Highlands Region RMP Amendment. The warehousing amendment creates a series of guidelines that Highlands municipalities should utilize to appropriately site warehouses within the region. By providing standards and guidelines, the warehouse amendment allows for such facilities to be constructed to support economic growth but ensures that their placement is appropriate to resource protection. This is one example of specific use amendments that can appropriately pair enhancing economic development opportunities with ensuring environmental protection.

Summary findings of related indicator:

- ▶ **Since 2008, the Highlands Council has designated 18 Highlands Centers and 14 Highlands Redevelopment Areas. Designated Highlands Centers and Redevelopment Areas:** Designated Highlands Redevelopment Areas provide relief for development activities within the Preservation Area and Planning Area. These areas were evaluated in concert with Designated Highlands Centers to maintain confidentiality of employment data and demonstrated an increase in economic and development activity.

Program Issues

- ▶ Highlands Redevelopment Procedures provide opportunities for sometimes inappropriate greenfield development and development in agricultural resource areas, in part due to a lack of more detailed guidance on redevelopment area delineations.

Recommendations

- ▶ Amend the Highlands Redevelopment Procedures to limit development of greenfields, forested areas, and agricultural resources.

Low Impact Development (LID)

Implementation Activity

In the past municipal project review occurred through the formal submission of an application as a requirement of a municipality's Highlands Referral Ordinance. However, the Highlands Council created a more streamlined land use ordinance and directed municipalities to adopt the ordinance as part of their affordable housing implementation. This has shifted the project review authority back to the municipalities as the Highlands Act originally intended. Therefore, LID will now be implemented more through the local development review process. The Highlands Council staff also routinely conduct informal pre-application meetings with potential applicants to discuss existing features present on the subject properties.

The NJDEP has revised the Stormwater Management Rules at N.J.A.C. 7:8 several times since the prior RMP monitoring period that incorporates stronger LID principles. Namely, the adoption of green stormwater infrastructure (GSI or GI) standards where all major developments must use GI practices to manage stormwater runoff (March 2021). GI utilizes a distributed "design with nature" approach and encourages additional stormwater uptake and infiltration. Some GI practices provide added benefits that include but are not limited to habitat creation and aesthetics. In

addition, there are now requirements to model runoff based on modeled increased frequency of higher-volume storms and increased overall precipitation due to climate change impacts (July 2023). Additional changes to the Rules were adopted by NJDEP under the Resilient Environments and Landscapes (REAL) rules on January 20, 2026. These included an expansion to the definition of "Major Development" that now includes reconstruction of any motor vehicle or impervious surface regardless of whether new impervious is added. The changes also include new precipitation standards that must be used when designing stormwater best management practices (BMPs) as well as strict redevelopment requirements that must meet water quality standards.

In addition to the changes to the Stormwater Management Rules described above, changes in the Municipal Separate Storm Sewer System Permit (MS4) requirements (2023) include enhancements with goals of improving water quality. All municipalities are now included in Tier A and are now required to map all stormwater facilities (not just outfalls) and develop Watershed Improvement Plans (WIPs) by the end of the permit term (5 years). The WIPs will identify specific projects that can be implemented to improve water quality throughout the watersheds that intersect the municipality and there is also a provision to develop regional WIPs allowing several municipalities to work together.

Summary findings of related indicator:

- ▶ **Highlands Project Reviews:** All projects subject to Highlands Council review ensure incorporation of adequate LID and GI practices as well as the inclusion of native plants.

Program Issues

- ▶ Current LID and Green Infrastructure standards are governed by a different agency and may not be adequate for the region-specific needs.
- ▶ Lack of objective mitigation standards in Project Review Procedures.

Recommendations

- ▶ Development of formalized mitigation standards.
- ▶ Develop Highlands-specific LID Standards.

Cluster Development (Highlands Center Designation)

Implementation Activity

Requirements for the use of cluster development techniques are included in the Highlands model Plan Conformance Ordinance adopted by conforming municipalities. To date, few project reviews have resulted in the implementation of the Land Use Ordinance cluster development standards.

The Highlands Council has designated 18 Highlands Centers. Eight (8) of these Highlands Centers are considered unimplemented and therefore not effective as of the date of this report.

In 2019, the Highlands Council adopted RMP Addendum 2019-2, Plan Conformance Procedures including requirements and standards for the approval of Highlands Centers. The procedures adopted a new definition for a conforming municipality.

In 2020, the State Planning Commission found the RMP to be in conformance with the State Plan. In addition, the Highlands Council and the State

Planning Commission entered into a Memorandum of Understanding determining that Highlands Centers equate to State Plan centers.

Summary findings of related indicators:

► Highlands Centers and Redevelopment

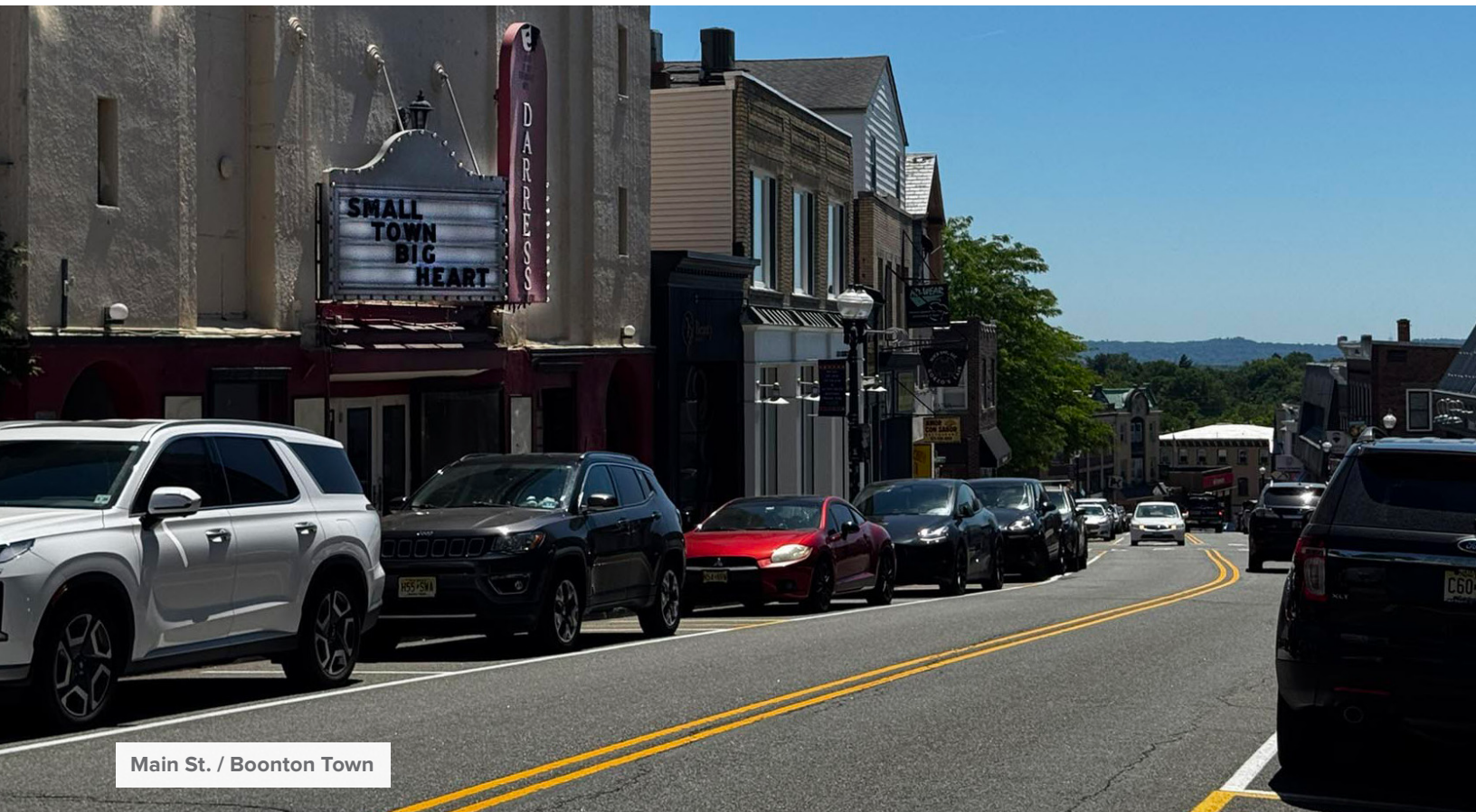
Areas: Since 2008, the Highlands Council has designated 18 Highlands Centers and 14 Highlands Redevelopment Areas. These areas have experienced, and continue to see, the greatest intensity of development and highest concentration of employment of all conforming municipalities.

► Highlands Project Reviews:

The majority of project reviews have been shifted to the municipalities, as originally intended by the Highlands Act.

► Transit Lands Area:

The Highlands RMP provides policies designed to encourage the use of smart growth principles and promote an integrated approach to addressing transportation and land use planning. To quantify these smart growth principles, the *RMP Transportation System Preservation and Enhancement Technical Report* assigned transportation scores to the region based on access to the existing transportation system. For this indicator, land use, construction activity, population density, and jobs were analyzed within the Highlands



Main St. / Boonton Town

Region, as well as Transit Lands Area within the Preservation and Planning Areas, to assess change over time.

Program Issues

- ▶ Cluster Development:
- ▶ Guidelines have not been developed beyond the provisions included in the model Highlands Plan Conformance Ordinance. However, the use of cluster development has been limited due to the limitations on the overall development capacities permitted under RMP septic densities. Given current land use patterns and permitted septic densities, there are relatively few areas with sufficient contiguous developable land to allow for a viable cluster development.
- ▶ Cluster is generally only used to permit the connection of new developments in the Protection and Conservation Zone to existing sewer systems.
- ▶ Highlands Centers lack a clear implementation plan and schedule of necessary activities.

Recommendations

Provide a clearer process on the implementation of Highlands Centers.

- ▶ Provide more detail on the effective date of Highlands Centers and those implementation items that must be met before they are effective.
- ▶ Establish timeframes for the implementation of all Highlands Centers
- ▶ Rescind Highlands Centers that have not be substantially implemented within an approved timeframe.
- ▶ Clearer guidance should be provided on the cluster requirements in the Protection and Conservation Zone, including the type and use of the cluster set aside and potential densities permitted.

Housing and Community Facilities

Implementation Activity

On March 20, 2024, Governor Murphy signed amendments to the New Jersey Fair Housing Act (FHA) into law. Although these amendments abolished the Council on Affordable Housing (COAH), they continue to recognize the importance of the Highlands Regional Master Plan as a necessary consideration for the responsible production of affordable housing in the Highlands Region.

The amended FHA states that “The regional master plan shall be taken into account as part of the determination of obligations pursuant to the method in section 7 of (P.L. 2024, c.2) regarding the allocation of the prospective fair share of the housing need under the “Fair Housing Act,” P.L.1985, c.222 (C.52:27D-301 et al.) for any fair share period subsequent to the effective date.

On April 18, 2024, the Highlands Council adopted an Amendment to the RMP, following a public comment period, the *Highlands Affordable Housing RMP Amendment*. The Amendment provides standards based on the RMP and the Fair Housing Act as to where it is appropriate to locate affordable housing based on the Goals, Policies and Objectives of the RMP.

In October 2024, the Highlands Council issued the *Affordable Housing Implementation Guidelines*. This document specifically addressed compliance techniques and mechanisms to produce affordable housing with the least environmental impact.

In November 2024, the Highlands Council issued an accompanying *Build-Out Guidance Document* to address issues of land, sewer and water capacity in the context of conforming Highlands Municipalities.

Summary findings of related indicator:

- ▶ **Implementation Funding:** The Highlands Council has reimbursed over \$522,000 in Affordable Housing Grants to municipalities for the preparation of 4th round plans and associated build-out updates.
- ▶ **Housing Element and Fair Share Plan Adoption:** 74 of the 88 Highlands municipalities have adopted a Housing Element and Fair Share Plan. Of the 14 that did not prepare plans, seven (7) are conforming to the RMP.

Program Issues

Lack of clarity on implementation of Accessory Dwelling Units and supporting a diverse housing stock.

Recommendations

- ▶ Develop guidance to address a diverse housing stock including the creation of accessory dwelling units and/or other non-traditional housing types.
- ▶ Require all conforming municipalities to adopt housing plans with affordable housing elements that are consistent with the guidance contained in the Affordable Housing RMP amendments.



Landowner Equity

An essential component in the protection of the important natural resources of the Highlands Region is the preservation of privately owned lands. To ensure fairness to property owners, the Highlands Act calls for several means of recompense. The Highlands Act specifies that funding should be made available for the “acquisition of exceptional natural resource lands.” The Highlands Act directs the Highlands Council to identify sensitive lands where development should not occur and provide strategies for preserving those lands through acquisition, transfer of development rights programs, or other means. The Act also directs the Council to identify lands where development potential has been adversely affected and, as a result, where the owners of such properties would benefit from acquisition or preservation of their lands.

In addition, the Highlands Act includes 17 exemptions that address landowner equity concerns by allowing property owners to develop their properties without applying the enhanced environmental protections of the Act in a number of circumstances. Also, the Highlands Rules adopted by the New Jersey Department of Environmental Protection subsequent to the passing of the Highlands Act include four waivers that provide additional opportunities for landowner equity.



Harmony Township Preserved Farm / Warren County

Highlands Act Goals

The following Highlands Act goals for implementation of the Highlands Regional Master Plan address landowner equity indirectly:

- ▶ Preserve extensive and, to the maximum extent possible, contiguous areas of land in its natural state, thereby ensuring the continuation of a Highlands environment which contains the unique and significant natural, scenic, and other resources representative of the Highlands Region.
- ▶ Preserve farmland and historic sites and other historic resources.
- ▶ Promote brownfield remediation and redevelopment.
- ▶ Encourage, consistent with the State Development and Redevelopment Plan and smart growth strategies and principles, appropriate patterns of compatible residential, commercial, and industrial development, redevelopment, and economic growth, in or adjacent to areas already utilized for such purposes, and discourage piecemeal, scattered, and inappropriate development, in order to accommodate local and regional growth and economic development in an orderly way while protecting the Highlands environment from the individual and cumulative adverse impacts.

Highlands Regional Master Plan

The RMP's approach relative to landowner equity focuses on guiding future development away from environmentally sensitive areas to other parts of the Highlands Region more suitable for development. Landowners in areas identified as sensitive are provided opportunities for compensation such as fee simple acquisition and purchase, or transfer of development rights. For landowners who held deeds prior to the passage of the Highlands Act, the valuation of land for equity programs is based on the development potential prior to the establishment of the Act (commonly referred to as the "dual appraisal methodology" in accordance with N.J.S.A. 13:8C-26.j(1) or 38.j(1)). Landowners throughout the Highlands Region may also qualify for Highlands Act development exemptions, permits, or waivers. These options allow for land development that is either not required to comply with the Highlands Act or is found to be consistent with the Highlands Act and the goals, policies, and objectives (GPOs) of the RMP (the benefits of which may be constrained by municipal land use codes). Thousands of small, undeveloped parcels in

the Highlands Region are exempted from Highlands Act requirements but are limited by local zoning to the development of a single home.

Highlands RMP Programs

The RMP included one program with several subprograms related to Landowner Equity, as listed below.

Highlands Transfer of Development Rights (TDR)

- ▶ Creation of the Highlands Development Credit
- ▶ Allocation of Highlands Development Credits to qualifying Sending Zones
- ▶ Highlands Development Credit Certificates (HDCs); Sale and Use of HDCs
- ▶ Receiving Zone Eligibility and Designation Process; Highlands Council Identification of Potential Voluntary TDR Receiving Zones
- ▶ Creation of the Highlands Development Credit Bank

The TDR Program is intended to shift new growth and development away from lands with little or no capacity to accommodate human development without adversely affecting the integrity of the Highlands ecosystems. This program establishes procedures and standards by which eligible property owners may apply for an allocation of HDC. The program provides for the designation of Receiving Zones anywhere in New Jersey, to which HDCs may be transferred and used for development purposes. The Highlands Act originally allowed for establishment of Receiving Zones in any of the seven Highlands Counties, but an amendment adopted in May 2010 allowed for Receiving Zones to be established anywhere in the state of New Jersey. The TDR program also created a Highlands Development Credit Bank to serve as the administrator of the Highlands TDR Program.

The RMP calls for additional programs that are either directly related to Landowner Equity or indirectly support Landowner Equity through preservation programs. These include initiatives to:

- ▶ Provide detailed guidance on Highlands Exemptions and Waivers
- ▶ Provide public outreach and education for the Highlands TDR Program
- ▶ Establish a process for designating voluntary receiving zones in areas more suitable for growth, which process shall allow for significant public input; and develop and implement a Voluntary TDR Receiving Zone Feasibility Grant Program to

encourage and support municipalities interested in identifying and evaluating opportunities to create TDR Receiving Zones

- ▶ Implement strategies for land preservation by maximizing current land preservation funding programs; implement strategies to promote preservation in the Agricultural Resource Areas and the Agricultural Priority Areas
- ▶ Establish new/alternative/innovative land preservation programs; Establish alternative/innovative agriculture preservation programs and stewardship programs
- ▶ Identify willing sellers
- ▶ Establish dedicated sources of funding for land preservation and stewardship in the Highlands Region, and funding opportunities for farmland preservation, which may include:
 - A Highlands water user fee;
 - A reserve fund to capitalize the Highlands TDR Program;
 - A program to secure significant federal funding in support of land preservation and stewardship;
 - A program to seek funding for preservation and stewardship from unique funding sources;
 - A rate surcharge on public water supply systems that use Highlands water; and
 - A Highlands Conservation Trust to secure funds from alternate funding sources.

Indicators

Full analyses of indicators listed below are available in the Indicator Report chapter. Please note that not all indicators identified by the public and Technical Advisory Committees received a full analysis for this report due to data limitations and/or applicability to the RMP. A complete list of all identified indicators is available at the end of this document. Potential future indicators may be noted in the Recommendations section that follows, under “Science and Research Agenda.”

Indicators Analyzed for Landowner Equity:

- ▶ **Exemptions:** Identifies the number and type of issued exemptions by year in the Highlands Region.
- ▶ **Open Space Program:** Tracks Highlands Open Space Partnership Funding Program applications, approved acquisitions, and funding availability.
- ▶ **Transfer of Development Rights (Highlands Development Credit) Program:** Tracks Highlands Development Credit (HDC) allocations, number and

status of applications for purchase of HDCs, and funding availability for purchase. Tracks Transfer of Development Rights (TDR) feasibility grants and eligible/designated TDR receiving areas.

Indicators Related to Landowner Equity:

- ▶ **Preservation Priority:** Measures changes in preservation and development in the Special Environmental Zone, Conservation Priority Area and Agricultural Priority Area.
- ▶ **Preserved Lands and Trails:** Measures change in preserved lands and publicly accessible trails.
- ▶ **Agricultural Land Use and Preservation Index:** Measures change in acreage of total farmland, preserved farmland, and the share of total farmland that is preserved, as well as the change in total farmland and preserved farmland within the Highlands Agricultural Resource Area.
- ▶ **Regional Factbook:** A detailed assessment of the data contained in the Municipal Fact Book (Fiscal Impact Assessment deliverable), from a regional perspective.

Recommendations

The recommendations that follow are organized by RMP programs and/or subprograms. Where appropriate, multiple programs have been combined for this discussion. Additionally, some program names have been modified to more accurately reflect the program’s purpose in practical application. Please note that not all RMP programs and subprograms have associated recommendations in this report. Items under “Science and Research Agenda” are recommendations that require further study and investment.

Highlands Transfer of Development Rights (TDR) Program

Implementation Activity

The Highlands Council adopted its TDR Program as part of the Highlands Regional Master Plan and established the Highlands Development Credit Bank (HDC Bank) in June 2008. In September 2008, the Initial Purchase Program (IPP) was created using funding made available through Executive Order 114. In 2016, the Highlands Council created a new HDC Purchase Program as part of N.J.A.C. 7:70 and opened its first funding round.

To date, the Highlands Council has allocated 4,635 Highlands Development Credits (HDCs) and closed on the purchase of 1,814 credits, representing over

2,565 acres and \$27.77 million to property owners. Funding for the purchases came from the State TDR Bank, mitigation funding and the federal Highlands Conservation Act.

Summary findings of related indicators:

- ▶ **Transfer of Development Rights (Highlands Development Credit) Program:** HDC Allocations: As of February 1, 2017, 2,608.25 HDCs have been allocated by the Highlands Council. The average number of HDCs per residential allocation is 11.29, while the average allocation per non-residential allocation is 30.51.
- ▶ **HDC Purchases:** Through 2025, the HDC Purchase Programs provided \$27,772,000 of Highlands Council funding to Highlands Region landowners, resulting in the preservation of 2565.14 acres. 1,814 HDCs have been purchased by the HDC Bank through this process.

Program Issues

- ▶ To date, the HDC Bank has operated as the only purchaser of credits; a private market for credits has failed to materialize.
- ▶ To date, no Highlands TDR receiving areas have been established within or outside of the Highlands Region, despite 13 Voluntary TDR Receiving Zone Feasibility Grants being provided to Highlands municipalities and 8 grants to non-Highlands municipalities. One complicating factor is the passage (after the Highlands Act in 2004) of revisions to state law regarding the municipal designation of redevelopment areas, which provides an alternative mechanism for increased development densities that does not require transfer of development rights. In addition, requiring HDCs in conjunction with affordable housing projects would increase the development cost and therefore the need for financial support or property tax abatements such as Payments in Lieu of Taxes (PILOT).
- ▶ The Highlands HDC program is non-operational. The program does not function as a true Transfer of Development Rights program, as there is no requirement for receiving zones. Therefore, the HDC bank has no funding because there is no mechanism to enforce a payment into the fund for receiving zones. This has been an ongoing problem with the TDR/HDC program, as it was designed with voluntary receiving areas. The only currently operational TDR programs in New Jersey are in the Pinelands Region; these programs involve mandatory use of credits in designated receiving areas. The Highlands Act specifically makes the designation of receiving areas and the use of HDCs voluntary.



Private Property / Somerset County

Topic Area: Landowner Equity

- ▶ Highlands Act and other funding programs do not provide an adequate source of funding to support HDC purchases and TDR transfers.
- ▶ The HDC program still remains a popular option with landowners. Despite not having funding, there are more than 121 properties whose owners who received HDC Allocations for their properties, representing approximately \$48 million of credits and 8,422 acres of land.
- ▶ Support efforts to amend Highlands Act to increase viability of TDR program.
- ▶ Seek funding for direct HDC purchases.
- ▶ Work towards the establishment of a Highlands Water User Fee dedicated to landowner equity through HDC purchases.
- ▶ Improve and expand on the Highlands Open Space Preservation program to better reach RMP goals concerning landowner equity.

Recommendations

- ▶ To further incentivize the creation of TDR receiving areas, additional financial incentives to local governments that designate and operationalize TDR receiving areas should be identified and implemented.



Private Property / Somerset County

Land Preservation

The Land Preservation Program appears in the RMP in the Natural Resources section. However, because the Highlands Council identifies sensitive lands where development should not occur and provides strategies for preserving those lands through acquisition, transfer of development rights programs, or other means, recommendations related to the Land Preservation program are included here.

Implementation Activity

Through the Open Space Partnership Program, the Highlands Council has directly or through partners preserved 3,448 acres of farmland and open space at a value of \$16,252,648. The Highlands Council contributed \$4,166,152, leveraging \$12 Million of federal, state, county and other funding sources. Conservation agencies and land trust organizations have preserved additional areas.

The Highlands Council received a grant of \$172,000 from the US Fish and Wildlife Service under the Highlands Conservation Act to complete an Open Space and Recreation Plan. The Highlands Council provided matching funds to secure a contract for \$298,500 to the Trust for Public Land to complete the plan. The development of the plan is currently underway, and the results will be added to the MPRR once completed.

Summary findings of related indicators:

- ▶ Open Space Program, Transfer of Development Rights (Highlands Development Credit) Program:
- ▶ Through 2025, the Open Space and HDC Purchase Programs have provided \$44,024,648 of funding to Highlands Region landowners, resulting in the preservation of 6,013 acres of land in the region.
- ▶ **Preservation Priority:** Preservation of critical lands (Conservation Priority Areas, Agricultural Priority Areas, Special Environmental Zones) has outpaced development of those lands from 2008-2016. The vast majority of these lands remains privately owned and undeveloped. Critical lands are prioritized for preservation under N.J.A.C. 7:70.
- ▶ **Preserved Lands and Trails:** According to the most recent data available, 38.8% of the Highlands Region is permanently preserved. Of these lands, 35.6% consists of state-owned open space, 10.9% county, 13% municipal, 15.6% farmland (privately owned with conservation easements), 14% watershed management lands, 3% federal, 4.5% non-profit and 3.4% privately owned.
- ▶ There are currently 483,413 acres of preserved lands in the Highlands Region.

Program Issues

- ▶ Continued lack of funding for HDC purchases, open space preservation and farmland preservation

Recommendations

- ▶ The Highlands Council continues to need a dedicated source of funding to support the purchase of HDCs and Open Space.
- ▶ Incorporate the priority rankings and goals of the Open Space and Recreation Plan into the RMP.
- ▶ Secure a predictable repeating allocation of funding from the Corporation Business Tax (CBT) currently dedicated to land preservation for Highlands land preservation programs.
- ▶ In absence of dedicated Highlands preservation funding, coordinate with State and Federal agencies to promote direct preservation and easement purchases in the Region.
- ▶ Work with the Garden State Preservation Trust and associated agencies to increase the purchase of conservation easements from properties that provide ecosystem services or are used for active forestry operations with Highlands-focused management standards.



Sustainable Economic Development

The Highlands Region is characterized by a diverse economy, offering a desirable quality of life and an attractive place to live, work, and recreate. The long-term viability of the region is dependent upon maintaining this economic vitality. A sustainable economic future must be crafted by balancing the resource protection mandates of the Highlands Act and the Regional Master Plan with the economic, fiscal, social, and cultural needs of Highlands communities. These characteristics are not mutually exclusive, and realization of both natural resource and economic health is envisioned by both the Act and the RMP.

Economic stability in the region must be based on a mix of land use strategies and advancement of an array of economic outlets. Tourism, agricultural viability, redevelopment, smart growth approaches, improved land use efficiencies, transit-oriented development, and low-impact development are encouraged by the RMP, while piecemeal, scattered sprawl is recognized as an inefficient use of land and an impediment to achieving a sustainable regional economy.



Shop Local

Highlands Act Goals

The Highlands Act charges the Highlands Council with the following goals related to economic sustainability in the implementation of the Highlands Regional Master Plan:

- ▶ Preserve farmland, historic sites and other historic resources.
- ▶ Preserve outdoor recreation opportunities on publicly owned land.
- ▶ Promote brownfield remediation and redevelopment.
- ▶ Promote compatible agricultural, horticultural, recreational, and cultural uses and opportunities within the framework of protecting the Highlands environment.
- ▶ Protect and maintain the essential character of the Highlands environment.
- ▶ For the Planning Area, encourage, consistent with the State Development and Redevelopment Plan and smart growth strategies and principles, appropriate patterns of compatible residential, commercial, and industrial development, redevelopment, and economic growth.
- ▶ For the Planning Area, promote a sound, balanced transportation system that is consistent with smart growth strategies and principles and which preserves mobility in the Highlands Region.

Highlands Regional Master Plan

The RMP's approach to sustainable economic development in the Highlands Region is focused on fitting economic activity within the unique places that comprise the Region. The goals enumerated in the RMP call for public investment in facilities and institutions, pursuit of agriculture, tourism, and recreation as economic drivers, expansion of innovative technologies, and support for local development initiatives, such as downtown revitalization.

Highlands RMP Programs

The Economic Sustainability Program, complemented and updated by the Highlands Region Economic Sustainability Plan (2022), describes the tools, incentives, and assistance available to support sustainable economic growth in the Highlands Region. The objectives of the various strategies are to ensure

long-term, sustainable economic viability and to build upon the strengths of the existing regional economy. These strategies range from economic development planning and advancement of tourism opportunities to monitoring economic successes. The categories below include both the original RMP subsections and the key goals and select strategies drawn from the Economic Sustainability Plan.

Sustainable Regional Economy

Planning Initiatives

- ▶ Economic Planning
- ▶ Tourism Opportunities

Monitoring Activities

- ▶ Economic Monitoring – Agricultural Vitality
- ▶ Economic Monitoring – Economic Tracking
- ▶ Regional Master Plan Funding

Economic Sustainability Plan Goals

- ▶ Reinforce the Highlands Region as a center of natural resource protection, innovation, and technology
 - Investigate the potential to establish a center of excellence for water resources protection within the Highlands Region.
 - Collaborate with eco-tourism and heritage tourism efforts to promote value of natural and cultural resources in these sectors.
- ▶ Communicate the value of quality of life in the Highlands Region and evaluate how current assets meet, miss, or exceed market demand.
 - Focus development and redevelopment in designated centers and aging real estate assets like strip malls where infrastructure already exists.
 - Incorporate environmental justice as criteria or priority for redevelopment opportunities.
- ▶ Expand awareness and understanding of the New Jersey Highlands Council's purpose and impact on the business community.
 - Continue to seek opportunities where the Highlands Council can join/advise/contribute to regional and state economic development initiatives.
 - Establish a collaborative relationship between the Highlands Council and the New Jersey Economic Development Authority and Division of Travel and Tourism to develop a distinct brand for the Highlands Region.

- ▶ Strengthen the role of the New Jersey Highlands Council as leader in regional planning assistance.
 - Formalize a quarterly meeting among the County Coalition to discuss shared issues and regional approach to economic development topics.
 - Aggregate technical assistance materials into digital file that is part of a welcome presentation to new municipal administrations.
- ▶ Support the Highlands Region’s existing target industries and small businesses in their efforts to thrive and adapt in response to changing economic conditions.
 - Partner with local organizations to support small business.
 - Target industries which have been identified as particularly suited to the Highlands Region – specialized manufacturing, biotechnology and life sciences, tourism recreation, finance and insurance, food production, and corporate offices.

Indicators

Indicators analyzed related to Economic Sustainability are summarized below. Full analyses of indicators listed below are available in the Indicator Report chapter. Potential future indicators may be noted in the Recommendations section that follows, under “Science and Research Agenda.”

Indicators Analyzed for Economic Sustainability:

- ▶ **Highlands Regional Factbook:** A detailed assessment of the data contained in the Municipal Fact Book from a regional perspective.

Indicators Related to Economic Sustainability:

- ▶ **Implementation Funding:** Indicates investments made toward the implementation of the Regional Master Plan (RMP) and breakdown of how funding is used for this purpose.
- ▶ **Preserved Lands and Trails:** Measures change in preserved lands and publicly accessible trails.
- ▶ **Municipal Plan Conformance:** A matrix of Municipal Plan Conformance Petition data, including submission and Highlands Council disposition, as well as approved Petition components and the current status of municipal completion.

In addition to the indicators listed above, the Highlands Fiscal Impact Assessment (FIA)(2016), which was conducted as part of the 2018 RMP Monitoring program, provides significant information related to

Sustainable Economic Development. The FIA provides an analysis of a wide range of economic and fiscal data for the Highlands Region and for comparison regions in New Jersey, New York and Pennsylvania. It evaluates ways in which the Act and the RMP may have influenced the economy and the fiscal resources of Highlands Region municipalities.

Past Actions and Recommendations

The recommendations that follow are organized by RMP programs and/or subprograms and the key goals and select strategies drawn from the Economic Sustainability Plan. Where appropriate, multiple programs have been combined for this discussion. Additionally, some program names have been modified to more accurately reflect the program’s purpose in practical application. Please note that not all RMP programs and subprograms have associated recommendations in this report. Items under “Science and Research Agenda” are recommendations that require further study and investment.

Sustainable Regional Economy – Planning Initiatives

Implementation Activity

The Highlands Council has funded the completion of eighteen (18) municipal sustainable economic development plans, with a total expenditure of approximately \$908,743, as well as sustainable agriculture grants to three (3) counties totaling \$418,000 and over \$800,000 in Agricultural Sustainability Grants to non-profit organizations. The Highlands Tourism Expansion Grant Program dedicated \$400,000 to local governments, business improvement districts (BIDs), special improvement districts (SIDs), destination marketing organizations (DMOs), and non-profits that function in the tourism industry to support and advance tourism in the region. Funding continues to be made available through the Highlands Plan Conformance Grant Program for the development of sustainable economic development plans and related economic development studies.

The Highlands Council has also developed a working relationship with the Division of Travel and Tourism and is pursuing potential grant funds from that office. Additionally, in our efforts to advance and support tourism in the region, the Council may apply to the NJ Economic Development Authority for tourism activities and efforts that would support that industry, including local downtowns and small-scale lodging.

Economic Sustainability Plan

As described above, the Economic Sustainability Plan for the Highlands Region, released in 2022, identifies five overarching goals to help maintain a healthy economic future for the Highlands. The Economic Sustainability Plan (Plan) for the Highlands Region was developed by the Highlands Council to supplement the economic development section of the RMP. The Plan was developed over an 18-month period, analyzing current economic conditions in the Highlands and setting forth a series of goals and objectives to strengthen the Region's economy. The Plan identifies a series of actions devised to advance the stated goals and objectives.

Implementation of the Plan is following the identified actions and is being overseen by a County Coalition made up of representatives from each of the seven (7) Highlands counties. The Coalition members represent planning, economic growth, tourism, and related fields of interest. They meet bi-monthly together with Highlands Council staff.

Branding and Marketing Plan

One of actions identified in the Economic Sustainability Plan was the creation of a branding and marketing plan to create a distinct Highlands image. The objective of the project was to establish a comprehensive branding and marketing strategy to strengthen tourism, agriculture, and existing local business, as well as educating residents and visitors of the valuable resources that are part of the Highlands Region. The new Branding/Marketing Plan incorporates various types of tourism (eco-tourism, agri-tourism, heritage tourism, and the like) and creates a unified brand and marketing strategy that clearly defines and creatively identifies the region's many assets. A website was released in early 2026.

Tourism Expansion Grant Program

The Highlands Council developed the Highlands Tourism Expansion Grant Program to help implement a key recommendation of the Economic Sustainability Plan - to support and advance tourism as an economic driver in the region. Grants were made available to local government entities, nonprofit organizations, and/or destination marketing organizations (DMOs) for implementation initiatives that would serve to enhance and increase tourism in the Highlands. Eleven grants were awarded ranging from \$8,500 to \$100,000 and totaled \$400,000. Each grant recipient is required to use the Highlands tourism logo as part of their tourism initiatives. The Council's Tourism Expansion Program was awarded the New Jersey Tourism Industry Association 2025 President's Award in recognition of the excellence of the program highlighting its partnership, collaboration, and breadth of impact.

Trails Towns Contract

The Highlands Council, in coordination with the NY/NJ Trail Conference, mapped and signed the Highlands Trail, a 180-mile long trail spanning four states, 122 miles of which is in New Jersey. The trail traverses the varied ecosystems and terrain of the NJ Highlands Region offering hikers and bikers scenic vistas, wildlife corridors, and historic sites. The establishment of a "Highlands Trail Town" program is designed to allow municipalities where the trail is located, use the Highlands Trail as an economic driver to foster visitation and patronage of local businesses that would serve both day hikers and through hikers on multi-day hikes. This is similar to programs along the Appalachian Trail that use the trail as a focal point for sustainable economic development.

Open Space and Recreation Plan

The Highlands Council has contracted work with The Trust for Public Land (TPL) and Twenty Twenty Public Affairs (Twenty Twenty) to create a Regional Open Space and Recreation Plan (OSRP). The OSRP looks at existing preserved lands, provides a ranking and list of goals and metrics for future property preservation, and creates an acquisition & funding plan to preserve noted properties. The OSRP will expand recreational opportunities in the Highlands Region and continue to preserve scenic Open Space lands. Both of which will improve tourism within the region.

Summary findings of related indicators:

- ▶ **Implementation Funding:** Highlands RMP Implementation Funding tracks expenditures dedicated to Plan Conformance activities. Preparation of sustainable economic development plans is included in this category.
- ▶ **Preserved Lands and Trails:** This indicator catalogs public and private land, and water areas available for recreation and/or presently protected as open space and recreation facilities. The Highlands RMP provides policies designed to ensure that public funds and other resources are focused on protection of Highlands resources by establishing criteria for the identification of critical lands, the priorities for land preservation, and implementation strategies for land preservation and stewardship.

Implementation Opportunities

- ▶ The RMP does not adequately address methods and strategies to redevelop grayfields and other areas with redevelopment potential.
- ▶ The RMP does not adequately address methods and strategies to address climate-driven risks to existing and new developments such as increased flooding, wildfires in areas with little history of major

Topic Area: Sustainable Economic Development

fires, and increased extreme heat events, including methods such as alternative development designs and heat island mitigation.

- Support for tourism as an industry in the Highlands Region requires concerted effort and additional collaboration with county partners and destination entities.
- There is not yet sufficient coordination of tourism programs and initiatives in the Highlands Region.
- Recreation, as a vital component of the tourism economy, has not been adequately addressed.
- The RMP does not adequately support municipal efforts to create an attractive economic environment for businesses, including tourism businesses such as inns, bed & breakfasts, and short-term rentals.

Recommendations

- Continue coordination with Highlands counties and destination marketing organizations (DMOs) to develop regional economic development initiatives.
- Establish a dedicated position within the Highlands Council staff to guide economic sustainability initiatives throughout the Region and maintain coordination at the County level
- Continue coordination with the NJ Division of Travel and Tourism to establish a Highlands-focused tourism program.
- Gather and organize data related to tourism visitation and spending, as well as investments in the tourism industry.
- Establish cross-County initiatives to promote regional coordination across jurisdictions.



River Union Stage / Milford

- ▶ Support the Highlands Region’s existing target industries and small businesses in their efforts to thrive and adapt in response to the new economy. Identify industries and businesses that are most likely to have detrimental effects on Highlands resources and introduce methods to mitigate or avoid those impacts.
- ▶ Specifically measure meaningful metrics that accurately depict the state of the business climate. Publish status of these metrics in the Annual Report.
- ▶ Conduct a 5-year review of the Economic Sustainability Plan to gauge successes, measure results, and determine if refinements should be made to further the overall objectives.
- ▶ Reinforce the Highlands Region as a center of natural resource protection, innovation, and technology.
- ▶ Communicate the value of quality of life in the Highlands Region and evaluate how current assets meet, miss, or exceed market demand.
- ▶ Expand awareness and understanding of the New Jersey Highlands Council’s purpose and impact on the business community.
- ▶ Strengthen the role of the New Jersey Highlands Council as a leader in Regional Planning Assistance.
- ▶ In coordination with efforts associated with the Agricultural Resources topic area, actively support agriculture as a sustainable Highlands industry and facilitate agritourism as a key component of those efforts.

Sustainable Regional Economy – Monitoring Activities

Implementation Activity

As a result of the recommendation from the 2018 Monitoring Report, the Highlands Council hired a consultant team to assist in the preparation of a Highlands Region Economic Sustainability Plan. The Plan was developed over an 18-month period and released by the Council in early 2022. Since its release there have been a number of initiatives geared toward its implementation both by local governments and the Highlands Council.

The Highlands Council contracted with a branding/marketing team to devise a brand and logo for the Region including targeted marketing strategies and adaptations of the logo for different markets.

A Region-wide marketing campaign is underway with the early efforts being accomplished through Highlands Tourism Expansion grants where grant recipients are

using the Highlands brand and acting as ambassadors for Highlands tourism. Eleven grants were issued at a total amount of \$400,000.

Many local governments and organizations have signed no cost licensing agreements to utilize the Highlands Brand to promote businesses and activities. These licenses will be on-going and encourage broad use of the Highlands brand and logo.

The Municipal Factbook was updated to continue reporting on land and demographic conditions and changes in each Highlands municipality and county as well as regionally.

Summary findings of related indicator:

- ▶ **Municipal Plan Conformance:** The Municipal Plan Conformance indicator tracks submission, approval, and implementation of both the required and optional components of Plan Conformance. Sustainable Economic Development plans are a required component tracked through this indicator.

Implementation Opportunities:

- ▶ The RMP neither identifies economic development metrics nor establishes a baseline. The FIA established a baseline, but no protocols are currently in place for on-going monitoring.

Recommendations

- ▶ Establish indicators to monitor economic activity in the Region, including total employment, building permits, housing sale values, commercial sales, vacant land sales, shifts in the relative dominance of business categories, household income, equalized property values, property tax revenues, home-based businesses and tourism dollars spent in the Region.
- ▶ Continue Highlands Council efforts to partner with other entities in support of economic sustainability in the Highlands Region.



Implementation

When the legislature enacted the Highlands Act, thus creating the Highlands Water Protection and Planning Council and charging it with developing the Regional Master Plan (RMP), its intent was clear. The RMP was to provide a comprehensive “blueprint” for the future of the Highlands Region; a plan by which to ensure protection of the Region’s vital water and other critical natural resources, while at the same time providing for areas of growth and development supported by adequate infrastructure. The Council’s follow-up mission is to guide and assist in seeing that vision realized.

Implementation of the RMP includes a multi-faceted array of possible actions intended to ensure that RMP goals, policies and objectives may be achieved. The RMP recommends numerous strategies and programs involving not only the Highlands Council, but including a variety of other entities.



Scenic Overlook / Allamuchy Township

Highlands Act Goals

The overarching goal of the RMP with respect to the entire Highlands Region is to protect and enhance the significant values of the resources thereof in a manner which is consistent with the purposes and provisions of the Highlands Act.

Highlands Regional Master Plan

RMP Approach to Achieving Highlands Act Goals: The RMP seeks effective implementation of the goals of the Highlands Act through coordination with State, county and local governments, supported by an effective education, outreach, and local participation program.

Highlands RMP Programs

The RMP categorizes the components of the Implementation Program as indicated below.

Regional Master Plan Conformance, Consistency, and Coordination

- ▶ Plan Conformance – including the administrative, grants, and technical assistance aspects
- ▶ RMP Updates
- ▶ Map Adjustments
- ▶ Federal, State, and Regional Agency Coordination
- ▶ Local Participation
- ▶ Public Education
- ▶ Highlands Project Review
- ▶ Project Review Process
- ▶ Project Review Standards
- ▶ Improvement of the Regional Master Plan
- ▶ Water Resources and Ecosystem Science Agenda
- ▶ Regional Master Plan Monitoring

Implementation Prioritization

The RMP prioritizes implementation items using three levels: immediate, intermediate, and on-going, as outlined below.

Immediate Priorities

- ▶ Grant Programs for Plan Conformance
- ▶ Minimum Requirements for RMP Plan Conformance Programs (e.g., resource management plans)
- ▶ Technical Assistance, Model Ordinances, Guidance Materials for Plan Conformance
- ▶ Establish a working relationship with the Division of Travel and Tourism and the NJ Economic Development Authority (NJEDA) to coordinate economic sustainability programs in the Region.

Intermediate Priorities

- ▶ State and Federal Agency Coordination
- ▶ Educational Programs
- ▶ Research Initiatives

On-going Priorities

- ▶ Program Funding – State and Federal Sources
- ▶ Resource Planning and Management Initiatives
- ▶ Adequate Staffing to support the multi-faceted mission of the Highlands Council.
- ▶ Monitoring Programs
- ▶ Award Programs
- ▶ Coordinate with county and municipal partners to encourage and facilitate economic sustainability in the Highlands Region.

Indicators

Full analyses of indicators listed below are available in the Indicator Report chapter. Potential future indicators may be noted in the Recommendations section that follows, under “Science and Research Agenda.”

- ▶ **Highlands Project Review:** Highlands Council staff members have completed numerous Project Reviews to date, and assisted developers in bringing projects into conformance with the RMP before design plans are even put on paper. The 2024 Affordable Housing Amendment required adoption of the simplified Highlands Plan Conformance Ordinance which shifted most Project Review to local control with the Highlands Council maintaining “call up” authority.
- ▶ **Municipal and County Plan Conformance:** To date, monitoring results indicate significant progress on municipal Plan Conformance, with 61 petitions approved. Importantly, this places most Highlands municipalities in the Implementation Phase of Plan Conformance, meaning that Highlands land use policies are in the process of taking hold at the

municipal level where their effect will ultimately be felt. County Plan Conformance has been altered to more directly address the legal authority and capabilities of counties and particularly county planning agencies. Continued work to guide counties into plan conformance is necessary, however no amendments or modifications to the established processes are necessary.

- **Public Participation, Outreach, Interagency Coordination:** The Highlands Council undertakes public outreach on all RMP Amendments, waivers and project reviews that require Council action. In addition, the Highlands Council works closely with the NJDEP and Office of Planning Advocacy. During the update of the State Plan, the Highlands Council undertook the role as the coordinating entity for cross acceptance for the municipalities in the region. Engagement of the general public in person and online is achieved through monthly public meetings, participation in multiple tabling events throughout the year where printed materials are distributed, press releases and media engagement, the Highlands Council website, and an active social media presence. It is apparent that efforts are needed to expand the education component of the Highlands Council mission, particularly in local schools and institutes of higher learning located within and near the region.
- **Plan Conformance Funding:** The Highlands Council has provided grant funding toward a variety of implementation programs, including the municipal and county Plan Conformance program. Progress is evident and it is clear that the provision of such funding is vital to achieving many of the goals, policies, and objectives of the RMP. Changes in the Plan Conformance Procedures, streamlining of the implementation process and requirements,

and incorporation of plan conformance into the affordable housing legislation has increased overall participation and implementation of plan conformance. Continued coordination between Highlands Council staff and municipal contacts will continue to facilitate new plan conformance implementation.

- **RMP Implementation Funding:** Since July 2019 \$3,481,854 has been expended on direct RMP Implementation projects.

Recommendations

The following recommendations are intended to strengthen the Plan Conformance process and implementation of the Regional Master Plan.

Municipal Plan Conformance

Implementation Activity

In 2019, the Highlands Council adopted RMP Addendum 2019-2, Plan Conformance Procedures implementing all the municipal plan conformance recommendations from the 2018 MPRR. The procedures adopted a new definition for a conforming municipality.

To date, 61 municipal petitions for Plan Conformance have been approved. Forty-three municipalities are confirmed as conforming; of those 32 are conforming for the entire municipality.



Alstede Farms / Chester Township

In 2020, the State Planning Commission found the RMP to be in conformance with the State Plan. In addition, the Highlands Council and State Planning Commission entered a Memorandum of Understanding outlining that plan conformance certification was equivalent to having received plan endorsement, and that Highlands Centers equate to State Plan centers.

In 2024, the Highlands Council introduced a streamlined Highlands Master Plan Element and Land Use Conformance Ordinance.

In 2024, the adoption of legislation revising affordable housing requirements for municipalities recognized plan conformance implementation. The Highlands Council's subsequent adoption of an Affordable Housing RMP Amendment, Affordable Housing Implementation Guidelines and a Highlands Municipal Build Out Methodology and GIS portal increased municipal interest in plan conformance.

Summary findings of related indicator:

- **Municipal Plan Conformance:** 42 municipalities have adopted a Highlands land use ordinance; of these 20 have adopted the Highlands Land Use Ordinance or Plan Conformance Ordinance. The remaining municipalities have adopted the referral ordinance.

Program Issues

Program issues noted in the 2018 MPRR have been addressed.

Recommendation

Establish policies and procedures for Plan Conformance Grant recipients, including set time frames and expiration dates for instances where municipalities do not move forward to conforming status by taking the required actions.

County Plan Conformance

Implementation Activity

To date, five of the seven Highlands counties have submitted Petitions for Plan Conformance.

In 2019, the Highlands Council adopted RMP Addendum 2019-2, Plan Conformance Procedures implementing all the county plan conformance recommendations from the 2018 MPRR.

Funding in the amount of \$969,994.71 has been provided to counties as part of plan conformance and RMP implementation.

Summary findings of related indicator:

- **County Plan Conformance:** To date, three of the five county Petitions submitted to the Highlands Council have been approved. Of these, Hunterdon County conformed for both the Planning and Preservation Areas in 2021. Two county petitions are under review.

Program Issues

- All of the structural and procedural issues were addressed through adoption of RMP Addendum 2019-2, Plan Conformance Procedures. Any remaining issues are related to lack of Highlands Council staffing resources to continue to follow up with counties, and/or county decision making.
- Counties not conforming to the RMP continue to work with the Highlands Council, however staff resource restrictions make it difficult to adequately follow up with the non-conforming counties to continue Plan Conformance implementation.

Recommendations

Request additional Highlands Council staff resources.

Preservation Area Conformance

Implementation Activity

To date, 50 of the 52 Preservation Area municipalities have submitted Petitions for Plan Conformance, of which 36 are confirmed as conforming.

Summary findings of related indicator:

- **Municipal Plan Conformance:** While most of the approved Preservation Area municipalities have completed the plan conformance requirements, 7 have never had their petitions approved by the Highlands Council.

Program Issues

The Highlands Act requires municipalities containing Preservation Area to petition for Plan Conformance and to bring their master plan and regulations into conformance with the RMP. There are 16 municipalities that have not met this requirement.

Recommendation

The Highlands Council should continue to coordinate with the NJDEP in its review of any Highlands Preservation Area applications in the Region.

The Highlands Council should periodically remind all municipal and land use board secretaries of the local development application notification requirement found in the Highlands Act. Notices to such effect were provided to all municipalities. The same notice

requirements are also included in all Highlands referral ordinances and Land Use Ordinances adopted by municipalities, thus far.

The Highlands Council should determine some course of action to address instances of municipal failure to conform, as required under the Highlands Act. The Act provides for the Highlands Council to assume control of local land use activities in such cases. However, this option is neither desirable, nor particularly practical in part due to limited Highlands Council staff resources.

The Highlands Council should work with the NJDOT, NJDEP, DCA, OPA and the State Planning Commission to recognize that the non-conforming Preservation Area municipalities are not complying with state regulations. Limitations should be placed on the availability of state grant funds and permitting in these municipalities.

RMP GIS Data Updates

Implementation Activity

In 2024, the Highlands Council adopted an RMP Amendment updating the Land Use Capability Zone Technical Report and Map.

The Highlands Council is practicing a continuous data update effort.

- ▶ **LiDAR Data:** The Highlands Council commissioned the collection of LiDAR data for the region in 2006. In 2017 the Highlands Council partnered with the NJDEP and USGS to update its LiDAR data for the region.
- ▶ **RMP Updates:** Factual corrections to the RMP are provided to the Highlands Council by municipalities through the Plan Conformance process. All proposed corrections are carefully researched, documented and checked for accuracy before they are accepted by staff.
- ▶ **Land Preservation:** Updated monthly.
- ▶ **Historic Sites:** Updated with each new release from the State Historic Preservation Office.
- ▶ **Water and Wastewater Utility Service Areas:** Updated when new data is received from respective data sources.
- ▶ **Parcel Data:** Updated two to three times a year as the Office of GIS receives updates from New Jersey counties.
- ▶ **Critical Habitat:** Define Critical Habitat consistently across programs and update the layer as the NJDEP updates Landscape Project and vernal pool data.

- ▶ **Net Water Availability:** Updated based on adopted Water Use and Conservation Management Plans.
- ▶ A significant number of other data layers have been updated and should continue to be updated with the release of new Land Use Land Cover data, approximately every five years.

Program Issues

The RMP identifies the importance of maintaining accurate data for purposes of implementation and continued relevance as a planning tool. This objective is complicated by the fact that RMP data sources, such as NJDEP and other state and federal agencies, update their data on different schedules. In addition, many Highlands datasets are composites of multiple data sources, each with different base data update schedules. The Highlands Council itself does not have a stated policy regarding the timeframes at which various data should be updated.

Recommendations

Highlands GIS Data is vital to nearly every aspect of the RMP. For continued monitoring of the region's resources, these datasets will need to be continuously updated as new and more accurate information becomes available.

Establish a policy and schedule for updating all RMP datasets.

- ▶ Review the need for updates to the Land Use Capability Zone Map Series as new statewide Land Use/Land Cover data becomes available.
- ▶ Continue participation in the State's ongoing efforts to collect LiDAR and aerial data on a regular basis.
- ▶ Evaluate statewide Critical Habitat methodology based on updated data and constraints to determine if this meets the needs of the Highlands Council.
- ▶ Reevaluate Integrity Scores use and methodology based on updated data and constraints.
- ▶ Reevaluate Resource Areas use and methodology based on updated data and constraints.
- ▶ Reevaluate Transit Score methodology based on updated data and constraints.
- ▶ Establish a viable method for updating public water and wastewater EAS data based on regularly updated data sources.
- ▶ Explore updating the Highlands Boundary layer based on updated municipal boundaries and improved spatial accuracy for metes and bounds.

Public Participation, Outreach, Interagency Coordination

Implementation Activity

The Highlands Council has maintained a regular schedule of monthly meetings that are open to the public at its offices in Chester, NJ. Extensive information regarding the work of the Council is available to the public any time via the Highlands Council website, which is frequently updated. The Council publishes an Annual Report every spring summarizing activity of the prior year and offers an opt-in email subscriber list to provide interested stakeholders with notifications regarding public meetings and public notices.

In addition, the Council has prioritized interagency coordination in implementation of the Highlands Act, working closely with state partners as well as municipal and county professionals. In more recent years, the Council has increased its participation at state and local events, outreach to specific constituent groups, and the number of training sessions offered for professionals. The Highlands Council maintains a very active constituent service program, which provides prompt response to individuals with specific questions.

In 2020, the State Planning Commission found the RMP to be in conformance with the State Plan. In addition, the Highlands Council and State Planning Commission entered into a Memorandum of Understanding outlining that plan conformance certification was equivalent to having received plan endorsement, and that Highlands Centers equate to State Plan centers. In 2024, the new State Plan recognized the Highlands LUCZ Map as the guiding policy map for the region.

In 2023, the Highlands Council began releasing Monthly Update Reports to the public via its opt-in email subscriber list. A part-time communications position was added to staff to augment outreach capacity the same year, and the Council launched its social media presence on Facebook and Instagram.

To mark the 20th anniversary of the New Jersey Highlands Water Protection and Planning Act in 2024, the Council organized and hosted a day-long educational event.

In 2025, the Highlands Council partnered with Kean University to hold a Highlands Region Science Symposium. The event brought together scientists and other experts to share research and insights about important ecological matters in the Highlands.

Also in 2025, the Highlands Council launched a re-designed website to provide easier public access to information, and added social media accounts on LinkedIn and BlueSky.

Summary Findings of Related Indicator:

- **Local Participation, Outreach, Inter-Agency Coordination:** Since the passage of the Highlands Act in 2004, the Highlands Council has hosted or participated in thousands of outreach activities.

Program Issues

- Although the RMP prescribes development of outreach and education programs, outreach to-date has been largely focused on external, marketing-type communication, with little consideration of educational outreach.

Recommendation

While a robust external communication practice has been established; an education program is still lacking. The Highlands Council should develop a comprehensive outreach and education program that addresses the needs of varied constituent audiences, including, but not limited to, residents/property owners, business owners, real estate professionals, appraisers, community groups, schools and local governments. This includes development of an educational curriculum that covers foundational components of the Highlands Act, RMP, and the work of the Council. The program should be flexible enough to be customized and delivered to constituent groups to address specific informational needs. Specific steps to achieve this goal:

- Expand the communications function at the Highlands Council to have a broader mission encompassing educational outreach. Provide appropriate staffing and funding.
- Develop a comprehensive education program for schools and other educational institutions throughout the Highlands region.
- Deepen engagement with educational institutions and other organizations that could become partners in educational programming.

The Highlands Council should continue to hold science symposiums.

Continue to implement the recommendations of the State Planning Commission consistent with the endorsement of the RMP.

