

Policy Consideration: **Highlands Open Waters and Riparian Area Protection Requirements**
Status: **For Consideration by the Highlands Council at the September 28, 2006 Work session**
Date: **September 27, 2006**

EXECUTIVE SUMMARY

Highlands Open Waters are defined by Section 2 of the Highlands Act as all springs, streams including intermittent streams, wetlands and bodies of surface water, whether natural or artificial, located wholly or partially within the boundaries of the Highlands Region, but shall not mean swimming pools. They are a critical public trust resource and an essential source of drinking water for the State of New Jersey. These waters provide protection against floods and help to ameliorate the affects of prolonged droughts. They are also important habitat for numerous plant and animal species including many endangered and threatened in the State. Highlands Open Waters provide a wealth of agricultural, recreational and aesthetic uses for both residents and visitors alike, helping to contribute to a vibrant regional economy.

Riparian areas are areas adjacent to and hydrologically interconnected with rivers and streams. They are areas that exhibit periodic inundation or saturation of soils, are subject to periodic flooding and include wildlife corridors within 300 feet of a surface water feature. Riparian areas serve as an interface between surface water bodies and terrestrial ecosystems and play a critical role in helping to maintain the quality and ecological integrity of Highlands Open Waters.

Highlands Open Waters and Riparian Areas must be protected in order to further the goals of the Highlands Act to: protect, restore and enhance the quality and quantity of surface and ground waters; to preserve contiguous areas of land in their natural state; and to protect the natural, scenic and other resources of the Highlands Region.

Staff's overall approach is (1) to put these waters and areas in the appropriate district overlay zone based on resource value (high, medium and low) for purposes of creating the Land Use Capabilities Map (Protection Zone, Conservation Zone and Development Zone) and (2) to establish buffers and a review zone to protect these natural resources. With regard to the latter, staff recommends 300' protection buffers from each edge of the Highlands Open Water feature with certain exceptions that would reduce the buffers to 150 or 75 feet in certain circumstances. Riparian Areas outside the buffers would constitute a Review Zone; any proposed development within the Review Zone would trigger a review under defined standards during site plan review.

Staff's specific recommendations are set forth in the following section and listed by number.

I. STAFF POLICY RECOMMENDATIONS

(*) FOR THE PURPOSE OF DELOPING THE LAND USE CAPABILITY MAP

[The Regional Master Plan will have a section describing how the Land Use Capability Map was created. The Council will review that language in the next several weeks when reviewing the draft Plan before release.]

- 1) The RMP will include and maintain an inventory of **Highlands Open Waters (HOW)**.

Highlands Open Waters include springs and seeps, streams (including intermittent streams), wetlands, and other bodies of surface water throughout the Highlands Region

Rationale: The Highlands Act includes a regional goal to protect, restore, and enhance the quality and quantity of the surface water and ground waters of the Highlands Region. Sections 10.b.(1) and 10.c.(1).

The accurate delineation of springs, streams (including intermittent streams), wetlands and bodies of surface water in the Highlands Region, which collectively comprise HOW, is of great importance in order to identify and protect the Region's critical water resources.

- 2) The RMP will include and maintain an inventory of **Riparian Areas** to protect stream corridors, water quality, and ecological resources.

Riparian Areas consist of the areas that are adjacent to and hydrologically interconnected with streams and associated water features such as a lake or pond, including; wetlands, flood prone areas including the 100-year floodplain; riparian soils including soils that are hydric, alluvial or exhibit a shallow depth to the seasonal water table; and a wildlife corridor including lands adjacent to and within 300 feet each side of a surface water feature.

Rationale: The Highlands Act includes a regional goal to protect, restore, and enhance the quality and quantity of the surface water and ground waters of the Highlands Region. Sections 10.b.(1) and 10.c.(1). The accurate delineation of the natural Riparian Area is important to protect water resources. Flood prone areas provide flood storage and reduce flow velocities that damage stream channels. Adjacent wetlands are integral to the lifecycle of many species in aquatic ecosystems. Riparian soils help maintain the quality of water entering those surface waters. Wildlife corridors maintain movement corridors for fish and wildlife that are necessary to maintain the health of aquatic and terrestrial wildlife populations. Natural vegetation along the surface waters attenuate pollutants moving to those waters, and provides energy sources to the open waters through deposition of organic matter.

- 3) The Land Use Capability Map will include protection needs of **Highlands Open Waters** based on **Regional Watershed Indicators**. A **Regional Watershed Indicators** value will be assigned to each HUC14 subwatershed.

Regional Watershed Indicators shall be established based on the following indicators of watershed quality: 1) forest resource value (percent total forest, core forest and proportion of total forest), 2) habitat quality (the percent of a subwatershed that contains habitat for species of concern including rare, threatened or endangered species) and 3) extent of developed lands within a subwatershed. A watershed value class shall be assigned to each HUC14 subwatershed based on a cumulative assessment of all the watershed indicators.

The following watershed value classes will be included in the RMP:

- **High Resource Value Watershed** - A high resource value watershed will include those HUC14 subwatersheds that contain predominantly forest lands and/or include a

significant portion of the watershed as high quality habitat based on the presence of suitable habitat for rare, threatened or endangered species. A high value watershed typically consists of limited pre-existing developed within the watershed. A high value watershed shall also be established within all watersheds draining to a surface water supply drinking water reservoir.

- **Moderate Resource Value Watershed** - A moderate resource value watershed will include those HUC14 subwatersheds that may contain a high proportion of forest lands or habitat quality but typically consist of significant levels of pre-existing development.
- **Low Resource Value Watershed** - A low resource value watershed will include those HUC14 subwatersheds that do not contain a high proportion of forest or high quality habitat and typically consist of significant levels of pre-existing developed lands.

Rationale: Section 11 of the Highlands Act requires a Resource Assessment of Highlands resources in order to maintain the overall ecological values of the Highlands Region. Watershed value will be assigned using a cumulative assessment of the watershed indicators (i.e., three forest metrics, habitat quality and percent developed land) for each HUC14 to assess their regional significance and to ensure that the level of protection afforded is adequate. The collective peer-reviewed scientific literature identifies these as sound indicators for characterizing watershed condition.

- 4) The Land Use Capability Map will include protection needs of **Riparian Areas**. A **Riparian Area Integrity** value will be assigned to each HUC14 subwatershed.

Riparian Area Integrity values will be assigned according to the following indicators of riparian area condition including: 1) percent natural vegetation (the percent of the riparian area that consists of natural vegetation); 2) water/wetland dependent species habitat quality (the percent of the riparian area that contains habitat for water/wetland dependent rare, threatened and endangered species); 3) impervious area (the percent of the riparian area that consists of impervious surfaces); 4) the frequency of road crossings of stream per linear stream mile; and agricultural use (the percent of the riparian area that is in agricultural use). A Riparian Area Integrity class shall be assigned to each HUC14 subwatershed based on a cumulative assessment of all the riparian land use/land cover indicators.

The following Riparian Area integrity classes will be included in the RMP:

- **High Integrity Riparian Area** - These areas include subwatersheds with Riparian Areas that exhibit predominantly natural vegetation including high quality habitat for water/wetland dependent species, and a generally low incidence of impervious area, agricultural uses and/or road crossings.
- **Moderate Integrity Riparian Area** - These areas include subwatersheds with Riparian Areas that contain a higher incidence of impervious area, agricultural uses and/or road crossings but still retain a high proportion of natural vegetation including high quality habitat for water/wetland dependent species.
- **Low Integrity Riparian Area** - These areas include subwatersheds with Riparian Areas that contain a high proportion of impervious area, agricultural uses and/or road crossings and minimal natural vegetation including high quality habitat for water/wetland dependent species.

Rationale: Section 11 of the Highlands Act requires a Resource Assessment of Highlands resources in order to maintain the overall ecological values of the Highlands Region. Riparian Area integrity will be assigned using a cumulative assessment of the five land use/land cover indicators for each HUC14 to assess their regional significance and to ensure that the level of protection afforded is adequate. The collective peer-reviewed scientific literature identifies these as sound indicators for measuring the integrity of riparian areas.

4A) District overlay zones in the **Land Use Capability Map** (Regional Protection Zone, Regional Conservation Zone and Regional Development Zone) will be created using the value classes of the resources (high, medium and low) as follows:

- Put into the **Regional Protection Zone** all HUC14 subwatersheds that are **High Resource Value Watersheds**.
- Put into the **Regional Protection Zone** all HUC14 subwatersheds that are **High Integrity Riparian Areas**.
- Put into the **Regional Conservation Zone** all HUC14 subwatersheds that are: 1) **Moderate Resource Value Watershed**, or 2) **Moderate Integrity Riparian Area**.
- Put into the **Regional Development Zone** all HUC14 subwatersheds that exhibit **Low Resource Value Watersheds** and **Low Integrity Riparian Areas**, notwithstanding other resource protection concerns.

(* **ZONE AND SITE STANDARDS**)

[These standards are to be applied at the zone and site plan level. Following each bullet is language that is proposed for inclusion in the Policy Guidance Element of the Plan. Though Members will have the opportunity to review that language when you review the Policy Guidance Element, your input at this juncture would be very beneficial.]

5) The following standards shall be incorporated into the **Regional Protection Zone** of the **Land Use Capability Map**, as follows:

- Prohibit new land uses or the alteration of existing land uses in the Regional Protection Zone that would alter or be detrimental to the ecological integrity of a Highlands Open Water or Riparian Area.
- Prohibit adjustments and revisions to Highlands Open Water or Riparian Area protection requirements except as necessary to protect public health and safety, or to provide for minimum practical use in the absence of any alternative.
- Identify opportunities where the restoration and enhancement of previously impaired Highlands Open Waters or Riparian Areas are feasible and appropriate.

- Prioritize acquisition, development restrictions and/or TDR credit bonuses for lands within both High Resource Value Watersheds and High Integrity Riparian Areas except for those lands within a Specially Planned Area as determined by the Highlands Council.

Rationale: The Highlands Act requires the development of a Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component. Sections 11.a.(1) , 11.a.(6) and 12. An evaluation of the condition of the watershed (i.e., watershed value) and the integrity of the Riparian Area of a HOW within a subwatershed facilitates an assessment of its regional significance to ensure that the level of protection afforded is adequate and appropriate. The results are used as one input to the Land Use Capability Map. Applicable Resource Protection and Smart Design standards can then be assigned based on regional indicators of watershed value and Riparian Area integrity to the extent they are appropriate and necessary to protect, restore or enhance ecological value.

6) The following standards shall be incorporated into the **Regional Conservation Zone** of the **Land Use Capability Map**, as follows:

- Prohibit adjustments and revisions to Highlands Open Water or Riparian Area protection requirements except when within a Specially Planned Area, as determined by the Highlands Council, and upon demonstration that the ecological integrity of the Highlands Open Water or Riparian Area can be maintained and/or restored. Allow for adjustments and revisions to Highlands Open Water or Riparian Area protection requirements necessary to protect public health and safety, or to provide for minimum practical use in the absence of any alternative.
- Identify opportunities where the restoration and enhancement of previously impaired Highlands Open Waters or Riparian Areas are feasible and appropriate. .

Rationale: The Highlands Act requires the development of a Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component. Sections 11.a.(1) , 11.a.(6) and 12. An evaluation of the condition of the watershed (i.e., watershed value) and the integrity of the Riparian Area within a subwatershed facilitates an assessment of its regional significance to ensure that the level of protection afforded is adequate and appropriate. The results are used as one input to the Land Use Capability Map. Applicable Resource Protection and Smart Design standards can then be assigned based on regional indicators of watershed value and Riparian Area integrity to the extent they are appropriate and necessary to maintain ecological value.

7) The following standards shall be incorporated into the **Regional Development Zone** of the **Land Use Capability Map**, as follows:

- Allow for adjustments and revisions to Highlands Open Water or Riparian Area protection requirements only upon demonstration that the ecological integrity of the Highlands Open Water or Riparian Area can be maintained and/or restored.

- Identify opportunities where the restoration and enhancement of previously impaired Highlands Open Waters or Riparian Areas are practical.

Rationale: The Highlands Act requires the development of a Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component. Sections 11.a.(1) , 11.a.(6) and 12. An evaluation of the condition of the watershed (i.e., watershed value) and the integrity of the Riparian Area within a subwatershed facilitates an assessment of its regional significance to ensure that the level of protection afforded is adequate and appropriate. The results are used as one input to the Land Use Capability Map. Applicable Resource Protection and Smart Design standards can then be assigned based on regional indicators of watershed value and Riparian Area integrity to the extent they are appropriate and necessary to maintain ecological value

8) The following **Resource Protection Standards** are recommended for the RMP to protect, restore and enhance Highlands Open Water, including:

- Establish a **Protective Area Buffer** adjacent to Highlands Open Waters according to the following resource categories:
 - **Highlands Waters** – Includes those Highlands Open Waters that are contained within the Highlands Preservation Area.
 - **Special Waters** – Includes those Highlands Open Waters that drain to a Category One (C1) or Trout Production waters (TP), or that are upstream of, are within the same HUC14 subwatershed, and are hydrologically interconnected with, a C1, TP, or Highlands Waters.
 - **Exceptional Waters** - Includes those Highlands Open Waters other than Highlands Waters or Special Waters that drain to a FW1 waterway or include habitat for water/wetland dependent threatened or endangered species. In addition, this will include any other waters (which are not considered Highlands Waters or Special Waters) that are upstream of, are within the same HUC14 subwatershed, and are hydrologically interconnected with an Exceptional Water.
 - **Intermediate Waters** - All remaining Highlands Open Waters that are not a Highlands, Special, and Exceptional Waters and consist of waters that are man made (excluding vernal pools) and hydrologically isolated from a surface water feature within the same HUC14 subwatershed.
- **Protection Area Buffers** of a Highlands Open Water shall be established to maintain existing uses, avoid further impairment and encourage opportunities to restore ecological integrity where appropriate. All Highlands Open Waters shall receive a **300-foot Protection Area Buffer** from each edge of the Highlands Open Waters feature with the following exceptions:
 - **Exceptional Waters** within a HUC14 subwatershed that exhibit a Low Resource Value Watershed and a Low Integrity Riparian Area receive a **150-foot** protection area buffer from each edge of the Highlands Open Waters feature

- All **Intermediate Waters** receive a **150-foot** protection area buffer from each edge of the Highlands Open Waters feature, except for those that are within a HUC14 subwatershed that exhibits a Low Resource Value Watershed and a Low Integrity Riparian Area. These Intermediate Waters receive a **75-foot** protection area buffer from each edge of the Highlands Open Waters feature.
- Prohibit new, or alteration of existing, land uses within either a Highlands Open Waters Protection Area Buffer or Riparian Area that would alter or be detrimental to the ecological integrity of a Highlands Open Water or Riparian Area except as necessary to protect public health and safety, or to provide for minimum practical use in the absence of any alternative.
- All development activities within the **Riparian Area**, as defined by the Highlands Council, will be subject to review under the resource protection standards in the RMP.
- Require inclusion of resource protection standards for Highlands Open Waters Protection Area Buffers and Riparian Area within municipal zoning and land use ordinances.
- Require inclusion of Highlands Open Waters Protection Area Buffers and Riparian Area within municipal Open Space Plans.

Rationale: Highlands Open Waters are subject to significant regulatory control, limiting development activity due to their importance as a public trust resource. A number of existing state statutory or regulatory programs impose restrictions adjacent to Highlands Open Waters in order to maintain the integrity of the aquatic systems. These programs include the Surface Water Quality Standards at N.J.A.C. 7:9B, Flood Hazard Area Control Rules at N.J.A.C. 7:13, the Freshwater Wetlands Protection Act Rules at N.J.A.C. 7:7A, Stormwater Management Rules at N.J.A.C. 7:8, and the Highlands Water Protection and Planning Act Rules at N.J.A.C. 7:38. It is important to note that although the designation of Special, Exceptional or Highlands Waters designations and establishment of a Riparian Area may exceed the protection requirements under existing state regulatory programs, it is not intended to replace or supersede any New Jersey Department of Environmental Protection (NJDEP) statutory authority.

RMP resource protection standards are assigned based on the resource protection goals of the Highlands Act according to regional indicators of water quality and ecological integrity. The RMP Standards support the necessity to determine the amount and type of human development and activity the Highlands Region can sustain while still maintaining the ecological value of the Highlands Region. Section 11.a.(1)(a). The Highlands Act requires the development of Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component. Sections 11.a.(1) , 11.a.(6) and 12.

- 9) The following **Smart Design Standards** are recommended for the RMP, including:
- Establish minimum site design guidelines and permissible uses within a Highlands Open Water Protection Area Buffers or Riparian Areas consistent with Regional Watershed Indicator as follows:

- a) Prohibit any development activity within a High Resource Value Watershed with the exception of maintenance of pre-existing uses. No increases in limits of disturbance or increase to pre-existing impervious area shall be permitted within a Highlands Open Waters protection buffer or Riparian Area. Restoration of impaired areas shall be required wherever practical.
 - b) Development activities within a Moderate Resource Value Watershed shall be limited to maintenance of pre-existing uses or other compatible uses that do not result in the disturbance and alteration to a Highlands Open Waters protection buffer or Riparian Area. Minimal increases in pre-existing impervious area shall be permitted only upon approval of a Stream Corridor Protection/Restoration Plan and LID BMP program approved by the Highlands Council. Restoration of impaired areas shall be required wherever practical.
 - c) Allow development activities within a Low Resource Value Watershed to encourage redevelopment of previously developed areas and allow for other compatible uses that do not result in the disturbance and alteration to a Highlands Open Waters protection buffer or Riparian Area. Increases in pre-existing impervious area shall be permitted upon approval of a Stream Corridor Protection/Restoration Plan and LID BMP program approved by the Highlands Council. Restoration and enhancement of impaired areas shall be a required element of any site plan application.
- Require inventory of Highlands Open Waters including the identification of headwater streams, seeps or springs, subject to review and approval of Highlands Council, as a mandatory requirement for any site plan application.
 - Require implementation of a Stream Corridor Protection/Restoration plan and Low Impact Development (LID) Best Management Practices (BMPs) as a required element of any development activity proposed within a Highlands Open Water protection area buffer or Riparian Area.

Rationale: RMP standards are assigned based on regional indicators of HOW quality. The RMP Standards support the necessity to determine the amount and type of human development and activity the Highlands Region can sustain while still maintaining the ecological value of the Highlands Region. Section 11.a.(1)(a). The Highlands Act requires the development of Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component. Sections 11.a.(1) , 11.a.(6) and 12.

10) The following **Regional Growth Standards** are recommended for the RMP, including:

- Require development of Regional Stormwater/Wetland Mitigation Plan, subject to review and approval of Highlands Council.
- Require participation in a Regional Stormwater/Wetland Mitigation Plan, where applicable, as a mandatory requirement for any site plan application.

Rationale: RMP standards are assigned based on regional indicators of HOW quality. The RMP Standards support the necessity to determine the amount and type of human

development and activity the Highlands Region can sustain while still maintaining the ecological value of the Highlands Region. Section 11.a.(1)(a). The Highlands Act requires the development of Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component. Sections 11.a.(1) , 11.a.(6) and 12.

(*) POST ADOPTION, COORDINATION AND PARTICIPATION STRATEGIES

[Following each bullet is language that is proposed for inclusion in the Policy Guidance Element of the Plan. Though Members will have the opportunity to review that language when you review the Policy Guidance Element, your input at this juncture would be very beneficial.]

11) The following **Pre-Conformance Strategies** are recommended to ensure successful implementation of the RMP prior to the initiation of the conformance period, including:

- Develop technical guidelines for the Identification Highlands Open Waters and Riparian Areas.
- Develop technical guidelines and procedures for development of Stream Corridor Protection/Restoration Plans, Open Space Plans and for development and implementation of Low Impact Development BMPs.
- Develop technical review procedures for proposed adjustments and revisions to Highlands Open Waters and Riparian Area requirements.

Rationale: RMP Implementation Strategies support the necessity to determine what activities, data and programs will be required of both the Highlands Council and municipal and county stakeholders during the Plan Conformance process as well as what initiatives will require longer term planning goals. Sections 11.a.(3), 14 and 15. The RMP is a “living document” and will continue to be refined and developed in support of regional planning goals. In order to facilitate regional planning goals it is imperative that the RMP have State, County, and local support from all levels of government and the support of the stakeholders of the Highlands Region.

12) The following **Conformance Strategies** are recommended in furtherance of the goals and requirements of the Highlands Act to ensure successful implementation of the RMP during the conformance period, including:

- Require inclusion of Highlands Open Waters and Riparian Area Protection Element, Stream Corridor Protection/Restoration Plans, Regional Stormwater/Wetland Mitigation, and Open Space Plans into Municipal and/or County conformance documents, Master Plans, Zoning and Land Use Ordinances, as appropriate.

Rationale: RMP Implementation Strategies support the necessity to determine what activities, data and programs will be required of both the Council and municipal and county stakeholders during the Plan Conformance process as well as what initiatives will require longer term planning goals. Sections 11.a.(3), 14 and 15. The RMP is a “living document” and will continue to be refined and developed in support of regional planning

goals. In order to facilitate regional planning goals it is imperative that the RMP have State, County, and local support from all levels of government and the support of the stakeholders of the Highlands Region.

13) The following **5-year Resource Protection and Planning Goals** are recommended in furtherance of the goals and requirements of the Highlands Act to ensure continued refinement and development of the RMP, including:

- Develop methods for continued development and refinement of Highlands Open Water Inventory with an emphasis on identification of headwater streams and headwater seeps/springs.
- Develop a wetland habitat functional assessment to ensure levels of Highlands Open Waters protection requirements are appropriate to maintain existing resource value for water quality treatment, flood prevention, protection of base flows of streams and wildlife habitat.
- Continue development of a Regional Stream Integrity model at a HUC17 level to establish protection requirements of Highlands Open Waters based on biological and water quality indicators.
- Coordinate activities among public and private entities to encourage regional restoration activities and open space acquisition strategies.
- Develop recommendations for reclassification of Surface Water Quality Standards at N.J.A.C. 7:9B for Highlands Open Waters consistent with the resource protection goals of the RMP.

Rationale: The Highlands Act requires the Highlands Council to periodically revise and update the RMP at least once every six years. Section 8.a. RMP Implementation Strategies support the necessity to determine what activities, data and programs will be required of both the Council and municipal and county stakeholders during the Plan Conformance process as well as what initiatives will require longer term planning goals. The RMP is a “living document” and will continue to be refined and developed in support of regional planning goals. In order to facilitate regional planning goals it is imperative that the RMP have State, County, and local support from all levels of government and the support of the stakeholders of the Highlands Region. Sections 11.a.(3), 14 and 15.

14) The following **Coordination and Consistency Considerations** are recommended to promote active participation in the implementation of the RMP among state and federal agencies:

- Develop a coordinated regulatory review program with the NJDEP to ensure consistency of permit actions, open space acquisition priorities, surface water quality standards and restoration activities, including amendments to existing regulatory programs, to encourage consistency with the resource protection goals of the RMP.

- Coordinate with the NJDEP to develop and implement a regional stormwater and wetland mitigation program to address impacts to Highlands Open Waters and Riparian Areas from existing non-point pollution sources, and wetland impacts from land development activities within the Highlands Region.
- Coordinate with NJDEP to expand Ambient Biological Monitoring Network (AMNET) to include additional stations in the Highlands Region.
- Coordinate with the New Jersey Department of Transportation, county and regional transportation planning agencies, to promote a regional program for restoration and mitigation of impacts to Highlands Open Waters and Riparian Areas that are compatible with the resource protection goals of the RMP.
- Coordinate with the USDA Natural Resource Conservation Service and NJDA to promote Highlands Open Water and Riparian Areas protection requirements and standards for existing agricultural uses to the maximum extent practical.
- Coordinate with the NJDEP Bureau of Forestry to develop and implement forest management practices to promote Highlands Open Water and Riparian Areas protection requirements and standards for forestry activities on public and private lands to the maximum extent practical.

Rationale: RMP Implementation Strategies support the necessity to determine what local, State, and federal programs and policies may best be coordinated to promote the goals, purposes, policies, and provisions of the RMP. Sections 11.a.(4). The RMP is a “living document” and will continue to be refined and developed in support of regional planning goals. In order to facilitate regional planning goals it is imperative that the RMP have State, County, and local support from all levels of government and the support of the stakeholders of the Highlands Region.

15) The following **Local Participation Considerations** are recommended to promote the understanding and support for the RMP resource protection goals at the local level:

- Develop educational and technical training programs for municipal officials and interested watershed organizations to promote consistent standards for the protection, restoration and acquisition of important waters and riparian areas of the Highlands Region.
- Develop educational and technical training program for municipal officials on resource protection standards, restoration and mitigation practices, and Low Impact Development BMPs to minimize impacts from land development activities on Highland Open Waters and Riparian Areas.
- Coordinate with municipal Environmental Commissioners and watershed organizations to encourage a comprehensive stream monitoring program within the Highlands Region.

Rationale: RMP Implementation Strategies support the necessity to provide for the maximum feasible local government and public input into the Highlands Council's operations. Section 11.a.(3)(emphasis added). The RMP is a “living document” and will continue to be refined and developed in support of regional planning goals. In order to facilitate regional planning goals it is imperative that the RMP have State, County, and local

support from all levels of government and the support of the stakeholders of the Highlands Region.

II. REQUIREMENTS OF THE HIGHLANDS ACT AND RMP GOALS RELATED TO HIGHLANDS OPEN WATERS AREA PROTECTION REQUIREMENTS:

Goals of the Highlands Act:

In accordance with Section 10 of the Highlands Act, the overarching goal of the Regional Master Plan “with respect to the entire Highlands Region shall be to protect and enhance the significant values of the resources thereof in a manner which is consistent with the purposes and provisions of this act.” Section 10.a.

The Highlands Act establishes specific goals relating to protection of Highlands Open Waters. Those goals with respect to the Preservation Area shall be to:

- protect, restore, and enhance the quality and quantity of surface and ground waters. Section 10.b.(1).
- 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. Section 10.b.(2).
- 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. Section 10.b.(3).

In addition, the goals with relating to protection of Highlands Open Waters with respect to the Planning Area shall be to:

- protect, restore, and enhance the quality and quantity of surface and ground waters. Section 10.c.(1).
- preserve to the maximum extent possible any environmentally sensitive lands and other lands needed for recreation and conservation purposes. Section 10.c.(2).
- protect and maintain the essential character of the Highlands environment. Section 10.c.(3).

Requirements of the Highlands Act:

Resource Assessment

The Highlands Act includes specific requirements relating to protection of Highlands Open Waters requiring the development of a Resource Assessment for the Highlands Region which “(a) determines the amount and type of human development and activity which the ecosystem of the Highlands Region can sustain while still maintaining the overall ecological values thereof, with special reference to **surface and ground water quality and supply; contiguous forests and woodlands; endangered and threatened animals, plants, and biotic communities;** ecological factors relating to the protection and enhancement of agricultural or horticultural production or activity; air quality; and **other appropriate considerations affecting the ecological integrity of the Highlands Region.**” Section 11.a.(1)(a)(emphasis added).

Smart Growth Component

The Highlands Act also includes specific requirements relating to protection of open waters requiring the development of a Smart Growth component that includes “an assessment, based upon the resource assessment prepared pursuant to paragraph (1) of subsection a. of this section, of opportunities for appropriate development, redevelopment, and economic growth, and a transfer of development rights program.... In preparing this component, the council shall:

- (a) prepare a **land use capability map**;
- (b) identify **existing developed areas** capable of sustaining redevelopment activities and investment;
- (c) identify **undeveloped areas** in the planning area, which are **not significantly constrained by environmental limitations** such as steep slopes, wetlands, or dense forests, are not prime agricultural areas, and are located near or adjacent to existing development and infrastructure, that could be developed;
- (g) identify **special critical environmental areas and other critical natural resource lands** where development should be limited. Section 11.a.(6)”(emphasis added).

Preservation Area Assessment

For the Preservation Area, Section 12 of the Highlands Act requires “a **land use capability map** and a comprehensive statement of policies for planning and managing the development and use of land in the preservation area, which shall be based upon, comply with, and implement the **environmental standards” adopted by NJDEP and the Resource Assessment prepared the Highlands Council** under Section 11. Section 12.(emphasis added).

Section 12 specifically requires implementation “that will ensure the continued, uniform, and consistent protection of the Highlands Region in accordance with the goals, purposes, policies, and provisions of this act, and shall include:

- a. a preservation zone element that **identifies zones within the preservation area where development shall not occur** in order to protect water resources and environmentally sensitive lands and which shall be permanently preserved through use of a variety of tools, including but not limited to land acquisition and the transfer of development rights; and
- b. minimum standards governing municipal and county master planning, development regulations, and other regulations concerning the development and use of land in the preservation area, including, but not limited to, standards for minimum lot sizes and **stream setbacks**, construction on steep slopes, maximum appropriate population densities, and **regulated or prohibited uses** for specific portions of the preservation area. Section 12.(emphasis added).

Preservation Area Requirements

The NJDEP’s rules at N.J.A.C. 7:38-3.6 requires a 300-foot buffer adjacent to Highlands open waters in which no disturbance is permitted with the exception of linear development, which shall be permitted provided that there is no feasible alternative for the linear development outside the Highlands open water or Highlands open water buffer. See N.J.A.C. 7:38-3.6(b). This rule implements the 300 foot requirement in the Preservation Area pursuant to Section 34.a.

- a. a prohibition on major Highlands development within 300 feet of any Highlands open waters, and the establishment of a 300-foot buffer adjacent to all Highlands open waters; provided, however, that this buffer shall not extend into the planning area.

Section 34.b. requires “measures to ensure that existing water quality shall be maintained, restored, or enhanced, as required pursuant to the "Water Pollution Control Act," P.L.1977, c. 74 (C.58:10A-1 et seq.) or the "Water Quality Planning Act," P.L.1977, c. 75 (C.58:11A-1 et seq.), or any rule or regulation adopted pursuant thereto, in all Highlands open waters and waters of the Highlands.” Similarly, Section 34.g. requires that the “antidegradation provisions of the surface water quality standards and the stormwater regulations applicable to category one waters to be applied to Highlands open waters.”

The NJDEP’s rules at N.J.A.C. 7:38-3.7 prohibits any net displacement of flood storage volume within a flood plain. There shall be no displacement of flood storage volume onsite or the proposed activities, both individually and cumulatively, displace no more than 20 percent of the flood storage volume onsite as long as an equal or greater volume of flood storage is created offsite. N.J.A.C. 7:38-3.7(b). This rule implements the zero net fill requirement in the Preservation Area pursuant to Section 34.f.

The NJDEP’s rules at N.J.A.C. 7:38-3.5(a) prohibits development or activity if it will result in impervious surface of greater than three percent of the land area of a lot. This rule implements the impervious surface requirements in the Preservation Area pursuant to Section 34.h.

The NJDEP’s rules at N.J.A.C. 7:38-3.11 prohibits development or activity if it will jeopardize the continued existence of species listed pursuant to "The Endangered and Nongame Species Conservation Act," P.L.1973, c. 309 (C.23:2A-1 et seq.) or the "Endangered Plant Species List Act," P.L.1989, c. 56 (C.13:1B-15.151 et seq.), or which appear on the federal endangered or threatened species list, and will not result in the likelihood of the destruction or adverse modification of habitat for any rare, threatened, or endangered species of animal or plant. This rule implements the species protection requirements in the Preservation Area pursuant to Section 36.a(4).

In addition, Section 36 of the Highlands Act requires that NJDEP’s permitting review approval without a waiver may be issued only upon a finding that the proposed major Highlands development:

(1) would have a **de minimis impact on water resources** and would not cause or contribute to a significant degradation of surface or ground waters. In making this determination, the commissioner shall consider the extent of any impacts on water resources resulting from the proposed major Highlands development, including, but not limited to, the regenerative capacity of aquifers or other surface or ground water supplies, increases in stormwater generated, increases in impervious surface, increases in stormwater pollutant loading, changes in land use, and changes in vegetative cover;

(2) would cause **minimal feasible interference with the natural functioning of animal, plant, and other natural resources** at the site and within the surrounding area, and **minimal feasible individual and cumulative adverse impacts to the environment** both onsite and offsite of the major Highlands development;

(3) will result in **minimum feasible alteration or impairment of the aquatic ecosystem** including existing contour, vegetation, fish and wildlife resources, and aquatic circulation of a freshwater wetland;

(4) will **not jeopardize the continued existence of species** listed pursuant to "The Endangered and Nongame Species Conservation Act," P.L.1973, c. 309 (C.23:2A-1 et seq.) or the "Endangered Plant Species List Act," P.L.1989, c. 56 (C.13:1B-15.151 et seq.), or which

appear on the federal endangered or threatened species list, and will not result in the likelihood of the destruction or adverse modification of habitat for any rare, threatened, or endangered species of animal or plant;

(5) is located or constructed so as to neither endanger human life or property nor otherwise impair the public health, safety, and welfare;

(6) would result in minimal practicable degradation of unique or irreplaceable land types, historical or archeological areas, and existing public scenic attributes at the site and within the surrounding area; and

(7) meets all other applicable department standards, rules, and regulations and State laws.”
Section 36 (emphasis added)

Local Participation Component

A component to provide for the maximum feasible local government and public input into the council's operations, which shall include a framework for developing policies for the planning area in conjunction with those local government units in the planning area who choose to conform to the regional master plan. Section 11.a.(3)(emphasis added).

Coordination and Consistency Component

A coordination and consistency component which details the ways in which local, State, and federal programs and policies may best be coordinated to promote the goals, purposes, policies, and provisions of the regional master plan, and which details how land, water, and structures managed by governmental or nongovernmental entities in the public interest within the Highlands Region may be integrated into the regional master plan. Section 11.a.(4)(emphasis added).

III. TECHNICAL BASIS AND JUSTIFICATION FOR STAFF RECOMMENDATIONS

In furtherance of the requirements and goals of the Highlands Act as summarized above, the Highlands Open Waters Protection Area Requirements of the Ecosystem Management element of the RMP is intended to further the protection, restoration and enhancement of surface waters.

The Ecosystem Management program element is intended to identify natural and ecological resources in need of protection for inclusion in the Land Use Capability Map and RMP implementation policies. It also evaluates the effects of land development and other stresses on those resources, and establishes the overall strategies and policies necessary to protect, enhance and restore, where appropriate, their value.

Highlands Open Waters are a critical public trust resource and an essential source of drinking water for the State of New Jersey. These waters provide protection against floods and help to ameliorate the affects of prolonged droughts. They are also important habitat for numerous plant and animal species including many endangered and threatened in the State. Highlands Open Waters provide a wealth of agricultural, recreational and aesthetic uses for both residents and visitors alike, helping to contribute to a vibrant regional economy.

Land development activities in and adjacent to Highlands Open Waters and Riparian Areas impair the quality and integrity of our water resources and the ecological integrity of aquatic systems. They generate significant pollution loadings from stormwater runoff, atmospheric fallout, and soil erosion resulting in water quality degradation, altered runoff patterns, and increased incidence of flooding.

While erosion and soil loss by surface runoff are considered predominant sources, pollution from failing septic systems, runoff from agricultural lands, and leaching of fertilizers and pesticides/herbicides from adjacent residential and commercial development are also of major concern.

The RMP includes an inventory of Highlands Open Waters and establishes the extent of HOW Protection Area needed to maintain existing uses, avoid further impairment and allow for opportunities to restore ecological integrity where appropriate. The extent of the Highlands Open Water Protection Area informs development of the RMP and Land Use Capability Map. The integrity of waters is also evaluated based on Regional HOW Watershed Indicators to assess the regional significance and protection needs using available land use and/or ecological indicators at a subwatershed (HUC14) level. These indicators help to inform the level of protection and appropriate land use standards that are needed to ensure that the quality of Highlands Open Waters and Riparian Areas will be maintained or restored, and the health of aquatic systems will be maintained.

These approaches are based on the best available science and the results of the Resource Assessment performed in support of the RMP, and reinforced through the scientific literature and existing state or federal regulatory programs, where applicable. In addition, as required by Section 12 of the Highlands Act for the Preservation Area, these approaches are based upon, comply with, and implement the environmental standards adopted by NJDEP and the Resource Assessment performed by the Highlands Council. This requirement of the Highlands Act authorizes the Highlands Council to integrate results of these two elements of the Act into a unified approach for the protection of Highlands resources.

The Highlands Council worked in cooperation with the Rutgers University - Grant F. Walton Center for Remote Sensing and Spatial Analysis (CRSSA) to inventory Highlands Open Waters in the Highlands Region. A technical memorandum titled *Technical Approach for the Inventory and Classification of Highlands Open Waters* provides a discussion of the technical methods and preliminary results for incorporation into the RMP.

IV. GLOSSARY

This section defines the terms that are used to develop the approach and methods that informed the proposed policy actions for this RMP element. Topic specific glossaries will contribute to the general RMP glossary of terms.

Agricultural Uses – Existing uses of land for agricultural or horticultural activities for the purpose of the production of crops or raising of livestock.

Agricultural Resource Area – An area designated by the Highlands Council as important for the continuation of agricultural activities within the Highlands Region.

Category One Waters – Category One (C1) waters are those waters designated in the tables in N.J.A.C. 7:9B-1.15(c) through (h), for purposes of implementing the antidegradation policies set forth at N.J.A.C. 7:9B-1.5(d), for protection from measurable changes in water quality characteristics because of their clarity, color, scenic setting, other characteristics of aesthetic value, exceptional

ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resource(s).

Developed Lands – Previously developed lands including residential, commercial, industrial and public service uses and attendant features.

Endangered Species - Endangered species are those whose prospects for survival in New Jersey are in immediate danger because of a loss or change in habitat, over-exploitation, predation, competition, disease, disturbance or contamination.

Exceptional Waters – A Highland Open Water area that is subject to a 300 feet protection area buffer as determined by the Highlands Council. May be reduced to 150 feet under limited circumstances.

High Resource Value Watershed – A watershed that consists of indicators suggesting high resource value including significant forest cover, high quality habitat, low development and agricultural activity as determined by the Highlands Council.

Highlands Open Waters – all springs, streams including intermittent streams, wetlands and bodies of surface water, whether natural or artificial, located wholly or partially within the boundaries of the Highlands Region, but shall not mean swimming pools. *Section 2.*

Highlands Open Water Protection Area Buffer – The area adjacent to a Highlands Open Water feature necessary to protect the value and integrity of the resource as determined by the Highlands Council.

Highlands Waters – A Highland Open Water area that occurs with the Highlands Preservation Area and is subject to a 300 feet protection area buffer.

Hydrologic Unit Code – Hydrologic Unit Code (HUC) means an area within which water drains to a particular receiving surface-water body, which is identified by a specific digit number, or “hydrologic unit code.” The HUC codes were developed by the U.S. Geological Survey. *N.J.A.C. 7:38-1.4.*

HUC14 - An area within which water drains to a particular receiving surface-water body, which is identified by a fourteen-digit number, or “hydrologic unit code.” In New Jersey, a HUC14 correlates to a subwatershed. *N.J.A.C. 7:38-1.4.*

Habitat Quality - The degree to which habitat is suitable for one or more species designated as rare, threatened or endangered in New Jersey.

Intermediate Waters – A Highland Open Water area that is subject to a 150 feet protection area buffer as determined by the Highlands Council. May be reduced to 75 feet under limited circumstances.

Low Impact Development (LID) Best Management Practices – Low Impact Development is an environmentally sensitive approach to storm water management that emphasizes conservation and the use of existing natural site features integrated with distributed, small scale storm water

controls to more closely mimic natural hydrologic patterns in residential, commercial and industrial settings. LID best management practices involve comprehensive land planning and engineering design to maintain and enhance the hydrologic regime of urban lands and development within watersheds. LID standards and best management practices are supported by the New Jersey Stormwater Management Rules, N.J.A.C. 7:8 and the “New Jersey Stormwater Best Management Practices Manual” developed by the New Jersey Department of Environmental Protection, in coordination with the New Jersey Department of Agriculture, the New Jersey Department of Community Affairs, the New Jersey Department of Transportation, municipal engineers, county engineers, consulting firms, contractors, and environmental organizations.

Low Resource Value Watershed – A watershed that consists of indicators suggesting significant levels of impairment due to past human development activity as determined by the Highlands Council.

Open Space Plan – A planning document developed at a municipal or county level that includes an inventory of existing public open space, acquisition strategies and priorities, and stewardship goals for a specific geographic area.

Moderate Resource Value Watershed – A watershed that consists of indicators suggesting moderate resource value due to past development and agricultural uses as determined by the Highlands Council.

Riparian Area – Areas adjacent to and hydrologically interconnected with rivers and streams that exhibit period inundation or saturation of soils, are subject to periodic flooding and include wildlife corridors within 300 feet of a surface water feature.

Rare Species – Those species which may be widely distributed in the state, but consist of restricted distribution and/or population levels and have experienced recent declines in populations that may jeopardize their continued survival in the state if current trends continue.

Regional Stormwater/Wetland Mitigation Plan - A planning document developed at a municipal or county level that identifies areas appropriate for improvement as a regional stormwater or wetland mitigation site(s) including strategies for its implementation at the local or regional level.

Regional Watershed Indicator – Includes characteristics of watershed condition that are indicators of the quality and ecological integrity of Highlands Open Waters including Forest Resource Value, Habitat Quality, and Developed Lands.

Specially Planned Area – Previous developed lands that contain characteristics appropriate for redevelopment, including infill and adaptive reuse, based on limited resource constraints due to past development patterns. Within the Preservation Area a Redevelopment Area is limited to an area or site that contains at least 70% impervious area or is a Brownfield site determined to be appropriate for redevelopment by the Highlands Council and NJDEP.

Special Waters – A Highland Open Water area that is subject to a 300 feet protection area buffer as determined by the Highlands Council.

Stream Corridor Protection/Restoration Plan – A planning document developed at a municipal or county level that identifies lands adjoining streams and other Highlands Open Water features in need of protection and/or restoration including strategies for its implementation at the local level.

Threatened Species - Threatened species are those who may become endangered if conditions surrounding them begin to or continue to deteriorate.

Trout Production (TP) Waters – Surface waters in New Jersey that are designated at N.J.A.C. 7:9B-1.15(b) through (g) as trout production waters for use by trout for spawning or nursery purposes during their first summer.