

DRAFT – FOR CONSIDERATION AT THE JUNE 5, 2008  
MEETING OF THE HIGHLANDS COUNCIL

**Lake Management Area**

**Issue Overview**

The RMP provides for the protection and enhancement of Highlands Lakes and their environs, including Highlands lake communities. Overbuilt, damaged and poorly managed shoreland areas can result in the degradation of water quality, harm to the lake ecosystem, the decrease of natural aesthetic values, and the overall loss of property values for lake communities. Lakes can be harmed by pollutant sources in the watershed area draining to them. Most existing lake communities were built out prior to modern environmental requirements. Some have sewer systems, but many rely on septic systems (or even cesspools) on inadequately sized lots. Studies indicate that nearly every public lake (privately-owned lakes were not evaluated) in the Highlands is experiencing contamination, often including excessive bacteria and nutrients. Many lake communities have been experiencing intensifying land uses as the original buildings are torn down and replaced by larger structures. The Council seeks to identify redevelopment opportunities to improve community character and value, to both protect natural resources and to enhance and restore the quality of lake environments in the Region.

As discussed in Chapter 3 under the Land Use Capability Zone Map section, the Council has developed a Lake Community Sub-Zone. This sub-zone consists of patterns of community development that are within the Existing Community Zone within 1,000 feet of lakes. By definition, lakes within this sub-zone are developed or heavily developed lakes. Developed lakes face particular challenges as compared with undeveloped lake areas. They tend to be shallower in locations that receive sediment loadings, they often feature extensively landscaped shorelines with limited natural vegetation, and they are frequently more eutrophic than undeveloped lakes. Developed lakes tend to receive higher phosphorous loads due to the fact that urban watersheds produce higher unit area phosphorous loads from stormwater, compared to lesser developed watersheds. In addition, most urban watersheds produce significant secondary phosphorous loads from a diverse range of sources including municipal wastewater discharges, failing septic systems, and sewage overflows.

**Program Summary**

This program seeks to protect, restore and enhance the water quality of Highlands lakes and to protect the unique character of Highlands lake communities. It facilitates land use and water resource planning on the basis of lake management tiers:

- A Shoreland Protection Tier consisting of an area measured 300 feet or the first public road perpendicular to the shoreline of the lake
- A Water Quality Management Tier consisting of an area measured 1,000 feet perpendicular from the shoreline of the lake, including the shoreland protection tier;
- A Scenic Resources Tier consisting of an area measured 300 to 1,000 feet perpendicular from the shoreline of the lake, scaled based upon the view distance from the opposite shoreline, and determined through the size and layout of the lake and the topography of the land area, with wider portions of lakes and greater topographic relief having longer view distances

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**RMP Policies and  
Objectives Addressed**

- A Lake Watershed Tier consisting of the entire land area draining to the lake.

In this Lakes Management program, the Council seeks to stringently protect lakes in the Protection and Conservation Zone from future development and to maintain those lakes in their natural condition. In the already developed lake areas of the Lake Community Sub-Zone, the underlying goal is to protect lake water quality and habitat from impacts resulting from the built environment and to ensure that any redevelopment maintains the character of existing Highlands lake communities. Thus, while the majority of the standards presented herein are stringent standards geared to new development in undeveloped lake areas, there are also standards that are common to both undeveloped and developed lakes (primarily in the Water Quality Management tier), and there are standards that are unique to the Lake Community Sub-Zone that solely address developed lake areas. With respect to these standards and on-going management issues related to lakes in the Lake Community Sub-Zone, the Highlands Council will coordinate with individual lake commissions, and with lake associations where they exist.

The program also includes a lake and dam protection and enhancement component and a homeowner's educational brochure and awards program component.

**Policy 1L1.** To establish a Lake Management Area around all Highlands Region lakes of greater than 10 acres size.

**Policy 1L2.** To establish tiers of lake management appropriate to management strategies that help protect lake water quality and community value from the impacts of present and future development.

**Objective 1L2a.** Lake management programs shall use the following management tiers around all Highlands Region lakes of greater than 10 acres in size:

- A Shoreland Protection Tier consisting of an area measured 300-foot or the first property line perpendicular from the shoreline of the lake;
- A Water Quality Management Tier consisting of an area measured 1,000-foot perpendicular from the shoreline of the lake, including the shoreland protection tier;
- A Scenic Resources Tier consisting of an area measured 300 to 1,000-foot perpendicular from the shoreline of the lake, scaled based upon the view distance from the opposite shoreline, and determined through the size and layout of the lake, with wider portions of lakes having longer view distances; and
- A Lake Watershed Tier consisting of the entire land area draining to the lake, through the evaluation of drainage areas using LiDAR topographic analyses or other topographic data where LiDAR data are not available.

**Policy 1L3.** To establish unique standards (as compared to lakes within the Protection and Conservation Zones) for the Lake Community Sub-Zone within the Existing Community Zone within 1,000 feet of lakes, particularly with respect to the Shoreland Protection Tier, to prevent degradation of water quality, harm to lake ecosystems, and promote aesthetic values within the Existing Community

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Zone.

**Policy 1L4.** To establish and implement management strategies to help protect lake water quality and ecosystem values from the impacts of present and future development for all lakes.

**Objective 1L4a.** Implementation of standards through local development review and Highlands Project Review regarding lake ecosystem and water quality in the Shoreland Protection Tier to address direct and proximate impacts upon the lake, including but not limited to shoreline modification and development (including limits to the hardscaping of shorelines using bulkheads, rip-rap and walls), docks, piers, boathouses, dredging, vegetation removal, and increased impervious cover. Pollutant discharges shall also be addressed, including the potential for contamination from septic systems, cesspools and other wastewater management systems within the tier that are failing or are inadequately designed and constructed. As such systems fail, landowners should be required to provide upgraded treatment (whether on-site or through public or community systems) to minimize pollutant movement to the lake. Standards for the Lake Community Sub-Zone and for the Protection and Conservation Zones may be distinct to the extent necessary to recognize the existence of significant development within the Lake Community Sub-Zone.

**Objective 1L4b.** Implementation of standards through local development review and Highlands Project Review regarding land use compatibility and water quality in the Water Quality Management Tier, to prevent or minimize continuous pollutant sources that can contribute pollutants overland or through ground water to the lake from greater distances than the Shoreland Protection Tier.

**Objective 1L4c.** Implementation of standards through local development review and Highlands Project Review regarding the protection of visual and scenic resources in the Scenic Resources Tier, including but not limited to requirements for vegetative screening of buildings, building height limitations, and limits on tree and understory removal for reasons other than public health and safety or as the minimum necessary to make reasonable use of the designated building envelope for the parcel proposed for development. Standards for the Lake Community Sub-Zone and for the Protection and Conservation Zones may be distinct to the extent necessary to recognize the existence of significant development within the Lake Community Sub-Zone.

**Objective 1L4d.** Implementation of lake restoration plans to restore, protect and, where possible, enhance lake water quality through management of pollutant sources in the Lake Watershed Tier, including but not limited to the development, adoption and implementation of TMDLs by NJDEP pursuant to the Water Quality Management Planning Rules, N.J.A.C. 7:15. On-going coordination will be undertaken with the Greenwood Lake and Lake Hopatcong Commissions as well as individual lake associations, as appropriate, regarding lake management issues.

**Policy 1L5.** To require that conforming municipalities adopt and implement for all lakes the standards applicable to the Shoreland Protection and Water Quality Management Tiers; the standards applicable to the scenic resources tier shall be adopted and implemented for all public lakes (i.e., with shorelines that are not

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entirely privately-held and managed through a lake association), and for privately-held lakes to the extent feasible under law, recognizing the existence of previously approved lake community development plans.

**Objective 1L5a.** Shoreland Protection and Water Quality Management Tier requirements shall apply to all new development, regardless of lake ownership.

**Objective 1L5b.** Scenic Resource Tier requirements shall apply to all lakes with public access and to lakes with no public access that are not entirely managed by a single homeowner or lake community association. For lakes that are privately-held and managed by a single homeowner or lake community association, the scenic resource tier requirements shall be voluntary.

**Policy 1L6.** To require that conforming municipalities develop and adopt lake restoration plans, with sufficient input from lake community residents and landowners, for each of the municipality's developed lakes that has been identified as water quality impaired, to include watershed delineation, description of point and nonpoint sources of pollution in the watershed, lake monitoring schedules, existing and proposed in-lake management techniques, and recommended watershed best management practices. TMDLs adopted by the NJDEP to address known pollution problems may be used as lake restoration plans. For lakes that are privately-held and managed by a single homeowners or lake community association, the municipality may require that the association share in or assume the costs of developing such plans.

**Objective 1L6a.** Provide Lake Management Plan guidance to municipalities that includes watershed delineation mapping methodology, point and nonpoint source pollution references, example lake monitoring schedule with monitoring goals and methods, existing successful in-lake management techniques, and best management practices.

**Objective 1L6b.** Septic systems and cesspools on small lots in close proximity to lakes shall be replaced with upgraded individual treatment systems, communal septic systems or community-based wastewater systems wherever feasible and cost-effective, with the selection of replacement technology to ensure minimal secondary impacts, including potential reductions in net water availability, maximum environmental benefit, and financial viability. Community-based systems should not provide for additional land development capacity except for exempt lots within that existing lake community that are not environmentally constrained, or for areas that are otherwise permitted to have wastewater service under the goals, policies and objectives in Part 2, Subpart d, Sustainable Development and Water Resources.

**Policy 1M1.** To provide guidance regarding evaluation of and standards for lake character and aesthetics that shall be adopted by municipal ordinance for application to public lakes, or that may be voluntarily adopted by privately-owned lake communities within their by-laws and regulations.

**Policy 1M2.** To encourage increased public access to publicly-owned lakes, within the lake's carrying capacity and while maintaining the lake character.

**Policy 1M3.** To discourage or control teardowns that result in altered lake community character, and the potential loss of historic and cultural values, and to

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encourage community-supported limitations in lot coverage and building height for new construction.

**Policy 1M4.** To establish and implement performance and development standards through local development review and Highlands Project Review for shoreline uses which achieve compatibility among shoreline activities and nearby neighborhoods.

**Policy 1M5.** To encourage municipalities to utilize recreational sites as opportunities to educate the public to the ecological value of lake environs.

**Policy 1M6.** To encourage municipalities to explore appropriate means to provide public recreation at the shoreline and on the water while ensuring retention of opportunities for passive recreation (e.g., natural areas, open space).

**Policy 1N1.** To develop innovative financing and administrative mechanisms for the maintenance and operation of public and private dams and lakes, where those dams and lakes provide a continuing public or private purpose.

**Policy 1N2.** To restore appropriate habitats in the lake beds and to prevent, mitigate or restore downstream habitats from damages due to lake drainage, when dams are allowed to fail or are deliberately breached or removed.

**Shoreland Protection  
Tier**

The Highlands Council will establish standards regarding lake ecosystem and water quality in the shoreland protection tier to address direct and proximate impacts upon the lake. Such standards include, but are not limited to, the following:

1. Alteration of the shorelines shall be limited to the minimum disturbance necessary to provide for water dependent recreational uses such as beaches, docks and boat houses, generally limited to 10% or 25 feet of the shoreline of any parcel proposed for development, but subject to modification in the Lake Community Sub-Zone, to limitations more appropriate to specific lakes
2. Where shorelines have already been hardscaped with bulkheads, rip-rap, or walls in the Lake Community Sub-Zone, encourage the creation of a vegetated filter strip along the shoreline to attenuate stormwater flow and minimize the potential for shoreline erosion
3. Where there is little or no wave action, reeds and other wetland species that are below the high water mark shall be preserved or restored. In the Lake Community Sub-Zone, permit and encourage the control and where necessary removal of algae and non-native invasive aquatic weeds that cause nuisance conditions for lake users.
4. Existing shoreland vegetation within 50 feet of the shoreline shall be protected and preserved except for a minimum area permitted, established through municipal development regulations, for water dependent recreational facilities. Limitations should be more stringent for the first 25 feet. Restoration of native vegetation shall be required where development is proposed on property with existing disturbed areas within 25 feet of the shoreline.
5. No new structure other than water dependent recreational facilities shall be constructed within fifty (50) feet of the shoreline;
6. In all zones, the width and length of piers and docks shall be controlled in

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municipal development regulations to achieve the minimum disturbance of shoreline, shoreline vegetation and wetlands vegetation possible with due consideration to safety, including provisions for piers and docks held in common to reduce the total number of new docks and piers.

7. Boat lifts, where used in any zone, shall be encouraged as a means of providing more light to the waters below and shall elevate boats a minimum of one foot above high water.

Development adjacent to Highlands lakes, which are Highlands Open Waters, shall include a protection buffer of 300 feet from the edge of the Highlands Open Water feature, or a lesser buffer if allowed based on RMP policies (see GOAL 1 D), and all development shall comply with buffer standards which provide for the protection of Highlands Open Waters. Structures or other land improvements existing within a protection buffer before August 10, 2004 may remain, provided that the area of disturbance is not increased other than through Highlands Act exemptions or waivers.

**Water Quality  
Management Tier**

The Highlands Council will establish standards regarding land use compatibility and water quality in the water quality management tier to prevent or reduce continuous pollutant sources that can contribute pollutants overland or through ground water to the lake from greater distances than the shoreland protection tier. Such standards include, but are not limited to, the following:

1. All parcels of land proposed for development shall be improved with landscape or garden elements which retain storm water
2. Require for all new development (and encourage for existing development in the Lake Community Sub-Zone), that runoff from roofs, driveways and patios shall be directed into landscape or garden elements which retain and filter storm water, or to infiltration practices
3. Green roofs are strongly encouraged in all zones to clean and slow the release of storm water
4. To the extent possible, impervious surfaces in all zones should drain away from the shoreline
5. Stormwater should be directed to a stormwater management train that cleans and reduces the rate of runoff to the maximum extent possible in all zones
6. To the maximum extent practicable in all zones the stormwater management train should maximize the use of swales with natural vegetation or constructed wetlands and discharge through a constructed wetland or other channel that maximizes aeration and cleaning of the water
7. Stormwater improvements shall be designed in accordance with NJDEP regulations at N.J.A.C. 7:8 or the municipal stormwater management ordinance or regional stormwater management plan adopted as part of an Areawide Water Quality Management Plan where more stringent
8. Where sufficient land is available in all zones, natural swales, constructed wetlands, and other stormwater facilities shall be used
9. To the extent possible in all zones, landscape or garden elements which retain storm water shall be designed so that during larger storms, the water is released primarily through overland sheet flow across a vegetated, naturally landscaped area
10. The discharge of stormwater shall, wherever feasible in all zones, be through

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sheet flow which may require the construction of an outlet that disperses the water over a substantial distance at a constant elevation so that water sheet flows over the top

11. Septic systems for new development within the Lake Management Area must comply with the septic system density requirements, for the particular Land Use Capability Zone, with septic systems no closer to the lake than the Highlands Open Water Buffer or 150 feet, whichever is greater; clustering shall be permitted where it results in a greater buffer between the lake and the septic systems than would be feasible without clustering
12. In the Lake Community Sub-Zone, require that septic systems and cesspools on small lots in close proximity to lakes, be replaced with upgraded individual treatment systems, communal septic systems, or community-based wastewater systems wherever feasible and cost-effective, with the selection of replacement technology to ensure minimal secondary environmental impacts, maximum environmental benefit, and financial viability
13. Where the existing density of septic systems within a Lake Community Sub-Zone is known or strongly suspected to be a significant contributor of lake pollutants, community wastewater treatments shall service parcels of lands within the Lake Community Sub-Zone wherever feasible in order to eliminate pollution of lakes by discharges from septic systems. Community-based systems should not provide for additional land development capacity except for exempt lots within that existing lake community that are not environmentally constrained, or for areas that are otherwise permitted to have wastewater service. The systems must be designed to minimize secondary environmental impacts, including potential reductions in net water availability.

The Highlands Council will work with other State agencies and counties to create a Highlands Storm Water Management Improvement Program comprised of:

1. A grant program in support of studies of existing stormwater systems by Highlands communities with regard to existing capacity
2. A Bibliography of stormwater management literature related to retrofitting stormwater management systems to reduce runoff and improve the quality of runoff. The Bibliography shall include information with regard to the use of landscape installation and maintenance to reduce pollutants.
3. A Highlands Council awards program in conjunction with Highlands municipalities to encourage land owners to participate in stormwater system remediation.

**Scenic Resources Tier**

The Highlands Council will establish standards regarding the protection of visual and scenic resources in the Scenic Resources Tier from development or redevelopment (including redevelopment within the Lake Community Sub-Zone) that include, but are not limited to, the following:

1. Building heights should be limited so that the top of a building does not exceed thirty-five (35) feet except in Designated Centers where a greater height is in keeping with existing community design
2. All buildings shall be screened from view from lake by trees and other natural plant material
3. The exteriors of all new or redeveloped buildings shall be finished with

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materials which are compatible with a natural or historical character of the Highlands Region

4. New buildings shall be prohibited within areas which are Severely Constrained Slopes and Moderately Constrained Slopes
5. Clearing of trees should be limited to the minimum area needed for the footprint of a building
6. Outdoor lighting should be provided by cut-off fixtures and be directed away from the shoreline

**Implementation of Lake Restoration Plans**

The Highlands Council will encourage municipalities in the Lake Management Area to implement lake restoration plans to restore, protect and, where possible, enhance lake water quality through management of pollutant sources in the lake watershed (see also the *Water Quality Restoration Program*). The plan shall be developed with sufficient input from lake community associations and individual residents. TMDLs adopted by the NJDEP to address known pollution problems may be used as lake restoration plans. The restoration plan will include, but not be limited to the following elements:

1. Delineation of the lake's watershed
2. Description of point and nonpoint pollution sources in the watershed
3. Lake monitoring schedules
4. In-lake management techniques
5. TMDLs adopted by the NJDEP to address known pollution problems

**Lake and Dam Management**

The Highlands Council will implement measures to encourage the maintenance of public and private lakes and the restoration of lake beds and downstream areas when lakes are drained. Such measures may include, but are not limited, to the following:

1. Creation of Highlands Financing and Administrative Handbook for dam and lake maintenance and operation addressing creative public and private financing programs as appropriate for the lake or dam ownership.
2. Preparation of a Best Practices Manual for dam and lake maintenance
3. Preparation of a Best Practices Manual for dam removal, including the protection of downstream resources from the migration of sediments and other pollutants, and the establishment of stable terrestrial or wetland ecosystems in former lake beds
4. Provision of grants in aid to establish demonstration model dam and lake programs for publicly owned dams

**Education and Awards Program**

The Highlands Council will develop a Lakes Landscape Handbook and awards program for waterfront restoration and environmentally friendly landscaping.

In both the 300-foot and 1,000-foot tiers, landscaping and yard maintenance can make a contribution to improving lake quality. The handbook will focus on how-to material for landowners to illustrate how they can replace lawns and restore beach areas to a natural condition that is attractive and enhances the property value. Having an awards program that recognizes environmentally sensitive restoration will be an incentive for people to undertake these projects and advertise for the program.

The Highlands Council will coordinate with NJDEP, the landscape professional and hardware and garden centers to promote the use of fertilizers for lawn usage

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that do not contain phosphorous. Ideally, the sellers will not carry the lawn products that contain phosphorous, thus making unwitting usage very difficult. These sellers can also promote wise waterfront landscaping and maintenance.