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**DRAFT – FOR CONSIDERATION AT THE NOVEMBER 8, 2007
MEETING OF THE HIGHLANDS COUNCIL**

RMP Program: Water Quality Restoration
Version: November 7, 2007

<p>Issue Overview</p>	<p>Water quality affects drinking water, recreation, ecosystems, and aesthetic beauty. The most common parameters that affect surface and ground water quality are fecal coliform bacteria, phosphorus, temperature, arsenic, and nitrate-nitrogen. These contaminants can either cause health risks if ingested or harm native biota, resulting in non-attainment of designated water uses for the waterbody. Other pollutants also exist, including industrial contaminants in ground water.</p> <p>Water quality is influenced by the type and intensity of land use adjacent to and upstream of the waterbody. Pollutants are contributed to the environment from a wide variety of nonpoint sources (NPS) including human development (through stormwater and residential runoff, septic systems, fertilizer applications on lawns and Brownfields or contaminated sites), domestic or captive animals, agricultural practices (crop farming, livestock, and manure applications), and wildlife (large populations). Pollutants from these sources can reach waterbodies directly, through overland runoff, or through stormwater conveyance facilities. Point sources also exist, primarily wastewater treatment plants serving communities or industrial facilities. Each potential source will respond to one or more management strategies designed to eliminate or reduce that source of pollution. Each management strategy has one or more entities that can take lead responsibility to effect the strategy. Various funding sources are available to assist in accomplishing the management strategies. The Highlands Council in coordination with the New Jersey Department of Environmental Protection (NJDEP) will address the sources of impairment through systematic source track-down, remedial activities, matching strategies with sources, selecting responsible entities and aligning available resources to effect implementation.</p> <p>The Highlands Act calls for the protection, enhancement, and restoration of the Region’s waters. Water quality in the Highlands Region, where polluted,</p>
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	<p>must be restored to meet water quality standards, support designated uses, and support ecosystem needs. Where water quality is better than standards, protection is needed to ensure that antidegradation policies are met. Enhancement will be desirable at all times, through improved land management practices and other measures. Therefore, several RMP policies and objectives focus on water quality in the Region.</p>
<p>RMP Policies and Objectives Addressed</p>	<p>Policy 2.3.1.1. To identify surface and ground water resources currently impaired or at risk of impairment, and in need of protection, restoration, and enhancement</p> <p>Policy 2.3.1.2 .To coordinate with NJDEP regarding a unified water quality assessment and the development and implementation of Total Maximum Daily Loads, where necessary, for all surface water within the Highlands Region.</p> <p>Policy 2.3.1.3. To coordinate with NJDEP regarding a unified ground water quality assessment, monitoring and attainment program.</p> <p>Policy 2.3.1.4. To coordinate with NJDEP regarding efforts to monitor areas of known contamination to ground water resources within the Highlands Region and activities to remediate and restore water quality</p> <p>Policy 2.3.1.5. To coordinate with NJDEP and other agencies to identify impairments and implement improved regulatory actions and management practices that will also support the water quality goals of the Highlands Act.</p> <p>Policy 2.3.1.6. To remediate the pollutant sources associated with existing or historic land uses in conjunction with redevelopment</p> <p>Policy 2.3.2.4. To determine where water quality improvements are necessary or beneficial for the improvements of water availability, develop watershed- based plans to achieve such improvements such as restoration techniques including disconnection and reduction of existing impervious surfaces, develop implementation mechanisms, and implement these plans</p> <p>Policy 2.4.4.3. To prepare and maintain an inventory of areas where existing ground water or surface water quality is impaired to such a degree that any increase in nitrate concentration would have an adverse impact on water quality</p>
<p>Program Summary</p>	<p>The RMP states the requirement to protect, restore, and enhance water in the Highlands Region. 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 and a consistent and reliable assessment and characterization of the water quality in the Region is imperative in order to implement management strategies in appropriate areas.</p> <p>This program will address these problems and provide guidance to restore degraded water quality. 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.</p>
<p>Water Quality Assessment</p>	<p>Program Description</p> <p>Since water quality is a concern throughout the Highlands Region, a consistent and reliable assessment and characterization of the water quality is</p>

	<p>imperative in order to implement management strategies in the corresponding area. The Highlands Council will coordinate efforts with the NJDEP:</p> <ul style="list-style-type: none"> • to inventory where surface water quality is impaired, and to list such waters on the NJDEP impaired water bodies (303d) list • to inventory areas where ground quality is impaired by nitrates • to improve water quality monitoring program areas for ground and surface water resources within the Highlands Region • to coordinate efforts with the NJDEP and the U.S. Geological Survey to operate and improve the Ambient Stream Monitoring Network to assess the effectiveness of management measures • to provide lake characterization and assessment reports • to gain a full understanding of NPS pollution in the Highlands Region • to inventory and track contaminated sites in the Highlands Region <p>These efforts will evaluate potential sources causing impairment and help track trends in water quality to see if the implementation of management strategies is working properly.</p>
<i>TMDLs</i>	<p>Program Description</p> <p>The Highlands Council will coordinate efforts with NJDEP regarding the development and implementation of Total Maximum Daily Loads (TMDLs), where necessary, for surface waters in the Highlands Region. The adoption of TMDLs is a responsibility of NJDEP, to identify the reduction in pollutant loads to impaired surface waters necessary to meet surface water quality standards. NJDEP is also directly responsible for modifying wastewater discharge permits for point sources as necessary to implement the TMDLs. The Highlands Council will work with NJDEP to incorporate appropriate management measures into the Regional Management Plan for TMDL implementation, potentially including:</p> <ul style="list-style-type: none"> • Restrictions on new land uses regarding pollutant loadings • Improved stormwater management requirements for new land uses • Improved programs for reduction of pollutant loadings from existing land uses
<i>Watershed Restoration Plans</i>	<p>Watershed Restoration Plans are used to develop and implement improved regulatory actions and management practices that will support the water quality goals of the Highlands Act and the Water Pollution Control Act. They often are used to identify more detailed management approaches for TMDL implementation, but can address additional issues such as stream and riparian area restoration, water quality enhancement and water quality protection. The Highlands Council will identify key HUC14 subwatersheds in the Highlands Region and either directly or in cooperation with other affected interests to develop Watershed Restoration Plans for approval by NJDEP and incorporation, as appropriate, into the Regional Master Plan or its programs. Approval of Watershed Restoration Plans by NJDEP makes the implementation projects eligible for State and federal funding.</p>
<i>Ground Water</i>	<p>Areas of historic development on septic systems and agricultural use may</p>

<p>Restoration Plans</p>	<p>have ground water contamination levels that greatly exceed the regional norm. The Highlands Council will work with NJDEP and USGS to identify these areas based on direct monitoring or models, as appropriate, and develop management approaches to address these issues. The management plans will be similar in concept to TMDLs or Watershed Restoration Plans. For areas of very dense septic systems, where the potential for well contamination is greatly elevated, primary emphasis will be on the protection of public health through the installation of public water supplies, community wastewater systems, or both. For areas of intensive agricultural use, the emphasis will be on programs described below, plus protection of the farmstead wells from health threats.</p>
<p>Implementation of Water Quality Restoration Projects: Agricultural Best Management Practices</p>	<p>Program Description Many programs are available to assist farmers in the development and implementation of resource and farm conservation management plans, including identification and management of any known nonpoint source pollution. The best means to reduce nonpoint source pollution is to implement best management practices (BMPs), such as low phosphorus fertilizer application, nutrient management systems, integrated crop management, grazing systems, organic farming, etc. The Highlands Council will coordinate its efforts with existing assistance programs of farm preservation and other approaches to reduce pollutant loads from agricultural operations and prioritize for EQIP, CRP, and CREP funds to install agricultural BMPs. In addition, programs such as Farm-A-Syst will be evaluated to help farmers protect their own families from farm-related contamination problems.</p> <p>For more information refer to the <i>Agricultural Management and Sustainability Program</i>.</p>
<p>Implementation of Water Quality Restoration Projects: Stormwater Management Plans</p>	<p>Program Description Municipalities are already required to implement certain actions, including the adoption of stormwater management plans and ordinances and the implementation of management practices for municipal stormwater systems and facilities. The Highlands Council will:</p> <ul style="list-style-type: none"> • coordinate with counties, municipalities and other interests to develop and implement Regional Stormwater Management Plans in high priority HUC14 subwatersheds. These plans, where adopted by NJDEP, become part of each municipality's stormwater permit; • review Residential Site Improvement Standards for stormwater and determine whether improvements are necessary to better protect Highlands resources, and then coordinate with the Site Improvement Advisory Board for approval of those changes for municipal use; • coordinate with appropriate interests to develop and implement Nonpoint Source (NPS) Management Measures and Control Projects including the implementation of retrofitted stormwater devices to collect and filter NPS pollutants such as: retrofitted stormwater drains, detention basins, swales, the installation of cross-sectional catch basins to reduce NPS pollutants prior to entering a waterbody, inspection,

	<p>regularly scheduled stormwater basin cleanout and maintenance, storm sewer inlet cleanouts, street sweeping programs, and rehabilitation;</p> <ul style="list-style-type: none"> • identify alternative means of stormwater management that are more appropriate to rural and forested areas of the Highlands, potentially including use of stormwater wetlands, land spreading and other non-structural techniques to reduce fecal coliform and Total Suspended Solids (TSS) input.
<p>Implementation of Water Quality Restoration Projects: Streambank and Riparian Restoration</p>	<p>Program Description Streambank restoration and stabilization projects provide a reduction of sediment loads and nutrients entering a waterbody. These projects include riparian buffer restoration as well since they reduce and filter pollutant loads before entering a waterbody. Projects may involve dam removals, lake maintenance, riparian buffer and forest transition zone enhancement, restoring stream channels, restoring habitat to a more natural, native vegetated environment, and restoring wetlands and floodplains. Restoration projects such as reconnecting the natural drainages and improving the outfall channel connection reduces sediments and stream velocity thus restoring the natural hydrology and enhancing fish and wildlife populations.</p> <p>For more information refer to the <i>Streams/ Riparian Restoration Program</i>.</p>
<p>Education/ Outreach</p>	<p>Program Description Educating the public, farmers, landowners and municipalities with outreach programs is important for the success of water quality improvements. Educational programs may cover:</p> <ul style="list-style-type: none"> • addressing NPS pollution and implementation of an educational outreach program that encourages municipal officials and residents to protect their water resources and participate in water management activities to reduce the amount of NPS pollution entering the surface and ground water • developing an education program about low phosphorus fertilizers and soil testing for lawn applications • educating the agricultural community and working with farmers to protect water quality through the adoption of sustainable farming and grazing practices, nutrient and pest management, and supporting organic operations and a transition to organic operations, enrolling into Integrated Crop Management, and fertilizer chemical reductions (see the <i>Agricultural Management and Sustainability Program</i>) • public education on the benefits of native aquatic vegetation in shallow lakes and the balance of aquatic life uses with recreational uses of a lake • Highlands Council guidance manual for water quality restoration for use by municipalities and homeowners, include BMPs and other land management activities that will address water quality concerns.
<p>Implementation of Water Quality Restoration Projects:</p>	<p>Program Description Excessive deer populations, in addition to their habitat destruction, have been identified as a potential source of pollution in impaired watersheds. The forested and low-density residential areas that provide deer habitat</p>

Wildlife	<p>often can be found in close proximity to the impaired stream segments. Deer have been evaluated in TMDL reports by other states (e.g. Alabama and South Carolina) and could be a source of pollution in New Jersey. Their browsing of understory plants can change stormwater runoff potential in woodlands. Management measures to reduce pollution contributed by wildlife are not generally practicable, but could respond to measure such as improved riparian buffers, no feed ordinances, and signage. Other wildlife species, such as beavers or raccoons, have been identified as causing long-term damages if populations are excessive. Management may be necessary where the excessive populations are long-term, rather than episodic.</p>
<p><i>Implementation of Water Quality Restoration Projects</i> Septic System Management</p>	<p>Program Description Where septic system service areas are located in close proximity to impaired waterbodies, septic surveys should be undertaken to determine if there are improper effluent disposal practices that need to be corrected. Septic system management programs should be implemented in municipalities with septic system service areas to ensure proper design, installation and maintenance of septic systems. The Highlands Council will use GIS data to identify areas with concentrations of septic systems near water bodies, and will coordinate with municipal and county Boards of Health regarding surveys and management programs.</p> <p>For more information refer to the <i>Wastewater System Maintenance Program</i>.</p>
<p><i>Implementation of Water Quality Restoration Projects</i> Contaminated Site Remediation</p>	<p>Program Description To protect water resources from contaminated sites, the Highlands Act requires a coordinated implementation of all remediation standards and remedial actions. The NJDEP's Technical Requirements for Site Remediation at N.J.A.C. 7:26E, et seq. are the current State standards for the clean up of contaminated sites. The Council through interagency coordination and project review activities will evaluate and assess the need for protecting Highlands Resources through enhanced standards and practices in support of remedial actions, restoration and redevelopment. The clean up of contaminated properties in support of Highlands resource protection needs is a long term goal for the Council. This program component supports many of the RMP polices that are designed to ensure that restoration and redevelopment of these sites complement RMP goals and initiatives.</p>