

**DRAFT - FOR CONSIDERATION AT THE MAY 1, 2008  
MEETING OF THE HIGHLANDS COUNCIL**

**Subpart d. Sustainable Development and Water Resources**

The Highlands Regional Master Plan includes a variety of measures to ensure that future development is at densities necessary to remain within the carrying capacity of water resources for both quality and quantity, and to ensure that water supply and wastewater utility capacities are made available in ways that provide maximum regional benefit within the constraints of water availability and water quality protection, and are used in ways that provide cost-effective and efficient service.

<b>GOAL 2I</b>	<b>LIMITATION OF THE EXPANSION OF WATER AND WASTEWATER INFRASTRUCTURE IN THE PRESERVATION AREA.</b>
<b>Policy 2I1</b>	To ensure compliance with the statutory revocation of designated sewer service areas unless the wastewater collection systems had been installed by August 10, 2004, and unless extensions are warranted to address documented threats to public health and safety or are exempt from the Highlands Act.
<b>Policy 2I2</b>	To identify water and wastewater infrastructure necessary for appropriate and environmentally-sensitive redevelopment of Highlands Redevelopment Areas in the Preservation Area.
<b>GOAL 2J</b>	<b>ALL EXISTING AND FUTURE DEVELOPMENT IN THE HIGHLANDS REGION THAT USE PUBLIC WATER SUPPLY SYSTEMS ARE SERVED BY ADEQUATE AND APPROPRIATE INFRASTRUCTURE.</b>
<b>Policy 2J1</b>	To establish and maintain an inventory of Highlands Public Community Water System infrastructure, including developed parcels with current connections to existing utility service areas.
<b>Objective 2J1a</b>	The development and maintenance of an inventory of Existing Areas Served.
<b>Objective 2J1b</b>	The development and maintenance of an inventory of the service areas and capacity of Highlands Public Community Water Supply Systems.
<b>Objective 2J1c</b>	The development of an estimate of Available Water Supply Capacity for each Highlands Public Community Water Supply System.
<b>Objective 2J1d</b>	The identification of remaining available water supply system capacity to support regional growth opportunities within the Highlands Region.
<b>Policy 2J2</b>	To ensure, through Plan Conformance and Highlands Project Review, that the service areas, water allocation permits and bulk water purchases of Highlands Public Community Water Systems shall be limited such that the maximum monthly demand shall not exceed or contribute to an exceedance of the water availability of its source waters.
<b>Policy 2J3</b>	To identify potential opportunities for public water systems where domestic water supplies have been documented as a threat to public health due to source contamination.

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<b>Policy 2J4</b>	To minimize, through Plan Conformance, local development review and Highlands Project Review, the extension of public water supply systems within the Protection Zone and the Conservation Zone for the protection of water resources.
<b>Objective 2J4a</b>	Prohibit new, expanded or extended public water systems unless they are shown to be necessary for and are approved by the Highlands Council to address documented threat to public health and safety where no alternative is feasible, to serve a designated Highlands Redevelopment Area, or cluster development, or to provide for minimum practical use in the absence of any alternative through issuance of a waiver by NJDEP or the Highlands Council, and will maximize the protection of sensitive environmental resources.
<b>Objective 2J4b</b>	Accommodate compact development served by existing or proposed public water systems only where such development is within or immediately adjacent to an existing service area and provides for the clustering or aggregation of development that will preserve at least 80 percent of the project area in perpetuity for environmental protection or agriculture purposes and the development impacts are otherwise consistent with the goals and requirements of the Plan. Where agricultural purposes are involved, increased impervious surfaces of greater than 3% but less than 9% of the agricultural lands requires the approval of a Farm Conservation Plan from the USDA Natural Resource Conservation Service and impervious surfaces of 9% or greater requires the approval of a Resource Management System Plan from the USDA Natural Resource Conservation Service.
<b>Objective 2J4c</b>	All development in areas which are not served by public water systems shall be at a density which can be supported by on-site domestic wells.
<b>Policy 2J5</b>	To allocate available water supply in the Existing Community Zone to provide for the maximum direct and indirect protection of water resources in the Highlands Region.
<b>Objective 2J5a</b>	The highest priority for the allocation of available utility capacity in Existing Community Zones shall be given to areas of regional growth opportunities that constitute designated Receiving Zones.
<b>Objective 2J5b</b>	Develop a comprehensive data base of water utilities that are dependent on Current Water Availability Deficit Areas or Existing Water Availability Constrained Areas as a source of water, with estimates of the extent to which service area demands and water allocation permits may exceed available water.
<b>Objective 2J5c</b>	Limit future water system demand and/or reducing existing demand by water systems that are dependent on Current Water Availability Deficit Areas or Existing Water Availability Constrained Areas as a source of water.
<b>Objective 2J5d</b>	Limit future water system demands to levels that will not cause a Current Water Availability Deficit where one does not currently exist.
<b>Policy 2J6</b>	To prohibit, through local development review and Highlands Project Review, new or increased water resource transfers between subwatersheds unless it is demonstrated that no other option exists to meet public health, safety and welfare objectives and where such transfers do not result in impairment of resources in the subwatershed from which water is proposed to be transferred.
<b>Policy 2J7</b>	To encourage water recycling/reuse measures, such as domestic and institutional gray water systems, where appropriate, to minimize water use in existing land uses.

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<b>Policy 2J8</b>	To require water resource management for all development in the Highlands Region, through local development review and Highlands Project Review.
<b>Objective 2J8a</b>	Require the maximum feasible water conservation and recycling for any redevelopment or development activity, including renovations to existing single family residences and commercial/industrial buildings.
<b>Objective 2J8b</b>	Require consideration of and the cost-effective use of recycled or re-used water rather than potable public water for non-potable purposes such as fountains, nonessential uses such as golf courses, certain recreational, commercial, or agricultural uses.
<b>Objective 2J8c</b>	Require that new residential development served by public community water systems be at a minimum density of 1/2 acre per dwelling unit for the developed part of the site (i.e., not including wetlands, open water buffers, recreational space), to ensure cost-effective utility service.
<b>Objective 2J8c</b>	Require that new non-residential development served by public wastewater collection and treatment systems be designed to target a floor area ratio (FAR) of 0.84 for the developed part of the site (i.e., not including wetlands, open water buffers, recreational space) to the maximum extent feasible, as a means to maximize parking and employment efficiency and compact development.
<b>Policy 2J9</b>	To ensure continued refinement and development of the Regional Master Plan.
<b>Objective 2J9a</b>	Implement a coordinated program with NJDEP to track ground water and surface water withdrawals and water allocations within the Highlands Region to maintain current estimates of net utility capacity and to fill critical missing data gaps.
<b>Objective 2J9b</b>	Coordinate with NJDEP, water purveyors and water utilities to ensure that service areas and franchise areas are supplied by and consistent with sustainable yields from their designated sources.
<b>Objective 2J9c</b>	Determine where water quality improvements are necessary or beneficial for the improvement of Net Water Availability or protection of existing drinking water supplies, develop watershed-based plans to achieve such improvements, and develop mechanisms to implement these plans
<b>GOAL 2K</b>	<b>ALL EXISTING AND FUTURE DEVELOPMENT IN THE HIGHLANDS REGION THAT USE PUBLIC WASTEWATER TREATMENT SYSTEMS ARE SERVED BY ADEQUATE AND APPROPRIATE INFRASTRUCTURE.</b>
<b>Policy 2K1</b>	To establish and maintain an inventory of Highlands public wastewater management infrastructure, including developed parcels with current connections to existing utility service areas.
<b>Objective 2K1a</b>	The development and maintenance of an inventory of Existing Areas Served.
<b>Objective 2K1b</b>	The development and maintenance of an inventory of the service areas and capacity of Highlands Domestic Sewerage Facilities.
<b>Objective 2K1c</b>	The development of an estimated Available Wastewater Treatment Capacity for each Highlands Domestic Sewer Facility.

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<b>Objective 2K1d</b>	The identification of remaining available wastewater treatment capacity to support regional growth opportunities within the Highlands Region.
<b>Policy 2K2</b>	To base projected demand for appropriate economic revitalization and opportunities for designated Receiving Zones within Existing Areas Served on existing maximum three month demands plus an estimate of redevelopment needs based on either Highlands Council regional analyses or more detailed local analyses, to assess whether there is adequate treatment capacity to encourage redevelopment.
<b>Policy 2K3</b>	To provide new growth and development in the Protection Zone and the Conservation Zone with adequate and appropriate wastewater treatment through Plan Conformance, local development review and Highlands Project Review.
<b>Objective 2K3a</b>	Allocate any available sewer system capacity to address documented threats to public health from failing septic systems on a priority basis.
<b>Objective 2K3b</b>	Prohibit new, expanded, or extended wastewater collection or treatment outside of Existing Areas Served unless they are shown to be necessary for and are approved by the Highlands Council to address documented threat to public health and safety where no alternative is feasible, to serve a Highlands Redevelopment Area, or cluster development, or to provide for minimum practical use in the absence of any alternative through issuance of a waiver by NJDEP or the Highlands Council, and will maximize the protection of sensitive environmental resources.
<b>Objective 2K3c</b>	Expansion of wastewater service shall be permitted in areas where there is a demonstrated threat to public health caused by a pattern of documented failing septic systems located within Existing Areas Served, or adjacent to Existing Areas Served where the failing septic systems cannot reasonably be addressed through rehabilitation or replacement of the existing septic system.
<b>Objective 2K3d</b>	Permit cluster development served by existing or expanded wastewater collection and treatment systems in an Agricultural Resource Area only where such development is within or immediately adjacent to an Existing Areas Served and adequate provision is made for the preservation of at least 80 percent of the project area in perpetuity for environmental protection or agricultural purposes and provided that the proposed development is otherwise consistent with the goals and requirements of the Plan. Where agricultural purposes are involved, increased impervious surfaces of greater than 3% but less than 9% of the agricultural lands requires the approval of a Farm Conservation Plan from the USDA Natural Resource Conservation Service and impervious surfaces of 9% or greater requires the approval of a Resource Management System Plan from the USDA Natural Resource Conservation Service.
<b>Objective 2K3e</b>	Ensure that new growth and development that is not served by public wastewater collection and treatment systems is limited to densities suitable for on-site wastewater treatment.
<b>Objective 2K3f</b>	Cluster development utilizing community-based on-site treatment facilities shall be permitted: (1) where such development is not within an Existing Area Served or adjacent to an Existing Area Served with available capacity, (2) where the system is designed and has capacity only for the cluster development, (3) where the system does not create the potential for future expansion into areas that are not the subject of cluster developments immediately adjacent to the initial cluster served, (4) where adequate provision is made for the preservation of at least 80 percent of the project

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	<p>area in perpetuity for environmental protection or agriculture purposes, (5) where agricultural purposes are involved, increased impervious surfaces of greater than 3% but less than 9% of the agricultural lands requires the approval of a Farm Conservation Plan from the USDA Natural Resource Conservation Service and impervious surfaces of 9% or greater requires the approval of a Resource Management System Plan from the USDA Natural Resource Conservation Service , and (6) provided that the proposed development is otherwise consistent with the goals and requirements of the Plan.</p>
<b>Policy 2K4</b>	<p>To provide new growth and development in the Existing Community Zone with adequate and appropriate wastewater treatment, through Plan Conformance, local development review and Highlands Project Review.</p>
<b>Objective 2K4a</b>	<p>The highest priority for allocation of excess or additional wastewater treatment capacity is to areas where there are clusters of failed septic systems that are located within or adjacent to Existing Areas Served.</p>
<b>Objective 2K4b</b>	<p>The second highest priority for the allocation of excess or additional wastewater treatment capacity is to regional growth and redevelopment areas that can serve as designated Receiving Zones.</p>
<b>Objective 2K4c</b>	<p>Allow the expansion or creation of wastewater collection systems beyond Existing Areas Served to serve lands which are appropriate for infill or redevelopment, or to serve areas if they are shown to be necessary for and are approved by the Highlands Council to address a documented threat to public health and safety where no alternative is feasible, to serve cluster development, or to provide for minimum practical use in the absence of any alternative through issuance of a waiver by NJDEP or the Highlands Council, and will maximize the protection of sensitive environmental resources.</p>
<b>Policy 2K5</b>	<p>To provide adequate, appropriate, efficient and cost-effective wastewater management to all development in the Highlands Region, through Plan Conformance, local development review and Highlands Project Review.</p>
<b>Objective 2K5a</b>	<p>Allow community-based on-site treatment facilities for those areas located outside Existing Areas Served that are shown to be necessary for and are approved by the Highlands Council to address a documented threat to public health and safety due to failing septic systems; these facilities shall only serve existing wastewater and shall not include infrastructure to support future growth.</p>
<b>Objective 2K5b</b>	<p>Prohibit the construction of sewer lines within Tier 1 of Well Head Protection Areas that may result in seepage of untreated sewage into ground water supplies.</p>
<b>Objective 2K5c</b>	<p>Prohibit expansion of a public wastewater collection and treatment systems and community on-site treatment facilities within the Preservation Area except as provided by the Highlands Act and within Open Water buffer areas, Riparian Areas, the forested portion of the Forest Resource Area, agricultural lands of Agricultural Resource Areas, Steep Slopes, and Critical Habitat Areas unless they are shown to be necessary for and are approved by the Highlands Council to address documented threat to public health and safety where no alternative is feasible, cluster development (see Objectives 2K3d and 2K3f), Highlands Redevelopment Areas, or to provide for minimum practical use in the absence of any alternative through issuance of a waiver by NJDEP or the Highlands Council, and will maximize the protection of these sensitive environmental resources.</p>

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<b>Objective 2K5d</b>	Require the use of recycled or re-used water wherever possible including aesthetic purposes and non-potable purposes such as fountains, golf courses, and other recreational, commercial or agricultural uses.
<b>Objective 2K5e</b>	Existing wastewater collection and treatments systems which are non-compliant with state water quality standards for wastewater treatment and effluent discharge shall be prohibited from collecting and treating additional wastewater until the treatment systems are fully compliant with State permit requirements.
<b>Objective 2K5f</b>	Wastewater Management Plan or amendments thereto, or to an Areawide Water Quality Management Plan, shall be consistent with requirements of this Plan.
<b>Policy 2K6</b>	To ensure the efficiency and cost-effectiveness of public wastewater collection and treatment systems, through Plan Conformance, local development review and Highlands Project Review.
<b>Objective 2K6a</b>	Require that new residential development served by public wastewater collection and treatment systems be at a minimum density of 1/2 acre per dwelling unit for the developed part of the site (i.e., not including wetlands, open water buffers, and recreational space) to ensure cost-effective utility service.
<b>Objective 2K6b</b>	Require that new non-residential development served by public wastewater collection and treatment systems be designed to target a floor area ratio (FAR) of 0.84 for the developed part of the site (i.e., not including wetlands, open water buffers, recreational space) to the maximum extent feasible, as a means to maximize parking and employment efficiency and compact development.
<b>GOAL 2L</b>	<b>ENSURE THAT ON-SITE WASTEWATER SYSTEM DISCHARGES DO NOT EXCEED THE NATURAL CAPACITY OF GROUND WATER TO ATTENUATE LOADINGS, EXACERBATE EXISTING NITRATE IMPAIRMENT, OR CONTRIBUTE TO POTENTIAL NITRATE IMPAIRMENT FOR SUBWATERSHEDS OF THE HIGHLANDS REGION.</b>
<b>Policy 2L1</b>	To use nitrate concentrations in ground water as an indicator of water quality, and to use nitrate dilution modeling as the primary method for assessing the carrying capacity of lands for development that relies on septic systems for wastewater treatment.
<b>Objective 2L1a</b>	Determine background median concentrations of nitrate in ground water by HUC14 subwatershed.
<b>Objective 2L1b</b>	Identify the factors affecting the suitability of densities for development that relies on septic systems for wastewater treatment.
<b>Objective 2L1c</b>	Develop appropriate protection measures to minimize contamination of ground water from septic systems.
<b>Objective 2L1d</b>	Develop drought ground water recharge estimates by HUC14 subwatershed for use in the NJDEP nitrate dilution model.
<b>Policy 2L2</b>	To use the median background nitrate concentrations in ground water in the Highlands Region as a basis for establishing on-site wastewater treatment densities through Plan Conformance, local development review and Highlands Project Review.
<b>Objective 2L2a</b>	Use the median concentrations of nitrate in ground water for Planning Area HUC14 subwatersheds where the Protection Zone is predominant as the nitrate target for new

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	development reliant on septic systems within the Protection Zone. The median is 0.72 mg/L.
<b>Objective 2L2b</b>	Use the median concentrations of nitrate in ground water for Planning Area HUC14 subwatersheds where the Conservation Zone is predominant as the nitrate target for new development reliant on septic systems within the Conservation Zone. The median is 1.87 mg/L.
<b>Objective 2L2c</b>	Use the NJDEP Highlands Preservation Area rules and nitrate thresholds for the Preservation Area.
<b>Objective 2L2d</b>	Use a nitrate target of 2 mg/L for the Existing Community Zone within Planning Area, on a project-by-project basis, where new development will rely on septic systems.
<b>Objective 2L2e</b>	New residential development using septic systems where lot-size averaging, clustering or open space subdivision design techniques are employed shall have a gross density (for all parcels involved in the development proposal) based on the nitrate dilution target appropriate for the LUCM Zone, but with the density for the developed portion of the site based on a nitrate dilution target not to exceed 10 mg/L or any more stringent requirement as required by N.J.A.C. 7:15.
<b>Objective 2L2f</b>	Carrying capacity shall be documented through the Land Use Capability Septic System Yield Map as the number of allowable septic systems per Conservation and Protection Zone for each HUC14 subwatershed, taking into account the nitrate target, the HUC14 subwatershed drought ground water recharge, and the acreage that is privately owned, undeveloped or underdeveloped, and not preserved.
<b>Objective 2L2g</b>	<p>Municipalities may choose to include preserved lands in the analysis of septic system yields for the Conservation and Protection Zone as an alternative to the approach in Objective 2L2f if allowed by NJDEP pursuant to the Water Quality Management Planning Rules at N.J.A.C. 7:15 and where: (1) the municipality demonstrates that including the septic system yields from the preserved lands results in a development density and pattern that is not greater than that allowed by existing zoning and is compatible with the pattern of development associated with the affected Zone; and (2) the municipality implements or causes to be implemented (by development applicants benefiting from the increased septic system yields either directly or through contribution to an implementation fund) agricultural management practices that will reduce nitrate loadings to the same HUC14 subwatershed by:</p> <ul style="list-style-type: none"> <li>• at least the same amount as the estimated septic system loadings from the additional density where the HUC14 subwatershed median nitrate concentration is lower than the relevant Conservation or Protection Zone median concentration, or</li> <li>• at least equal to double the estimated septic system loadings from the additional density where the HUC14 subwatershed median nitrate concentration is higher than the relevant Conservation or Protection Zone median concentration.</li> </ul>
<b>Objective 2L2h</b>	New residential development utilizing septic systems shall be designed in a manner that minimizes the risk of well contamination due to the flow of septic system plumes within or between developed lots, addressing general ground water flow patterns, major fracture systems and other appropriate geological, geophysical and hydrogeological issues.
<b>Policy 2L3</b>	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

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	would have an adverse impact on water quality.
<b>Policy 2L4</b>	To establish methods for restoration of ground water quality for subwatersheds where existing ground water is impaired on a subwatershed by subwatershed basis.
<b>Policy 2L5</b>	To establish minimum standards for the placement, design, monitoring and maintenance of septic systems necessary to protect, restore, and enhance ground water quality.
<b>GOAL 2M</b>	<b>REFINEMENT AND IMPROVEMENT OF THE GROUND WATER RESOURCE MANAGEMENT ELEMENT.</b>
<b>Policy 2M1</b>	To monitor and assess nitrate-related impacts to water resources within the Highlands Region.
<b>Policy 2M2</b>	To develop appropriate and innovative resource management programs to protect, restore, and enhance subwatersheds where existing ground water quality is impaired.
<b>Objective 2M2a</b>	Identify innovative technologies that may be appropriate for the design, installation, and maintenance of on-site wastewater treatment systems to minimize impairment to ground water or surface water quality due to elevated nitrate concentrations and other pollutant loads from septic systems provided the systems meet the minimum standards of N.J.A.C 7:9A.