

**DRAFT- FOR CONSIDERATION AT THE MAY 15, 2008  
MEETING OF THE HIGHLANDS COUNCIL**

**Subpart b. Protection of Water Resources Quantity**

The Highlands Regional Master Plan focuses on a variety of measures to protect the replenishment of water resources in the Highlands Region through ground water recharge and other means, to ensure the maintenance of aquatic ecosystems and human water uses. Science agenda items include improvements to the methods for estimating Net Water Availability, safe yields and passing flow requirements, better watershed delineations, and improved tracking of water and wastewater flows across watershed boundaries. The protection of Prime Ground Water Recharge Areas is emphasized, as these areas provide the most productive recharge of waters that are critical for stream flow and water supply wells. Protection is provided for both the quantity and quality of recharge.

<b>GOAL 2C</b>	<b>REFINEMENT OF WATER AVAILABILITY METHODS AND ESTIMATES.</b>
<b>Policy 2C1</b>	To improve estimates of Net Water Availability over time, including testing, development and adoption of ecologically-based assessment techniques to evaluate the high and low flow needs of streams necessary to maintain the health of aquatic ecosystems, and the relationship between ground water recharge, ecological flow needs, consumptive water uses and estimates of water availability for both ground and surface water resources.
<b>Policy 2C2</b>	To evaluate potable water supply reservoir safe yield and passing flow requirements and examine the effects of upstream consumptive and depletive water uses on safe yields and of passing flows on Highlands Open Waters and recommend regulatory changes to NJDEP as appropriate.
<b>Policy 2C3</b>	To develop a more refined Hydrologic Unit Map using Light Detection and Ranging (LiDAR) technology and high resolution digital elevation modeling to support more detailed geographic estimates of water availability.
<b>Policy 2C4</b>	To develop more refined estimates of the effects on Net Water Availability regarding the exportation and importation of water and wastewater.
<b>GOAL 2D</b>	<b>MAINTENANCE OF HYDROLOGIC INTEGRITY THROUGH THE PROTECTION OF GROUND WATER RECHARGE.</b>
<b>Policy 2D1</b>	To map and maintain an inventory of ground water recharge potential for the Highlands Region.
<b>Policy 2D2</b>	To delineate Prime Ground Water Recharge Areas as those lands within a HUC14 subwatershed that have the highest recharge volumes as of the most recent land use/land cover data available, relative to other land areas, and in the aggregate provide 40 percent of total ground water recharge during drought conditions.
<b>Policy 2D3</b>	To protect, enhance and restore the quantity and quality of Prime Ground Water Recharge Areas.
<b>Objective 2D3a</b> (Formerly 2D3a, 2D6a, 2D8b, 2D9)	Establish low impact development and other best management practices, technical guidelines and procedures to protect, restore and enhance Prime Ground Water Recharge Areas, to maximize the protection of natural ground water recharge and to minimize the need for engineered recharge methods for the purpose of

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	complying with N.J.A.C. 7:8 (Stormwater Management Rules).
<b>Objective 2D3b</b> (Formerly 2D11)	Establish model municipal development regulations and master plan elements for the protection of Prime Ground Water Recharge Areas, through mechanisms that both complement and supplement the provisions of N.J.A.C. 7:8 (Stormwater Management Rules)
<b>Objective 2D3c</b>	Implement master plans and development review ordinances through Plan Conformance that protect Prime Ground Water Recharge Areas and minimize the potential for disturbance by development.
<b>Objective 2D3d</b> (Formerly 2D8a, 2D10)	Establish minimum site design guidelines and permissible uses within a Prime Ground Water Recharge Area, including identification of land use categories or other activities posing sufficient risk of contamination that are not allowed within Prime Ground Water Recharge Areas.
<b>Objective 2D3e</b> (Formerly 2D8c)	Identify and implement opportunities for the restoration or enhancement of recharge in Prime Ground Water Recharge Areas and other lands through the retrofit or rehabilitation of stormwater recharge facilities, land management improvements, reforestation, etc.
<b>Objective 2D3f</b> (Formerly 2D8d)	Implement programs for Prime Ground Water Recharge Areas which encourage redevelopment of previously developed areas and allow for other compatible uses that improve recharge area productivity or water quality.
<b>Objective 2D3g</b> (Formerly 2H2c)	Require through Plan Conformance and local health ordinances, that existing land uses that have a significant potential to result in major discharges of pollutants to ground water or to the land surface (including but not limited to non-sanitary wastewater effluent and any major sources of potential discharges such as spills and leaks), such that they may degrade ground water quality within a Prime Ground Water Recharge Area, shall incorporate ongoing management of toxic chemical sources and prohibition of unregulated discharges, so that the potential for ground water contamination is minimized and the opportunity for discharge discovery and control is maximized.
<b>Policy 2D4</b> (Formerly 2D3b, 2D4, 2D5, 2D6, 2D7, 2D8)	To apply standards through Plan Conformance, local development review and Highlands Project Review to protect, restore and enhance the functionality and the water resource value of Prime Ground Water Recharge Areas by restricting development and uses of land within a Prime Ground Water Recharge Area that reduce natural ground water recharge volumes or may directly or indirectly contribute to or result in water quality degradation.
<b>Objective 2D4a</b>	Any development activity approved to occur in a Prime Ground Water Recharge Area shall provide an equivalent of 125% of pre-construction recharge volumes for the disturbed Prime Ground Water Recharge Area of the site within the following areas, in order of priority: (1) the same development site where feasible; (2) the same HUC14 subwatershed, or (3) an interrelated HUC14 subwatershed as approved by the Highlands Council where no feasible option exists in the same HUC14 subwatershed.
<b>Objective 2D4b</b> (Formerly 2D3a)	Require through Plan Conformance, local development review and Highlands Project Review the implementation of low impact development best management practices meeting the requirements of <b>Objective 2D3a</b> .
<b>Objective 2D4c</b>	Prohibit through Plan Conformance, local development review and Highlands

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(Formerly 2D5a, 2D5b, 2D6a, 2D6b)	Project Review the expansion or creation of public water supply systems or public wastewater collection and treatment systems or community-based on-site wastewater facilities into a Prime Ground Water Recharge Area within the Protection or Conservation Zone within the Planning Area except as provided for in <b>Policy 2J4 with Objectives 2J4a through 2J4d, and Policy 2K3 with Objectives 2K3a through 2K3e</b> , and within the Preservation Area except as provided for in <b>Policy 2I1 and Objectives 2I1a and 2I1b</b> . (see attachment for these objectives from the Water Utilities GPOs)
<b>Objective 2D4d</b> (Formerly 2D5a)	Prohibit through Plan Conformance, local development review and Highlands Project Review the expansion of impervious surfaces to greater than 15 percent of the Prime Ground Water Recharge Area for any property within the Protection Zone for any development other than under <b>Objective 2D4c</b>
<b>Objective 2D4e</b> (Formerly 2D6a)	Prohibit through Plan Conformance, local development review and Highlands Project Review the expansion of impervious surfaces to greater than 30 percent of the Prime Ground Water Recharge Area for any property within the Conservation Zone for any development other than under <b>Objective 2D4c</b> .
<b>Objective 2D4f</b> (Formerly 2D7)	Prohibit through Plan Conformance, local development review and Highlands Project Review the expansion of impervious surfaces to greater than 45 percent of the Prime Ground Water Recharge Area in a property within the Existing Community Zone.
<b>Objective 2D4g</b> (Formerly 2H2b)	Prohibit through Plan Conformance, local development review and Highlands Project Review new land uses that have a significant potential to result in the discharge of persistent organic chemicals sources (including but not limited to existing discharges of industrial or other non-sanitary wastewater effluent) to ground water or to the land surface within a Prime Ground Water Recharge Area, such that they may degrade or contribute to the degradation of ground water quality.
<b>Objective 2D4i</b> (Formerly 2D8e)	Require conformance with applicable components of regional stormwater management plans, where applicable, as a mandatory requirement for any site plan application.
<b>Objective 2D4j</b> (Formerly 2D7a)	Achieve a net improvement in ground water recharge volume and maintenance of water quality through compliance with and implementation of any related provisions of an adopted regional stormwater plan.
<b>Objective 2D4k</b> (Formerly 2D7b)	Achieve a net improvement in ground water volume and maintenance of water quality through redevelopment, enhanced infiltration, pretreatment or other means where feasible.

**GOAL 2E**

**IMPROVEMENT OF GROUND WATER RECHARGE THROUGH REGIONAL MANAGEMENT EFFORTS.**

**Policy 2E1**

To develop regional stormwater plans to promote regional protection, restoration and enhancement of ground water recharge volume and quality where specific watersheds are at risk in the absence of regional analysis and enhanced standards (see N.J.A.C. 7:8, Stormwater Management Rules).

**Policy 2E2**

To coordinate programs, funding and activities among public and private entities to encourage regional ground water recharge protection, restoration and enhancement

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activities consistent with the Plan.

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**References for Objective 2D4c**

**Policy 2I1 and Objectives 2I1a and 2I1b**

**Policy 2J4 with Objectives 2J4a through 2J4d**

**Policy 2K3 with Objectives 2K3a through 2K3e**

**Policy 2I1** To prohibit the expansion or creation of public water supply systems, public wastewater collection and treatment systems and community on-site treatment facilities in the Preservation Area unless approved through a Highlands Applicability Determination or a Highlands Preservation Area Approval with waiver pursuant to N.J.A.C. 7:38.

**Objective 2I1a** Designated sewer service areas in the Preservation Area shall be restricted to the Existing Area Served as of August 10, 2004, except to serve development that is approved through a Highlands Applicability Determination or a Highlands Preservation Area Approval with waiver pursuant to N.J.A.C. 7:38.

**Objective 2I1b** The expansion or creation of public water supply systems, public wastewater collection and treatment systems and community on-site treatment facilities in the Preservation Area as approved through a Highlands Preservation Area Approval with waiver pursuant to N.J.A.C. 7:38 shall maximize the protection of sensitive environmental resources including avoidance of Open Water buffer areas, Riparian Areas, the forested portion of the Forest Resource Area, agricultural lands of Agricultural Resource Areas, Steep Slopes, Prime Ground Water Recharge Areas, and Critical Habitat Areas.

**Policy 2J4** To minimize, through Plan Conformance, local development review and Highlands Project Review, the creation or extension of public water supply systems within the Protection Zone, the Conservation Zone and the Environmentally-Constrained Sub-zones of the Planning Area, and to allow for the creation or extension of public water supply systems where appropriate within the Existing Community Zone.

**Objective 2J4a** Prohibit new, expanded or extended public water systems within the Protection Zone, the Conservation Zone and the Environmentally-Constrained Sub-zones of the Planning Area unless they are shown to be necessary for and are approved by the Highlands Council for one or more of the purposes listed below. For approvals regarding parts 1, 2 and 4, the project must maximize the protection of sensitive environmental resources such as Open Water buffer areas, Riparian Areas, the forested portion of the Forest Resource Area, agricultural lands of Agricultural Resource Areas, Steep Slopes, Prime Ground Water Recharge Areas and Critical Habitat Areas. For approvals regarding part 3, the project must avoid disturbance of Open Water buffer areas, Riparian Areas, Steep Slopes and Critical Habitat Areas, and must minimize disturbance of the forested portion of the Forest Resource Area, agricultural lands of Agricultural Resource Areas, and Prime Ground Water Recharge Areas. The extension or creation of systems shall follow the requirements in Objective 2J4b (parts 2 and 3). The applicable purposes are:

1. to address a documented existing or imminent threat to public health and safety from contaminated domestic and other on-site water supplies that is of sufficient scale to justify a public water supply and where no alternative is feasible that would sufficiently assure long-term protection of public health and safety. To address other issues of public health and safety. Such needs shall have highest priority for allocation of existing system capacity;
2. to serve a designated Highlands Redevelopment Area;
3. to serve a cluster development that meets all requirements of Objective 2J4b; or
4. to avoid the taking of property without just compensation .

**Objective 2J4b** Clustered development served by public water supply within the Protection Zone, the Conservation Zone and the Environmentally-Constrained Sub-zones of the Planning Area shall be approved only if the following conditions are met:

1. The development impacts are otherwise consistent with the requirements of the RMP, including provisions for mandatory clustering in Agricultural Resource Areas pursuant to Policy 3A6;
2. Extension of an existing public water system will occur only where the cluster development is within

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- or immediately adjacent to an Existing Area Served with available capacity;
3. Creation of a new public water system will occur only where such development is not within or immediately adjacent to an Existing Area Served with available capacity;
  4. The clustered development preserves in perpetuity for environmental protection or agriculture purposes the following portion of the project area:
    - a. If served by septic systems, at least 80 percent;
    - b. If served by a public or community on-site wastewater system, at least 80percent, and to the maximum extent feasible the developed portion of the project area(i.e. not including wetlands, open water buffers, recreational lands) is no more than 10 percent
  5. Where the preserved land in the cluster project area is preserved for agricultural purposes, the cluster development ordinance and an Agriculture Retention/Farmland Preservation Plan requires continued agricultural viability of the agricultural land and the implementation of best management practices, including development and implementation of a USDA Natural Resource Conservation Service Farm Conservation Plan focused on protection of water resources.

**Objective 2J4c** Allow the expansion or creation of public water systems within the Existing Community Zone of the Planning Area, other than the Environmentally-Constrained Sub-zone, to serve lands which are appropriate for designated TDR Receiving Zones, infill or redevelopment, to meet needs and protection requirements equivalent to Objective 2J4a within the Existing Community Zone, or to serve new areas for development that meet all other requirements of the RMP. TDR Receiving Zones, affordable housing projects (where the affordable units exceed 10% of the total units), infill and redevelopment shall have higher priority for capacity than expansion of public water service areas within this Zone.

**Objective 2J4d** All development within the Highlands Region, in areas that are not served by public water systems, shall be at a density that can be supported by on-site wells. Where cluster development in the Protection Zone, the Conservation Zone and the Environmentally-Constrained Sub-zones of the Planning Area shall be served by on-site wells, and the undeveloped land is preserved for agricultural purposes in perpetuity, the cluster design in combination with the Agriculture Retention/Farmland Preservation Plan required by Objective 2J4b shall provide for best management practices that protect the on-site wells from contamination resulting from agricultural practices and shall include provisions to minimize or reduce net pollutant loadings from the total project area including the preserved agricultural lands.

**Policy 2K3** 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.

**Objective 2K3a** Areawide Water Quality Management Plan, including Wastewater Management Plan and project-specific amendments, shall be consistent with requirements of this Plan.

**Objective 2K3b** 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.

**Objective 2K3c** Prohibit new, expanded or extended public wastewater collection and treatment systems and community on-site treatment facilities within the Protection Zone, the Conservation Zone and the Environmentally-Constrained Sub-zones of the Planning Area unless they are shown to be necessary for and are approved by the Highlands Council for one or more of the purposes listed below. For approvals regarding parts 1, 2 and 4, the project must maximize the protection of sensitive environmental resources such as Open Water buffer areas, Riparian Areas, the forested portion of the Forest Resource Area, agricultural lands of Agricultural Resource Areas, Steep Slopes, Prime Ground Water Recharge Areas and Critical Habitat Areas. For approvals regarding part 3, the project must avoid disturbance of Open Water buffer areas, Riparian Areas, Steep Slopes and Critical Habitat Areas, and must minimize disturbance of the forested portion of the Forest Resource Area, agricultural lands of Agricultural Resource Areas, and

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Prime Ground Water Recharge Areas. The choice of extension or creation of systems shall follow the requirements in Objective 2K3d (2 and 3). The applicable purposes are:

1. to address a documented existing or imminent threat to public health and safety from a pattern of failing septic systems (where the failing systems cannot reasonably be addressed through rehabilitation or replacement) or highly concentrated septic systems, where the threat is of sufficient scale to justify a public wastewater collection and treatment system or community on-site treatment facility and where no alternative is feasible that would sufficiently assure long-term protection of public health and safety. To address other issues of public health and safety. Such needs shall have highest priority for allocation of existing system capacity;
2. to serve a designated Highlands Redevelopment Area;
3. to serve a cluster development that meets all requirements of Objective 2K3d; or
4. to avoid the taking of property without just compensation.

**Objective 2K3d** Clustered development served by a public wastewater collection and treatment system or community on-site treatment facility within the Protection Zone, the Conservation Zone and the Environmentally-Constrained Sub-zones of the Planning Area shall be approved only if the following conditions are met:

1. The development impacts are otherwise consistent with the requirements of the RMP, including provisions for mandatory clustering in Agricultural Resource Areas;
2. Extension of an existing public wastewater collection and treatment system will occur only where the cluster development is within or immediately adjacent to an Existing Area Served with available capacity;
3. Creation of a community on-site treatment facility will occur only where such development is not within or immediately adjacent to an Existing Area Served with available capacity, where the proposed system is designed, permitted and constructed at a capacity limited to the needs of the clustered development, and 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. The cluster development preserves at least 80 percent of the project area in perpetuity for environmental protection or agriculture purposes, and to the maximum extent feasible the developed portion of the project area (i.e. not including wetlands, open water buffers, recreational lands) is no more than 10 percent
5. Where the preserved land in the cluster project area is preserved for agricultural purposes, the cluster development ordinance and an Agriculture Retention/Farmland Preservation Plan requires continued agricultural viability of the agricultural land and the implementation of best management practices, including development and implementation of a USDA Natural Resource Conservation Service Farm Conservation Plan focused on protection of water resources.

**Objective 2K3e** Allow the expansion or creation of wastewater collection systems within the Existing Community Zone of the Planning Area, other than the Environmentally-Constrained Sub-zone, to serve lands which are appropriate for designated TDR Receiving Zones, infill or redevelopment, to meet needs and protection requirements equivalent to Objective 2K3c within the Existing Community Zone, or to serve new areas for development that meet all other requirements of the RMP. 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. TDR Receiving Areas, where designated, affordable housing projects (where the affordable units exceed 10% of the total units), infill and redevelopment shall have higher priority for capacity than other developments requiring expansion of sewer service areas.