

Washington Township, Warren County Wastewater Management Plan

Prepared by the State of New Jersey Highlands Water Protection and Planning Council in support of Washington Township's approved Petition for Plan Conformance and the Water Quality Management Planning Rules, N.J.A.C. 7:15

June 2012

WASHINGTON TOWNSHIP WASTEWATER MANAGEMENT PLAN

Introduction and Methods

Of the 88 municipalities in the Highlands Region, 77 have submitted to the Highlands Water Protection and Planning Council (Highlands Council) a Notice of Intent to conform to the Highlands Regional Master Plan (RMP, effective date September 8, 2008) regarding the Preservation Area, Planning Area or (where applicable) both within their municipalities. The New Jersey Department of Environmental Protection (NJDEP) is responsible for ensuring that all areas of New Jersey are addressed by Wastewater Management Plans (WMPs) that comply with the provisions of the Water Quality Management Planning Rules at N.J.A.C. 7:15-5. Within the Highlands Region, this process will be achieved through a coordinated process with the Highlands Council as provided in N.J.A.C. 7:15-3.10 and N.J.A.C. 7:38-1.1. One of the conditions for each municipality that fully conforms to the RMP (“Plan Conformance” for the entire municipality) is the development of a WMP in conformance with the RMP and N.J.A.C. 7:15. The purpose of the WMP is to ensure that future sewer service areas and septic areas for planning flows of 2,000 gallons per day (gpd) or less (individual subsurface sewage disposal systems – ISSDS) are consistent with the Land Use Capability Zone Map designations and policies of the Highlands RMP. The WMP is therefore a direct result of the Plan Conformance process, intended to be adopted as a stand-alone document. Municipalities that do not pursue Plan Conformance for the Planning Area will address their wastewater planning responsibilities in cooperation with their counties or directly with NJDEP, which in turn will request a consistency determination from the Highlands Council.

On December 1, 2011, the Highlands Council adopted Resolution #2011-40 (attached as Appendix 1) which approved Washington Township’s Petition for Plan Conformance, subject to conditions as set forth in the Final Consistency Review and Recommendation Report for Washington Township, Warren County. Plan Conformance applies to the entirety of Washington Township – both the Highlands Planning and Preservation Areas. A condition of the approved Petition for Plan Conformance, as detailed in the Final Consistency Review and Recommendation Report, is the requirement that Washington Township adopt a WMP working with the Highlands Council under Plan Conformance. As such, this Washington Township WMP is developed under Plan Conformance for the entire Township (see Figures Washington Township-1 through Washington Township-3). The Highlands Council worked cooperatively with Washington Township throughout the Plan Conformance process to conduct an extensive analysis of the complete land area of the municipality, using a geodatabase that documents for each parcel the status of development, water supply and wastewater utility service, build-out potential, etc. Using the Highlands Municipal Build-Out Report and the Final Consistency Review and Recommendation Report for Washington Township, the Highlands Council has identified and mapped the following areas:

1. **Existing Areas Served** – As defined by the RMP, these are developed lands for which sewer service exists and is connected and operational. Sewer service is defined as the service area for any NJPDES-permitted domestic treatment works, including but not limited to Highlands Domestic Sewerage Facilities as defined by the RMP. Specifically, Existing Area Served “means areas connected to ... an existing public wastewater collection system ... where such infrastructure is already constructed. It does not include areas of designated sewer service areas ... where collection, transmission, or distribution systems do not currently exist.” These areas are generally but not exclusively located within the Existing Community Zone or Highlands Center defined by the RMP, and may be within the Preservation Area or the Planning Area.

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2. **Existing Sewer Service Area** – These areas include, in any RMP Land Use Capability Zone, as applicable for the municipality:
 - a. the Existing Areas Served including all NJPDES-permitted wastewater treatment facilities, including domestic or industrial, and whether discharging to surface or ground water, including T1 sites (NJPDES general permit for sanitary wastewater discharges to ground water), and
 - b. any other lands previously approved by the NJDEP as sewer service areas for which a currently valid municipal development approval and valid NJDEP treatment works approval have been received and are currently in effect, where such information was documented by the municipality or the NJDEP and provided to the Highlands Council, including through the geodatabase for the Highlands Municipal Build-Out Report.
 - c. Planning Area: Port Colden Mall Block 40 Lot 87.01 – A TWA permit was issued in 2004 to serve an existing subdivision known as Port Colden Mall for 0.004 MGD. The flows are to be transported to the Washington Borough WWTP.

NOTE: For any Existing Area Served parcel that is greater than 1 acre in total size and located in the Conservation Zone, Protection Zone or Existing Community Zone Environmentally-Constrained Sub-Zone, the map shows as Existing Sewer Service Area (SSA) only the developed portion of the parcel. Undeveloped portions of such parcels are not shown as Existing SSA. Within the Highlands Center, Existing Community Zone, and Lake Community Sub-Zone only, the undeveloped portions of such Existing Area Served parcels are included as Existing SSA regardless of size. For any Existing Area Served parcel that is less than or equal to 1 acre in total size, the map shows the entire parcel as Existing SSA regardless of development status and Land Use Capability Zone. Such parcels are considered fully developed.

3. **General Service Area for Wastewater Facilities with Planning Flows of Less Than 2,000 gpd which Discharge to Ground Water** – Included in Figure Washington Township-1 are areas served by septic systems (ISSDS) and other wastewater systems with planning flows of less than 2,000 gpd. This term incorporates those septic areas in WMPs adopted under previous versions of N.J.A.C. 7:15.

4. Future Sewer Service Area

- a. Planning Area: These areas include all lands in the Existing SSA, plus all lands in the Highlands Planning Area identified by the RMP as being both within the Existing Community Zone (not including the Environmentally-Constrained Sub-Zone) and Lake Community Sub-Zone, and also located within areas identified by the municipality for sewer service and approved by the Highlands Council as part of the municipality's Petition for Plan Conformance. Under this WMP, permits will not be granted by NJDEP for extension of sewer service into any other lands of the Planning Area unless:
 - i. The extension is consistent with municipal plans and ordinances approved by the Highlands Council pursuant to the municipal Petition for Plan Conformance; or
 - ii. A consistency determination has been approved by the Highlands Council, pursuant to N.J.A.C. 7:38-1.1(k) and 7:15-3.10(a); and for either (a) or (b),
 - iii. An amendment or revision to this WMP has been approved by NJDEP pursuant to N.J.A.C. 7:15.
- b. Planning Area – Future Designation of Washington Township Highlands Center(s) – The approved Petition for Plan Conformance for Washington Township incorporated provision for planning efforts toward future designation of Highlands Centers within Washington Township. Three potential Highlands Centers are under consideration, as discussed in the Final Consistency Review and Recommendations Report: (a) Port Colden area on Route 57 immediately east of Washington Borough; (b) Brass Castle Area on Route 57 immediately west of Washington

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Borough; and (c) Route 31 area immediately south of Washington Borough. In each case, the Township will evaluate available lands, appropriate development densities, required water supply and wastewater capacity, and the available of such capacity from existing or future facilities. To the extent that any future Highlands Center designation(s) are approved by the Highlands Council that require modification to the Future SSA, a revision or amendment to this WMP will be proposed for adoption by NJDEP. The potential Highlands Centers are described in more detail below.

- c. **Preservation Area:** The Highlands Act limits future sewer service in the Highlands Preservation Area to those developments for which an exemption from the Highlands Act has been determined and remains valid, or where a Highlands Preservation Area Approval (HPAA) with waiver has been granted by the NJDEP. For all other areas of the Preservation Area, Future SSAs were rescinded by the Highlands Act (Section 42, N.J.S.A. 58:11A-7.1).
- 5. Septic Area (Planning Flows of 2,000 gallons per day (gpd) or Less)** – This category applies to all lands not included within the above categories, for which the density of new septic system development will be consistent with applicable septic density/nitrate dilution analyses. At a minimum, areas identified by the Highlands RMP as Protection Zone, Conservation Zone and Existing Community Zone-Environmentally Constrained Sub-Zone, which are outside of the Existing or Future SSA, are designated as “Septic Area (Planning Flows of 2,000 gpd or Less).” Portions of the Existing Community Zone that are not sewered and are not intended to receive sewer service may be designated in the same manner.
- a. Permits or approvals for projects in this area with cumulative wastewater flows of 2,000 gpd or less shall not be permitted by NJDEP unless:
 - i. The project is approved under septic system density provisions of the Highlands Land Use Ordinance (# [to be included upon adoption]) adopted by Washington Township pursuant to Highlands Council approval of its Petition for Plan Conformance. (NOTE: Approval pursuant to these provisions of the Highlands Land Use Ordinance is deemed in conformance with the septic system density requirements of N.J.A.C. 7:15); or
 - ii. Within the Preservation Area, the development activity is exempt from the Highlands Act or receives a Highlands Preservation Area Approval from NJDEP. Within the Planning Area, the development activity is exempt from the Highlands Act. Such development shall be in conformance with N.J.A.C. 7:15 regarding septic system densities.
 - b. Permits or approvals for projects in this area with cumulative wastewater flows in excess of 2,000 gpd shall not be permitted by NJDEP unless:
 - i. The project is approved under septic system density provisions of the Highlands Land Use Ordinance adopted by Washington Township pursuant to Highlands Council approval of its Petition for Plan Conformance. (NOTE: Approval pursuant to these provisions of the Highlands Land Ordinance is deemed in conformance with the septic system density requirements of N.J.A.C. 7:15); or
 - ii. The Highlands Council has determined that the discharge is consistent with the RMP and the discharge is approved by NJDEP as a revision or amendment to this Wastewater Management Plan; or
 - iii. Within the Planning Area, the development activity is exempt from the Highlands Act and the discharge is approved by NJDEP as a revision or amendment to this Wastewater Management Plan; or
 - iv. Within the Preservation Area, the development activity is exempt from the Highlands Act or receives a Highlands Preservation Area Approval from NJDEP and the discharge is

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approved by NJDEP as a revision or amendment to this Wastewater Management Plan. Such development shall be in conformance with N.J.A.C. 7:15 regarding septic system densities.

- 6. Consistency Determinations:** Any proposed modification to this Wastewater Management Plan will not be approved without a determination of consistency from the Highlands Council as required by N.J.A.C. 7:38-1.1(k) and 7:15-3.10(a).

Mapping Requirements Pursuant to N.J.A.C. 7:15-5

The relevant mapping requirements of the Water Quality Management Planning Rules at N.J.A.C. 7:15-5 are met through the following mapping for Washington Township, as developed specifically for the Wastewater Management Plan or as incorporated by reference from the Highlands Plan Conformance documents approved by the Highlands Council. Maps of existing and future domestic treatment works and service areas are used by the NJDEP for WQMP consistency reviews regarding proposed Treatment Works Approvals and NJPDES permits. They have been developed specifically for this WMP and are incorporated herein. Maps of environmental and administrative features are used by NJDEP as basis and background information for the identification of future sewer service areas. However, in the case of Washington Township, the Washington Township WMP is based upon approval of Plan Conformance by the Highlands Council, which includes requirements that are as or more stringent than those of N.J.A.C. 7:15. Therefore, the relevant maps are incorporated by reference to the Highlands Council approval of Plan Conformance. These features are included in maps associated with the Highlands Municipal Build-Out Report, Highlands Environmental Resource Inventory (ERI), Highlands Element and Highlands Land Use Ordinance (as specified below) for Washington Township, approved for Plan Conformance by the Highlands Council¹. GIS spatial data have also been provided to NJDEP, Warren County and the municipality.

- **Jurisdictional Boundaries** – The affected WMP Area is Washington Township and the Areawide Water Quality Management Plan is the Upper Delaware, both of which are not shown on the municipal maps. Washington Township is entirely within the Highlands Region, with the Planning and Preservation Areas and major roads being shown in the WMP Figures Washington Township-1, -2 and -3.
- **Existing domestic treatment works and service areas** – See Figure Washington Township-1
- **Existing industrial treatment works and service areas** – See Figure Washington Township-1
- **Future domestic treatment works and service areas** – See Figure Washington Township-2
- **Future industrial treatment works and service areas** – See Figure Washington Township-2
- **Freshwater wetlands** – Washington Township Highlands ERI
- **Flood prone areas**, including flood hazard areas – Washington Township Highlands ERI
- **Public open space and recreational areas** – Washington Township Highlands ERI
- **Preserved agricultural lands** – Washington Township Highlands ERI
- **Wild and Scenic River** areas designated under the New Jersey Wild and Scenic Rivers Act or the Federal Wild and Scenic Rivers Act – Washington Township Highlands ERI. Applicable to Musconetcong River.
- **Category One Water, trout production waters, and trout maintenance waters** – Washington Township Highlands ERI (NOTE: Under the Regional Master Plan, all Highlands Open Waters in both the Preservation and Planning Areas are associated with 300 foot buffers.)
- **Surface waters and HUC14 boundaries** – Washington Township Highlands ERI
- **Suitable habitat for endangered and threatened wildlife species** – Washington Township Highlands ERI

¹ http://www.highlands.state.nj.us/njhighlands/planconformance/wash_twp_warren.html

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- **Natural Heritage Priority Sites** – Washington Township Highlands ERI
- **Riparian Zones** – Washington Township Highlands ERI (NOTE: this map uses the Highlands Council definition, which is more expansive than the NJDEP definition.)
- **Steep slopes** – Washington Township Highlands ERI (NOTE: this map uses the Highlands Council definition and LiDAR data)
- **Current composite or municipal zoning** – Washington Township Highlands Land Use Ordinance Exhibit 1, “Highlands Zones and Sub-Zones.” (In addition, Highlands Council approval of Plan Conformance and municipal adoption of the Highlands Land Use Ordinance addresses this requirement.)
- **Municipal parcel mapping and Roads** – WMP Figures Washington Township-1, -2 and -3, and also on all Washington Township Highlands Land Use Ordinance Exhibits
- **Undeveloped and underdeveloped property** – Washington Township Highlands Municipal Build-Out Report
- **Public water supply service area** – See Figure Washington Township-3

Special Provisions Regarding Future Sewer Service Areas

The following are required statements of constraints, jurisdiction and caveats regarding the map of Future Sewer Service Areas (Figure Washington Township-2) used in the Washington Township WMP:

1. **Highlands Restrictions:** 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 are prohibited 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 purposes 1, 2 and 3, the project must maximize the protection of sensitive environmental resources such as Highlands Open Waters buffer areas, Riparian Areas, the forested portion of the Forest Resource Area, agricultural lands of Agricultural Resource Areas (ARAs), steep slopes, Prime Ground Water Recharge Areas and Critical Habitat. For approvals regarding purpose 3, the project must avoid disturbance of Highlands Open Waters buffer areas, Riparian Areas, Steep Slopes, and Critical Habitat, and must minimize disturbance of the forested portion of the Forest Resource Area, agricultural Lands of ARAs, and 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 through a waiver under Policy 7G1 or 7G2 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 address development permitted through a Highlands Redevelopment Area or takings waiver under Policy 7G1 or 7G2; or
 - 3) To serve a cluster development that meets all requirements of Objective 2K3d.
2. **Highlands Open Water Buffers/Riparian Zones:** Pursuant to the Highlands Regional Master Plan, Highlands Open Water buffers extend to 300 feet from top of bank (or centerline of a first order stream where no bank is apparent). This requirement applies to all Highlands Open Waters within the Highlands Region, regardless of stream classification in the Surface Water Quality Standards at N.J.A.C. 7:9B. The Highlands Open Water buffers have not been graphically removed from the sewer service area but are not proposed for sewer service. Such buffers will be regulated through the Highlands Land Use Ordinance adopted by the Township, applicable to both the Planning and Preservation Areas. The Highlands Land Use Ordinance is equivalent with or more

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stringent than the Department's riparian zone standard, the Flood Hazard Control Act Rules (N.J.A.C. 7:13) and Water Quality Management Rules (N.J.A.C. 7:15).

3. **NJDEP Riparian Zones:** For any proposed development that is not subject to the Highlands Land Use Ordinance or Highlands Regional Master Plan (i.e., exempt from the Highlands Act), pursuant to N.J.A.C. 7:15, riparian zones are:
 - a. 300 feet from top of bank (or centerline of a first order stream where no bank is apparent) for waters designated as Category One (C1) and all upstream tributaries within the same HUC 14 subwatershed;
 - b. 150 feet for waters designated Trout Production and all upstream waters;
 - c. 150 feet for water designated Trout Maintenance and all upstream waters within one linear mile as measured along the length of the regulated water;
 - d. 150 feet for any segments of water flowing through an area that contains documented habitat for a threatened or endangered species of plant or animal, which is critically dependent on the surface water body for survival, and all upstream waters (including tributaries) within one linear mile as measured along the length of the surface water body;
 - e. 150 feet for waters that run through acid-producing soils; and
 - f. 50 feet for all waters not designated as C1, trout waters, critically water dependent Threatened and/or Endangered Species Habitat, or associated with acid soils.

Surface waters that are designated C1 are listed in the Surface Water Quality Standards at N.J.A.C. 7:9B. The Department's "Surface Water Quality Standards" GIS data layer was utilized to determine these waters. Jurisdictional determinations by the Department will be utilized to determine the extent of the sewer service area on individual lots. The riparian zones have not been graphically removed from the sewer service area but are not proposed for sewer service.

4. **Industrial Pretreatment Facilities:** All existing, new, or expanded industrial pretreatment facilities requiring Significant Indirect User (SIU) permits and/or Treatment Works Approvals, and which are located within the specified sewer service area, are deemed to be consistent.
5. **Applicability of Grant Conditions:** Pre-existing grant conditions and requirements (from Federal and State grants or loans for sewerage facilities) that provide for restriction of sewer service to environmentally sensitive areas are unaffected by adoption of this WMP and compliance is required.
6. **Limitations on Individual Subsurface Sewage Disposal Systems:** Individual subsurface sewage disposal systems (ISSDS) for individual residences may be constructed in depicted sewer service areas (Figure Washington Township-2) only if legally enforceable guarantees are provided, before such construction, that use of such systems will be discontinued when the depicted sewer service becomes available. This applies to ISSDS that require certification from the Department under the Realty Improvement Sewerage and Facilities Act (N.J.S.A. 58:11-23) or Individual Treatment Works Approval or New Jersey Pollutant Discharge Elimination System Permits (under N.J.A.C. 7:14A). It also applies to ISSDS which require only local approvals. However, this provision does not apply in the Preservation Area for properties not specifically denoted as Future Sewer Service Area in Figure Washington Township-2. Additional properties may be included in Figure Washington Township-2 through NJDEP approval of revision(s) to this Wastewater Management Plan, where determined to be exempt from the Highlands Act or consistent with (through a Highlands Council consistency determination) the Regional Master Plan. Specifically, revisions may be approved to address public health and safety issues related to failure of ISSDS on properties upon which repair or replacement with compliant systems is not practicable. Further, in both the Preservation Area and the Planning Area, connection of additional properties or expansion of flows from existing connections is subject to municipal approval regarding availability of utility capacity, regarding both remaining available utility capacity (i.e., wastewater flows) and infrastructure capacity (e.g., pump stations, mains).

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Compliance with the connection requirement has been demonstrated through adoption of Washington Township Ordinance [insert ordinance #].

7. **Environmental Features:** Development in areas mapped as wetlands, flood prone areas, suitable habitat for endangered and threatened species as identified on the Department's Landscape Project Maps of Habitat for Endangered, Threatened and Other Priority Wildlife as Rank 3, 4 and 5 (Version 3.0 or more recent), Natural Heritage Priority Sites, riparian zones as defined above, steep slopes (including steep slopes as defined and mapped in the Highlands Land Use Ordinance of Washington Township), or designated river areas may be subject to special regulation under Federal or State statutes or rules, and interested persons should check with the Department for the latest information. Depiction of environmental features shall be for general information purposes only, and shall not be construed to define the legal geographic jurisdiction of such statutes or rules.
8. **Future Treatment Works:** Locations of future pump stations, major interceptors, and trunk sewers are being provided for general information only and will not serve as the basis for any future WQMP consistency determinations or permit reviews unless the pump station, major interceptor or trunk sewer is part of a State or federally funded project.
9. **Water Quality Standards:** Areas located within the watershed of a Freshwater One (FW1) stream, as classified in the Surface Water Quality Standards, and/or that have Class 1-A ground water (Ground Water of Special Ecological Significance), as classified in the Ground Water Quality Standards, are identified as "Non-degradation water area based on the Surface Water Quality Standards at N.J.A.C. 7:9B, or the Ground Water Quality Standards at N.J.A.C. 7:9C." Non-degradation water areas shall be maintained in their natural state (set aside for posterity) and are subject to restrictions including, but not limited to, the following:
 - a. The Department will not approve any pollutant discharge to ground water nor approve any human activity which results in a degradation of natural quality except for the upgrade or continued operation of existing facilities serving existing development.
 - b. For additional information please see the Surface Water Quality Standards at N.J.A.C. 7:9B, and/or the Ground Water Quality Standards at N.J.A.C. 7:9C.

Municipal Build-Out Results

Washington Township is located within both the Preservation Area and Planning Area. The Highlands municipal build-out analysis for Washington Township is based upon a combination of the Highlands Municipal Build-Out Report²), prior approvals, and the Highlands Council approval of the Washington Township Highlands Center(s). The Highlands Council estimated the following new development results for potential developable lands for the entire municipality, as summarized in **Table 1** below. No specific results are included for the three potential Washington Township Highlands Centers, as the boundaries, development yields and wastewater availability have not been determined and will be determined for each proposed Highlands Center through the ongoing studies. Therefore, the build-out analysis for any lands that may be affected by Highlands Center designations is based upon current conditions and sewer service areas. As specified in the Highlands Municipal Build-Out Report, the results of the municipal build-out analysis are designed to be utilized at a municipal scale and are not appropriate for determining if a particular parcel or development project is consistent with the RMP (for example, the report includes certain results regarding residential or non-residential development that may be altered through a specific development review). Affected public water supply and wastewater facilities are discussed below. As noted in the Washington

²http://www.highlands.state.nj.us/njhighlands/warren_county/washington_township/wash_twp_warren_bor.pdf

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Highlands Municipal Build-Out Report, the municipal results are a result of current conditions and application of RMP requirements. The Report and the analysis below provide a critical planning tool but cannot be used as a definitive prediction of the future or as a basis for parcel-based development potential.

1. **Development in Sewer Service Areas:** All new development proposed to be served by public wastewater systems are within the Planning Area portion of Washington Township. No new wastewater demand for domestic treatment works is projected in the Preservation Area.
 - a. Total Projected Development: As summarized in **Table 1**, 32 residential dwelling units and 184,514 square feet of non-residential development, resulting in a wastewater demand of 24,302 gallons per day (gpd), or 0.024302 million gallons per day (MGD), and estimated public water supply demands of 28,990 gpd, or 0.02899 MGD.
 - b. Washington Township Highlands Center (s): Parcels within each of the three Highlands Center areas may or may not be already developed; those that are may or may not be appropriate for redevelopment. No additional flows beyond the Highlands Municipal Build-Out Report have been calculated for these areas, as they are not sufficiently defined at this time.

2. **Development Reliant on Septic Systems:** 230 septic systems in the Planning Area for all RMP Land Use Capability Zones and HUC14 subwatersheds, and 14 septic systems in the Preservation Area.

The build-out results based on potential developable lands are not constrained by wastewater utility capacity.

The water supply demands from the build-out are constrained by water availability, defined as Net Water Availability per the RMP. Assuming that all water demand for development in Washington Township is derived from wells within the local HUC14 subwatershed, Net Water Availability represents a constraint on build-out potential. Therefore, impacts on Net Water Availability will be addressed through the development and implementation of Water Use and Conservation Management Plans for any affected subwatersheds, including potential implementation of any future Highlands Center(s).

Table 1 – Municipal Build-Out Results Summary			
	Preservation Area	Planning Area	Totals
Residential units – Sewered	0	32	32
Septic System Yield	14	230	244
Total Residential Units	14	262	276
Non-Residential – Sewered	0	184,514 sq ft	184,514 sq ft

Overview of the Potential Washington Township Highlands Centers

The Highlands Council approved consideration of three (3) Highlands Centers in Washington Township, each incorporating a portion of the Planning Area as described below (refer to **Figure HC-1** below for conceptual limits of each). Studies are in progress regarding the feasibility of such designations, including current or future availability of wastewater treatment capacity. Upon Highlands Center Designation for any or all of these areas, Washington Township’s revised Highlands Element would: a) set aside specified areas intended to be preserved open space and other areas within the Highlands Center that are essential to the protection of critical Highlands Environmental Resources; b) provide for areas of infill development and redevelopment that are both consistent with available water supply and wastewater treatment capacities, and designed in accordance with center-based, smart growth development standards; and c) maintain applicability of the Highlands resource protection standards and requirements in the Highlands Land Use Ordinance to the maximum extent that is compatible with center-based development patterns. These modifications would, in large part, supplant the density and intensity of development provisions currently included in Washington Township’s Highlands Element with respect to the Highlands Centers, and will be highly dependent upon the adoption by NJDEP of an amendment to the approved Washington Township Chapter of the Warren County Wastewater Management Plan.

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Historic Port Colden Highlands Center

The proposed Historic Port Colden Highlands Center would in large part replicate the now-expired State Planning Commission Center designation that Washington Township secured through the State Planning Commission. The Highlands Center would not include Washington Borough lands, however, and no lands located within the Preservation Area. The Highlands Center areas could be comprised of developed or partially developed lands and lands for infill development that focus on the Port Colden Historic District along Route 57, east of the Borough border. The size and development potential of this Highlands Center is limited by the presence of Preservation Area and municipal boundaries with Washington Borough. The remainder of the potential Highlands Center incorporates a small business core with long-term potential for continued commercial use and adaptive reuse within the setting of an Historic District. As such, the Historic Port Colden Highlands Center could encompass Existing Community Zone lands along Route 57 from Washington Borough to Port Colden, plus Port Colden itself, including the Existing Community Zone, the remainder of the Planning Area north of Route 57 in Port Colden (currently Conservation Zone), and a small area of current Protection Zone at the southeast corner of Port Colden by the Morris Canal. No public wastewater system currently exists in this area, though the Washington Borough WWTP serves lands immediately within the Borough boundary.

Washington-South Highlands Center

A second Highlands Center planning opportunity exists south along Route 31 along the corridor formed by the highway and Lincoln Avenue. This corridor is currently zoned office/commercial and is approximately one mile in length. The potential Washington-South Highlands Center is characterized by developed or partially developed lands and lands potentially suited to infill development that would take advantage of the retail zoning of the highway area. Additionally, the Hawk Pointe community to the east of the highway plus underutilized and/or brownfield parcels just south of the Lincoln Avenue and Route 31 intersection are likely appropriate for inclusion in this potential Highlands Center. Consideration of a Transfer of Development Rights (TDR) program to simultaneously preserve existing farmland and then cluster the resulting development is under consideration for this portion of the Township. Existing preserved lands and wetland areas to the west and east of Route 31, respectively, constrict the potential Highlands Center boundaries toward Washington Borough. To the south along Route 31, the Asbury-Anderson Road intersection demarcates the topographical change past which the feasibility of future development would be limited due to the cost of wastewater infrastructure. Consideration of the size and scope of a proposed center in this location must include an analysis of future wastewater infrastructure feasibility. At this time, the only existing wastewater facility in the immediate area is the Hawk Pointe treatment system. The Washington Borough STP serves lands immediately within the Borough boundary.

Brass Castle Highlands Center

A third potential area of the Township that may be appropriate for designation as a Highlands Center is the Brass Castle district, immediately west of the Washington Borough boundary along Route 57. The area could include those parcels in the Planning Area that are currently in the Existing Community Zone. This area is bound by Route 57 to the south, Pleasant Valley Road to the north and west, and County Road 623 (Brass Castle Road) to the east. The potential Brass Castle Highlands Center is characterized by developed or partially developed lands and lands potentially suited to infill development with a focus on the retail zoning of the highway corridor. As with the other potential areas in the township, the viability of a potential Highlands Center would be dependent upon a wastewater feasibility analysis. No public wastewater system currently exists in this area, though the Washington Borough WWTP serves lands immediately within the Borough boundary.

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Highlands Center Evaluation

The development potential of each of the proposed center areas is constrained by the lack of wastewater utility services. As noted above, for the Historic Port Colden Highlands Center and the Brass Castle Highlands Center, no wastewater services are currently available at all. For the Washington-South Highlands Center, the Hawk Pointe development is served by a NJPDES-permitted on-site wastewater system, but the service area is limited currently to that development, only.

Each of the potential Highlands Centers identified above can only be viable upon identification and provision of wastewater utility services. Discussions with neighboring municipalities for the last 20 years or more have not resulted in the identification of potential wastewater utility services for Washington Township, but the potential should be explored along with other options. Water supply utility services are available. Where existing development moves from septic systems to local wastewater utility services, impacts on Net Water Availability should be minimal. New development will draw down Net Water Availability, which must be addressed by the Water Use and Conservation Management Plans.

As a component of its amended Plan Conformance grant, Washington Township is conducting an evaluation incorporating the following steps:

1. Estimate total, residential and non-residential wastewater flows for each Highlands Center area, for both existing and potential development.
2. For the Historic Port Colden Highlands Center and the Brass Castle Highlands Center, evaluate the following wastewater alternatives:
 - a. Connection to Washington Borough STP, either using existing capacity or expansion;
 - b. Development of a NJPDES-permitted community on-site wastewater facility for the entire Highlands Center, discharging either to ground water or (if feasible) surface water, to be located within the Planning Area;
 - c. Development of multiple NJPDES-permitted on-site wastewater facilities discharging to ground water to address all concentrated areas of development, with septic systems serving other areas.
3. For the Washington Township-South Highlands Center, evaluate the following wastewater alternatives:
 - a. Connection to Washington Borough STP, using either existing capacity or expansion;
 - b. Connection to the Hawk Pointe wastewater facility, using either existing capacity or expansion;
 - c. Development of a NJPDES-permitted community on-site wastewater facility for the Highlands Center outside of Hawk Pointe, discharging either to ground water or (if feasible) surface water, to be located within the Planning Area;
 - d. Development of multiple NJPDES-permitted on-site wastewater facilities discharging to ground water to address all concentrated areas of development, with septic systems serving other areas.
4. No alternative shall be considered viable if it requires a new discharge to a Category 1 surface water, or an increase in pollutant loading from an existing discharge to a Category 1 surface water.
5. For any alternatives that are viable from a wastewater perspective, estimate the cost of system development, operations and maintenance.
6. For any alternatives that are viable from a wastewater perspective, estimate consumptive and depletive water demands, determine modifications necessary to public water supply systems, and evaluate methods to mitigate reductions of Net Water Availability.

Available Wastewater Utility Capacity and Municipal Build-Out Results

The two NJPDES permitted facilities affecting Washington Township are listed in **Table 5**.

Washington Borough WWTP

One Highlands Domestic Sewerage Facility (HDSF) serving Washington Township is the Washington Borough WWTP, which at this time has an approved and operative total capacity of 1.5 million gallons per day (MGD), as described in NPDES Permit No. NJ0021113. Washington Borough WWTP is a municipally-owned utility that provides service primarily to Washington Borough, and also to a small portion of Washington Township. The current available Highlands Region capacity for the utility is **0.311 MGD** for all municipalities served by the system, based on flow data of January 2005 through December 2011, using the Highlands Regional Master Plan method which subtracts the maximum 3-month flow (MAX3MO) from the permitted capacity. However, NJDEP calculates available capacity by subtracting the most recent available 12-month average from the permitted capacity, which is 0.928 MGD for Washington Borough WWTP for 2011, resulting in an available capacity of 0.572 MGD. This method applies to all non-conforming municipalities in the Highlands Region, and to NJDEP determinations regarding whether a facility expansion is required to accommodate existing or necessary future flows. The Highlands Council’s calculations used in the RMP are more conservative. Regardless of the method used, there is little Existing or Future SSA from this facility within Washington Township, and most if not all of the available capacity may be used by the Borough. Availability to Washington Township is to be determined.

Table 2 – Washington Borough WWTP Remaining Available Capacity					
	Permitted Flow	Maximum Three Month (MAX3MO) Average Flow	Remaining Available Capacity (RMP)	Annual Average Flow	Remaining Available Capacity (NJDEP)
2005	1.5	0.927	0.573	0.83	0.67
2006	1.5	0.889	0.611	0.79	0.71
2007	1.5	0.892	0.608	0.794	0.706
2008	1.5	0.897	0.603	0.760	0.74
2009	1.5	0.756	0.744	0.813	0.687
2010	1.5	0.896	0.604	0.75	0.75
2011	1.5	1.189	0.311	0.928	0.572
NOTE: All flows are in MGD. Any allocations identified in this document are neither NJDEP-determined nor NJDEP-enforced.					

The lowest dry weather sewage flow (the lowest consecutive three months of flow) for the Washington Borough WWTP during the period of 2008 through 2011 was 561,000 gpd, in 2009. For the same year, annual average flows were 813,000 gpd, resulting in an estimated annualized I&I (Inflow & Infiltration) rate of roughly 31%. I&I for each calendar year has ranged from 14% to 38% from 2005 through 2011 with the highest I & I rate of 38% in 2011. I&I for the maximum month (September 2011, 1.609 MGD) was 152%, based on the lowest three-month flow for that year; this I&I rate is very high but reflects two sequential tropical storms (August and September).

The total estimated wastewater generation from the build out for Washington Borough WWTP in Washington Township is 0.007168 MGD, not including the potential flows of the Washington Township Highlands Center(s) or the TWA permitted flow, and does not exceed the utility capacity conditions, as shown in **Table 8**.

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Oxford Area WTF

Oxford Area WTF at this time has an approved and operative total capacity of 0.5 million gallons per day (MGD), as described in NPDES Permit No. 0035483. Oxford Area WTF is operated by the Warren County (Pequest River) Municipal Utility Authority (PRMUA), a utility authority that provides service through this facility to Washington Township, Mansfield Township, and Oxford Township. (A separate facility also operated by PRMUA serves Belvidere Borough and White Township.) The current available Highlands Region capacity for the utility is **0.041 MGD** for all municipalities served by the system, based on flow data of January 2005 through December 2011, using the Highlands Regional Master Plan method which subtracts the maximum 3-month flow (MAX3MO) from the permitted capacity. (It should be noted that this estimate reflects the effects of exceptional rainfall during 2011, and a much higher than normal I&I rate (see below). Other years reflect MAX3MO flows in the range of 0.38 to 0.39 MGD, which would result in available capacities of roughly 0.11 MGD.) However, NJDEP calculates available capacity by subtracting the most recent available 12-month average from the permitted capacity, which is 0.373 MGD for Oxford Area WTF for 2011, resulting in an available capacity of 0.127 MGD. This method applies to all non-conforming municipalities in the Highlands Region, and to NJDEP determinations regarding whether a facility expansion is required to accommodate existing or necessary future flows. The Highlands Council's calculations used in the RMP are more conservative. Regardless of the method used, most if not all of the available capacity may be used for the proposed Highlands Center(s).

	Permitted Flow	Maximum Three Month (MAX3MO) Average Flow	Remaining Available Capacity (RMP)	Annual Average Flow	Remaining Available Capacity (NJDEP)
2005	0.5	0.408	0.092	0.348	0.152
2006	0.5	0.389	0.111	0.324	0.176
2007	0.5	0.39	0.11	0.314	0.186
2008	0.5	0.38	0.12	0.297	0.203
2009	0.5	0.293	0.207	0.261	0.239
2010	0.5	0.379	0.121	0.298	0.202
2011	0.5	0.459	0.041	0.373	0.127

NOTE: All flows are in MGD. Any allocations identified in this document are neither NJDEP-determined nor NJDEP-enforced.

The lowest dry weather sewage flow (the lowest consecutive three months of flow) for the Oxford Area WTF during the period of 2008 through 2011 was 239,000 gpd, in 2009. For the same year, annual average flows were 261,000 gpd, resulting in an estimated annualized I&I (Inflow & Infiltration) rate of roughly 8.5%. I&I for each calendar year has ranged from 8.5% to 29% from 2005 through 2011 with the highest I & I rate of 29% in 2011. I&I for the maximum month (September 2011, 0.6 MGD) was 126%, based on the lowest three-month flow for that year. In most cases, I&I rates are relatively low. However, the September 2011 I&I is very high, reflecting major rainfall events during this period.

The total estimated wastewater generation from the build out for Oxford Area WTF in Washington Township is 0.000225 MGD, and does not exceed the utility capacity conditions, as shown in **Table 8**.

Other NJPDES Permitted Facilities

There are nine NJPDES permitted T1 facilities that serve in Washington Township (see **Table 7**). They include 31 Steak House and Ale (NJG0170101), Brass Castle Elementary School (NJG0105571), Burger King Restaurant (NJG0141593), Country Farm Trailer Park (NJG0171697), Leo's Pizza and Italian Restaurant (NJG0170305), Oakwood Lanes/ Sports Scene Restaurant (NJG0169587), Ocino Restaurant (NJG0169790),

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Roaring Rock Restaurant (NJG0166782), and Wayfarer Restaurant (NJG0155667). There are three NJPDES Discharge to Groundwater (DGW) facilities (see **Table 6**) including 390 Rt 57 (NJ0065196), Washington Twp Shopping Center (NJ0059897), and Hawke Pointe Golf Community (NJ0136336). There is a build out demand associated with the Hawk Pointe Golf Community of 0.016909 MGD. There is no additional wastewater generation for the remaining facilities from the build-out analysis.

Available Public Community Water System Utility Capacity and Municipal Build-Out Results

The Public Water Supply utility serving and proposed to serve Washington Township are listed in **Table 4**. The main public water utility serving Washington Township is NJ American Water Company-Washington System. The current available Highlands Region capacity for the utility is 8.88 million gallons per month (MGM). The current capacity available to Washington Township is approximately 3.2 MGM. The build-out analysis identifies an additional public water demand of 0.10052 MGM for this facility not including the full potential of the proposed Highlands Center(s).

Figure Washington Township-3 shows the existing areas served for all of the above facilities.

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Table 4. Future Water Demand for Existing and Proposed Facilities Serving Washington Township				
Purveyor (Approval ID)	Water Allocation/ Approved Diversion (MGM)	Water Allocation/ Approved Diversion (MGD)	Projected Water Demand (MGD)	Excess (Deficit) MGD*
Existing Facilities				
NJ American Water Company- Washington (PWSID# 2121001)	57.88	1.929	0.10052	0.1129

* Reflects maximum monthly demands where available, see <http://www.nj.gov/dep/watersupply/pws.html>

Designation of Wastewater Service Areas within Washington Township

The following maps are provided to show the existing and future sewer service areas for NJPDES-permitted sanitary wastewater treatment facilities, and to show the existing water supply service areas for major public water systems serving the municipality:

1. **Existing Sewer Service Area** – This map (**Figure Washington Township-1**) shows the parcels and portions of parcels within the Existing Sewer Service Area as described in the Introduction, for the facilities discussed under the section Available Wastewater Utility Capacity and Municipal Build-Out Results and listed in **Table 5**. Please note that Figure Washington Township-1 is considered definitive by NJDEP for purposes of permit approvals.
2. **Future Sewer Service Area** – This map (**Figure Washington Township-2**) shows the parcels and portions of parcels within the future sewer service area as described in the Introduction, for the facilities discussed under the section Available Wastewater Utility Capacity and Municipal Build-Out Results and listed in **Table 5**. Figure Washington Township-2 includes the proposed Washington Highlands Center(s) showing parcels that are within the Future SSA. Finally, Figure Washington Township-2 indicates all “Septic Area (Planning Flows of 2,000 gpd or Less).” The septic system yields associated with this latter area are listed in **Tables 9 and 10**. A listing of affected properties is provided as Attachment A. However, please note that Figure Washington Township-2 is considered definitive by NJDEP for purposes of permit approvals.
3. **Public Community Water System Utilities** – This map (**Figure Washington Township-3**) shows the parcels and portions of parcels within the existing service area for public community water supply systems as described in the Introduction, for the facilities discussed under the section Available Public Community Water System Utility Capacity and Municipal Build-Out Results. Water service for the approved Washington Township Highlands Center(s) will approximate that of the Future SSA for the same area.

Municipal Ordinances Required by N.J.A.C. 7:15-5.25

The following ordinances are required by the Water Quality Management Planning Rules. Most of the ordinance requirements are implemented through municipal adoption of the Highlands Land Use Ordinance in compliance with the Plan Conformance approval of the Highlands Council, as noted. Others are adopted independently by the municipality, where noted.

- **Zoning** – See Highlands Land Use Ordinance [ordinance # to be inserted upon adoption]. All extensions of sewer service must be in conformance with the Highlands Land Use Ordinance and subject to Plan Conformance approval and requirements of the Highlands Council. The Highlands Land Use Ordinance also regulated septic system density for new development that is subject to the ordinance.
- **Water Conservation** – See Highlands Land Use Ordinance, which is more stringent than the NJDEP model ordinance provisions.

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- **Stormwater Management** – Washington Township has adopted the required stormwater management ordinance in compliance with its NJPDES MS4 stormwater permit [ordinance # to be inserted upon adoption]. Also, see Highlands Land Use Ordinance, which is more stringent than the NJDEP model ordinance provisions.
- **Riparian Zone** – See Highlands Land Use Ordinance, which is more stringent than the NJDEP model ordinance provisions.
- **Steep Slope** – See Highlands Land Use Ordinance, which is more stringent than the NJDEP model ordinance provisions.
- **Septic System Maintenance** –NJDEP has determined that municipality-wide septic system maintenance ordinances are not required at this time under N.J.A.C. 7:15, but rather that septic system maintenance plans are required. The Township commits to development of such plans in cooperation with the Highlands Council.
- **Required Connection of Septic Systems to Sanitary Sewers in Adopted Sewer Service Areas** – Compliance with this requirement has been demonstrated through adoption of Washington Township Ordinance [ordinance # to be inserted upon adoption]. Not addressed by Highlands Land Use Ordinance.

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Table 5 – NJPDES Permitted Facilities in or Serving Washington Township							Discharge Location	
NJPDES Permit #	PI #	Facility Name	Discharge Category Code	Street Address	Post Office	ZIP	Longitude	Latitude
NJ0021113	47066	Washington Borough WWTP	A	313 W Washington Ave	Washington Twp	07882	-074.9928427°	40.7536356°
NJ0035483	47060	Oxford Area WTF	A	148 Pequest Rd	Oxford	07863	-074.9838712°	40.8215926°
NJ0020711	47061	Warren Co Technical School STP	A	Rte 57 E	Washington Twp	07882		
NJ0065196	46148	390 RT 57	GW	Rte 57	Washington Twp	07882	-075.0050352°	40.7525480°
NJ0059897	46533	Washington Twp Shopping Center	GW	Rte 31 & Asbury Anderson Rd	Washington Twp	07882	-074.9737803°	40.7201001°
NJ0136336	52623	Hawk Pointe Golf Community	GW	105 E Asbury Anderson Rd	Washington Twp	07882	-074.9608113°	40.7344157°
NJG0170101	425190	31 Steakhouse & Ale	T1	268 Rte 31 North	Washington Twp	07882		
NJG0105571	47567	Brass Castle Elementary School	T1	16 Castle St	Washington Twp	07882	-075.0061321°	40.7586728°
NJG0141593	162446	Burger King Restaurant	T1	Rte 31 South	Washington Twp	07882	-074.9771675°	40.7392189°
NJG0171697	450525	Country Charm Trailer Park	T1	429 Rte 31 South	Washington Twp	07882	-074.9729304°	40.7264391°
NJG0170305	450523	Leos Pizza & Italian Restaurant	T1	230 Rte 31 North	Washington Twp	07882		
NJG0169587	441405	Oakwood Lanes/ Sports Scene Restaurant	T1	234 Rte 31 North	Washington Twp	07882	-074.9785852°	40.7723588°
NJG0169790	450518	Ocino Restaurant Former	T1	289 Rte 31 South	Washington Twp	07882	-074.9779108°	40.7412196°

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NJG0166782	294689	Roaring Rock Restaurant	T1	388 Jonestown Rd	Washington Twp	07863		
NJG0155667	196809	Wayfarer Restaurant	T1	464 Rte 31	Washington Twp	07882	-074.9699363°	40.7203931°

Selected NJPDES Discharge Activity Category Codes

Discharge to Surface Water (DSW)

- A – Domestic Surface Water Discharge

Discharge to Ground Water (DGW)

- T1 – General Permit Sanitary Subsurface Disposal
- GW – General Permit Discharge to Ground Water

NJPDES	Facility Name	Project Summary	Block	Lot	Permitted Flow
NJ0065196	390 RT 57		22	3.15 & 3.16	
NJ0059897	Washington Twp Shopping Center	Strip mall	75	1	
NJ0136336	Hawk Pointe Golf Community	Residential development, golf course (Block 65, Lot 2), shopping center (Block 65.01, Lot 1)	various	various	82,000 gpd

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Table 7. Washington Township NJPDES T1 Facilities								
NJPDES	Facility Name	Project Summary	Block	Lot	Street Address	Street City	X Coord. Number	Y Coord. Number
NJG0170101	31 Steakhouse & Ale	Restaurant	40	26	268 Rte 31 North	Washington Twp		
NJG0105571	Brass Castle Elementary School	Elementary school	18	9	16 Castle St	Washington Twp	351921	701684
NJG0141593	Burger King Restaurant	Restaurant	64	15	Rte 31 South	Washington Twp	359906	694552
NJG0171697	Country Charm Trailer Park	Trailer Park	76	2	429 Rte 31 South	Washington Twp	361055	689890
NJG0170305	Leos Pizza & Italian Restaurant	Restaurant	40	16.01	230 Rte 31 North	Washington Twp		
NJG0169587	Oakwood Lanes/ Sports Scene Restaurant	Restaurant	40	17	234 Rte 31 North	Washington Twp	359579	706627
NJG0169790	Ocino Restaurant (Former)	Restaurant	64	13	289 Rte 31 South	Washington Twp	359704	695282
NJG0166782	Roaring Rock Restaurant	Restaurant	4	19.01	388 Jonestown Rd	Washington Twp		
NJG0155667	Wayfarer Restaurant	Restaurant	79	4	464 Rte 31	Washington Twp		

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Table 8. Washington Township Projected Wastewater Generation by Sewage Treatment Facility						
Facility	Facility Type	NJPDES Permit	Permitted Flow (GPD)	Existing Flow (GPD)*	Washington Township Source	Projected Flow (GPD)
Washington Borough WWTP	A	NJ0021113	1,500,000	1,189,000 Max3Mo (928,000)	Existing Flows (Includes estimated I&I)	1,189,000
					Projected Residential	0
					Projected Commercial	7168
					Port Colden	4,000
					Total Projected	120,0168
Facility	Facility Type	NJPDES Permit	Permitted Flow (GPD)	Existing Flow (GPD)*	Washington Township Source	Projected Flow (GPD)
Oxford Area WTF	A	NJ0035483	500,000	459,000 Max3Mo (373,000)	Existing Flows (Includes estimated I&I)	459,000
					Projected Residential	225
					Projected Commercial	0
					Total Projected	459,225

* Based on Monthly Report for period between January 2011 and December 2011.

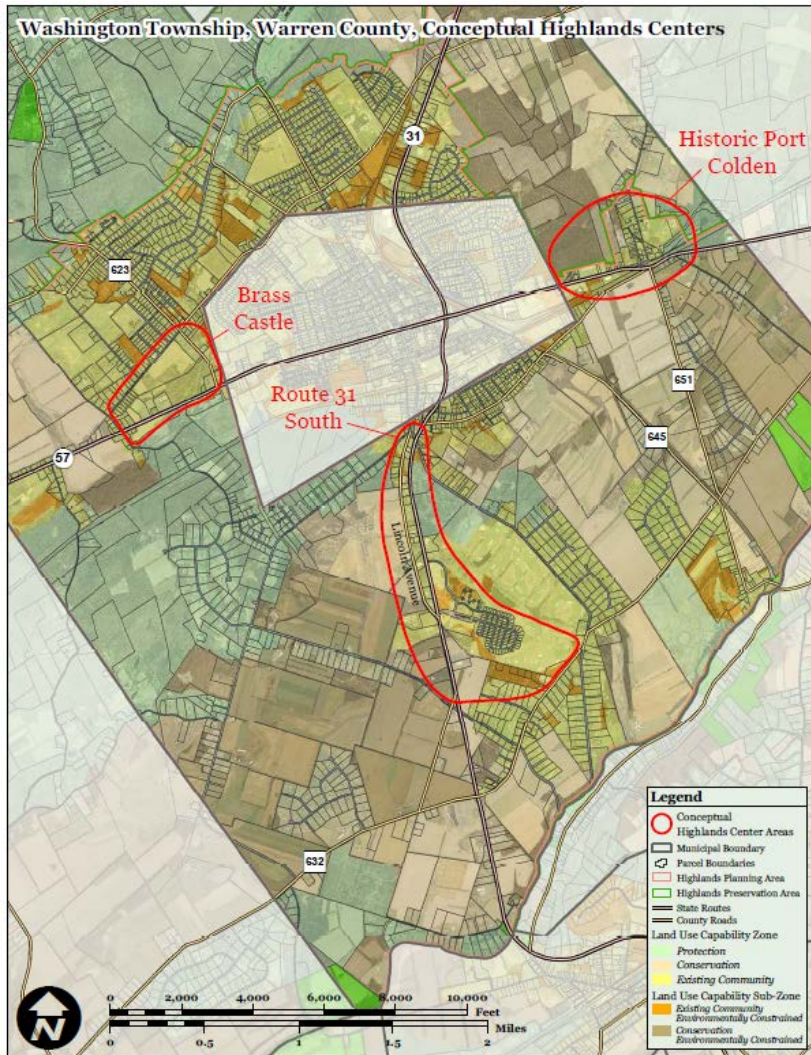
HUC14 Subwatershed	Subwatershed Name	Density (Drought Recharge) RMP	Total Units Allowed (Average Recharge) NJAC 7:15	Total Units Allowed (Drought Recharge) RMP
02040105140010	Pohatcong Creek (above Rt 31)	By LUCZ		0
02040105140020	Pohatcong Ck (Brass Castle Ck to Rt 31)	By LUCZ		38
02040105140030	Pohatcong Ck (Edison Rd-Brass Castle Ck)	By LUCZ		0
02040105160020	Musconetcong R (Changewater to HancesBk)	By LUCZ		16
02040105160030	Musconetcong R (Rt 31 to Changewater)	By LUCZ		140
02040105160040	Musconetcong R (75d 00m to Rt 31)	By LUCZ		36

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Table 10. Washington Township RMP Build-Out Septic System Yield Analysis				
Planning Area				
HUC14 Subwatershed	Subwatershed Name	CZ Yield	ECZ Yield	PZ Yield
02040105140010	Pohatcong Creek (above Rt 31)	0	0	0
02040105140020	Pohatcong Ck (Brass Castle Ck to Rt 31)	14	16	8
02040105140030	Pohatcong Ck (Edison Rd-Brass Castle Ck)	0	0	0
02040105160020	Musconetcong R (Changewater to HancesBk)	16	0	0
02040105160030	Musconetcong R (Rt 31 to Changewater)	119	12	9
02040105160040	Musconetcong R (75d 00m to Rt 31)	31	0	5
	totals	180	28	22
Preservation Area	14 units (Not disaggregated by HUC14)			

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Figure Washington Township HC-1 Conceptual Centers



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