Highlands Council
New Jersey

Utility Capacity

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Prepared by State of New Jersey Highlands Water Protection and Planning Council in Support of the Highlands Regional Master Plan

Technical Report

HIGHLANDS REGIONAL MASTER PLAN

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EXECUTIVE SUMMARY

This technical report analyzes information on the current infrastructure for providing community potable water supply and centralized wastewater treatment services to the Highlands Region.

A critical component of sustainable communities in the Highlands Region is a reliable supply of potable water and a dependable method of wastewater disposal. Like much of New Jersey, the Region is served with potable water through a combination of domestic water sources (typically wells) and public utility systems. Similarly, the disposal of wastewater includes a combination of wastewater treatment plants and individual septic systems. Planning for future water supply and wastewater service areas requires knowing the existing area served by existing infrastructure and an analysis of planned infrastructure.

WASTEWATER UTILITY CAPACITY

The public wastewater collection systems in the Highlands Region predominantly treat residential wastewater. A Highlands Domestic Sewerage Facility, which includes publicly-owned and investor-owned domestic wastewater treatment facilities, provides wastewater treatment to municipalities and has collection systems that may be capable of supporting redevelopment and regional growth opportunities. These facilities generally have NJDEP-permitted discharge capacities of more than either 0.150 million gallons per day (MGD) for discharge to surface water or 0.075 MGD for discharge to ground water.

There are 42 Highlands Domestic Sewerage Facilities representing a total wastewater treatment capacity of approximately 121.61MGD and a total discharge flow at the maximum three month (M3M) rate of 99.98 MGD. Some of these facilities have service areas that extend beyond the Highlands Region so a pro rata allocation based on the relative portion of the service area in and outside of the Highlands Region was used to estimate a Highlands Region treatment capacity of approximately 78.41 MGD and a total discharge flow at the M3M rate of 63.11 MGD, or approximately 80% of the total treatment capacity. Individual facilities have M3M rates ranging from 42% to 192% of total treatment capacity (with any value over 100% indicating a deficit), and from a deficit of 0.21 MGD to 2.52 MGD of current available capacity.

WATER UTILITY CAPACITY

Of great relevance to the smart growth vision of the Regional Master Plan are the "public community water systems (PCWS)," which may be owned and operated by governmental entities (either as municipal operations or utility authorities) or investor-owned utilities. These community systems, whether their source consists of ground water or surface water withdrawals, may have the potential for inducing or supporting growth.

There are 162 PCWS facilities in the Highlands; however 72 were not evaluated because either they have no flow information or because they are too small to require water allocation permits, and therefore are not required to report withdrawal rates. Smaller systems usually have no additional capacity to support growth.

The remaining systems were grouped into 61 unique utilities. This aggregation was necessary to examine utility capacity because some water systems share the same water allocation permit. For example, West Milford has several water systems with a unique public water system identification (PWSID). However, their ground water withdrawals are permitted under a single water allocation permit, and thus are grouped accordingly. The remaining top facilities primarily serve the Highlands Region. The demand generated from these systems is estimated at 2,691 million gallons per month.

Based on the analysis, 11 systems in the Highlands Region have available capacity of greater than 31 MGM, or approximately 1 million gallons per day (MGD). The largest of these by far are the NJ American Water Company divisions (Elizabethtown and Short Hills), which have extensive service areas outside of the Highlands Region and rely primarily on surface water supplies and non-Highlands Region ground water. The

remaining top facilities primarily serve the Highlands Region. It should be noted that the method provides conservative values for water availability, because nearly all Highlands systems (notably excepting the NJ American Water Company systems) are dependent upon aquifers, which will not have the same immediate effects on stream flow as surface water intakes on streams. Further, the demand data used in this analysis are from 2002-2004, and more recent data may show different results. In most cases, demands will have increased over time.

INTRODUCTION

The Highlands Regional Master Plan (RMP) relies upon and incorporates by reference the results of many technical reports regarding natural and historic resources, open space protection and other components as required by the Highlands Act. This Utility Capacity Technical Report focuses on one critical component of the planning process – determining the location and capacity of utility infrastructure to support communities with the Highlands Region. Public utility helps encourage redevelopment, regional development, economic growth, revitalization, and the transfer of development rights program.

The Highlands Council has compiled information available on water and wastewater utility infrastructure, associated areas served, and current levels of use. This report explains the methods used to compile these data from NJDEP, various utilities, counties and other studies on behalf of the Council. It then provides the results of this process, including water supply and wastewater sewer service area maps and capacity information for the utilities serving those areas.

The utility capacity element of the Regional Maser Plan seeks to evaluate the opportunities and limitations of water and wastewater infrastructure capacity to support economic development, and provide strategic vision where public investment is necessary to support growth and protect water resources. The Highlands Council has compiled the best available information on water and wastewater utility infrastructure, associated areas served, and current levels of use. Determining the location and amount of utility capacity available to support communities within the Highlands Region will help to encourage redevelopment, regional development, economic growth, revitalization and use of the Highlands TDR program. The RMP seeks to direct available capacity and limit expansion of water and wastewater utilities to those areas designated as a Existing Community Zone and encourage growth at a local level to the degree that it can be supported by limitations in available capacity and also meet the resource protection requirements of the RMP.

A critical component of sustainable communities in the Highlands Region is a reliable supply of potable water and a dependable method of wastewater disposal. Like much of New Jersey, the Region is served with potable water through a combination of domestic water sources (private wells) and public utility systems. Similarly, the disposal of wastewater includes a combination of wastewater treatment plants and individual septic systems. Planning for future water supply and wastewater service areas requires knowing the existing area served by existing infrastructure and an analysis of planned infrastructure.

The smart growth element of Regional Master Plan focuses on community infrastructure, as these systems are what facilitate or constrain future concentrated development patterns. The RMP intends to direct available capacity and limit expansion of water and wastewater utilities to areas of the Land Use Capability Zone Map that are consistent with the smart growth vision and resource protection requirements contained in the RMP. The smart growth element also seeks to evaluate the water and wastewater infrastructure to support economic development and provide strategic vision where public investment is necessary to support growth and protect water resources.

The Land Use Capability Zone Map identifies these redevelopment and regional growth opportunities in the Existing Community Zone where growth can be supported by available utility infrastructure. Specifically, the smart growth element includes the following components:

Identify areas currently served by existing water supply and wastewater facilities;

- Determine available wastewater and water supply system capacity for facilities and the extent to which they have the ability to support some level of regional growth and or redevelopment;
- Identify proposed wastewater service areas for wastewater facilities;
- Determine areas where the projected redevelopment and development demands may exceed the available wastewater treatment capacity or water supply delivery capacity of these facilities;
- Identify appropriate wastewater or water supply service areas consistent with regional growth or redevelopment areas that have existing capacity sufficient to accommodate the projected system demands;
- Evaluate the potential or limitations for future expansion of wastewater treatment capacity where there is a clearly identified benefit to the RMP, based on existing water quality concerns and other limitations, and through the control of infiltration and inflow; and
- Evaluate the potential or limitations for future expansion of water supply delivery capacity where there is a clearly identified benefit to the RMP, based on net water availability concerns and other limitations.

Existing industrial facilities, isolated non-community systems, and individual wastewater systems do not have the potential for inducing or supporting concentrated community growth. The wastewater systems of greatest interest are those larger systems regulated by NJDEP as domestic treatment works, which treat predominantly residential wastewater (though some systems also handle limited industrial effluent). These systems may be owned and operated by governmental entities or investor-owned utilities.

Likewise, industrial, isolated non-community systems and domestic water supply systems do not have the potential for inducing or supporting growth. The public water systems of greatest interest are regulated by the NJDEP as "public community water supply systems," which may be owned and operated by governmental entities (either as municipal operations or utility authorities) or investor-owned utilities.

This report explains the methods used to compile wastewater treatment infrastructure data for the Highlands Region. It then summarizes the results regarding wastewater utility service areas, total capacity and remaining capacity. This report also summarizes information on the current infrastructure for providing community water supply to Highlands' municipalities.

LEGAL REQUIREMENTS FOR INCLUSION IN THE REGIONAL MASTER PLAN

GOALS AND REQUIREMENTS OF THE HIGHLANDS ACT

In accordance with the Highlands Act, the overarching goal of the Regional Master Plan "with respect to the entire Highlands Region shall be to protect and enhance the significant values of the resources thereof in a manner which is consistent with the purposes and provisions of this act." (Section 10.a.). In the Preservation Area, Highlands resources are protected by limiting the expansion of water and wastewater infrastructure. The Highlands Act, in Section 41 prohibits "the construction of new public water systems or the extension of existing public water systems" in the Preservation Area with the exception of "a demonstrated need to protect public health and safety" and exempt developments. Similarly, Section 42, specifically revoked designated sewer service areas unless their wastewater collection systems had been installed by August 10, 2004. As part of the smart growth component, the Highlands Act requires the Council to identify water and wastewater "infrastructure that would support or limit development and redevelopment in the planning area". (Section 11.a.(6)(c) and (6)(d)).

The Highlands Water Protection and Planning Act (Highlands Act) specifically addresses utility infrastructure in several ways, including strict controls on wastewater collection system extensions in the Preservation Area at Section 42 of the Act, with service extensions only being allowed under very specific and limited circumstances.

Even where infrastructure expansion is allowed, Section 34.b. of the Highlands Act mandates that wastewater treatment plant expansions cannot result in water quality degradation; this non-degradation policy must be reflected in the Regional Master Plan.

The Highlands Act also includes specific expectations regarding water utility infrastructure in the Regional Management Plan development process. As part of the Smart Growth Component in Section 11.a.(6), the Council must assess opportunities for appropriate development, redevelopment and economic growth, and a transfer of development rights program, to include consideration of public investment priorities. Infrastructure investments, economic development, revitalization, housing, transportation, energy resources, waste management, recycling, and other factors are to be considered.

The Land Use Capability Map (which is a five-map series in the RMP) must identify existing developed areas capable of sustaining redevelopment activities and investment; undeveloped areas in the planning area that are not significantly constrained by environmental limitations such as steep slopes, wetlands, or dense forests, are not prime agricultural areas, and are located near or adjacent to existing development and infrastructure, that could be developed; and transportation, water, wastewater and power infrastructure that would support or limit development and redevelopment in the planning area. The land use capability map will also identify special critical environmental areas and other critical natural resource lands where development should be constrained or avoided.

The Highlands Council shall also provide proposed densities for development, redevelopment, or voluntary receiving zones for the transfer of development rights; and identify potential voluntary receiving zones in the planning area for the transfer of development rights through the appropriate expansion of infrastructure or the modified uses of existing infrastructure. The legislative intent clearly anticipates the use of existing infrastructure, and the limited expansion of infrastructure, to serve appropriate development areas, including TDR receiving areas.

INFORMATION FOR WASTEWATER SYSTEM UTILITIES

The Highlands Council has compiled the best available information on wastewater utility infrastructure, associated areas served, and current levels of use. Determining the location and amount of utility capacity available to support communities within the Highlands Region will help to encourage redevelopment, regional development, economic growth, revitalization, and use of the Highlands TDR program.

The Highlands Council compiled available information on all NJPDES-permitted wastewater facilities and for all existing wastewater service areas for the Highlands Region. The Highlands Council inventoried the existing wastewater infrastructure (i.e., existing areas served) for wastewater facilities with potential to service regional growth and/or redevelopment opportunities within the Highlands (called Highlands Domestic Sewerage Facilities). Available wastewater treatment capacity for each Highlands Domestic Sewerage Facility was estimated by subtracting the actual sewage flows for the maximum three month period from the total permitted capacity.

The Highlands Council will continue to assess wastewater utilities through further analyses of existing areas served, service areas, Highlands Domestic Sewerage Facility capacity, and limitations inherent to each Highlands Domestic Sewerage Facility

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WATER QUALITY MANAGEMENT PLANS

Wastewater systems and system expansions are planned through Wastewater Management Plans (WMPs) for municipalities, groups of municipalities, and regional utilities. These plans are required to be adopted by NJDEP through the Water Quality Management Planning Rules, N.J.A.C. 7:15, under the authority of the New Jersey Water Quality Planning Act. The Water Quality Planning Act includes an important requirement that no permits may be approved by NJDEP if in conflict with an adopted WMP.

NJDEP requires that WMPs address a number of environmental constraints issues, including the potential for excessive water withdrawals, riparian area impacts, and capacity of the receiving stream, under Executive Order 109 (2000). NJDEP has proposed significant changes to N.J.A.C. 7:15, due for adoption in May 2008, that will incorporate Executive Order 109 issues within the rules, along with other provisions. In addition, NJDEP's rules at N.J.A.C. 7:38-1.1(k) require NJDEP to review the Regional Master Plan, for the Highlands Planning and Preservation Areas, and consider amending the appropriate areawide Water Quality Management Plans to maintain consistency with the RMP. This rule also requires that NJDEP only approve a Water Quality Management Plan amendment after receiving from the Highlands Council a determination of consistency with the Regional Master Plan. This coordinated planning will ensure that NJDEP's review of Water Quality Management Plan amendments is based upon the updated information developed in the RMP.

N.J.A.C. 7:15 in conjunction with the Statewide WQM Plan constitute the Continuing Planning Process required by the federal Clean Water Act. This process is conducted pursuant to the New Jersey Water Quality Planning Act, the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., and N.J.S.A. 13:1D-1 et seq., and as required by Sections 303(e) and 208 of the Federal Clean Water Act (33 U.S.C. 1251 et seq.). The Commissioner of NJDEP shall not undertake, or authorize through the issuance of a permit, any project or activity that affects water quality and conflicts with the applicable sections of Statewide, areawide, and/or county WQM Plans or the Statewide WQM Planning Rules.

The Statewide WQM Plan directs and coordinates water quality management planning and implementation activities for the entire State and serves as a guide for areawide planning. There are twelve areawide WQM Plans in New Jersey, three of which affect the Highlands Region (Northeast, Upper Delaware and Upper Raritan). The purpose of the areawide WQM plans is to identify areas within the State to evaluate water quality control issues, identify factors contributing to the water quality problems, and identify measures for addressing those problems. Additionally, county planning boards may conduct a county-wide water quality management planning process and prepare a county WQM plan (NJDEP-DWM, 2006).

Through the WQM Planning Rules, NJDEP requires the preparation and updating of Wastewater Management Plans (WMPs), and provides review and adoption of WMPs into areawide WQM plans. Areawide wastewater treatment areas were designated pursuant to the provisions of the Water Quality Planning Act and section 208 of the Federal Water Pollution Control Act.

These areas, to the maximum extent practicable, conform to county boundaries, with appropriate modifications made to take account major watersheds. The agency with WMP responsibility for a specific area is determined by the jurisdiction and wastewater-related responsibilities of existing governmental agencies. A list of Wastewater Management Planning Agencies is available through NJDEP-DWM Water Quality Management Planning website http://www.state.nj.us/dep/watershedmgt/wqmps.htm.

Wastewater treatment systems and system expansions are planned through WMPs for municipalities, groups of municipalities, and regional utilities. A WMP is a document that reports wastewater needs for a 20-year planning horizon, and outlines how those needs will be met through individual septic systems, NJPDES-permitted discharges to ground water, and NJPDES-permitted discharges to surface water. The needs must be based on local zoning or master plans, with justification for which treatment plant and discharge point is used.

WMPs must identify the sewer service areas that were previously approved, and those that are sought to be added or subtracted. However, they do not necessarily identify the areas that are currently in service, with "in the ground" infrastructure and lateral connections to developed property (NJDEP-DWM, 2006). The 2008 amendments to these rules anticipate shifting the focus from municipal WMPs to county-wide WMPs, which will significantly affect this process. Municipalities will be able to prepare WMPs where a county does not act.

EXISTING WASTEWATER UTILITIES REGULATORY PROGRAM

NJDEP Division of Water Quality (DWQ) administers the New Jersey Pollutant Discharge Elimination System (NJPDES) Program. The NJPDES Program protects the state's ground and surface water quality by assuring the proper treatment and discharge of wastewater and stormwater from various types of facilities and activities. To accomplish this, permits are issued limiting the mass and/or concentration of pollutants which may be discharged into ground and surface water. Before a wastewater treatment plant can be constructed or upgraded, its proposed discharge must be authorized under a NJPDES permit. The permit contains discharge pollutant limits sufficient to safeguard the integrity of the receiving water body. The limits also provide the utility with the information needed to determine whether it must design a new treatment plant or upgrade an existing one (NJDEP-DWQ, 2006). A NJPDES permit application must be consistent with the relevant WQM Plan and cannot be authorized if in conflict with that plan.

NJPDES permits for wastewater discharges to surface water include a provision that the discharge effluent shall not violate the State's Surface Water Quality Standards, N.J.A.C. 7:9B, and must meet water quality based effluent limitations at N.J.A.C. 7:14A. Surface Water Quality Standards are the rules that set forth designated uses, use classifications, and water quality criteria for the State's waters based upon such uses, and NJDEP's policies concerning these uses, classifications and criteria. NJDEP requires development of water quality based effluent limitations to be included in the NJPDES permit if the discharge may cause or contribute to the violation of a Surface Water Quality Standard or antidegradation policy, may adversely affect a water body with a higher use classification or antidegradation designation downstream of the discharge location, or may cause, contribute, or have the reasonable potential to cause an excursion above the surface water quality standards of another state, in accordance with N.J.A.C. 7:14A-13.3.

The New Jersey Ground Water Protection Program, or GWPP, relies on NJPDES discharge to ground water discharge control permits to ensure that pollutant discharges do not degrade ground water quality, or indirectly, surface water quality. Each permit includes any or all of the following components: a ground water monitoring well network; ground water monitoring parameters and a sampling/reporting schedule; a discharge/effluent monitoring program and limitations; and best management practices and preventative measures. The implementation of the GWPP allows assessment of whether a wastewater discharge will contravene the state Ground Water Quality Standards, N.J.A.C. 7:9-6.

Appendix A includes all NJPDES-permitted facilities in the Highlands Region as of early 2007.

Treatment Works Approvals are a type of construction permit whereby the Division of Water Quality evaluates a proposed treatment plant's design and ability to meet effluent standards specified in the NJPDES permit. Treatment Works Approvals are issued after a discharger has obtained a NJPDES permit. The Treatment Works Approval process also involves assessing the design of new sewer lines and other wastewater conveyance facilities (force mains, pumping stations, etc.) as well as evaluating downstream conveyance and treatment capacity.

If a treatment plant fails to meet its NJPDES discharge permit limits, it can impair the receiving water body, thereby threatening drinking water supplies and aquatic life. To prevent further impacts, NJDEP can issue a sewer ban in the areas served by the treatment plant. To avert a sewer ban, the Capacity Assurance Program functions as a planning tool that is implemented when committed flows reach 80% of a treatment plant's

permitted design capacity (NJDEP-DWQ, 2006). Utilities exceeding that threshold must prepare a plan demonstrating their ability to continue meeting all permit requirements as flows increase.

ASSIMILATIVE CAPACITY

Assimilative capacity studies predict the ability of a surface water body receiving various point and nonpoint discharges to assimilate these discharges without deleterious effects and without damage to aquatic life or humans. These studies are currently conducted on a site-specific basis, as determined by NJDEP, based on surface water body classifications, N.J.A.C. 7:9B.

Total Maximum Daily Loads (TMDLs) represent the assimilative capacity of receiving waters by assessing point and nonpoint pollution, ambient surface water quality, and surface water withdrawals. A TMDL identifies the contributing factors to surface water quality impacts, including wastewater discharges, and sets goals for load reduction as necessary to meet Surface Water Quality Standards. A TMDL establishes Waste Load Allocations and Load Allocations for point and nonpoint sources, respectively. TMDLs are required under Section 303(d) of the federal Clean Water Act for water bodies that cannot meet Surface Water Quality Standards even with the implementation of technology-based effluent limitations. TMDLs may be established to help maintain or improve water quality in non-impaired waters. TMDLs are considered to be "adopted" once approved by the EPA and adopted by NJDEP as a WQM Plan amendment.

Load reductions are achieved through issuing wasteload and load allocations. Since nonpoint source pollution does not come from discrete sources, load allocations identify the categories of sources that contribute to the loading. The load allocation also includes specific load reduction measures, implemented through best management practices (BMPs) or other mechanisms.

TMDLS are a primary regulatory driver in determining assimilative capacity. In addition, stream classification (e.g., C1 status), instream ecological flow water quality and quantity requirements, discharges to ground water (e.g., septic effluent), and other public health end ecological factors are considered in determining the ability of a water body to handle the impacts of wastewater discharges while protecting the integrity of the resource Wastewater Utility Infrastructure Data Development

APPROVED SEWER SERVICE AREAS

A sewer service area is the territory in which a utility system is authorized by NJDEP to provide wastewater treatment service to customers. NJDEP has mapped approved sewer service areas for the State. The NJDEP sewer service areas mapping shows the planned method of wastewater disposal for specific areas (e.g., whether wastewater will be collected to a regional treatment facility or treated on site and disposed of through a surface water or a ground water discharge). The Highlands Act repealed all sewer service areas in the Highlands Preservation Area where collection pipes had not been constructed as of August 2004. NJDEP revised the sewer service areas in the Highlands Preservation Area based on responses to the Department's request for in-ground sanitary sewer mapping, staff knowledge, review of Department permits, and a review of 2002 aerial photography to locate existing development. The revised mapping was then sent out for verification by the sewer authorities and municipalities within the Highlands Preservation Area.

The Highlands Council used the NJDEP mapped service areas as a basis for further refining those areas with existing or approved sewer services within the Planning Area, through utilization of billing records, collection systems, and information from wastewater utility personnel specific to the Highlands to develop an inventory of all areas currently served by wastewater collection systems in the Region.

As determined by the Highlands Council, approved sewer service areas cover a total of 21% of the Highlands Region, with approximately 6% of the Preservation Area and 36% of the Planning Area included (see Table 1 *Approved Service Areas within Highlands Region*). Table 2 *Approved Service Areas per Highlands Region HUC14s* lists

percent existing service areas per Highlands HUC14s.

HIGHLANDS DOMESTIC SEWERAGE FACILITIES EXISTING AREAS SERVED

The primary wastewater collection systems in the Highlands Region are regulated by NJDEP as Domestic Treatment Works. Domestic Treatment Works are wastewater treatment systems that serve more than an individual residential customer and treat sewage wastes. These systems are distinct from industrial treatment works (which treat industrial process wastes from individual manufacturing sites) and Individual Subsurface Disposal Systems (ISSDS, or septic systems, which handle sewage from individual homes). Domestic Treatment Works include municipal and regional sewerage systems that are publicly-owned, similar systems that are investor-owned, and private systems that provide sewage treatment for apartment complexes, mobile home parks, and other forms of clustered development.

Domestic Treatment Works were selected for study because they are the only wastewater treatment systems that can legally provide community sewage services to residential development and therefore have the greatest potential for inducing growth (assuming that the facilities have or could have capacity). Of these Domestic Treatment Works, on-site sewage systems for businesses, schools, and other institutional facilities, which are common in the Highlands, have very little capacity for serving growth beyond their property boundaries, and therefore do not pose major issues regarding net wastewater utility capacity.

The Highlands Council inventoried the most current and detailed information on Domestic Treatment Works in the Highlands Region with existing, in the ground sewer service infrastructure (hereafter referred to as Existing Areas Served) with potential to service regional growth and/or redevelopment opportunities within the Highlands (hereafter referred to as Highlands Domestic Sewerage Facilities). A Highlands Domestic Sewerage Facility, which includes publicly-owned and investor-owned domestic wastewater treatment facilities, provides wastewater treatment to municipalities and has collection systems that may potentially support redevelopment and regional growth opportunities. Facilities included in this list generally have NJDEP-permitted discharge capacity of more than either 0.150 million gallons per day (MGD) for discharge to surface water or 0.075 MGD for discharge to ground water.

Highlands Domestic Sewerage Facilities Existing Areas Served were defined using individual parcel data, so that the entire parcel is generally described as served even if only part of the parcel is served. Individual NJPDES-permitted wastewater treatment facilities, such as industrial and commercial facilities, schools, religious retreats, and certain recreation facilities were mapped as NJDEP-permitted discharge points, but were not included in Highlands Domestic Sewerage Facilities Existing Areas Served mapping because these facilities are often on single lots, and do not represent potential growth areas. Highlands Domestic Sewerage Facilities Existing Areas Served cover a total of 10% of the Highlands Region, with 2% of the Preservation Area and 18% of the Planning Area included (see Table 3 *Highlands Domestic Sewerage Facilities Existing Areas Served within Planning Area, Preservation Area*). Table 4 *Highlands Region HUC14s Served by Highlands Domestic Sewerage Facilities* lists percent of each Highlands HUC14 that is currently served by Highlands Domestic Sewerage Facilities. Figure 1 *Highlands Domestic Sewerage Facilities* shows the results of this mapping process, representing the most current and detailed information available on Existing Areas Served and outlines estimates of available treatment capacity. This map is also included in the RMP as one of the five maps in the Land Use Capability Map Series.

The inventory of Highlands Domestic Sewerage Facilities Existing Areas Served is an important tool to identify areas where growth should or should not be encouraged and where land adjacent to this infrastructure is appropriate for growth. Additionally, this inventory will assist in the identification of areas of concern where dense development patterns without sewer service exist. Such situations may require the replacement of septic systems with community wastewater systems in order to safeguard public health.

FUTURE FULL EXTENT OF HIGHLANDS WASTEWATER SEWER SERVICE AREAS

In addition to Existing Areas Served, the Highlands Council will identify through the Plan Conformance process any additional service areas for Highlands Domestic Sewerage Facilities. These service areas will include Existing Areas Served and any additional areas identified by a municipality within the Existing Community Zones (per the Land Use Capability Zone Map) or for adjacent cluster development where service area expansion is not prohibited by RMP policies due to environmental concerns, where there is sufficient treatment capacity available from Highlands Domestic Sewerage Facilities to service projected wastewater treatment demand, and where there is adequate water supply capacity and water availability. As the RMP specifically provides municipal discretion on including growth within their boundaries, the Highlands Council is not able to map such areas at this time. Including these three elements in the Plan Conformance process fulfills part of the Highlands Council obligation to identify opportunities for growth, through the Resource Assessment, where wastewater infrastructure can support development and redevelopment without compromising ecosystem integrity.

EFFECTS OF THE HIGHLANDS ACT ON PLANNED SERVICE AREAS IN THE PRESERVATION AREA

Section 42 of the Highlands Act required the deletion from the WMPs of any approved service areas in the Preservation Area that lack existing (in the ground) service as of August 2004. NJDEP has mapped these service areas reductions in the Preservation Area. However, it is important to note that the Preservation Area wastewater service areas do not reflect exempt developments that may still be served; also, sewers may be extended to address wastewater-related public health hazards.

NON-HIGHLANDS SERVICE AREAS

Highlands wastewater treatment plants may serve collection systems that extend beyond the Highlands Area boundaries, and non-Highlands wastewater treatment plants may currently serve and have the capacity to provide wastewater services to Highlands Area municipalities. Therefore, it was important to understand how these service areas overlap the boundary. To minimize additional data gathering, the NJDEP GIS map of sewer service areas (2005) was used as the basis for delineating non-Highlands sewer service areas. Because only the larger systems are likely to have such overlaps, this mapping was sufficient for Highlands planning purposes.

WASTEWATER FACILITY LIMITATIONS

The inventory of Highlands Domestic Sewerage Facilities provides information on each system's wastewater treatment capacity as per the NJPDES permit requirements.

Wastewater travels through sewer pipes to wastewater treatment plants, where it is either treated and returned to streams, rivers, or other water bodies or reused for irrigation and landscaping. Wastewater treatment system capacity is the amount of wastewater a treatment facility can accept, treat, and return to a water system. Two types of limits exist to treatment system capacity (1) the physical infrastructure (pumps, treatment plants), and (2) permit, approval and other regulatory limits (e.g., NJPDES permits, Treatment Works Approvals, Wastewater Management Plans, Total Maximum Daily Loads).

Permit capacity is based upon the lesser of the planned need and facility capacity or receiving stream assimilative capacity. The physical infrastructure defines the limits for wastewater collection and treatment that are inherent to the system, while NJDEP permits and approvals define the limits for effluent discharge to the receiving water.

In some cases, a system may receive wastewater from other collection systems in bulk volumes under contract.

In other cases, a system may have no actual treatment capacity, but rather is a "sending system" that flows to another system where treatment actually takes place. In either case, the treatment capacity of the ultimate receiving system is the critical limiting factor.

WASTEWATER TREATMENT SYSTEM DEMANDS

Each wastewater treatment system has a unique pattern of wastewater demands, which are reflected in daily peaks, monthly peaks, seasonal peaks, annual demands, and rolling averages. A focus on annual demands is not sufficient, as various kinds of peak demands place stresses on system limits (physical infrastructure) and resource limits (assimilative capacity of the receiving waters). Wastewater flow rates are less affected by seasonal changes in water use and more by infiltration and inflow (I&I) during wet weather events. Information on daily peaks is not reported to NJDEP and is more relevant to facility management than long-term resource stresses. Monthly peaks are important for discharges to surface water; therefore, the system inventory includes monthly demands for the years 2000 through 2004. Both monthly demands and annual average demands are important for discharges to ground water; the annual average demands are derived from the monthly data.

SYSTEM COMMITMENTS

Wastewater system discharge rates, as measured, will not reflect all demands for which the system is committed. There are two general types of commitments that are not reflected in actual wastewater flows. First, the system may be committed to accepting wastewater from to address public health or environmental concerns, or from new development or redevelopment that is not yet "on line." These commitments may be tracked using service contracts or NJDEP Treatment Works Approvals.

Second, a regional system may have agreements to accept wastewater from a member municipality or other wastewater collection systems, with contractual commitments for future treatment that exceed current levels. Upon direct input from Highlands Domestic Sewerage Facilities the system inventory will include information on each type of commitment.

When a treatment facility discharge exceeds 80% of the permitted capacity, the facility is subject to NJDEP Capacity Assurance Program requirements and must show how it will provide additional service while maintaining compliance with its permit limits. If a treatment plant fails to meet its NJPDES discharge permit limits, it can threaten drinking water supplies and ecological integrity of the receiving water. To prevent further harm, a sewer ban may be implemented. The Capacity Assurance Program comes into play when committed flows (anticipated flow from permitted projects not yet constructed) reach 80% of a treatment plant's permitted design capacity. This helps in planning how a plant's remaining flow capacity will be used and whether upgrades are necessary to assure capacity.

INFILTRATION AND INFLOW

Infiltration and Inflow (I&I) is a measure of the wastewater reaching a treatment plant that is not derived from customers, but rather is from either leakage or non-metered flows into the wastewater collection system. Wastewater flows for HDSF were analyzed regionally to identify a time period where flows could be considered to have minimal I&I, as a point of comparison to the maximum three-month (M3M) flows. September 2005 was selected as the base period; as this month had minimal rainfall, was preceded by three months with minimal rainfall, and yet had no water conservation requirements in place that could have constrained customer water use.

Maximum rates of I&I are estimated by comparing the September 2005 (dry month) flows against the October 2005 (wet month) flows. The results are shown in Table 5 *Infiltration and Inflow*. The greater the difference, the

more potential there may be for creating capacity through I&I reductions. However, a more detailed analysis will be needed to address such issues, including implementation costs, cost-effectiveness, impacts on treatment efficiencies, etc. Daily peak flows would show even a greater impact of I&I, but daily values were not available for this analysis. Due to the complexity and cost of such analyses, it will be appropriate to focus this effort on systems where capacity is desired but lacking to serve existing development on failing septic systems and future development or redevelopment. As shown in Table 5 there are a number of facilities with ratios above 2:1 for October 2005 to September 2005 flows.

AVAILABLE WASTEWATER CAPACITY

Each wastewater system requires more than one assessment of available capacity. The permitted capacity (and other potential regulatory constraints) must be compared to the M3M flow plus site-specific commitments to new wastewater treatment demands. Where there is an initial indication of available capacity, the next step will be to determine whether that capacity is legally constrained due to recent effluent quality violations (significant noncompliance), court orders, and specific regulatory facility or receiving water limits, among other factors. Once this is complete, then questions must be answered as to whether member municipalities have contractual rights to the remaining flow for development that has not been approved or received Treatment Works Approvals (TWAs), and the extent to which those contracted flows may be modified.

POTENTIAL CONSTRAINTS ON FUTURE WASTEWATER CAPACITY

This report does not include a detailed analysis of constraints on the potential for increasing capacity of wastewater systems, due to the complexity of site-specific studies necessary to quantify such constraints. Financial constraints are generally defined based on the cost of wastewater treatment relative to household income and customers' ability to pay. Water resource constraints are related to the availability of receiving water bodies to assimilate additional effluent discharges without damaging the resource. Physical constraints can include site limitations for infrastructure construction or technological limitations. These must all be considered in the complete analysis of available wastewater treatment capacity.

POTENTIAL WASTEWATER UTILITY DEMANDS DUE TO PRE-EXISTING OR APPROVED DEVELOPMENT IN THE PRESERVATION AREA

As discussed above, there are potential commitments for approved development or other wastewater treatment demands that are not necessarily reflected in available wastewater treatment system data. In addition to those flows that are documented by the relevant utility, there are potential flows that may be indeterminate at this time and/or not located within service areas. Two circumstances regarding the Preservation Area, both of which are specifically addressed by the Highlands Act are discussed below.

First, the Highlands Act specifically exempted certain developments that had a combination of municipal and State approvals, and allows the creation or extension of public water and wastewater systems for such developments where the local approvals permitted public infrastructure (instead of relying on septic systems and domestic wells). In addition, the Highlands Act exempts certain kinds of developments, most importantly for redevelopment areas and the construction of a single family home on a pre-existing, legal lot. In some cases, these new homes will be capable of tying into water utility infrastructure that is already available in the neighborhood, but the Highlands Act does not allow for extension of water utility infrastructure in the Preservation Area to serve these single-lot, single home projects.

Second, some older communities and neighborhoods in the Highlands Region, including many that started as lake communities with summer homes, are now full-time residential areas with very small lots incorporating both septic systems and domestic wells. Such situations pose the potential for lake contamination (including algal blooms and beach contamination) and well contamination. It will be possible to compare areas of dense

development (using the 2002 Land Use/Land Cover and parcel data) with existing areas served. Areas of greatest concern would be those with dense development and no sewer service, and especially such areas where there is no community water supply. Such situations may require, over time, the replacement of domestic wells with community water supplies, the replacement of septic systems with community wastewater treatment systems, or both to protect public health and water resources.

WASTEWATER UTILITY TREATMENT CAPACITY

The Table 6 *Highlands Domestic Sewerage Facilities* lists 42 Highlands Domestic Sewerage Facilities. These facilities represent a total treatment capacity of approximately 121.61 MGD and a total discharge flow at the M3M (maximum three month) rate of 99.98 MGD. However, some of these facilities have service areas that extend beyond the Highlands Region. Information was not available to determine the portion of design capacity and M3M demand that is related to Highlands Region service areas, and so Table 6 estimates these values by using a pro rata allocation based on the relative portion of the service area in and outside of the Highlands Region. For the Highlands Region alone, the facilities represent a Highlands treatment capacity of approximately 78.41 MGD and a total discharge flow at the M3M (maximum three month) rate of 63.11 MGD, or approximately 80% of the total treatment capacity. Individual facilities have M3M rates ranging from 42% to 192% (indicating a deficit of total treatment capacity; deficits where they exist range from 0.21 MGD to 2.52 MGD of current available capacity.

As noted in the Table 6*,* some facilities may have available capacity, based on the initial analysis of total permitted capacity compared to M3M flow rates. Two types of commitments not addressed in this table include commitments to approved developments that have not come on line and contractual commitments to municipal customers. Some facilities will have very limited treatment capacity remaining, due to a combination of existing flows (at the M3M rate) plus site-specific development commitments.

Of the five facilities with roughly 1 MGD or more of Current Available Highlands Capacity, as determined in this initial analysis, all are surface water discharge facilities. These include the Phillipsburg STP, Hanover STP, Morris Township-Butterworth STP, Parsippany-Troy Hills Sewerage Authority, and Musconetcong Sewer Authority. However, all of the capacity for the Musconetcong SA facility has been committed to address the replacement of septic systems with sewerage. Additional constraints must be assessed on a site-specific basis.

The Highlands Act limits wastewater service areas in the Preservation Area to Existing Areas Served but allows for redevelopment under limited conditions. In the Planning Area, providing sufficient capacity for priorities such as service include Transfer of Development Rights receiving areas, and redevelopment opportunities within areas of existing sewer service is critical to defining appropriate future service areas that are consistent with the regional smart growth principles, treatment capacity limitations and resource protection goals of the Regional Master Plan. As the RMP specifically provides that growth opportunities are voluntary for each municipality, final determination of sewer service areas must occur through the Plan Conformance process..

The results for any Highlands Region Sewerage Facility will be affected by the amount of redevelopment potential, voluntary creation of TDR receiving areas, and the extent to which future zoning (based on the Regional Master Plan) is different from current zoning. However, the estimates of current available capacity can be used for planning purposes to get a sense of whether individual domestic treatment works would have capacity to serve these prospective needs.

To determine the potential effects that future development may have on the build-out capacity of the Highlands Region and its constituent municipalities, the Highlands Council contracted with Center for Brownfields and Neighborhood Redevelopment at Rutgers University to assist with the creation and assessment of four different development build-out scenarios. The four build-out scenarios which are currently being evaluated are:

- Municipal Zoning: The first model run will utilize land use and current zoning information and densities and represents the impacts of a full build out for environmental regulatory conditions in the absence of the Highlands Act.
- Policy Density: The second model run will utilize the same land use data as the first scenario, but applies residential and non-residential densities in accordance with the State Development and Redevelopment Plan identified Planning Areas and Centers.
- Highlands Land Capacity Without Planning Area Conformance: The third model run will utilize the available land and municipal zoning data developed in the first scenario, but adjusted to reflect legislated, physical capacity and other constraints on land use established by the Highlands Act and the Regional Master Plan in the Preservation Area.
- Highlands Land Capacity With Full Planning Area Conformance: The fourth model run will utilize the available land and municipal zoning data developed in the Land Capacity Baseline, but adjusted to reflect densities and mixed land uses that would be associated with potential growth and redevelopment areas as defined by the Regional Master Plan assuming that all municipalities in the Planning Area also conform to the RMP.

Each Highlands Domestic Sewerage Facility will be assigned a projected demand based on results from the build-out scenarios. Where available capacity exists to serve areas beyond the Existing Area Served, the capacity will be assigned in the Planning Area to approved sewer service areas in the Existing Community Zone where environmental constraints do not exist. No additional service areas are identified in the Preservation Area, in keeping with the Highlands Act.

Given the differences in measures for committed capacity, the appropriate next step for Highlands Domestic Sewerage Facilities will be to: (1) identify through the Plan Conformance process those areas for which growth capacity would be useful, (2) determine whether there is available treatment capacity based on total capacity minus M3M flows and other site-specific analyses, and then (3) if capacity exists, determine whether the municipal commitments correspond to the potential growth areas or conflict with them. If conflicts exist, further analysis would be necessary regarding the availability and reallocation of capacity.

The regional sewerage facilities with the largest estimated treatment capacity values (based on total capacity minus M3M flows minus site-specific committed capacity) will be identified through further analysis. Information regarding municipal contractual commitments (if any), the receiving water body, and known, potential screening criteria for future growth constraints that may affect either the current or potential treatment capacity of the facilities will be identified through further analysis.

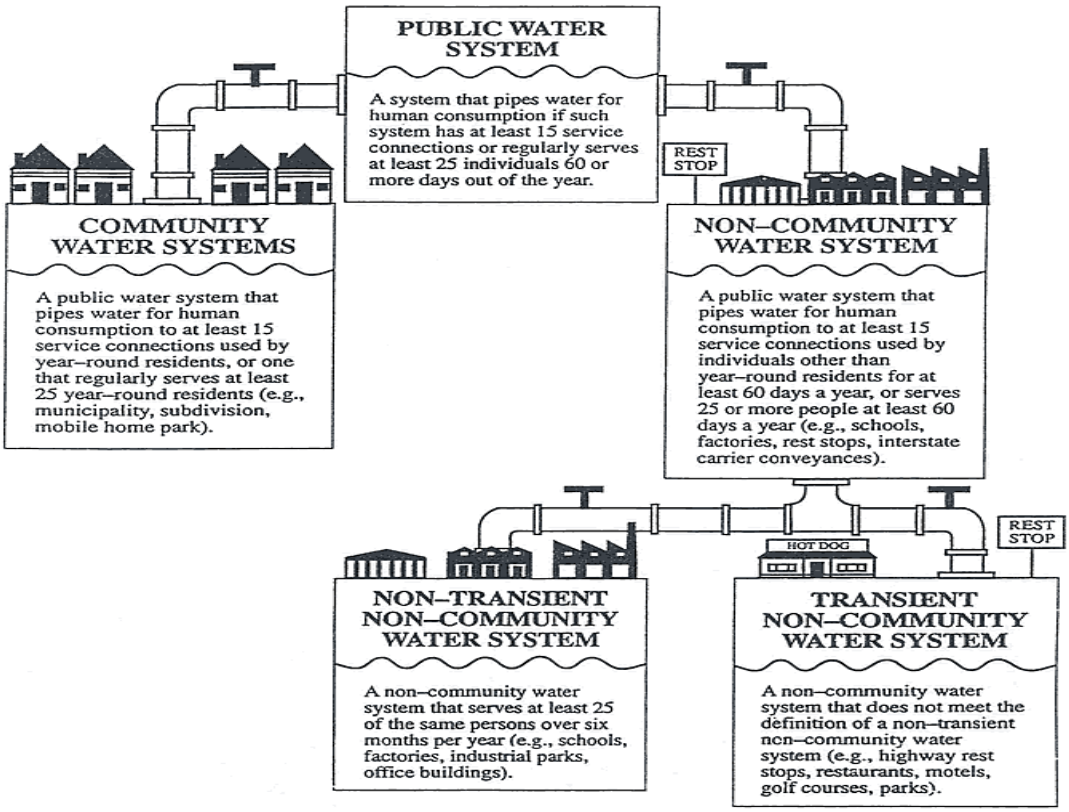
In furtherance of the requirements and goals of the Highlands Act, the Highlands Council will focus on potential next steps to address wastewater utilities. The Highlands Council will pursue information regarding the physical infrastructure limits, (e.g., for wastewater collection and treatment and infiltration and inflow), effluent discharge limits and receiving water body limitations (for each receiving water body), and contractual obligations for allocation of wastewater capacity for each Highlands Domestic Sewerage Facilities. Upon identification of these limitations, the Highlands Council will incorporate the information into the Plan Conformance process and future modifications to this Technical Report.

INFORMATION FOR PUBLIC COMMUNITY WATER SYSTEM UTILITIES

Future development within the Highlands Region at densities consistent with smart growth principles is generally reliant on access to public water utilities.

NJDEP defines a public water system as one that provides potable water through at least 15 service connections or regularly serve at least 25 individuals for more than 60 days a year (see figure below). Public

water systems are further categorized, and subsequently regulated, based upon the type of customers they serve (community vs. non-community) or the duration that these customers are served (transient vs. non-transient). These distinctions become significant from a planning perspective, because while these regulated systems are legally authorized to provide potable water, they all do not have the potential to induce or support growth. On-site supply systems for industry, commercial buildings, schools and other facilities are common in the Highlands, but these have little if any capacity for serving other utility needs. Therefore, they were not considered part of the public water infrastructure in assessing utility capacity. Because they have the potential for supporting growth, public community water systems (PCWS) were the focus of the water utility capacity analysis.



From: Public Notification Handbook for Public Water Systems, USEPA Office of Water, USEPA Publication 570/9–89–002 September 1989

Public community water supply systems are defined as those with at least either 15 service connections or 25 customers who are year-round users of the water supply. They may be owned and operated by governmental entities (either as municipal operations or utility authorities) or investor-owned utilities. There are many such systems in the Highlands, with service areas ranging in size from mobile home parks to multiple municipalities. They are all regulated by NJDEP under the Safe Drinking Water Act. Through this program, NJDEP collects information on the treatment, storage and distribution capacity of the water system. Some of these water systems acquire their water supply through withdrawals that are permitted through the NJDEP water allocation program. Ground or surface water withdrawals of 100,000 gallons per day (GPD) in the Planning Area or 50,000 GPD in the Preservation Area require water allocation permits. Some water systems are supplied by water purchased from bulk water purveyors or other water utilities. Others may depend upon a combination of their own source water and purchased water.

In furtherance of the requirements and goals of the Highlands Act, the RMP focuses on the following areas of action to address potable water utilities:

- Identify areas currently served by public community water systems;
- Determine total source capacity and current water demand;
- Estimate utility capacity to support development and redevelopment;
- Establish educational programs for municipal officials to plan more effectively to meet the water supply needs of their communities.

The Highlands Council set out to compile an updated inventory of the existing service areas through the collection of available computer-based mapping, billing records, hydrant locations, and water line data. Unlike wastewater systems and other utilities, there are few existing mandates requiring the mapping of water supply service areas. Information on existing water supply service areas is often not readily available and while franchise areas are commonly mapped, they often do not reflect the actual area served.

Each public community water supply system has been constructed to provide drinking water to its existing and anticipated customers during both normal and peak flows. The Council attempted to examine two different types of limitations to system capacity – the physical infrastructure (e.g., pumps, treatment plants, storage) and the available supply of water resources. The physical infrastructure defines the limits for water delivery that are inherent to the system, while the NJDEP water allocation permits define the limits that are inherent to the water resources (e.g., aquifer, reservoir system). The capacity of the physical infrastructure may increase over time if the utility upgrades systems such as treatment plants or pump stations but the source of the water to support that system may be limited.

The demand from water users was examined to understand the relationship of normal demands to peak demands in the summer and the resulting inventory compiled by the Council includes the peak monthly demands from the years 2000 - 2004.

The result of this analysis will provide a comparison of utility capacity (essentially, how much capacity the water utility has available for future development) to Net Water Availability within each subwatershed (addressed in the Water Use and Availability section of the Water Resource Technical Report, Volume 2). The analysis allows the Council to identify areas where:

- Both net utility capacity and Net Water Availability exist to support future development if no other constraints exist and the area is deemed appropriate for development in the RMP;
- Net Water Availability exists but net utility capacity does not, so that there is the potential for increases in utility capacity if needed to support future development if deemed appropriate;
- Net Water Availability does not exist and net utility capacity does, indicating that the nominal utility capacity may never be fully utilized as a result of water availability constraints unless deficit reduction measures, such as water management plan are implemented and provide a positive net water availability; or
- Neither Net Water Availability nor net utility capacity exists, indicating an area that is highly constrained for future development.

Because the Regional Master Plan seeks to direct available water supplies to the Existing Community Zone for development and redevelopment, the Highlands Council evaluated only that public infrastructure which can legally provide water service to significant development.

EXISTING PUBLIC WATER SYSTEM REGULATORY PROGRAMS

NJDEP regulates the source, treatment, and distribution of the Public Community Water Systems primarily through two programs; the Water Allocation and Safe Drinking Water Programs, both under the purview of the NJDEP's Division of Water Supply. These regulatory programs are further explained below. The NJDEP-Division of Water Supply currently manages the State's water supply to ensure available, adequate, and safe water. The Division is also responsible for coordinating special projects such as the water supply plan and drought activities.

SAFE DRINKING WATER PROGRAM

The Safe Drinking Water Act (SDWA), N.J.S.A. 58:12A-1 et seq. empowers NJDEP to promulgate and enforce regulations to purify drinking water by filtration or such other treatment method as it may require, prior to the distribution of drinking water to the public. The Safe Water Drinking Act Rules, N.J.A.C. 7:10, implement the Safe Drinking Water Act to ensure the provision of safe drinking water to consumers. The SDWA Rules enable NJDEP to assume primary enforcement responsibility under the Federal Safe Drinking Water Act, P.L. 93-523, 42 U.S.C. 300f et seq. The SDWA Rules also ensure the provision of safe water of adequate pressure and volume by implementing portions of the Water Supply Management Act, N.J.S.A. 58:1A-1 et seq. addressing storage, emergency plans, and reducing unaccounted for water (water lost in the distribution system); by issuing physical connection permits under the N.J.S.A. 58:11-9.1 et. seq.; and by establishing standards for construction and procedures for certifications, under the Realty Improvement, Sewerage and Facilities Act, N.J.S.A. 58:11-23 et seq. (NJDEP-DWS, 2006). Within the Division of Water Supply, the Bureau of Safe Drinking Water is responsible for:

- Ensuring that drinking water supply systems meet the New Jersey & Federal Drinking Water Standards;
- Administering the Drinking Water State Revolving Fund and other funds to finance the costs of drinking water infrastructure improvements needed to achieve or maintain compliance with the Safe Drinking Water Act, and to implement other drinking water initiatives; and
- Ensuring the proper construction, operation, and management of drinking water supply systems.

The Bureau of Safe Drinking Water controls the construction of new systems, modifications to existing systems, and connections into systems through their approval of permits. Each system is assigned a unique seven digit number, known as a PWSID. Prior to obtaining a permit, each PCWS must demonstrate that it has adequate technical, financial, and managerial capacity for the additional demand. In order to show it has sufficient water supplies, the PCWS will typically perform a Firm Capacity and Water Allocation Analysis. The analysis is intended to validate that the PCWS will meet its peak demands by not exceeding its firm capacity or the diversion limits contained in their water allocation permit. Firm capacity is defined as the pumping and/or treatment capacity when the largest unit is out of service; for most systems this entails assuming the largest well is out of service. For the purposes of assessing water supply, firm capacity can be considered a "short-term" threshold on a system's ability to meet peak demands. It can be modified and increased as infrastructure is upgraded. This contrasts to the water allocation permit, which represents a "long-term" regulatory constraint on a system's water supply.

WATER ALLOCATION PROGRAM

The Water Supply Management Act authorizes NJDEP to manage the State's water supply by adopting a uniform water diversion permit system and fee schedule, a monitoring, inspection, and enforcement program, a program to study and manage the State's water resources and plan for emergencies and future water needs, and

regulations to manage the waters of the State during water supply and water quality emergencies (NJDEP-DWS, 2006). The New Jersey Water Supply Allocation Rules, N.J.A.C. 7:19, govern the establishment of privileges to divert water, to manage water quantity and quality, to issue permits, and handle drought warnings, water emergencies, and water quality emergencies pursuant to N.J.S.A. 58:1A-1 et seq., the Water Supply Management Act, N.J.S.A. 58:2-1 et seq; the Safe Drinking Water Act, N.J.S.A. 58:11-59 et seq.; and N.J.S.A. 58:4A-4.1 et seq., commonly known as the Subsurface and Percolating Waters Act.

These rules establish the schedule and reporting procedures that persons having the capability to divert more than 50,000 gallons of water per day (gpd) in the Highlands Preservation Area or 100,000 gpd in the Planning Area (also 100,000 GPD in the rest of New Jersey), shall follow in order to establish the privilege to divert water and obtain a Water Supply Allocation Permit, a Temporary Dewatering Permit, or a Water Use Registration. The rules prescribe the application, review, notification, and hearing procedures for establishing those privileges. Additionally, these rules establish the procedures for determining, assessing, and collecting excess diversion fees; contract review and approval; Areas of Critical Water Supply Concern; and water emergency allocation (NJDEP-DWS, 2006).

The Water Allocation Program regulates all water withdrawals above the above-specified limits, regardless of whether they are ground or surface water diversions. Water allocation permits are typically issued with a monthly maximum and annual maximum withdrawal limits. The program also maintains a database of these withdrawals, based upon their use (e.g., water supply, industrial, etc.) However, agricultural withdrawals are regulated under, N.J.A.C. 7:20A. In those instances, an Agricultural Water Usage Certification or Agricultural Water Use Registration must be obtained from the County agricultural agent if a person has the capability to withdraw water in excess of 100,000 gallons per day for agricultural, aquacultural, or horticultural purposes.

Also, within the Division of Water Supply, the Bureau of Water Allocation is responsible for:

- Ensuring that surface and ground water diversions do not exceed the sustainable yield of available water resources and do not adversely impact existing users of the resource;
- Designing, implementing and managing Water Supply Critical Areas;
- Compiling reports on the status of the major reservoir levels; and
- Protecting ground water resources through proper well drilling activities (NJDEP-DWS, 2006).

Appendix B includes a table of all NJDEP-permitted PCWS, sorted by their unique public water system identification number (PWSID) within the Highlands Region.

BOARD OF PUBLIC UTILITIES FRANCHISE AREA

Some water systems, particularly investor-owned systems, are also regulated by the Board of Public Utilities (BPU) as a public utility through N.J.S.A. 48:2 et seq. and N.J.A.C. 14:9. This is due to the fact that all PCWS must have a responsible entity to operate and maintain the system. The rules require that investor-owned PCWS and certain publicly-owned PCWS petition the BPU for the ability to provide service to franchise areas and seek approval for initial rate schedules and tariffs to customers.

Upon completion of a new PCWS for a specific development, NJDEP encourages that developers seek takeover by the municipality or an investor-owned utility. If a new water utility is to be established, approval from the municipality or municipal utility authority is required, as is approval from the BPU. As expertise and resources are required to effectively operate a water system, NJDEP discourages homeowners associations operating water systems. The BPU is not responsible for regulating the water supply or capacity of a PCWS.

WATER UTILITY DATA DEVELOPMENT

In order to evaluate the water infrastructure capacity in the Highlands Region, the Highlands Council compiled available data on Public Community Water Systems. As described previously, Public Community Water Systems were deemed the facilities most suitable to support appropriate development and redevelopment in accordance with the Regional Master Plan. The assessment presented in this report consists of three fundamental components:

- Identify areas currently served by public community water systems;
- Determine total system capacity and current water demand; and
- Estimate utility capacity to support development and redevelopment.

WATER UTILITY SERVICE AREAS

In the Highlands Planning Area, the Highlands Act had no immediate impact on water supply service areas. In the Preservation Area, the Highlands Act prohibits water supply infrastructure expansions except for exempt development, redevelopment, and public health concerns, regardless of franchise areas and planned service areas.

Assessing the public water infrastructure to support regional growth requires knowing the existing service areas, which can mean those areas currently served by "in the ground" infrastructure or planned expansions. Although sewer service areas are regulated by Wastewater Management Plans, no corresponding regulatory tool existing for water utility areas. Mapping of water utility service areas is not normally mandated by NJDEP. Information on existing service areas is often not readily available and while franchise areas are sometimes mapped, they do not necessarily reflect where service is actually provided. Data on planned or future service locations are even scarcer.

The Highlands Council compiled an inventory of the existing areas served through the collection of available computer-based mapping, individual billing records, hydrant locations, and water line data. PCWS existing areas served cover a total of 20 percent of the Highlands Region, including only 6 percent of the Preservation Area and 32 percent of the Planning Area. Figure 2 *Public Community Water Systems Map* represents the most current and detailed information available on the extent of PCWS existing areas served and their associated remaining capacity. This map has also been incorporated as one of the five maps in the Land Use Capability Map Series in the RMP.

The map itself is not a regulatory product. Therefore, it should not be used to represent service areas that have approval for extension of water supply service lines. The map has been prepared for planning purposes and will be revised as new information becomes available. For instance, there may be parts of the existing areas served that are not appropriate for growth receiving areas, due to a variety of other considerations.

WATER SUPPLY AND LIMITATIONS

Each Public Community Water System is constructed to provide water service to its existing and anticipated customers during both normal and peak flows. A fundamental constraint of water utilities is the capacity-based or regulatory limitations on a PCWS water source or its ability to distribute it. It is necessary, therefore, to understand the relationship of engineered infrastructure (physical constraints such as water mains, or storage), firm capacity (considered a "short-term" threshold on the ability to meet peak demands) and regulatory limitations (i.e., water allocation permits identifying the aquifers and reservoirs used as water supply resources and their dependable yields) on which the water utilities depend. Any of these factors may ultimately limit the source capacity.

PHYSICAL INFRASTRUCTURE AND FIRM CAPACITY

The engineered infrastructure defines the limits for water service that are physically inherent to a PCWS. Parameters such as well yield, pump rating, treatment capacity, water main size, and storage distribution all factor into this criterion. The capacity of the physical infrastructure is somewhat adjustable, and can increase over time if the utility upgrades its systems, such as pumps and water mains.

In practice, determining what aspect limits a PCWS's infrastructure is difficult to evaluate because each proposed project will place different burdens on the system. For example, one particular project site may be located at a high elevation, and may exceed the utility's pressure boosting system. Similarly, another project site might be located at the dead-end of a water main, and not be able to provide sufficient flow for fire service. In either scenario, the particular constraint is dependent upon project-specific site requirements and cannot be evaluated in a regional planning framework. The Highlands Council decided that it is not feasible to provide a complete assessment of infrastructure limitations in this regard.

A more appropriate tool in estimating infrastructure's source capacity is NJDEP's firm capacity estimate. These demands are calculated utilizing daily flow rates and mainly address a water system's ability to meet peak usage by its customers. Because a firm capacity analysis is performed for all new physical connections, it enables a "site-level" assessment of a specific system modification, where this type of review is desired. Firm capacity can be increased through infrastructure changes and usually does not represent the ultimate constraint source capacity. Unfortunately, only firm capacity estimates from PCWS with recent improvements are publicly available. Therefore, firm capacity data were not compiled by the Highlands Council during RMP development. However, firm capacity may prove a useful tool to determine some aspects of PCWS capacity during the Plan Conformance process. The Highlands Council will coordinate with NJDEP to further develop this information in its regional planning efforts.

PERMITTED WATER ALLOCATIONS

For the purposes of assessing water supply, permitted water allocations issued by NJDEP represent the effective regulatory constraint on a PCWS source capacity. Water allocations also address the critical matter of sustainable yield of water supplies on which a PCWS depends, based on statewide rules and procedures. While either firm capacity or permitted allocation may constrain source capacity, information regarding permitted allocations is widely available from public sources. Permitted withdrawals limits are also based in part on aquifer characteristics and the stream flows necessary to maintain stream ecosystems. Therefore, water allocation better represents the true capacity of a water resource. For these reasons, water allocation data was used in this report as an initial estimate of source capacity. However, the RMP also anticipates that situations will exist where exercising the full water allocations in combination or individually will exceed ground water availability, and result in negative net water availability. For this reason, water allocation permit limits are considered a first, but not final, indication of total utility capacity.

Allocation permit data includes information on ground water and surface water withdrawal locations, which also aids in understanding the impacts of service areas on water supply. For example, it is possible to overlay the existing areas served with well locations and topography to have a general idea of service zones and interconnections.

A limiting factor in using this data involves the ongoing consolidation in the utility market. As these systems are acquired, or in some cases privatized, individual PCWS may be combined or taken out of use and no longer need separate water allocation permits. Other permits will be transferred to different companies under different names. Much of this information will only be available upon permit renewal.

Allocation permit data can be correlated to source capacity by overlaying the existing areas served with ground and surface water diversions on maps of subwatersheds (HUC14). By doing this, it is possible to understand the interaction of resource constraints and utility capacity in the overall scheme of water use, including which water supply systems export water and serve as water sources for other subwatersheds and which are importing water from other subwatersheds. These imports and exports, known as bulk transfers, are addressed below.

BULK TRANSFERS

In addition to permitted allocations that a PCWS may have, the total source capacity may include contracted supplies from water purveyors, which are supported by their own water allocation permits. Some PCWS may totally rely upon bulk transfers for source capacity while other systems use them to augment during periods of high demand (e.g., in the summer months). This fact is particularly important because, as stated earlier, some PCWS boundaries extend beyond the Highlands Region boundaries (e.g., Southeast Morris Municipal Utility Authority, New Jersey American Water Company), and in some cases, non-Highlands water sources provide water to Highlands municipalities (e.g., New Jersey American Water Company). Therefore, it is important to understand how these systems are interconnected.

Bulk transfers are implemented by contract agreements between utilities and are not directly regulated by the NJDEP, though NJDEP is now collecting and evaluating bulk purchase contracts to ensure that such contracts do not exceed the total firm capacity of a PCWS. Information regarding their quantities is usually not available in public databases. Data regarding bulk transfers was compiled through direct inquiries to water purveyors.

Further developing this information is critical for refining a water tracking system (e.g., NJWaTr developed by the NJ Geological Survey), so that it may follow water movement at a subwatershed (HUC14) scale. Information related to these issues, discussed in the Water Resources Technical Report, will be critical for understanding utility capacity as well, as those results begin with the water resource and then assess the impacts of use on the resource.

PUBLIC WATER SYSTEMS DEMANDS AND USAGE

Each system has a unique pattern of water demands, which are reflected in daily peaks, monthly peaks, seasonal peaks, and annual demands. A focus on annual demands is not sufficient, as various kinds of peak demands place stresses on system limits (measured as firm capacity) and resource limits (permitted allocation).

Information on daily peak use is not reported to NJDEP and is more relevant to system operation than to overall utility capacity. Therefore, this assessment includes monthly demands for the years 2000 through 2004. This approach is appropriate because water allocation permits (the most frequently used value to determine source capacity) are also reported as monthly limits. The Low Flow Margin method also uses monthly data as the time step to determine ground water capacity, as discussed in the Water Resources Technical Report, Volume 2. Thus, the results lend to easy comparison. If daily usage was used to extrapolate to monthly demands (or vice versa), the value was converted by 31 days, consistent with NJDEP rules. These data were provided by NJDEP's Division of Water Supply. Information was further supplemented by SDWA compliance reports, available from NJDEP's Data Miner. DEP Data Miner can be accessed at www.nj.gov/dep/opra/online.html.

SEASONAL PEAKING FACTORS

Summer demand for water tends to be highest, and is especially critical for impact assessment regarding surface water resources, as it creates the greatest stress on instream flows and ecological integrity. To understand the effect of peak demands, the highest monthly peak from the 2000 to 2004 database is used to represent current maximum demand.

OUTSTANDING SYSTEM COMMITMENTS

Public community water system demands, as measured, will not reflect all demands for which the system is committed. There are two types of contractual commitments that are not reflected in water delivered to the existing area served. First, the system may have allocated water to new development, redevelopment or other purposes that is not yet "on line." Second, the system may be a regional supplier of water to other public community water supply systems, with contractual commitments for future supplies that exceed current levels. The first type of commitment is less flexible than the second. The data available on both types of commitments are limited and rarely complete. Therefore, the results were not sufficient to use in this analysis, to avoid biasing the available capacity estimates among systems. Because the commitments to new development are frequently changing, further detail will be needed for these estimates.

WATER LOSSES

Every PCWS will have a difference between the quantity of water that leaves the treatment system and the quantity of water that is actually billed to customers. Losses can occur in water mains, service connections, lateral lines, and non-billed uses such as fire fighting and water main flushing. The larger the system, the smaller the total percent loss should be, but small to moderate systems often will use 10-15% as a reasonable threshold for losses. Where available, the system inventory includes an estimated sense of system losses between treatment facility and customers.

ESTIMATES OF WATER UTILITY CAPACITY

Based on the information described above, a water system's utility capacity was evaluated by comparing the source capacity to its maximum monthly demand. The critical result of this analysis will be a comparison of net utility capacity (essentially, how much capacity the water utility has available for future development) to net available water (using data developed and incorporated in the Water Resource Technical Report). As mentioned previously, more information regarding where source water withdrawals and ultimate use will be required to analyze this critical link between natural resources and human development. The analysis will allow the Council to identify areas where:

- Both utility and water resource capacity exist to support future development if no other constraints exist and the area is deemed appropriate for development in the Regional Master Plan;
- Water resource capacity exists but utility capacity does not, so that there is the potential for increases in utility capacity if needed to support future development if deemed appropriate;
- Water resource capacity does not exist and utility capacity does, indicating that the nominal utility capacity may never be fully utilized unless mitigation measures are instituted, such as a water management plan; or
- Neither water resource capacity nor utility capacity exists, indicating an area that is highly constrained for future development.

The analytical method described above was applied to all NJDEP-permitted Public Community Water Systems

that are not dedicated to serving a single property. As stated earlier, there are 162 such facilities identified in the Highlands, as shown in the table in Appendix B. However, 72 of these systems were not evaluated because either they have no flow information or because they are too small to require water allocation permits, and therefore are not required to report withdrawal rates. Smaller systems usually have no additional capacity to support growth. These facilities commonly include small water supply systems servicing apartment complexes or mobile home parks. Such systems have no additional capacity to support growth. There are also several PCWS that were not included because no flow data were available, or the Highlands portion of the flow data could not be assessed.. Future data development is required to partition out the supply used in the Highlands through their distribution and transmission network. As noted earlier, continuing acquisition and consolidation in the water utility market will shift water allocation permits between systems over time.

The remaining 90 utilities each have a unique PWSID, demand data, and service area. However, many of these systems share a common or aggregated water supply source, in the form of a single water allocation permit or through the purchase of bulk transfers from other systems. In that regard, although they are separate water systems, their ultimate source capacity is linked and the individual system capacities cannot be determined using available information. For example, West Milford has several water systems, each with a unique PWSID. However, their ground water withdrawals are permitted under a single water allocation permit, and thus their demand data are combined to be compared against the single allocation limits. Therefore, the 90 evaluated systems were ultimately grouped into 61 unique utilities.

Based on the analysis, 11 systems in the Highlands Region have available capacity of greater than 31 MGM, or approximately 1 MGD (*see Table 7 Highlands Public Water Supply Systems - Available Water Supply Capacity).* The largest of these by far are the NJ American Water Company divisions (Elizabethtown and Short Hills), which have extensive service areas outside of the Highlands Region and rely primarily on surface water supplies and non-Highlands Region ground water. The remaining top facilities primarily serve the Highlands Region. The demand generated from these systems is estimated at 2,691 million gallons per month. Figure 2 *Public Community Water Systems Map* provides an overview of the areas of the Highlands Region that are currently served by the public community water systems and their estimated net capacity. Demands were not apportioned between Highlands and non-Highlands Region, because accurate service areas were not available for the non-Highlands portions.

It should be noted that the method provides conservative values for water availability, because nearly all Highlands systems (notably excepting the NJ American Water Company systems) are dependent upon aquifers, which will not have the same immediate effects on stream flow as surface water intakes on streams. Further, the demand data used in this analysis are from 2002-2004, and more recent data may show different results. In most cases, demands will have increased over time.

SUPPORTING INFORMATION

Acknowledgements
Glossary
References
Tables
Figures
Appendix

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New Jersey Environmental Infrastructure Trust
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New Jersey Pinelands Commission
New Jersey Redevelopment Authority
New Jersey State Agriculture Development Committee
New Jersey Transit
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Sustainable Agriculture
Sustainable Forestry
Transfer of Development Rights
Transportation
Utility Capacity
Water Resource Management

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GLOSSARY

Available Wastewater Treatment Capacity – The capacity of an existing wastewater treatment facility resulting from the subtraction of the maximum three month average flows from the permitted flow.

Domestic Treatment Works - Wastewater treatment facilities that process human wastewater as their primary wastewater flow, though they may also treat industrial effluent from within their service area.

Existing Area Served - Properties that are currently, actively served by a Highlands Domestic Sewer Facility or Public Community Water System, based on the extent of existing sewer collection systems or water distribution system.

Firm Capacity – Firm Capacity is defined as the pumping and/or treatment capacity when the largest pumping or treatment unit is out of service; for most water utilities, this entails assuming the largest well is out of service. It is usually based upon the utility's peak daily demand as recorded in the peak month of the previous 5 years.

Future Wastewater Treatment Expansion Areas – A portion of a Proposed Sewer Service Area that may be appropriate for regional growth but whose projected wastewater demand exceeds available wastewater treatment capacity.

Highlands Domestic Sewerage Facility – A Domestic Treatment Works that provides wastewater treatment to municipalities and include treatment capacities sufficient to support redevelopment and regional growth opportunities.

Highlands Wastewater Service Area – The area that can be served by a Highlands Domestic Sewer Facility within available treatment capacity and consistent with the resource protection and smart growth planning goals of the Plan.

Hydrologic Unit Code – Hydrologic Unit Codes (HUCs) are used to identify the boundaries and the geographic area of drainage basins for the purpose of water data management. A HUC14 is a 14-digit hydrological unit code delineated by the U.S. Geological Survey that refers to a specific sub-watershed. The HUC14 unit is used because it is the smallest drainage area delineation that is uniformly available for the Highlands Region.

Utility Capacity – The ability of a water system to provide water service beyond its obligated commitments. The value is derived by taking total system capacity minus existing and future demands. For the purposes of this Technical Report, demand is based on the maximum monthly average flow that was reported by the NJDEP.

Passing Flow - The volume of water required by statute or NJDEP permit to be flowing past a specified point in a river or stream in a specified time - generally measured per hour or per day. Passing flows may be used to trigger cessation of withdrawals or releases from storage to augment flows.

Projected Wastewater Demand – The total anticipated wastewater treatment requirements for a Proposed Wastewater Service Area based upon full build out in accordance with current municipal zoning.

Proposed Sewer Service Area – The extent of a sewer service area envisioned by a wastewater utility authority that may be subject to prior review and approval by NJDEP in consultation with the Highlands Council.

Public Community Water System – A public water system that pipes water for human consumption to at least either 15 service connections or one that regularly serves at least 25 year-round residents. The NJDEP regulates the demand, treatment and storage capabilities for such systems and each are assigned a unique PWSID number.

Redevelopment Treatment Capacity – A portion of the available Wastewater Treatment Capacity dedicated for redevelopment activities within Existing Areas Served based on 20% of the maximum three month average flows.

Safe Yield - The annual amount of water that can be provided for human use from a surface water source over a repeat of the drought of record, reflecting passing flows requirements, demand patterns, watershed conditions and precipitation patterns.

Source Capacity – The lower volume of water resulting from either the actual physical infrastructure capacity (such as firm capacity) or from the volumes supplied under its water allocation permit and/or purchased from bulk suppliers. A PCWS' source capacity can be limited either by its ability to deliver additional water through its distribution system or the inability to acquire additional supplies. For the purposes of this report, water allocations were used to quantify source capacity.

System Demand – The usage of water service by customers, reported as a maximum monthly average flow. Demand information is most useful in the form of daily, monthly or annual peaks. While information on daily peaks may relate to internal system management, resource stresses are best interpreted by monthly demand data.

Water Allocation – A permit program administered by the NJDEP's Division of Water Supply. Surface water or ground water withdrawals of 100,000 gallons per day (gpd) in the Highlands Planning Area or 50,000 gpd in the Highlands Preservation Area are currently regulated by the program.

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New Jersey Department of Environmental Protection-Division of Water Supply (NJDEP-DWS). 2006. Water Supply Administration. Available online at http://www.state.nj.us/dep/watersupply/index.htm

TABLES

APPROVED SEWER SERVICE AREAS BY PLANNING AREA AND PRESERVATION AREA

Planning Area		Preservation Area		Planning and Preservation Area		
NJPDES	Acres	NJPDES	Acres	NJPDES	Planning Area Acres	Preservation Area Acres
NJ0000876	1,124	NJ0021091	53	NJ0020389	3,766	427
NJ0004596	33	NJ0021105	19	NJ0022349	27,601	344
NJ0004791	107	NJ0022144	548	NJ0020605	1,417	2
NJ0020711	15	NJ0022276	14	NJ0021369	3,911	3,461
NJ0021083	304	NJ0022284	31	NJ0021890	1,522	9
NJ0021113	1,314	NJ0022632	124	NJ0021954	1,484	987
NJ0021253	52	NJ0023493	1,584	NJ0022675	4,263	180
NJ0021342	37	NJ0024414	15	NJ0022683	101	509
NJ0021334	1,113	NJ0024457	35	NJ0022781	89	20
NJ0021865	25	NJ0026174	116	NJ0023698	1,829	2
NJ0021881	8	NJ0026867	533	NJ0023841	72	14
NJ0021946	11	NJ0027006	151	NJ0024813	6,686	155
NJ22047	0.0003	NJ0027201	3	NJ0024970	24,071	3,440
NJ0022497	5	NJ0027669	112	NJ0027073	0.01	6
NJ0022845	8,323	NJ0027677	465	NJ0027081	48	22
NJ0023001	9	NJ0027685	295	NJ0027821	11,222	3,705
NJ0023027	44	NJ0028002	1	NJ0028002	0.003	9
NJ0023175	26	NJ0028541	50	NJ0028304	27	1
NJ0023949	539	NJ0029432	6	NJ0029386	8,468	2,261
NJ0024091	13	NJ0029858	1	NJ0033995	4,032	80
NJ0024716	6,551	NJ0032395	5	NJ0035114	3,477	235
NJ0024465	5	NJ0033308	20	NJ0035483	2,122	222
NJ0024864	354	NJ0034169	10	NJ0053350	6,959	59
NJ0024902	7,344	NJ0051098	105	NJ0053422	2	160
NJ0024911	6,027	NJ0051519	3	NJ0053759	960	78
NJ0024929	3,278	NJ0058246	16	NJ0054101	149	0.00001
NJ0025496	2,995	NJ0063711	7	NJ0065226	0.01	11
NJ0025518	26	NJ0069213	8	NJ0067610	2	10
NJ0026212	2	NJ0080811	192	NJ0100382	65	1
NJ0026387	1,160	NJ0081086	184	NJ0109061	697	201
NJ0026514	18	NJ0081914	172	NJG0085537	0.000000000784	35
NJ0026603	79	NJ0087530	13			
NJ0026689	412	NJ0090051	158			
NJ0026824	9	NJ0091260	97			
NJ0026841	20	NJ0099538	650			
NJ0027049	45	NJ0128848	112			
NJ0027057	62	NJ0131482	4			
NJ0027065	25	NJ0133558	311			
NJ0027227	24	NJ0136093	3			
NJ0027774	45	NJG0085979	173			
NJ0027553	8	NJG0107832	2			
NJ0028363	49	NJG0108171	6			
NJ0028452	62					
NJ0028487	245					
NJ0028495	45					
NJ0029831	4					
NJ0029912	41					
NJ0030384	11					
NJ0035670	36					
NJ0050369	0.04					
NJ0050806	82					
NJ0051616	72					
NJ0053112	13					
NJ0053279	42					
NJ0055956	203					
NJ0059897	57					

APPROVED SEWER SERVICE AREAS BY PLANNING AREA AND PRESERVATION AREA

Planning Area		Preservation Area		Planning and Preservation Area		
NJPDES	Acres	NJPDES	Acres	NJPDES	Planning Area Acres	Preservation Area Acres
NJ0065161	26					
NJ0065196	4					
NJ0067229	8					
NJ0067482	35					
NJ0087335	41					
NJ0087343	80					
NJ0087378	55					
NJ0089338	479					
NJ0089648	27					
NJ0090115	18					
NJ0098922	732					
NJ0099171	342					
NJ0100528	84					
NJ0102563	124					
NJ0104396	41					
NJ0108243	8					
NJ0108481	20					
NJ0127949	5					
NJ0131725	111					
NJG0100706	171					
NJG0108286	22					
NJG0108570	3					
NJG0109797	53					
Acreage	**45,042**		**6,406**		**115,040**	**16,644**
Total Acreage					**160,082**	**23,049**
Percent Coverage					**36%**	**6%**

APPROVED SEWER SERVICE AREAS BY HUC14

HUC14	HUC14 ACREAGE	NJPDES ID	EXISTING SEWER SERVICE AREA ACREAGE	PERCENT SEWER AREA PER HUC14
02020007010010	7,342	NJ0027057	51	0.69%
02020007010010	7,342	NJ0053350	382	5.21%
02020007010020	4,596	NJ0004596	4	0.10%
02020007010020	4,596	NJ0027073	6	0.12%
02020007010020	4,596	NJ0027081	70	1.52%
02020007010020	4,596	NJ0053350	216	4.69%
02020007010030	4,589	NJ0053350	75	1.64%
02020007010040	9,033	NJ0004596	28	0.32%
02020007010040	9,033	NJ0050806	46	0.51%
02020007010040	9,033	NJ0053350	2,246	24.86%
02020007010050	3,504	NJ0053350	615	17.56%
02020007010060	4,144	NJ0053350	68	1.64%
02020007010070	5,846	NJ0053350	1,725	29.50%
02020007040010	3,467	NJ0023027	44	1.28%
02020007040010	3,467	NJ0023949	284	8.19%
02020007040010	3,467	NJ0053350	696	20.07%
02020007040020	9,575	NJ0023841	86	0.90%
02020007040020	9,575	NJ0023949	255	2.66%
02020007040020	9,575	NJ0053350	907	9.47%
02020007040020	9,575	NJ0091260	5	0.05%
02020007040030	3,582	NJ0091260	92	2.57%
02030103010010	6,486	NJ0021334	296	4.56%
02030103010010	6,486	NJ0022845	535	8.25%
02030103010010	6,486	NJ0026387	27	0.42%
02030103010030	5,071	NJ0024929	1,610	31.74%
02030103010030	5,071	NJ0025496	460	9.07%
02030103010030	5,071	NJ0029912	41	0.81%
02030103010040	3,238	NJ0024929	1,163	35.91%
02030103010040	3,238	NJ0025496	60	1.85%
02030103010070	5,694	NJ0021083	96	1.69%
02030103010070	5,694	NJ0022497	0	0.01%
02030103010070	5,694	NJ0022845	2,463	43.25%
02030103010070	5,694	NJ0024465	5	0.10%
02030103010070	5,694	NJ0026387	268	4.71%
02030103010080	4,865	NJ0022845	1,218	25.03%
02030103010080	4,865	NJ0024864	28	0.58%
02030103010080	4,865	NJ0033995	592	12.17%
02030103010080	4,865	NJ0050369	0	0.00%
02030103010080	4,865	NJ0087378	13	0.27%
02030103010090	3,485	NJ0021083	208	5.96%
02030103010090	3,485	NJ0022845	3,004	86.18%
02030103010090	3,485	NJ0026387	193	5.53%
02030103010090	3,485	NJ0050369	0	0.00%
02030103010100	4,950	NJ0022497	4	0.09%
02030103010100	4,950	NJ0022845	1,104	22.30%
02030103010100	4,950	NJ0050369	0	0.00%
02030103010110	4,279	NJ0022497	0	0.00%
02030103010180	3,417	NJ0024970	209	6.13%
02030103010180	3,417	NJ0029386	0	0.01%
02030103020010	3,876	NJ0021334	0	0.01%
02030103020010	3,876	NJ0022349	43	1.10%
02030103020010	3,876	NJ0024911	564	14.56%
02030103020020	4,015	NJ0024911	774	19.27%

APPROVED SEWER SERVICE AREAS BY HUC14

HUC14	HUC14 ACREAGE	NJPDES ID	EXISTING SEWER SERVICE AREA ACREAGE	PERCENT SEWER AREA PER HUC14
02030103020020	4,015	NJ0024929	5	0.12%
02030103020020	4,015	NJ0025496	40	0.99%
02030103020030	4,972	NJ0022349	194	3.90%
02030103020030	4,972	NJ0024911	1,388	27.91%
02030103020030	4,972	NJ0024970	2,537	51.03%
02030103020030	4,972	NJ0025496	1	0.01%
02030103020030	4,972	NJ0026689	412	8.29%
02030103020040	3,594	NJ0022349	17	0.48%
02030103020040	3,594	NJ0024902	30	0.83%
02030103020040	3,594	NJ0024911	2,608	72.57%
02030103020040	3,594	NJ0024970	50	1.38%
02030103020040	3,594	NJ0025496	496	13.80%
02030103020050	4,306	NJ0024902	1,765	41.00%
02030103020050	4,306	NJ0024911	62	1.44%
02030103020050	4,306	NJ0024929	312	7.25%
02030103020050	4,306	NJ0025496	1,939	45.03%
02030103020060	3,256	NJ0024902	1,474	45.27%
02030103020060	3,256	NJ0024911	535	16.42%
02030103020060	3,256	NJ0024970	1,247	38.31%
02030103020070	6,644	NJ0024902	1,904	28.66%
02030103020070	6,644	NJ0024929	189	2.84%
02030103020070	6,644	NJ0024970	0	0.00%
02030103020070	6,644	NJ0025518	26	0.39%
02030103020080	6,439	NJ0022349	193	2.99%
02030103020080	6,439	NJ0024902	242	3.76%
02030103020080	6,439	NJ0024970	6,004	93.24%
02030103020090	3,871	NJ0024902	654	16.91%
02030103020090	3,871	NJ0024970	1,729	44.66%
02030103020100	3,595	NJ0024902	1,273	35.42%
02030103020100	3,595	NJ0024970	357	9.93%
02030103030010	5,479	NJ0026867	137	2.49%
02030103030020	3,099	NJ0021091	53	1.73%
02030103030020	3,099	NJ0026867	338	10.90%
02030103030030	4,289	NJ0026867	58	1.36%
02030103030030	4,289	NJ0081086	106	2.48%
02030103030040	5,101	NJ0000876	6	0.12%
02030103030040	5,101	NJ0022349	181	3.54%
02030103030040	5,101	NJ0027821	115	2.25%
02030103030040	5,101	NJ0133558	63	1.23%
02030103030050	4,721	NJ0022349	43	0.92%
02030103030060	5,056	NJ0022349	4,453	88.08%
02030103030070	5,825	NJ0000876	152	2.61%
02030103030070	5,825	NJ0022349	3,764	64.62%
02030103030080	3,130	NJ0022349	1,220	38.99%
02030103030080	3,130	NJ0026603	64	2.05%
02030103030090	4,693	NJ0022349	4,687	99.89%
02030103030100	5,075	NJ0022349	712	14.04%
02030103030110	9,453	NJ0022349	2,473	26.16%
02030103030120	5,769	NJ0022349	4,578	79.34%
02030103030120	5,769	NJ0024911	41	0.71%
02030103030120	5,769	NJ0024970	307	5.32%
02030103030120	5,769	NJ0026603	15	0.25%
02030103030130	7,864	NJ0022276	14	0.18%

APPROVED SEWER SERVICE AREAS BY HUC14

HUC14	HUC14 ACREAGE	NJPDES ID	EXISTING SEWER SERVICE AREA ACREAGE	PERCENT SEWER AREA PER HUC14
02030103030130	7,864	NJ0022349	52	0.66%
02030103030130	7,864	NJ0024970	1,262	16.05%
02030103030140	3,382	NJ0022349	2,717	80.34%
02030103030140	3,382	NJ0024970	15	0.45%
02030103030150	4,418	NJ0022349	2,058	46.59%
02030103030150	4,418	NJ0024970	717	16.22%
02030103030160	5,066	NJ0022349	95	1.88%
02030103030160	5,066	NJ0024970	4,253	83.95%
02030103030170	5,138	NJ0022349	370	7.20%
02030103030170	5,138	NJ0024970	4,553	88.61%
02030103040010	7,602	NJ0024970	1,633	21.48%
02030103040010	7,602	NJ0029386	46	0.61%
02030103050050	11,761	NJ0081086	78	0.67%
02030103050060	5,048	NJ0027685	208	4.13%
02030103050060	5,048	NJ0063711	7	0.14%
02030103050070	4,677	NJ0024457	35	0.74%
02030103050070	4,677	NJ0029386	1,070	22.89%
02030103050080	10,836	NJ0022284	31	0.29%
02030103050080	10,836	NJ0023698	370	3.42%
02030103050080	10,836	NJ0029386	4,967	45.84%
02030103070010	3,480	NJ0026174	116	3.32%
02030103070010	3,480	NJ0027201	3	0.10%
02030103070010	3,480	NJ0027677	390	11.21%
02030103070010	3,480	NJ0027685	0	0.01%
02030103070010	3,480	NJ0051098	105	3.01%
02030103070010	3,480	NJ0081914	10	0.29%
02030103070020	5,783	NJ0024414	15	0.27%
02030103070020	5,783	NJ0028541	50	0.86%
02030103070020	5,783	NJ0033308	20	0.34%
02030103070020	5,783	NJ0081914	162	2.80%
02030103070020	5,783	NJ0087530	13	0.22%
02030103070030	9,364	NJ0027669	112	1.20%
02030103070040	7,570	NJ0027677	75	0.99%
02030103070040	7,570	NJ0027685	87	1.14%
02030103070040	7,570	NJG0085979	173	2.29%
02030103070050	13,784	NJ0029432	5	0.03%
02030103070050	13,784	NJ0032395	0	0.00%
02030103070050	13,784	NJ0053759	5	0.04%
02030103070050	13,784	NJ0069213	8	0.05%
02030103070060	3,837	NJ0027006	151	3.92%
02030103070060	3,837	NJ0029432	1	0.04%
02030103070060	3,837	NJ0032395	5	0.14%
02030103070060	3,837	NJ0034169	10	0.25%
02030103070060	3,837	NJ0053759	287	7.47%
02030103070070	6,916	NJ0023698	641	9.27%
02030103070070	6,916	NJ0029386	826	11.95%
02030103070070	6,916	NJ0053759	745	10.78%
02030103100010	3,746	NJ0024813	946	25.24%
02030103100020	2,783	NJ0024813	2,021	72.60%
02030103100030	4,305	NJ0021946	11	0.26%
02030103100030	4,305	NJ0024813	1,321	30.68%
02030103100040	3,018	NJ0024813	321	10.64%
02030103100050	4,041	NJ0024813	59	1.47%

APPROVED SEWER SERVICE AREAS BY HUC14

HUC14	HUC14 ACREAGE	NJPDES ID	EXISTING SEWER SERVICE AREA ACREAGE	PERCENT SEWER AREA PER HUC14
02030103100050	4,041	NJ0053112	5	0.12%
02030103100050	4,041	NJ0080811	192	4.75%
02030103100060	5,509	NJ0021253	45	0.81%
02030103100060	5,509	NJ0021342	37	0.66%
02030103100060	5,509	NJ0024813	12	0.22%
02030103100060	5,509	NJ0029858	1	0.02%
02030103100060	5,509	NJ0030384	11	0.19%
02030103100060	5,509	NJ0053112	8	0.15%
02030103100070	7,224	NJ0021253	8	0.11%
02030103100070	7,224	NJ0023698	819	11.34%
02030103100070	7,224	NJ0027774	45	0.62%
02030103100070	7,224	NJ0028002	9	0.13%
02030103100070	7,224	NJ0029386	0	0.00%
02030103110010	8,394	NJ0024970	2,637	31.42%
02030103110010	8,394	NJ0029386	2,296	27.35%
02030103110020	6,963	NJ0026514	18	0.26%
02030103110020	6,963	NJ0026841	20	0.29%
02030103110020	6,963	NJ0029386	1,522	21.85%
02030103140010	3,395	NJ0024813	892	26.28%
02030103140020	6,001	NJ0024813	959	15.99%
02030103140040	8,731	NJ0024813	310	3.55%
02030105010010	5,936	NJ0000876	41	0.69%
02030105010010	5,936	NJ0021954	227	3.83%
02030105010010	5,936	NJ0022675	1,373	23.13%
02030105010010	5,936	NJ0022683	610	10.28%
02030105010010	5,936	NJ0027821	344	5.79%
02030105010010	5,936	NJ0028304	28	0.46%
02030105010010	5,936	NJ0067482	28	0.47%
02030105010010	5,936	NJ0090051	158	2.66%
02030105010020	4,684	NJ0021954	2,154	45.99%
02030105010020	4,684	NJ0022675	789	16.85%
02030105010020	4,684	NJ0109061	26	0.56%
02030105010030	3,219	NJ0021369	7	0.23%
02030105010030	3,219	NJ0027821	1,420	44.12%
02030105010030	3,219	NJ0053422	161	5.02%
02030105010030	3,219	NJ0099538	56	1.75%
02030105010040	4,265	NJ0021369	37	0.88%
02030105010040	4,265	NJ0023493	21	0.50%
02030105010040	4,265	NJ0027821	323	7.57%
02030105010040	4,265	NJ0051519	3	0.06%
02030105010040	4,265	NJ0099538	594	13.92%
02030105010040	4,265	NJ0128848	112	2.61%
02030105010050	9,766	NJ0021954	90	0.92%
02030105010050	9,766	NJ0023493	1,281	13.12%
02030105010050	9,766	NJ0109061	580	5.93%
02030105010060	9,531	NJ0109061	79	0.82%
02030105010070	5,050	NJ0020389	43	0.86%
02030105010080	2,961	NJ0020389	1,587	53.61%
02030105010080	2,961	NJ0028487	0	0.00%
02030105010080	2,961	NJ0067229	8	0.27%
02030105020010	7,868	NJ0022144	96	1.22%
02030105020020	2,057	NJ0022144	452	21.98%
02030105020030	9,414	NJ0020389	268	2.84%

APPROVED SEWER SERVICE AREAS BY HUC14

HUC14	HUC14 ACREAGE	NJPDES ID	EXISTING SEWER SERVICE AREA ACREAGE	PERCENT SEWER AREA PER HUC14
02030105020030	9,414	NJ0024091	13	0.14%
02030105020040	7,808	NJ0020389	812	10.40%
02030105020050	4,438	NJ0020389	686	15.46%
02030105020050	4,438	NJ0028363	20	0.44%
02030105020050	4,438	NJ0028487	244	5.50%
02030105020050	4,438	NJ0089338	385	8.69%
02030105020060	9,105	NJ0023001	6	0.06%
02030105020070	5,263	NJ0020389	728	13.83%
02030105020070	5,263	NJ0028363	29	0.55%
02030105020070	5,263	NJ0131725	111	2.12%
02030105020080	4,721	NJ0020389	68	1.43%
02030105020080	4,721	NJ0022047	0	0.00%
02030105020080	4,721	NJ0100528	84	1.79%
02030105020090	7,218	NJ0087335	41	0.57%
02030105020090	7,218	NJ0098922	25	0.34%
02030105050010	4,015	NJ0000876	924	23.02%
02030105050010	4,015	NJ0022349	60	1.48%
02030105050010	4,015	NJ0022675	773	19.26%
02030105050010	4,015	NJ0027821	278	6.91%
02030105050010	4,015	NJ0065226	11	0.27%
02030105050020	7,066	NJ0022349	7	0.09%
02030105050020	7,066	NJ0022675	1,509	21.35%
02030105050030	3,843	NJ0026824	0	0.00%
02030105050030	3,843	NJ0054101	117	3.04%
02030105050030	3,843	NJ0109061	1	0.02%
02030105050040	5,703	NJ0026824	5	0.08%
02030105050040	5,703	NJ0109061	213	3.73%
02030105050060	3,988	NJ0055956	119	2.97%
02030105050070	8,948	NJ0021865	25	0.28%
02030105050070	8,948	NJ0022781	109	1.21%
02030105050070	8,948	NJ0055956	29	0.33%
02030105050070	8,948	NJ0098922	2	0.02%
02030105050070	8,948	NJ0102563	2	0.02%
02030105050070	8,948	NJ0104396	36	0.40%
02030105050080	10,840	NJ0053279	42	0.39%
02030105050090	3,263	NJ0028452	62	1.91%
02030105050090	3,263	NJ0053279	0	0.01%
02030105050090	3,263	NJ0055956	56	1.71%
02030105050090	3,263	NJ0098922	0	0.00%
02030105050090	3,263	NJ0102563	122	3.74%
02030105050090	3,263	NJ0104396	5	0.15%
02030105050100	7,910	NJ0023175	26	0.32%
02030105050100	7,910	NJ0028487	1	0.01%
02030105050100	7,910	NJ0089338	94	1.18%
02030105050100	7,910	NJ0098922	705	8.92%
02030105050110	4,833	NJ0024864	1	0.02%
02030105060010	4,282	NJ0021334	724	16.90%
02030105060010	4,282	NJ0022349	28	0.65%
02030105060010	4,282	NJ0024911	55	1.29%
02030105060030	4,897	NJ0021334	93	1.89%
02030105060040	4,805	NJ0033995	57	1.18%
02030105060050	4,228	NJ0026824	4	0.09%
02030105060050	4,228	NJ0033995	26	0.62%

APPROVED SEWER SERVICE AREAS BY HUC14

HUC14	HUC14 ACREAGE	NJPDES ID	EXISTING SEWER SERVICE AREA ACREAGE	PERCENT SEWER AREA PER HUC14
02030105060050	4,228	NJ0054101	32	0.75%
02030105060050	4,228	NJ0090115	18	0.43%
02030105060060	3,248	NJ0021881	8	0.23%
02030105060060	3,248	NJ0033995	1,418	43.67%
02030105060060	3,248	NJ0136093	0	0.01%
02030105060070	5,380	NJ0022845	1	0.01%
02030105060070	5,380	NJ0026387	672	12.49%
02030105060070	5,380	NJ0033995	233	4.32%
02030105060080	4,279	NJ0027227	24	0.56%
02030105060080	4,279	NJ0033995	17	0.39%
02030105060080	4,279	NJ0087343	80	1.87%
02030105060080	4,279	NJ0136093	3	0.06%
02030105060090	5,562	NJ0028495	45	0.81%
02030105060090	5,562	NJ0033995	1,334	23.98%
02030105060090	5,562	NJ0087378	42	0.75%
02030105070010	5,967	NJ0024864	31	0.52%
02030105070010	5,967	NJ0033995	435	7.29%
02030105120050	6,131	NJ0024864	56	0.91%
02030105120060	4,188	NJ0024864	239	5.70%
02040105040050	8,621	NJ0004791	107	1.24%
02040105040050	8,621	NJ0027049	38	0.44%
02040105040050	8,621	NJ0027057	11	0.13%
02040105040050	8,621	NJ0050806	36	0.42%
02040105040050	8,621	NJ0051616	72	0.83%
02040105040050	8,621	NJ0053350	88	1.03%
02040105060020	7,871	NJ0035114	355	4.51%
02040105070010	3,436	NJ0027049	6	0.17%
02040105070010	3,436	NJ0027065	25	0.73%
02040105070020	7,347	NJ0027049	1	0.02%
02040105070050	6,033	NJ0020605	317	5.26%
02040105070050	6,033	NJ0099171	326	5.40%
02040105070050	6,033	NJ0108481	20	0.32%
02040105070060	4,034	NJ0020605	1,061	26.29%
02040105090010	6,079	NJ0020605	2	0.03%
02040105090010	6,079	NJ0065161	5	0.09%
02040105090020	4,891	NJ0020605	39	0.80%
02040105090020	4,891	NJ0065161	20	0.41%
02040105090030	5,270	NJ0035483	35	0.67%
02040105090050	4,939	NJ0035483	809	16.38%
02040105090060	5,297	NJ0035114	1,495	28.22%
02040105090060	5,297	NJ0035483	1,144	21.60%
02040105090060	5,297	NJ0127949	5	0.10%
02040105100040	5,803	NJ0035114	12	0.21%
02040105110010	3,599	NJ0035114	875	24.31%
02040105110010	3,599	NJ0035483	239	6.63%
02040105110020	9,437	NJ0035114	975	10.33%
02040105110020	9,437	NJ0089648	27	0.29%
02040105110030	5,054	NJ0024716	740	14.65%
02040105110030	5,054	NJG0109797	53	1.05%
02040105120020	7,732	NJ0024716	4,301	55.63%
02040105140020	7,999	NJ0021113	1,302	16.28%
02040105140020	7,999	NJ0035483	116	1.45%
02040105140020	7,999	NJ0065196	4	0.05%

APPROVED SEWER SERVICE AREAS BY HUC14

HUC14	HUC14 ACREAGE	NJPDES ID	EXISTING SEWER SERVICE AREA ACREAGE	PERCENT SEWER AREA PER HUC14
02040105140020	7,999	NJ0067610	13	0.16%
02040105140030	6,893	NJ0020711	15	0.22%
02040105140030	6,893	NJ0100382	66	0.95%
02040105140040	3,604	NJ0024716	69	1.92%
02040105140050	4,453	NJ0024716	2	0.04%
02040105140060	4,054	NJ0024716	899	22.18%
02040105140070	3,762	NJ0024716	540	14.34%
02040105150010	4,124	NJ0027821	29	0.70%
02040105150020	12,091	NJ0021105	19	0.16%
02040105150020	12,091	NJ0026212	2	0.02%
02040105150020	12,091	NJ0027821	6,017	49.76%
02040105150020	12,091	NJ0108243	8	0.06%
02040105150020	12,091	NJ0133558	248	2.05%
02040105150020	12,091	NJG0100706	14	0.12%
02040105150020	12,091	NJG0107832	2	0.02%
02040105150020	12,091	NJG0108570	3	0.03%
02040105150030	3,586	NJ0027821	2,762	77.03%
02040105150030	3,586	NJ0067482	7	0.19%
02040105150030	3,586	NJG0100706	156	4.36%
02040105150050	6,446	NJ0022632	124	1.92%
02040105150050	6,446	NJ0027821	719	11.15%
02040105150060	3,357	NJ0099171	17	0.49%
02040105150070	4,452	NJ0027821	2,920	65.60%
02040105150070	4,452	NJ0053422	1	0.02%
02040105150080	4,954	NJ0021369	0	0.01%
02040105150090	3,172	NJ0021369	2,108	66.45%
02040105150090	3,172	NJ0023493	66	2.07%
02040105150090	3,172	NJ0027821	1	0.02%
02040105150100	4,943	NJ0021369	2,407	48.69%
02040105160010	9,285	NJ0021369	2,813	30.30%
02040105160010	9,285	NJ0023493	216	2.32%
02040105160010	9,285	NJG0085537	35	0.37%
02040105160020	11,380	NJG0108286	22	0.19%
02040105160030	4,975	NJ0021113	12	0.24%
02040105160040	3,266	NJ0059897	57	1.74%
02040105160040	3,266	NJ0131482	4	0.11%
02040105160040	3,266	NJG0108171	6	0.19%
02040105160060	4,331	NJ0058246	16	0.37%
02040105160070	4,789	NJ0021890	9	0.19%
02040105170010	3,884	NJ0021890	65	1.67%
02040105170020	11,233	NJ0021890	1,262	11.23%
02040105170030	7,585	NJ0021890	195	2.57%
02040105170030	7,585	NJ0023001	0	0.00%
02040105170040	4,308	NJ0023001	3	0.08%
02040105170040	4,308	NJ0027553	8	0.20%
02040105170040	4,308	NJ0035670	36	0.84%
02040105170050	5,441	NJ0029831	4	0.06%

HIGHLANDS DOMESTIC SEWERAGE FACILITIES EXISTING AREAS SERVED WITHIN PLANNING AREA, PRESERVATION AREA

Facility Name	NJPDES	Planning Area (Acres)	Preservation Area (Acres)	Total Acres	% Planning Area	% Preservation Area
Town of Clinton WTP	NJ0020389	1,680	15	1,695	99%	1%
Allamuchy Township MUA	NJ0020605	384	0	384	100%	0%
Washington Borough WTF	NJ0021113	832	0	832	100%	0%
Mendham Boro	NJ0021334	901	0	901	100%	0%
Hackettstown WPCF	NJ0021369	1,991	875	2,865	69%	31%
Milford STP	NJ0021890	672	11	683	98%	2%
Mt Olive Twp - Clover Hill STP	NJ0021954	603	273	876	69%	31%
Rockaway Valley Regional Sewerage Authority	NJ0022349	13,748	154	13,902	99%	1%
Ajax Terrace WPCP	NJ0022675	2,828	28	2,856	99%	1%
Skyview WPCP	NJ0022683	43	356	398	11%	89%
Valley Rd Sewer Co - Pottersville STP	NJ0022781	71	4	75	95%	5%
Harrison Brook STP	NJ0022845	4,475	0	4,475	100%	0%
Schooley's Mountain WTP	NJ0023493	0	1,146	1,146	0%	100%
Pompton Lakes MUA	NJ0023698	1,103	1	1,104	100%	0%
Phillipsburg STP	NJ0024716	3,339	0	3,339	100%	0%
NW Bergen County MUA	NJ0024813	4,198	35	4,233	99%	1%
Somerset Raritan Valley SA	NJ0024864	43	0	43	100%	0%
Hanover STP	NJ0024902	3,410	0	3,410	100%	0%
Butterworth	NJ0024911	3,719	0	3,719	100%	0%
Woodland	NJ0024929	2,047	0	2,047	100%	0%
Parsippany-Troy Hills SA	NJ0024970	12,249	615	12,863	95%	5%
Morristown	NJ0025496	1,990	0	1,990	100%	0%
West Milford Twp MUA - Crescent Park STP	NJ0026174		110	110	0%	100%
Borough of Bernardsville	NJ0026387	908	0	908	100%	0%
Jefferson Twp - White Rock	NJ0026867	0	294	294	0%	100%
West Milford Twp MUA - Awosting	NJ0027669	0	81	81	0%	100%
West Milford Twp MUA- Olde Milford	NJ0027677	0	275	275	0%	100%
West Milford Twp MUA - Highview	NJ0027685	0	168	168	0%	100%
Musconetcong SA*	NJ0027821	5,726	1,492	7,218	79%	21%
West Milford Twp MUA - Birchill	NJ0028541	0	33	33	0%	100%
Two Bridges Sewerage Authority	NJ0029386	4,642	635	5,277	88%	12%
Environmental Disposal Corporation	NJ0033995	1,913	18	1,931	99%	1%
Warren County MUA - Belvidere	NJ0035114	838	33	871	96%	4%
Warren County MUA - Oxford	NJ0035483	489	140	628	78%	22%
Upper Walkill	NJ0053350	2,027	6	2,034	100%	0%
Wanaque Valley RSA	NJ0053759	659	82	741	89%	11%
Chester Borough	NJ0054101	105	0.000003	105	100%	0%
Tewksbury Twp (1)	NJ0055956	79	0	79	100%	0%
Readington-Lebanon SA	NJ0098922	266	0	266	100%	0%
Mount Olive Village Sewerage Company	NJ0099538	0	179	179	0%	100%
Long Valley Village Wastewater Treatment	NJ0109061	510	90	600	85%	15%
Jefferson Village	NJ0133558	0	35	35	0%	100%
Totals		**78,488**	**7,180**	**85,668**	**18%**	**2%**

HIGHLANDS REGION HUC14s SERVED BY HIGHLANDS DOMESTIC SEWERAGE FACILITIES

HUC14	Surface Water Name	% HUC Served (within Highlands)
02020007010010	Wallkill R/Lake Mohawk(above Sparta Sta)	3%
02020007010020	Wallkill R (Ogdensburg to SpartaStation)	0%
02020007010030	Franklin Pond Creek	1%
02020007010040	Wallkill R(Hamburg SW Bdy to Ogdensburg)	9%
02020007010050	Hardistonville tribs	6%
02020007010060	Beaver Run	0%
02020007010070	Wallkill R(Martins Rd to Hamburg SW Bdy)	10%
02020007020070	Papakating Creek (below Pellettown)	0%
02020007030010	Wallkill R(41d13m30s to Martins Road)	0%
02020007030030	Wallkill River(Owens gage to 41d13m30s)	0%
02020007030040	Wallkill River(stateline to Owens gage)	0%
02020007040010	Black Ck(above/incl G.Gorge Resort trib)	3%
02020007040020	Black Creek (below G. Gorge Resort trib)	2%
02020007040030	Pochuck Ck/Glenwood Lk & northern trib	0%
02020007040040	Highland Lake/Wawayanda Lake	0%
02020007040050	Wawayanda Creek & tribs	0%
02020007040060	Long House Creek/Upper Greenwood Lake	0%
02030103010010	Passaic R Upr (above Osborn Mills)	7%
02030103010020	Primrose Brook	0%
02030103010030	Great Brook (above Green Village Rd)	25%
02030103010040	Loantaka Brook	43%
02030103010050	Great Brook (below Green Village Rd)	0%
02030103010060	Black Brook (Great Swamp NWR)	0%
02030103010070	Passaic R Upr (Dead R to Osborn Mills)	37%
02030103010080	Dead River (above Harrisons Brook)	18%
02030103010090	Harrisons Brook	61%
02030103010100	Dead River (below Harrisons Brook)	21%
02030103010110	Passaic R Upr (Plainfield Rd to Dead R)	0%
02030103010180	Passaic R Upr (Pine Bk br to Rockaway)	43%
02030103020010	Whippany R (above road at 74d 33m)	11%
02030103020020	Whippany R (Wash. Valley Rd to 74d 33m)	6%
02030103020030	Greystone / Watnong Mtn tribs	44%
02030103020040	Whippany R(Lk Pocahontas to Wash Val Rd)	60%
02030103020050	Whippany R (Malapardis to Lk Pocahontas)	58%
02030103020060	Malapardis Brook	53%
02030103020070	Black Brook (Hanover)	35%
02030103020080	Troy Brook (above Reynolds Ave)	56%
02030103020090	Troy Brook (below Reynolds Ave)	28%
02030103020100	Whippany R (Rockaway R to Malapardis Bk)	45%
02030103030010	Russia Brook (above Milton)	1%
02030103030020	Russia Brook (below Milton)	7%
02030103030030	Rockaway R (above Longwood Lake outlet)	1%
02030103030040	Rockaway R (Stephens Bk to Longwood Lk)	1%
02030103030050	Green Pond Brook (above Burnt Meadow Bk)	0%
02030103030060	Green Pond Brook (below Burnt Meadow Bk)	21%
02030103030070	Rockaway R (74d 33m 30s to Stephens Bk)	36%
02030103030080	Mill Brook (Morris Co)	20%
02030103030090	Rockaway R (BM 534 brdg to 74d 33m 30s)	65%
02030103030100	Hibernia Brook	4%
02030103030110	Beaver Brook (Morris County)	15%
02030103030120	Den Brook	49%
02030103030130	Stony Brook (Boonton)	2%
02030103030140	Rockaway R (Stony Brook to BM 534 brdg)	37%
02030103030150	Rockaway R (Boonton dam to Stony Brook)	29%
02030103030160	Montville tribs.	34%
02030103030170	Rockaway R (Passaic R to Boonton dam)	57%
02030103040010	Passaic R Upr (Pompton R to Pine Bk)	42%
02030103050010	Pequannock R (above Stockholm/Vernon Rd)	0%
02030103050020	Pacock Brook	0%

HIGHLANDS REGION HUC14s SERVED BY HIGHLANDS DOMESTIC SEWERAGE FACILITIES

HUC14	Surface Water Name	% HUC Served (within Highlands)
02030103050030	Pequannock R (above OakRidge Res outlet)	0%
02030103050040	Clinton Reservior/Mossmans Brook	0%
02030103050050	Pequannock R (Charlotteburg to OakRidge)	0%
02030103050060	Pequannock R(Macopin gage to Charl'brg)	3%
02030103050070	Stone House Brook	16%
02030103050080	Pequannock R (below Macopin gage)	23%
02030103070010	Belcher Creek (above Pinecliff Lake)	10%
02030103070020	Belcher Creek (Pinecliff Lake & below)	1%
02030103070030	Wanaque R/Greenwood Lk(aboveMonks gage)	1%
02030103070040	West Brook/Burnt Meadow Brook	1%
02030103070050	Wanaque Reservior (below Monks gage)	0%
02030103070060	Meadow Brook/High Mountain Brook	7%
02030103070070	Wanaque R/Posts Bk (below reservior)	17%
02030103100010	Ramapo R (above 74d 11m 00s)	11%
02030103100020	Masonicus Brook	70%
02030103100030	Ramapo R (above Fyke Bk to 74d 11m 00s)	18%
02030103100040	Ramapo R (Bear Swamp Bk thru Fyke Bk)	5%
02030103100050	Ramapo R (Crystal Lk br to BearSwamp Bk)	0%
02030103100060	Crystal Lake/Pond Brook	2%
02030103100070	Ramapo R (below Crystal Lake bridge)	11%
02030103110010	Lincoln Park tribs (Pompton River)	34%
02030103110020	Pompton River	61%
02030103140010	Hohokus Bk (above Godwin Ave)	55%
02030103140020	Hohokus Bk(Pennington Ave to Godwin Ave)	72%
02030103140040	Saddle River (above Rt 17)	72%
02030105010010	Drakes Brook (above Eyland Ave)	24%
02030105010020	Drakes Brook (below Eyland Ave)	26%
02030105010030	Raritan River SB(above Rt 46)	31%
02030105010040	Raritan River SB(74d 44m 15s to Rt 46)	6%
02030105010050	Raritan R SB(LongValley br to 74d44m15s)	14%
02030105010060	Raritan R SB(Califon br to Long Valley)	0%
02030105010070	Raritan R SB(StoneMill gage to Califon)	0%
02030105010080	Raritan R SB(Spruce Run-StoneMill gage)	23%
02030105020010	Spruce Run (above Glen Gardner)	0%
02030105020020	Spruce Run (Reservior to Glen Gardner)	0%
02030105020030	Mulhockaway Creek	0%
02030105020040	Spruce Run Reservior / Willoughby Brook	3%
02030105020050	Beaver Brook (Clinton)	8%
02030105020060	Cakepoulin Creek	0%
02030105020070	Raritan R SB(River Rd to Spruce Run)	8%
02030105020080	Raritan R SB(Prescott Bk to River Rd)	2%
02030105020090	Prescott Brook / Round Valley Reservior	0%
02030105040020	Pleasant Run	0%
02030105040030	Holland Brook	0%
02030105050010	Lamington R (above Rt 10)	16%
02030105050020	Lamington R (Hillside Rd to Rt 10)	14%
02030105050030	Lamington R (Furnace Rd to Hillside Rd)	2%
02030105050040	Lamington R(Pottersville gage-FurnaceRd)	3%
02030105050050	Pottersville trib (Lamington River)	0%
02030105050060	Cold Brook	2%
02030105050070	Lamington R(HallsBrRd-Pottersville gage)	1%
02030105050080	Rockaway Ck (above McCrea Mills)	0%
02030105050090	Rockaway Ck (RockawaySB to McCrea Mills)	0%
02030105050100	Rockaway Ck SB	5%
02030105050110	Lamington R (below Halls Bridge Rd)	0%
02030105060010	Raritan R NB (above/incl India Bk)	14%
02030105060020	Burnett Brook (above Old Mill Rd)	0%
02030105060030	Raritan R NB(incl McVickers to India Bk)	2%
02030105060040	Raritan R NB(Peapack Bk to McVickers Bk)	0%

HIGHLANDS REGION HUC14s SERVED BY HIGHLANDS DOMESTIC SEWERAGE FACILITIES

HUC14	Surface Water Name	% HUC Served (within Highlands)
02030105060050	Peapack Brook (above/incl Gladstone Bk)	1%
02030105060060	Peapack Brook (below Gladstone Brook)	18%
02030105060070	Raritan R NB(incl Mine Bk to Peapack Bk)	12%
02030105060080	Middle Brook (NB Raritan River)	0%
02030105060090	Raritan R NB (Lamington R to Mine Bk)	12%
02030105070010	Raritan R NB (Rt 28 to Lamington R)	14%
02030105120050	Middle Brook EB	4%
02030105120060	Middle Brook WB	3%
02040105040040	Lafayette Swamp tribs	0%
02040105040050	Sparta Junction tribs	1%
02040105040060	Paulins Kill (above Rt 15)	0%
02040105050010	Paulins Kill (Blairstown to Stillwater)	0%
02040105060020	Delawanna Creek (incl UDRV)	6%
02040105070010	Lake Lenape trib	0%
02040105070020	New Wawayanda Lake/Andover Pond trib	0%
02040105070030	Pequest River (above Brighton)	0%
02040105070040	Pequest River (Trout Brook to Brighton)	0%
02040105070050	Trout Brook/Lake Tranquility	1%
02040105070060	Pequest R (below Bear Swamp to Trout Bk)	8%
02040105080010	Bear Brook (Sussex/Warren Co)	0%
02040105080020	Bear Creek	0%
02040105090010	Pequest R (Drag Strip--below Bear Swamp)	0%
02040105090020	Pequest R (Cemetary Road to Drag Strip)	0%
02040105090030	Pequest R (Furnace Bk to Cemetary Road)	0%
02040105090040	Mountain Lake Brook	0%
02040105090050	Furnace Brook	8%
02040105090060	Pequest R (below Furnace Brook)	9%
02040105100010	Union Church trib	0%
02040105100020	Honey Run	0%
02040105100030	Beaver Brook (above Hope Village)	0%
02040105100040	Beaver Brook (below Hope Village)	0%
02040105110010	Pophandusing Brook	9%
02040105110020	Buckhorn Creek (incl UDRV)	1%
02040105110030	UDRV tribs (Rt 22 to Buckhorn Ck)	11%
02040105120010	Lopatcong Creek (above Rt 57)	0%
02040105120020	Lopatcong Creek (below Rt 57) incl UDRV	31%
02040105140010	Pohatcong Creek (above Rt 31)	0%
02040105140020	Pohatcong Ck (Brass Castle Ck to Rt 31)	12%
02040105140030	Pohatcong Ck (Edison Rd-Brass Castle Ck)	0%
02040105140040	Merrill Creek	1%
02040105140050	Pohatcong Ck (Merrill Ck to Edison Rd)	0%
02040105140060	Pohatcong Ck (Springtown to Merrill Ck)	2%
02040105140070	Pohatcong Ck(below Springtown) incl UDRV	8%
02040105150010	Weldon Brook/Beaver Brook	1%
02040105150020	Lake Hopatcong	30%
02040105150030	Musconetcong R (Wills Bk to LkHopatcong)	37%
02040105150040	Lubbers Run (above/incl Dallis Pond)	0%
02040105150050	Lubbers Run (below Dallis Pond)	5%
02040105150060	Cranberry Lake / Jefferson Lake & tribs	0%
02040105150070	Musconetcong R(Waterloo to/incl WillsBk)	17%
02040105150080	Musconetcong R (SaxtonFalls to Waterloo)	0%
02040105150090	Mine Brook (Morris Co)	18%
02040105150100	Musconetcong R (Trout Bk to SaxtonFalls)	22%
02040105160010	Musconetcong R (Hances Bk thru Trout Bk)	15%
02040105160020	Musconetcong R (Changewater to HancesBk)	0%
02040105160030	Musconetcong R (Rt 31 to Changewater)	0%
02040105160040	Musconetcong R (75d 00m to Rt 31)	0%
02040105160050	Musconetcong R (I-78 to 75d 00m)	0%
02040105160060	Musconetcong R (Warren Glen to I-78)	0%

HIGHLANDS REGION HUC14s SERVED BY HIGHLANDS DOMESTIC SEWERAGE FACILITIES

HUC14	Surface Water Name	% HUC Served (within Highlands)
02040105160070	Musconetcong R (below Warren Glen)	0%
02040105170010	Holland Twp (Hakihokake to Musconetcong)	1%
02040105170020	Hakihokake Creek	5%
02040105170030	Harihokake Creek (and to Hakihokake Ck)	1%
02040105170040	Nishisakawick Creek (above 40d 33m)	0%
02040105170050	Nishisakawick Creek (below 40d 33m)	0%

NJPDES	Facility Name	9/2005 Discharge Rate	10/2005 Discharge Rate	Allocation Procedure	Extraneous Flow (10/05 - 9/05)	Wet/Dry Month Ratio	Notes
NJ0020389	Town of Clinton WTP	1.276	1.591	Mun	0.315	1.25	
NJ0020605	Allamuchy Township MUA	0.328	0.49	1st Come	0.162	1.49	
NJ0021113	Washington Borough WTF	0.702	1.187		0.485	1.69	
NJ0021334	Mendham Boro	0.309	0.415		0.106	1.34	
NJ0021369	Hackettstown WPCF	1.98	2.679	1st Come	0.699	1.35	
NJ0021890	Milford STP	0.223	0.319		0.096	1.43	
NJ0021954	Mt Olive Twp - Clover Hill STP	0.3065	0.4083	1st Come	0.1018	1.33	
NJ0022349	Rockaway Valley Regional Sewerage Authority	8.4	11.7	1st Come	3.3	1.39	
NJ0022675	Ajax Terrace WPCP	1.302	1.823	1st Come	0.521	1.40	
NJ0022683	Skyview WPCP	--	--	--	--	N/A	
NJ0022781	Valley Rd Sewer Co - Pottersville STP	--	--	--	--	N/A	
NJ0022845	Harrison Brook STP	1.26	2.543	1st Come	1.283	2.02	
NJ0023493	Schooley's Mountain WTP	0.24	0.49	1st Come	0.25	2.04	
NJ0023698	Pompton Lakes MUA	0.786	1.29	1st Come	0.504	1.64	
NJ0024716	Phillipsburg STP	2.02	2.56		0.54	1.27	
NJ0024813	NW Bergen County MUA	7.61	12.49		4.88	1.64	
NJ0024864	Somerset Raritan Valley SA	13.24	26.46	1st Come	13.22	2.00	(1)
NJ0024902	Hanover STP	--	--		--	N/A	
NJ0024911	Butterworth	1.842	2.29307	P.M.	0.45107	1.24	
NJ0024929	Woodland	1.0316	1.3271	1st Come	0.2955	1.29	
NJ0024970	Parsippany-Troy Hills SA	11.14	14.32	P.M.	3.18	1.29	
NJ0025496	Morristown	2.579	3.504		0.925	1.36	
NJ0026174	West Milford Twp MUA - Crescent Park STP	--	--	--	--	N/A	(2)
NJ0026387	Borough of Bernardsville	0.557	0.765	1st Come	0.208	1.37	
NJ0026867	Jefferson Twp - White Rock	--	--	--	--	N/A	
NJ0027669	West Milford Twp MUA - Awosting	--	--	--	--	N/A	
NJ0027677	West Milford Twp MUA- Olde Milford	--	--	--	--	N/A	
NJ0027685	West Milford Twp MUA - Highview	--	--	--	--	N/A	
NJ0027821	Musconetcong SA*	1.734	2.4377	Mun	0.7037	1.41	
NJ0028541	West Milford Twp MUA - Birchill	--	--	--	--	N/A	
NJ0029386	Two Bridges Sewerage Authority	4.446	8.908	Mun	4.462	2.00	
NJ0033995	Environmental Disposal Corporation	1.28	1.631	1st Come	0.351	1.27	
NJ0035114	Warren County MUA - Belvidere	0.3	0.405	1st Come	0.105	1.35	
NJ0035483	Warren County MUA - Oxford	0.273	0.471	1st Come	0.198	1.73	
NJ0053350	Upper Walkill	1.358	2.302	Mun	0.944	1.70	
NJ0053759	Wanaque Valley RSA	0.8504	1.4136		0.5632	1.66	
NJ0054101	Chester Borough	--	--	--	--	N/A	
NJ0055956	Tewksbury Twp (1)	--	--	--	--	N/A	
NJ0098922	Readington-Lebanon SA	0.507	1.020		0.513	2.01	
NJ0099538	Mount Olive Village Sewerage Company	--	--	--	--	N/A	
NJ0133558	Jefferson Village	--	--	--	--	N/A	
		67.88	**107.24**	**0.00**	**39.36**		

(1) Morris - Butterworth committed/unused capacity includes contracted flow to Randolph and Morris Plains.

(2) Pequannock, Lincoln Park and Fairfield S.A. comitted/unused capacity includes capacity to serve existing development within Pequannock that is currently served by septic systems.

HIGHLANDS DOMESTIC SEWERAGE FACILITIES -- AVAILABLE WASTEWATER CAPACITY

NJPDES Permit #	Facility Name	Discharge Type	Portion of Facility Located within Highlands	Total Permitted Capacity (MGD)	Highlands Portion of Permitted Capacity (MGD)	Total MAX3MO Discharge (MGD)	Highlands Portion of MAX3MO (MGD)	Current Available Highlands Capacity (MGD)
NJ0024970	Parsippany-Troy Hills SA	SW	0.85	16.00	13.60	13.03	11.08	2.52
NJ0024902	Hanover STP	SW	0.98	4.61	4.52	2.26	2.21	2.30
NJ0027821	Musconetcong SA*	SW	1.00	4.30	4.30	2.40	2.40	1.90
NJ0024911	Butterworth	SW	1.00	3.30	3.30	2.25	2.25	1.05
NJ0024716	Phillipsburg STP	SW	1.00	3.50	3.50	2.49	2.49	1.01
NJ0053350	Upper Walkill	SW	0.95	3.00	2.85	2.08	1.97	0.88
NJ0021369	Hackettstown WPCF	SW	1.00	3.39	3.39	2.68	2.68	0.71
NJ0024813	NW Bergen County MUA	SW	0.21	15.00	3.15	11.71	2.46	0.69
NJ0024929	Woodland	SW	0.93	2.00	1.86	1.31	1.22	0.64
NJ0033995	Environmental Disposal Corporation	SW	1.00	2.10	2.10	1.49	1.49	0.61
NJ0020389	Town of Clinton WTP	SW	0.99	2.03	2.01	1.43	1.42	0.59
NJ0021113	Washington Borough WTF	SW	1.00	1.50	1.50	0.97	0.97	0.53
NJ0029386	Two Bridges Sewerage Authority	SW	0.54	7.50	4.05	6.54	3.53	0.52
NJ0022845	Harrison Brook STP	SW	1.00	2.50	2.50	2.13	2.13	0.37
NJ0020605	Allamuchy Township MUA	SW	1.00	0.60	0.60	0.35	0.35	0.25
NJ0022349	Rockaway Valley Regional Sewerage Authority	SW	1.00	12.00	12.00	11.87	11.87	0.13
NJ0027685	West Milford Twp MUA - Highview	SW	1.00	0.21	0.21	0.09	0.09	0.12
NJ0035114	Warren County MUA - Belvidere	SW	1.00	0.50	0.50	0.39	0.39	0.11
NJ0053759	Wanaque Valley RSA	SW	1.00	1.25	1.25	1.14	1.14	0.11
NJ0021890	Milford STP	SW	1.00	0.40	0.40	0.30	0.30	0.10
NJ0023698	Pompton Lakes MUA	SW	1.00	1.20	1.20	1.11	1.11	0.09
NJ0021954	Mt Olive Twp - Clover Hill STP	SW	1.00	0.50	0.50	0.41	0.41	0.09
NJ0035483	Warren County MUA - Oxford	SW	1.00	0.50	0.50	0.42	0.42	0.08
NJ0109061	Long Valley Village Wastewater Treatment	SW	1.00	0.24	0.24	0.17	0.17	0.08
NJ0133558	Jefferson Village	GW	1.00	0.13	0.13	0.05	0.05	0.07
NJ0099538	Mount Olive Village Sewerage Company	GW > 20K	1.00	0.33	0.33	0.27	0.27	0.06
NJ0098922	Readington-Lebanon SA	SW	0.14	1.20	0.17	0.75	0.11	0.06
NJ0027677	West Milford Twp MUA- Olde Milford	SW	1.00	0.17	0.17	0.14	0.14	0.03
NJ0022675	Ajax Terrace WPCP	SW	1.00	2.00	2.00	1.97	1.97	0.03
NJ0026174	West Milford Twp MUA - Crescent Park STP	SW	1.00	0.06	0.06	0.04	0.04	0.02
NJ0024864	Somerset Raritan Valley SA	SW	0.01	24.30	0.24	21.98	0.22	0.02
NJ0025496	Morristown	SW	1.00	3.45	3.45	3.43	3.43	0.02
NJ0054101	Chester Borough	GW > 20K	1.00	0.08	0.08	0.07	0.07	0.01
NJ0022683	Skyview WPCP	SW	1.00	0.08	0.08	0.08	0.08	0.00
NJ0026867	Jefferson Twp - White Rock	SW	1.00	0.13	0.13	0.14	0.14	(0.01)
NJ0055956	Tewksbury Twp	GW > 20K	1.00	0.03	0.03	0.04	0.04	(0.01)
NJ0022781	Valley Rd Sewer Co - Pottersville STP	SW	1.00	0.05	0.05	0.06	0.06	(0.01)
NJ0028541	West Milford Twp MUA - Birchill	SW	1.00	0.02	0.02	0.03	0.03	(0.01)
NJ0027669	West Milford Twp MUA - Awosting	SW	1.00	0.05	0.05	0.09	0.09	(0.04)
NJ0021334	Mendham Boro	SW	1.00	0.40	0.40	0.48	0.48	(0.08)
NJ0023493	Schooley's Mountain WTP	SW	1.00	0.50	0.50	0.67	0.67	(0.17)
NJ0026387	Borough of Bernardsville	SW	1.00	0.50	0.50	0.71	0.71	(0.21)
TOTAL				121.61	78.41	99.98	63.11	15.84

1.0-2.52 MGD
0.5-0.99 MGD
0.1-0.49 MGD
0.01-0.09 MGD
( ) No capacity

*All available capacity committed to address failing septic systems

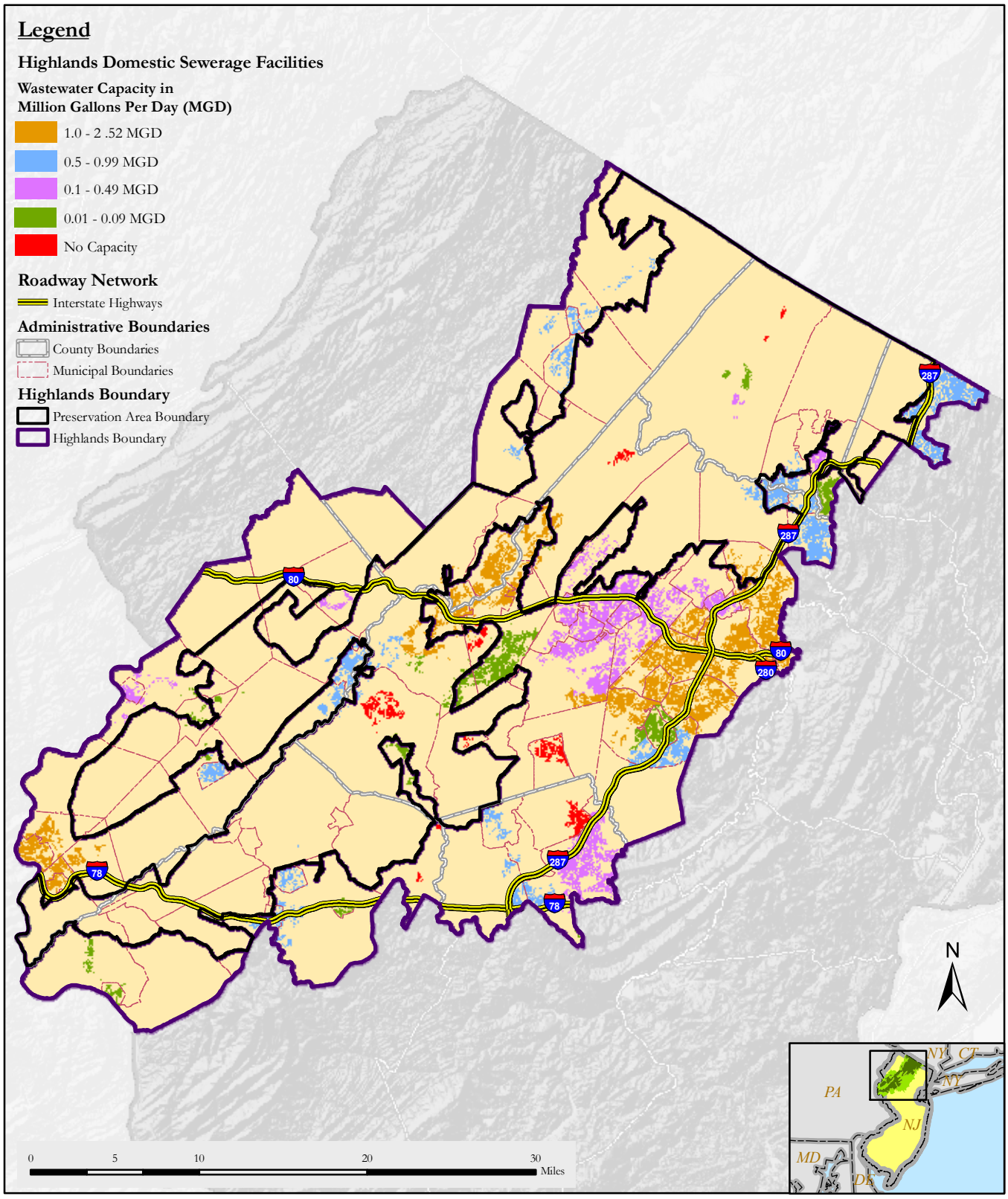
Highlands Public Water Supply Systems:
Available Water Supply Capacity

PUBLIC COMMUNITY WATER SYSTEM	MONTHLY SOURCE SUPPLY[1] (MGM)	MAXIMUM MONTHLY DEMAND (MGM)	AVAILABLE CAPACITY (MGM)
ELIZABETHTOWN WATER COMPANY	6761.5	5741.976	1019.524
NJ AMERICAN WATER COMPANY (SHORT HILLS)	2065.2	1669.552	395.648
SOUTHEAST MORRIS COUNTY MUA	452	282.1	169.9
BUTLER WATER DEPARTMENT	124	51.181	72.819
RINGWOOD WATER DEPARTMENT	102	39.901	62.099
PARSIPPANY-TROY HILLS WATER DEPARTMENT	343.86	296.477	47.383
MINE HILL TOWNSHIP WATER DEPARTMENT	60	13.02	46.98
SPARTA TOWNSHIP WATER (SUMMIT LAKE) Hardyston Twp., Highland, Lake Mohawk, Greentree, Sunset Lakes, Stonebridge Estates, Sparta Ridge, Lake Seneca)	103.2	57.66	45.54
PEQUANNOCK TOWNSHIP WATER DEPARTMENT	137	93.7	43.3
OAKLAND WATER DEPARTMENT	124	81.612	42.388
CONSUMERS NJ WATER COMPANY (AQUA NJ WATER COMPANY- PHILLIPSBURG)	178	143.354	34.646
BOONTON WATER DEPARTMENT	61.7	32.457	29.243
HACKETTSTOWN MUA (WITH DIAMOND HILL)	123.7	96.125	27.575
MCMUA	200	176.7	23.3
CLINTON WATER DEPARTMENT	88	65.41	22.59
WANAQUE WATER DEPARTMENT	62	40.3	21.7
POMPTON LAKES MUA	60	43.741	16.259
ROXBURY WATER COMPANY	55	38.75	16.25
ROCKAWAY TOWNSHIP WATER DEPARTMENT	71.5	57.35	14.15
DENVILLE TOWNSHIP WATER DEPARTMENT	77	63.55	13.45
BLOOMINGDALE WATER DEPARTMENT	31	34.751	12.183
MOUNT OLIVE TWP WATER DEPARTMENT (entire system)	55	43.025	11.975
WASHINGTON TOWNSHIP MUA (HAGER, Schooley Mtn)	35	23.436	11.564
DOVER WATER DEPARTMENT	112	100.812	11.188
NJ AMERICAN WATER COMPANY BELVIDERE SYSTEM	28.5	17.988	10.512
STANHOPE WATER DEPARTMENT	22.32	12.896	9.424
KINNELON WATER DEPARTMENT	23.25	13.919	9.331
NJ AMERICAN WATER COMPANY - (Washington, Mansfield and Oxford Systems)	57.88	49.001	8.879
BOONTON TWP WATER DEPARTMENT	9.3	0.93	8.37
ROXBURY TOWNSHIP WATER DEPARTMENT (EVERGREEN)	35	0.496	6.494
FRANKLIN BORO BOARD OF PUBLIC WORKS	18	11.656	6.344
NETCONG WATER DEPARTMENT	18	11.687	6.313
Hardyston Twp MUA Forr System	11.37	5.13	6.24
MONTVILLE TOWNSHIP MUA	134	127.875	6.125
MAHWAH WATER DEPARTMENT	174.15	168.203	5.947
OGDENSBURG WATER DEPARTMENT	12	7.13	4.87
HIGH BRIDGE WATER DEPARTMENT	19.13	14.446	4.684
MOUNT ARLINGTON SERVICE COMPANY, INCORPORATED (MOUNT ARLINGTON BOROUGH- KADEL AND MAIN)	15.5	11.094	4.406
RIVERDALE BORO WATER DEPARTMENT	12.4	8.215	4.185
UNITED WATER VERNON VALLEY INCORPORATED	20.5	16.377	4.123
MILFORD WATER DEPARTMENT	10	5.89	4.11
ROCKAWAY BORO WATER DEPARTMENT	44.4	40.3	4.1
HAMBURG BOARD OF PUBLIC WORKS	16	12.059	3.941
HAMPTON BOROUGH WATER DEPARTMENT	6.6	3.72	2.88
ALPHA MUNICIPAL WATER WORKS	13	10.178	2.822
MOUNTAIN LAKES WATER DEPARTMENT	30	27.962	2.038
GLEN GARDNER WATER DEPARTMENT	6.2	4.5942	1.6058
INDEPENDENCE MUA (HIGHLANDS DIVISION)	2.59	1.43	1.16
VERNON WATER COMPANY	3.1	1.984	1.116
RANDOLPH TOWNSHIP MUNICIPAL UTILITIES AUTHORITY	84	83.08	0.92
NJ AMERICAN WATER COMPANY (Mount Olive System)	3.1	2.387	0.713
ALLAMUCHY TWP WATER & SEWER (District #2) and Allamuchy Water District #1	15.5	14.853	0.647
CONSUMERS NJ WATER COMPANY CALIFON	3.1	2.48	0.62
FAYSON LAKE WATER COMPANY INCORPORATED	11	10.385	0.615
BLOOMSBURY WATER DEPARTMENT	4.65	4.53	0.12
PASSAIC VALLEY WATER COMMISSION (HIGH CREST)	3.1	3.15	-0.05
CHESTER BORO WATER UTILITY	3.1	4.371	-1.271
WEST MILFORD TWP MUA (entire system)	21.5	23.9258	-2.4258
HOPATCONG WATER DEPARTMENT	18.91	23.746	-4.836
JEFFERSON TOWNSHIP MUA WATER UTILITY- Milton System	37	0.93	-5.81
WHARTON WATER DEPARTMENT	40.3	56.978	-16.678

[1]Inlcudes both water allocation limits and bulk purchases

FIGURES

Figure 1 - Highlands Domestic Sewerage Facilities

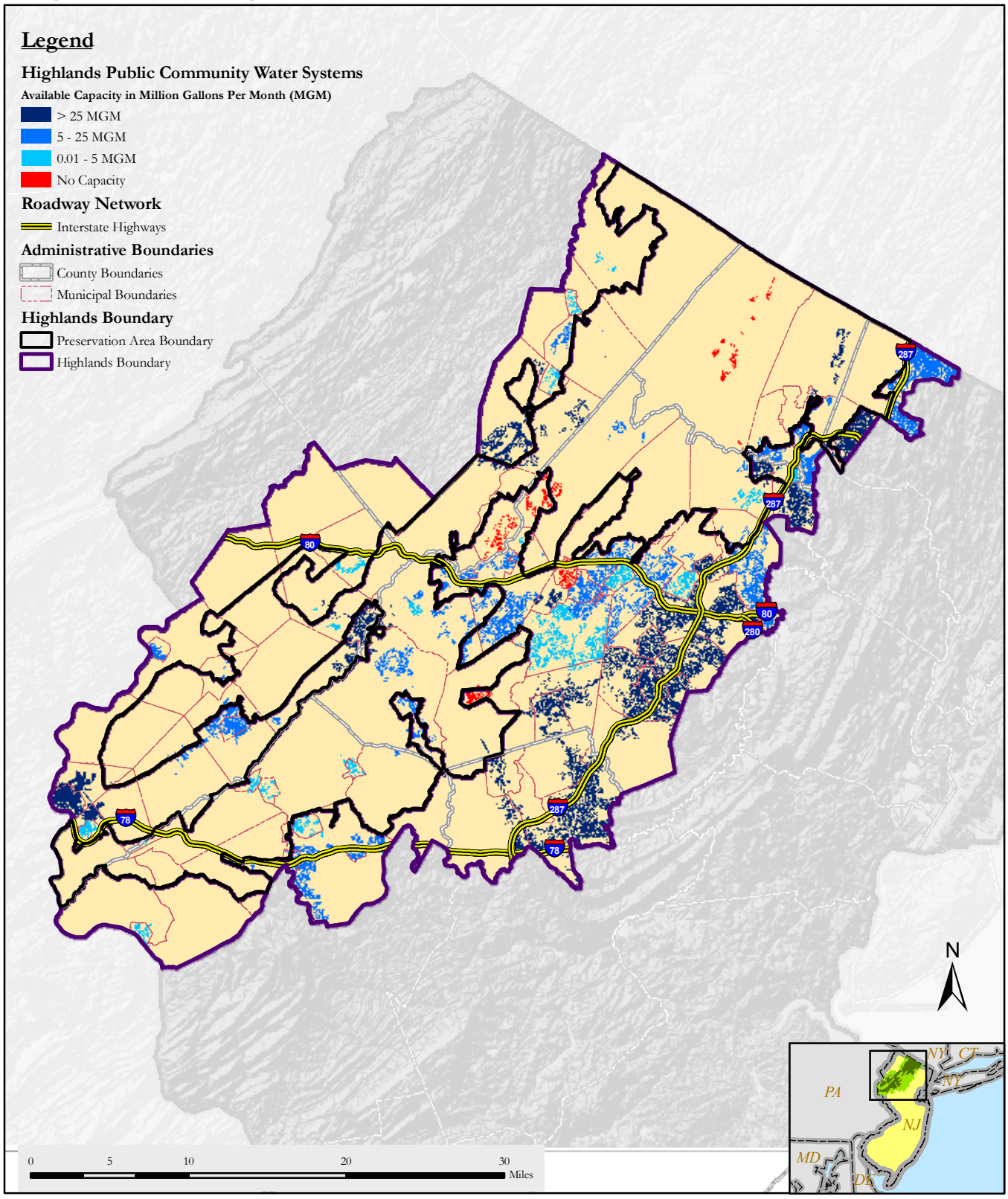


Utilities Technical Report

Highlands Council
New Jersey

Sources:
New Jersey Highlands Council, 2008

Figure 2 - Highlands Public Community Water Systems



Utilities Technical Report

Highlands Council
New Jersey

Sources:
New Jersey Highlands Council, 2008

APPENDIX

NJPDES	Facility Name	Discharge Type	Permitted Discharge Capacity	Maximum 3 Month Rate
NJ0022675	Ajax Terrace WPCP	SW	2.0	1.971
NJ0108481	Allamuchy Elementary School	GW < 20K		
NJ0020605	Allamuchy Township MUA	SW	0.6	0.346
NJ0027065	Alpine School	SW > 20K	0.025	0.0028
NJ0090069	Andover Nursing Home	GW > 20K		
NJ0067229	Arrow Mill Plaza	GW < 20K		
NJ0102903	Awbrook Mountain Aqua Farm	GW > 20K		
NJ0102563	Bellemead Develop Corp - Route 78	SW		
NJ0027961	Berkeley Heights	SW		
NJ0026387	Borough of Bernardsville	SW	0.5	0.71
NJ0024911	Butterworth	SW	3.3	2.254
NJ0023001	Camp Tecumseh - Salvation Army Camp	SW	0.018	0.0085
NJ0054101	Chester Borough	GW > 20K		
NJ0023175	Clinton Twp BOE - Round Valley	SW	0.009	0.0023
NJ0074128	Copper Hill Country Club	GW < 20K		
NJ0053422	Dyrham Woods	GW > 20K		
NJ0033995	Environmental Disposal Corporation	SW	2.1	1.4947
NJ0127876	Far Hills Country Day School	GW < 20K		
NJ0021865	Fiddler's Elbow Country Club	SW	0.075	0.0113
NJ0022772	Fieldhedge	SW	0.049	0.039
NJ0025518	Florham Park	SW	1.4	0.8939
NJ0020338	Fox Hollow	SW	Abandoned	
NJ0026701	Frankford	SW > 20K		
NJ0103748	Frankford	GW > 20K		
NJ0128406	Frankford	GW < 20K		
NJ0020656	General Services Belle Mead Depot	SW		
NJ0023841	Glen Meadow Middle School	GW < 20K	0.032	0.0182
NJ0100528	Glen Meadows/Twin Oaks	SW	0.025	0.0113
NJ0021369	Hackettstown WPCF	SW	3.39	2.6797
NJ0087343	Hamilton Farm WTP	GW < 20K		
NJ0050580	Hampton	SW > 20K	0.05	0.0377
NJ0067806	Hampton	GW < 20K		
NJ0024163	Hampton	SW > 20K	0.02	0.0133
NJ0028894	Hampton	SW > 20K	0.045	0.0101
NJ0024902	Hanover STP	SW	4.61	2.26
NJ0022845	Harrison Brook STP	SW	2.5	2.1347
NJ0000876	Hercules WPCP	SW Industrial		
NJ0031585	High Point Regional H.S.	SW > 20K	0.02	0.0063
NJ0146064	Hillsborough Chase	GW > 20K		
NJ0021105	Jefferson Twp - Arthur Stanlick School	SW	0.004	0.0037
NJ0081086	Jefferson Twp - Moosepac WWTP	SW	0.085	.0546
NJ0026867	Jefferson Twp - White Rock	SW	0.1295	0.1355
NJ0021091	Jefferson Twp High - Middle School	GW < 20K	0.0275	0.0142
NJ0133558	Jefferson Village	GW		
NJ0074861	Lafayette Twp. Elem. School	GW < 20K		
NJ0027227	Lamington Farms Trump National Proposed	SW	0.0005	0.0004
NJ0020419	Long Pond School	SW < 20K	0.01	0.0029
NJ0109061	Long Valley Village Wastewater Treatment	SW	0.244	0.1667

NJPDES	Facility Name	Discharge Type	Permitted Discharge Capacity	Maximum 3 Month Rate
NJ0021334	Mendham Boro	SW	0.4	0.4787
NJ0020141	Middlesex County Utilities Authority	SW		
NJ0021890	Milford STP	SW	0.4	0.3007
NJ0135607	Millington Baptist Church	GW < 20K		
NJ0025496	Morristown	SW	3.45	3.4313
NJ0099538	Mount Olive Village Sewerage Company	GW > 20K	0.25	
NJ0021954	Mt Olive Twp - Clover Hill STP	SW	0.5	0.4065
NJ0027821	Musconetcong SA	SW	4.303	2.4037
NJ0020354	Neshanic Station	SW	0.055	0.032
NJ0020184	Newton	SW > 20K	1.4	1.2397
NJ0028487	NJDC - Youth Correct - Mt View	SW	0.17	0.1997
NJ0026689	NJDHS - Greystone Psych Hosp	SW	0.4	0.2773
NJ0022144	NJDHS - Hagadorn Center	SW	0.042	0.0541
NJ0024813	NW Bergen County MUA	SW	15	11.71
NJ0080811	Oakland Twp - Riverbend	SW	0.137	0.0759
NJ0090051	Oakwood Village Stp	GW > 20K		0.199
NJ0024457	Our Lady of Magnificant	SW < 20K	0.0012	0.0011
NJ0024970	Parsippany-Troy Hills	SW	16.0	13.03
NJ0024716	Phillipsburg STP	SW	3.5	2.4867
NJ0023698	Pompton Lakes MUA	SW	1.2	1.106
NJ0027049	Pope John High School	SW > 20K	0.022	0.0063
NJ0022047	Raritan Twp MUA	SW	3.8	3.42
NJ0026697	Readington BOE	SW	0.017	0.005
NJ0098922	Readington-Lebanon SA	SW	1.2	0.7524
NJ0027201	Reflection Lake Garden Apts	SW	0.005	0.0015
NJ0029041	Regency at Sussex	SW > 20K	0.08	0.0147
NJ0027006	Ringwood Acres	SW	0.036	0.0277
NJ0022764	River Road	SW	0.117	0.1135
NJ0022349	Rockaway Valley SA	SW	12	11.8667
NJ0087335	Rolling Hills of Hunterdon LP	GW < 20K		
NJ0023841	Rolling Hills Primary School,	SW > 20K	0.032	0.0182
NJ0028304	Roxbury Motel Assoc. WPCP	SW	0.04	0.0150
NJ0101788	Schering Corp	SW > 20K		
NJ0023493	Schooley's Mountain WTP	SW	0.500	0.67
NJ0023949	Seasons Resort Hotel	SW > 20K	0.35	0.314
NJ0073873	Selective Insurance	GW < 20K		
NJ0065820	Seneca Apartments	GW < 20K		
NJ0022683	Skyview WPCP	SW	0.08	0.0783
NJ0024864	Somerset Raritan Valley SA	SW	24.3	21.98
NJ0027073	Sparta High School	SW > 20K	Abandoned	
NJ0023132	St. Pauls Abbey	GW < 20K		
NJ0074802	Stanton Properties	GW < 20K		
NJ0022276	Stonybrook School	SW < 20K	0.010	0.0017
NJ0055956	Tewksbury Twp	GW > 20K		
NJ0028452	Tewksbury, AM Best Service Area	GW > 20K		
NJ0020389	Town of Clinton WTP	SW	2.03	1.4337
NJ0029386	Two Bridges SA	SW	7.5	6.536
NJ0024091	Union Twp BOE	SW	0.011	0.003

NJPDES	Facility Name	Discharge Type	Permitted Discharge Capacity	Maximum 3 Month Rate
NJ0065226	United Water Mid-Atlantic (Arlington Hils) STP	GW < 20K	0.1579	0.122
NJ0081914	United Water West Milford	GW < 20K		
NJ0053350	Upper Walkill	SW	3.0	2.077
NJ0087378	USGA	GW < 20K		
NJ0022781	Valley Rd Sewer Co - Pottersville STP	SW	0.048	0.0572
NJ0020036	Veteran Affairs Supply Depot	SW	0.08	0.0087
NJ0021083	Veterans Administration	SW	0.4	0.2737
NJ0023841	Walnut Ridge Primary School	GW < 20K	0.032	0.0182
NJ0053759	Wanaque Valley RSA	SW	1.25	1.139
NJ0035114	Warren County MUA - Belvidere	SW	0.5	0.3863
NJ0035483	Warren County MUA - Oxford	SW	0.5	0.4157
NJ0020711	Warren County Voc-Tec STP	SW	0.012	0.0057
NJ0022489	Warren Twp SA - Stage 1 & 2	SW	0.470	0.4923
NJ0022497	Warren Twp SA - Stage 4	SW	0.80	0.5443
NJ0050369	Warren Twp SA - Stage 5	SW	0.38	0.1823
NJ0021113	Washington Borough WTF	SW	1.5	0.9683
NJ0026841	Wayne	SW		
NJ0024414	West Milford Shopping Center	SW	0.2	0.0093
NJ0051098	West Milford Twp MUA	GW < 20K		
NJ0027669	West Milford Twp MUA - Awosting	SW	0.045	0.0863
NJ0028541	West Milford Twp MUA - Birchill	SW	0.016	0.0263
NJ0026174	West Milford Twp MUA - Crescent Park STP	SW	0.064	0.04
NJ0027685	West Milford Twp MUA - Highview	SW	0.214	0.0893
NJ0027677	West Milford Twp MUA- Olde Milford	SW	0.172	0.1410
NJ0087530	West Millford Shopping Center	GW < 20K		
NJ0027057	White Deer Plaza	SW > 20K	0.05	0.0318
NJ0024929	Woodland	SW	2.0	1.3079
NJ0128848	Wyndham Pointe	GW > 20K		

APPENDIX B HIGHLANDS PUBLIC COMMUNITY WATER SYSTEMS

Public Community Water System Name	County	PWSID
Hagedorn Psychiatric Hospital	Hunterdon	1019002
EDNA MAHAN CORRECTIONAL WOMEN	Hunterdon	1025001
WINDY ACRES MOBILE HOME	Morris	1406002
Loziers Trailer Park	Morris	1414006
OAK RIDGE MOBILE HOME PARK	Bergen	1414008
SANDY POINT MOBILE HOME PARK	Morris	1414014
Sisters of Christian Charity	Morris	1418002
Sisters of Charity of St Elizabeth	Morris	1422001
NJ Vasa Home Water System	Morris	1427010
HOFFMAN HOMES	Morris	1435001
PICATINNY ARSENAL - ARDC	Morris	1435003
Cliffside Park Association	Morris	1438001
SHERWOOD MOBILE HOME PARK	Morris	1438006
Reflection Lakes Garden Apartment Incorporated	Passaic	1615009
TWIN LAKES ASSOCIATION C/O NJAWC	Somerset	1803002
EAST BROOKWOOD PROP OWNERS ASSOCIATION	Sussex	1904002
STRAWBERRY POINT PROPERTY OWNERS ASSCIATION	Sussex	1904006
BYRAM HOMEOWNERS ASSOCIATION	Sussex	1904009
Francis Avenue Water Association Lake Hopatcong	Sussex	1912008
CHARLES STREET COMMUNITY ASSOCIATION - Inactive?	Sussex	1912010
Roamin Acres Water System, Incorporated- Inactive		1918008
Lakeside Real Estate Company (INACTIVE) As of 4/27/04 owned by Village of Lake Greenwood	Sussex	1922010
GREAT GORGE TERRACE ASSOCIATION (Vernon)	Sussex	1922014
Pinecliff Lake Realty (INACTIVE) UWVH Sammis Rd?	Sussex	1922022
Ledgewood Hills Water (INACTIVE) UWVH Macintosh?	Sussex	1922023
Hidden Valley Condo Association	Sussex	1922027
HOUSE OF THE GOOD SHEPHERD - Inactive?		2108002
Harker's Hollow Water Association	Warren	2110003
Tamarack Road Mobile Home Park	Warren	2114001
HAPPY HILL MOBILE HOME PARK (Hillside Village)	Warren	2116002
WARREN HAVEN NURSING HOME	Warren	2116004
VALLEY VIEW ESTATES	Warren	2117002
Oxford Heritage Manor	Warren	2117003
Windtryst Apartments	Warren	2123002
Country Village Square	Warren	2123003
LEES PARK - MORRIS COUNTY PARK COMMISSION - Inactive?	Morris	1426003
Peapack Gladstone Borough - INACTIVE?	Somerset	1815001
BROOKWOOD MUSCONETCONG RIVER PROPERTY OWNERS ASSOC	Sussex	1904001
BRAINARDS MUTUAL WATER ASSOCIATION (Aqua NJ)	Warren	2110001

APPENDIX B HIGHLANDS PUBLIC COMMUNITY WATER SYSTEMS

Public Community Water System Name	County	PWSID
MOUNTAIN SHORE WATER SUPPLY	Morris	1414009
LINCOLN PARK JACKSONVILLE SYSTEM	Morris	1416004
ELIZABETHTOWN WATER COMPANY	Hunterdon, Morris, Somerset	2004002
NJ AMERICAN WATER COMPANY - WASHINGTON SYSTEM	Warren	2121001
NJ AMERICAN WATER COMPANY (OXFORD SYSTEM) - Inactive?	Warren	2117004
MOUNT ARLINGTON WATER COMPANY - Inactive?	Morris	1426001
Four Winds Plaza	Morris	1414013
WONDER LAKE PROPERTIES INCORPORATED	Passaic	1615017
NORTH SHORE WATER ASSOCIATION	Sussex	1904004
COLBY WATER COMPANY	Sussex	1904007
Willor Manor Water Company	Sussex	1904008
LAKE STOCKHOLM INCORPORATED	Sussex	1911002
DIAMOND HILL WATER COMPANY INCORPORATED	Warren	2116001
MOUNT OLIVE TWP WATER DEPARTMENT (INDIAN SPRING)	Morris	1427003
HOPATCONG WATER DEPARTMENT (RAND STREET)	Morris	1912005
ALLAMUCHY WATER DISTRICT #1	Warren	2101002
CONSUMERS NJ WATER COMPANY (RIEGELSVILLE)	Warren	2120001
CONSUMERS NJ WATER COMPANY (WARREN GLEN)	Warren	2120002
RANDOLPH TOWNSHIP MUNICIPAL UTILITIES AUTHORITY	Morris	1432003
BLOOMSBURY WATER DEPARTMENT	Hunterdon	1003001
CONSUMERS NJ WATER COMPANY CALIFON	Hunterdon	1004001
CLINTON WATER DEPARTMENT	Hunterdon	1005001
GLEN GARDNER WATER DEPARTMENT	Hunterdon	1012001
HAMPTON BOROUGH WATER DEPARTMENT	Hunterdon	1013001
HIGH BRIDGE WATER DEPARTMENT	Hunterdon	1014001
CONSUMERS NJ WATER COMPANY (HUGHESVILLE)	Hunterdon	1015002
CONSUMERS NJ WATER COMPANY (RIEGEL RIDGE)	Hunterdon	1015003
BUNNVALE WATER SYSTEM INCORPORATED (Aqua NJ)	Hunterdon	1019001
MILFORD WATER DEPARTMENT	Hunterdon	1020001
BOONTON WATER DEPARTMENT	Morris	1401001
BOONTON TWP WATER DEPARTMENT	Morris	1401002
BUTLER WATER DEPARTMENT	Morris	1403001
CHESTER BORO WATER UTILITY -(NJ American)	Morris	1406001
DENVILLE TOWNSHIP WATER DEPARTMENT	Morris	1408001
DOVER WATER DEPARTMENT	Morris	1409001
LAKESHORE WATER COMPANY	Morris	1413001
Jefferson Township MUA Water Utility - Milton System	Morris	1414003
FAYSON LAKE WATER COMPANY INCORPORATED	Morris	1415001
KINNELON WATER DEPARTMENT	Morris	1415002

APPENDIX B HIGHLANDS PUBLIC COMMUNITY WATER SYSTEMS

Public Community Water System Name	County	PWSID
MINE HILL TOWNSHIP WATER DEPARTMENT	Morris	1420001
MONTVILLE TOWNSHIP MUA	Morris	1421003
PLAUSHA PARK WATER COMPANY	Morris	1421004
SOUTHEAST MORRIS COUNTY MUA	Morris	1424001
MOUNTAIN LAKES WATER DEPARTMENT	Morris	1425001
MOUNT ARLINGTON SERVICE COMPANY, INCORPORATED	Morris	1426002
United Water Arlington Hills	Morris	1426004
NJ AMERICAN WATER COMPANY (Mount Olive System)	Morris	1427009
MOUNT OLIVE VILLAGES WATER COMPANY	Morris	1427001
MOUNT OLIVE TWP WATER DEPARTMENT (Gold Mine)	Morris	1427002
MOUNT OLIVE TWP WATER DEPARTMENT (Main System)	Morris	1427005
Mount Olive Twp (Sand Shore System)	Morris	1427006
Mount Olive Twp (Village Green System)	Morris	1427007
Mount Olive Twp (Pine Crest System)	Morris	1427008
Mount Olive Twp (Lynnwood Division)	Morris	1427012
Mount Olive Twp (Juckett System)	Morris	1427013
Mount Olive WD Carlton Hills System	Morris	1427014
Mount Olive Twp (Tinc Farm System)	Morris	1427015
NETCONG WATER DEPARTMENT	Morris	1428001
PARSIPPANY-TROY HILLS WATER DEPARTMENT	Morris	1429001
PEQUANNOCK TOWNSHIP WATER DEPARTMENT	Morris	1431001
Morris County MUA	Morris	1432001
RIVERDALE BORO WATER DEPARTMENT	Morris	1433001
ROCKAWAY BORO WATER DEPARTMENT	Morris	1434001
ROCKAWAY TOWNSHIP WATER DEPARTMENT	Morris	1435002
ROXBURY WATER COMPANY	Morris	1436002
ROXBURY TOWNSHIP WATER DEPARTMENT (EVERGREEN)	Morris	1436006
WASHINGTON TOWNSHIP MUA (HAGER)	Morris	1438003
WASHINGTON TOWNSHIP MUA (Schooley Mtn)	Morris	1438004
Wharton Water Department	Morris	1439001
BLOOMINGDALE WATER DEPARTMENT	Passaic	1601001
POMPTON LAKES BOROUGH MUA	Passaic	1609001
RINGWOOD WATER DEPARTMENT	Passaic	1611002
WANAQUE WATER DEPARTMENT	Passaic	1613002
PASSAIC VALLEY WATER COMMISSION (HIGH CREST)	Passaic	1615003
Passaic Valley Water Commision (Post Brook)	Passaic	1615008
WEST MILFORD TWP MUA (BIRCH HILL)	Passaic	1615001
WEST MILFORD TWP MUA (GREENBROOK LAKE)	Passaic	1615002
WEST MILFORD TWP MUA (PARKWAY ESTATES)	Passaic	1615006

APPENDIX B HIGHLANDS PUBLIC COMMUNITY WATER SYSTEMS

Public Community Water System Name	County	PWSID
WEST MILFORD TWP MUA (AWOSTING)	Passaic	1615012
WEST MILFORD TWP MUA (CRESCENT PARK)	Passaic	1615014
WEST MILFORD TWP MUA (OLDE MILFORD)	Passaic	1615016
WEST MILFORD TWP MUA (BALD EAGLE)	Passaic	1615018
WEST MILFORD TOWNSHIP MUA (GREENWOOD LAKE)	Passaic	1615321
FOREST LAKES WATER COMPANY	Sussex	1904003
Hillside Estates @ Franklin	Sussex	1906001
FRANKLIN BORO BOARD OF PUBLIC WORKS	Sussex	1906002
HAMBURG BOARD OF PUBLIC WORKS	Sussex	1909001
WALLKILL WATER COMPANY C/O CARLTON	Sussex	1911001
LAKE TAMARACK WATER COMPANY	Sussex	1911003
Hardyston Twp MUA Forr System	Sussex	1911005
HOPATCONG WATER DEPARTMENT	Sussex	1912001
OGDENSBURG WATER DEPARTMENT	Sussex	1916001
SPARTA TOWNSHIP WATER (SUMMIT LAKE) Hardyston Twp.	Sussex	1911004
SPARTA TWP WATER (HIGHLAND)	Sussex	1918003
SPARTA TWP WATER (LAKE MOHAWK)	Sussex	1918004
SPARTA TWP WATER UTILITY (GREENTREE)	Sussex	1918011
SPARTA TWP WATER (SUNSET LAKES)	Sussex	1918013
SPARTA TWP WATER UTILITY (STONEBRIDGE ESTATES)	Sussex	1918014
SPARTA TWP WATER UTILITIES (SPARTA RIDGE)	Sussex	1918015
SPARTA TWP WATER (LAKE SENECA)	Sussex	1918016
STANHOPE WATER DEPARTMENT	Sussex	1919001
Holiday Hills Water Company AKA UWVH Barry Lakes	Sussex	1922001
VERNON WATER COMPANY	Sussex	1922008
VERNON WATER COMPANY OAK HILLS	Sussex	1922009
Sunset Ridge WC	Sussex	1922011
U W V H ASPEN WOODS (Vernon)	Sussex	1922003
U W V H CLIFFWOODS LAKES (Vernon)	Sussex	1922004
U W V H GRANDVIEW ESTATES (Vernon)	Sussex	1922005
UWVH Sussex Hill 1 - Vernon	Sussex	1922006
U W V H LAKE CONWAY (Vernon)	Sussex	1922012
UWVH Highland Lakes (Vernon)	Sussex	1922017
U W V H STAMEN / MOTT	Sussex	1922018
UWVH Omega Dr. (Vernon)	Sussex	1922019
UWVH Predmore Estates - Vernon	Sussex	1922021
UNITED WATER VERNON VALLEY INCORPORATED	Sussex	1922026
ALLAMUCHY TWP WATER & SEWER (District #2)	Warren	2101001
ALPHA MUNICIPAL WATER WORKS	Warren	2102001

APPENDIX B HIGHLANDS PUBLIC COMMUNITY WATER SYSTEMS

Public Community Water System Name	County	PWSID
NJ AMERICAN WATER COMPANY BELVIDERE SYSTEM	Warren	2103001
HACKETTSTOWN MUA	Warren/Morris	2108001
INDEPENDENCE MUA (HIGHLANDS DIVISION)	Warren	2112002
INDEPENDENCE MUA- ROCKEFELLAR DIVISION (valley view)	Warren	2112001
MANSFIELD WATER SYSTEM	Warren	2116003
CONSUMERS NJ WATER COMPANY (PHILLIPSBURG)	Warren	2119001