



MSM

MIDDLESEX SOMERSET MERCER REGIONAL COUNCIL, INC.

CENTERED GROWTH AND WASTEWATER MANAGEMENT

A Working Paper of the MSM Centers Project

October 1994

Prepared by:

David N. Kinsey
Kinsey & Hand
14 Aiken Avenue
Princeton, New Jersey 08540

Prepared for:

Middlesex-Somerset-Mercer Regional Council, Inc.

870 MAPLETON ROAD • PRINCETON, NEW JERSEY 08540-9538

TELEPHONE 609-452-1717 • FAX 609-452-2321

CONTENTS

	page
A. Introduction	1
B. The Basics of Centers and Planning Areas under the State Plan	3
C. The Basics of Wastewater Facilities	6
1. System Components	6
2. Regulation by NJDEP	7
3. Ownership and Management	9
4. Paying for Wastewater Services	10
D. State Plan Policies on Centered Growth and Wastewater Management	11
E. Issues	13
1. Wastewater Infrastructure Capacity	13
2. Wastewater Service Areas	14
3. Independent Wastewater Agencies	16
4. Financial Responsibility for Wastewater Management	17
5. Timely Decisions on Wastewater Infrastructure	18
6. Wastewater Management and Other Environmental Mandates	19
F. NJDEP Initiatives Affecting Wastewater Decision-Making	20
1. NJDEP Watershed Approach	20
2. NJDEP Water Quality and Wastewater Management Reforms	21
G. Case Studies of Centers and Wastewater Issues	22
1. Initial Center Designations by the State Planning Commission	22
2. Chesterfield Township, Burlington County	23
3. Elk Township, Gloucester County	24
4. Problematic Scenarios of Centers with Wastewater Issues	24
H. Conclusion and Recommendations	26
References	27
Acknowledgments	28
Postscript	28
Appendices: NJDEP NJPDES and Water Quality Management Planning Rule Proposals	29

A. INTRODUCTION

The 1992 New Jersey State Plan champions growth organized into compact development in the form of five types of "Centers" surrounded by carefully controlled "environs." Wastewater infrastructure is an indispensable prerequisite to all five types and scales of this centered growth, whether "urban centers," "regional centers," "towns," "villages," or "hamlets."

This working paper explores six critical wastewater management issues that must be resolved for Centers to be developed and development to take place in Centers:

1. Wastewater Infrastructure Capacity
2. Wastewater Service Areas
3. Independent Wastewater Agencies
4. Financial Responsibility for Wastewater Management
5. Timely Decisions on Wastewater Infrastructure
6. Wastewater Management and Other Environmental Mandates

The wastewater management options of a Center depend upon the type of Center and its wastewater context: its existing environmental conditions, the availability of wastewater facilities, and the provisions of wastewater management plans. A new planned regional center, for example, may require expansion of an existing regional wastewater collection and treatment system. A new small community on-site wastewater system may be sufficient to expand a hamlet.

Centered growth generally means higher than current average densities of development, and will require regional or community, rather than individual wastewater treatment systems, for most all types of Centers. In short, Centers mean sewers not septic systems, except for some hamlets.

A host of policy, planning, technical, environmental, financial, legal, institutional, and political issues may impede timely implementation of the wastewater infrastructure needed to support Centers. And time is important, as the planning-regulatory-construction process for developing these facilities can easily stretch to 5-10 years. These issues must be addressed to make possible growth, both residential and nonresidential, both new development and redevelopment, in the full range of existing and future Centers advocated by the State Plan.

This paper aims to inform the decision-makers who will make Centers happen in New Jersey in the coming years about this wastewater connection:

- (a) Municipal and county officials, who designate Centers,
- (b) Private sector developers and their advisors, who build new Centers and existing Centers,
- (c) Owners/managers of wastewater systems, who provide vital wastewater management services,

CENTERED GROWTH AND WASTEWATER MANAGEMENT

- (d) Officials of the New Jersey Department of Environmental Protection (NJDEP), who protect water quality, oversee wastewater management, and protect other environmental values,
- (e) Advocates who seek growth management, livable communities, and protected natural resources, and
- (f) The State Planning Commission and Office of State Planning, which promote and implement the State Plan.

This paper is not an engineering treatise on wastewater facilities options nor a primer on how to oppose a new sewer line. Rather, this working paper explains the strategic connections between Centers and wastewater management, and concludes with suggestions how to forge the strong links needed to implement the centered growth and protected environs vision of the State Plan.

B. THE BASICS OF CENTERS AND PLANNING AREAS UNDER THE STATE PLAN

Differences among the types of Centers and Planning Areas under the State Plan create differences in approaches to wastewater management. Basic information on the Centers concept and Planning Areas is presented here to make clear these differences. The State Plan mapped New Jersey into five "Planning Areas" -- Metropolitan, Suburban, Fringe, Rural, and Environmentally Sensitive -- and established a hierarchy of five types of Centers.

The availability of public sewer systems is a key criterion distinguishing Planning Areas. The Metropolitan Planning Area (PA1) includes New Jersey's cities and fully sewerred, largely developed, higher density (1,000 persons per square mile or more) older suburbs and post-war suburbs where most new growth will be redevelopment. The Suburban Planning Area (PA2) is generally sewerred with sprawl development, has population densities less than the state-wide average of 1,000 persons per square mile, lacks high intensity Centers, and contains vacant developable land and underdeveloped land where growth may take place. The Fringe Planning Area (PA3) lacks public wastewater systems, except in existing Centers. This rural area lies at the edge of the developing suburbs. The Rural Planning Area (PA4) features most of New Jersey's prime farmlands, with large masses of undeveloped land with scattered development that relies on septic systems. Finally, the Environmentally Sensitive Planning Area (PA5) has large contiguous land areas with valuable ecosystems and wildlife habitats, with sewer service limited to Centers.

The State Plan's criteria for identifying the five different types of Centers and examples of the initial Centers identified and formally designated make vivid the distinct forms of centered growth envisioned for New Jersey's future.

1. Urban Centers

Fully developed cities with an infrastructure system, a population of 40,000+, and a population density over 7,500 persons per square mile.

The 1992 State Plan designated eight Urban Centers, including Camden, New Brunswick, and Trenton.

2. Regional Centers

Communities with a compact, mixed use core of commercial, industrial, or governmental services, an established infrastructure system, a population of over 10,000 people (or 5,000 people in Rural and Environmentally Sensitive Planning Areas), an area of 1-10 square miles, and a population density of about 5,000 persons per square mile.

Examples of Regional Centers include Cape May Court House, Hackensack, Hackettstown, Forrestal-Plainsboro, Princeton Borough, Somerville, and Woodbury, as identified in the State Plan, and Newton, as designated by the State Planning Commission in 1993.

3. Towns

Communities with a compact, mixed-use core with infrastructure serving its core and neighborhoods, a population of more than 1,000 but less than 10,000 people, an area of less than two square miles, and a population density of over 1,000 persons per square mile.

For example, the 1992 State Plan identified Burlington City, Clinton, Hightstown, Metuchen, Monmouth Junction, and Swedesboro as Towns.

4. Villages

Communities with a core of compact mixed uses including residential, commercial and public uses, with wastewater systems serving only the core, a population under 4,500 people, an area of less than one square mile, and a net density of at least three units per acre.

The State Plan in 1992 identified Califon, Crosswicks (Chesterfield Township), Cranbury Village (Cranbury Township), Green Village (Harding Township), Lawrenceville (Lawrence Township), Middlebush (Franklin Township), and Waretown (Ocean Township) as Villages. The State Planning Commission designated Hopewell Borough as a Village in 1993.

5. Hamlets

Small crossroads settlements with a small core of community-related functions, such as a school, commons, and luncheonette, a population of between 25 and 250 people, an area of 10-25 acres with community wastewater treatment or an area of up to 100 acres without community wastewater treatment, and a net density of at least two units per acre.

For example, Blawenburg (Montgomery Township), Chesterfield (Chesterfield Township), and Mt. Airy (West Amwell Township) were as identified as Hamlets in the State Plan.

In addition, the State Plan includes criteria for identifying three types of Planned (New) Centers: Regional Centers, Villages, and Hamlets. In all, the 1992 State Plan designated eight Urban Centers and listed 608 Centers as identified by counties and municipalities, both existing communities and 66 planned new Centers.

The extent of available infrastructure helps define the type of Center. Urban Centers, Regional Centers, and Towns have established infrastructure, with community wastewater collection and treatment systems, according to the State Plan. Only the core of a Village has a community wastewater system, under the State Plan. By definition, existing Hamlets have no sewerage systems in the State Plan's framework, but a Planned (New) Hamlet may require a small-scale wastewater treatment system. The State Plan also allows Planned (New) Hamlets to expand to an area of 100 acres if septic systems are required.

The State Planning Commission established in 1992 a formal process for municipalities or others to petition the Commission for the designation of a Center. Formal designation of a Center defines the type of Center, maps its boundaries (the "Community Development Boundary"), establishes population and employment projections for 2010, demonstrates the capacity of the area to accommodate the projected growth, provides design guidelines for a

CENTERED GROWTH AND WASTEWATER MANAGEMENT

center core, surrounding neighborhoods, linkages between centers, and fixes the limits of a transition or buffer at the Center's Community Development Boundary.

Formal designation of an existing or planned community as a Center by the State Planning Commission provides two principal benefits to a municipality. First, municipalities with designated Centers receive priority for public investment in infrastructure and other public programs. Second, municipalities with designated Centers retain more control over the location of low and moderate income housing, as the New Jersey Council on Affordable Housing (COAH) encourages affordable housing development in Centers in Metropolitan, Suburban, and Fringe Planning Areas and requires that this development take place in existing, expanded, or new Centers in Rural and Environmentally Sensitive Planning Areas.

Finally, the Governor's Executive Order No. 114 (1994-Florio) on the State Plan gave further impetus to the Centers concept by directing all State agencies to "Adopt policies which facilitate the establishment of development 'centers'..." and "Coordinate efforts with the Office of State Planning to assist municipalities in gaining designation of development 'centers.'"

C. THE BASICS OF WASTEWATER FACILITIES

1. System Components

Wastewater systems have three principal components: collection systems, treatment systems, and disposal systems.

Collection systems include gravity interceptors and sewers, pressure sewers ("force mains"), vacuum sewers, and pumping stations, or a combination of these components. Collectors are the pipes that connect houses and properties to a sewer system. Interceptors are the high capacity pipes that convey wastewater from the collectors to treatment plants. Many older sewer systems, particularly in urban areas, collect both wastewater and stormwater and are called combined sewers.

Treatment systems are either individual systems serving a single house or small user, or a "community" system serving two or more users. Most individual systems are septic systems, subsurface sewage disposal systems consisting of a buried tank and soils that absorb discharged effluent. A community system could be a two family house with a shared septic system, but most community systems combine collection, treatment, and disposal systems that serve the wastewater needs of specific projects, entire municipalities, entire watersheds, or entire counties. Conventional treatment plants use different physical, chemical, and biological processes, depending upon the type of wastewater being treated and the disposal method for the treated effluent.

Disposal systems discharge treated wastewater to the groundwater or to surface waters. In rural and exurban areas, treated wastewater is usually discharged to groundwater, typically through the subsurface disposal beds of septic systems. Other less frequently used means of discharge to groundwater in rural areas include infiltration/percolation ponds, spray irrigation, and overland flow. Most treated wastewater in suburban and urban areas is discharged to surface waters, such as streams, rivers, bays, or the ocean through outfalls and pipes.

Regional treatment plants may process tens of millions of gallons per day of wastewater for hundreds of thousands of users, while a package treatment plant by definition processes less than 150,000 gallons per day and serves less than 2,307 people or 1.2 million square feet of office space. Treatment plants are sized based on actual and projected wastewater flow. Projected flows are derived from projections of population and employment. The current design standard in New Jersey for average domestic flow for wastewater treatment plants is 65 gallons per capita in residential land uses per 24 hour period and 0.125 gallons per square foot of commercial development per 24 hour period, plus any industrial flow and allowances for Infiltration/Inflow. This means that a three bedroom single family house has a projected daily flow of 220 gallons, while a two bedroom townhouse has a projected daily flow of 150 gallons.

In addition to these wastewater flows, many older sewer systems have problems of Infiltration/Inflow (I/I), caused by stormwater entering leaky sanitary lines during storms, which increases the volume of wastewater that must be conveyed, treated, and disposed of after storms. Combined sewers have an additional problem in storms, as a surge of stormwater can

overwhelm collection and treatment facilities. To avoid this problem, these wastewater systems have often Combined Sewer Overflows (CSOs), which divert raw sewage into receiving waters during storms, which creates a water pollution problem. Complete separation of sanitary and storm sewer systems avoids this problem.

Wastewater recycling systems can be installed, especially for office developments, to reduce the flow that requires treatment and discharge to ground water in rural areas, or simply to reduce the flow to treatment plants with limited available capacity. Water conservation devices also reduce flow.

2. Regulation by NJDEP

NJDEP regulates all aspects of the type, location, and design of wastewater facilities, from a single septic system for a individual house to a large, multi-county regional wastewater system, in order to protect water quality and other environmental resources. As the wastewater facilities requirements of Centers vary, so too do the regulatory requirements of different Centers, depending upon the type of Center and the wastewater context of the Center.

The basic building block of NJDEP's scheme of wastewater regulation is the Wastewater Management Plan (WMP), a document that describes and maps where and how existing and projected wastewater for a 20 year period will be managed. A Wastewater Management Plan defines sewer service areas for each treatment facility, the general location and scale of treatment facilities, areas for septic systems, and areas for on-site groundwater disposal. Both community treatment facilities that discharge to streams and small package plants that discharge to groundwater must be included and located in a Wastewater Management Plan. The geographic scope of a Wastewater Management Plan is generally an entire municipality, certain entire counties, or the jurisdiction of a wastewater agency. About 240 Wastewater Management Plans are now in effect. A Wastewater Management Plan becomes valid when approved by NJDEP and adopted by NJDEP as an amendment to a more comprehensive document, a regional Areawide Water Quality Management Plan (WQMP), often called a "208 Plan" after Section 208 of the federal Clean Water Act. In recognition of the dynamic character of wastewater-land use issues, NJDEP requires wastewater management plans to be updated every six years, just as municipal master plans are to be reexamined under a similar cycle.

Under state law, NJDEP may not approve any wastewater facility system component, or indeed any permit, that is inconsistent with a Water Quality Management Plan. This NJDEP "consistency determination" functions like a separate, additional permit process. It often triggers the preparation, revision, or amendment of a Wastewater Management Plan, so that a newly proposed wastewater facility system component is included in a Wastewater Management Plan and may then be considered "consistent" with the relevant Water Quality Management Plan. In short, the wastewater facilities required for a Center must be in synch with a Wastewater Management Plan.

Two distinct regulatory systems govern septic systems and community wastewater systems.

CENTERED GROWTH AND WASTEWATER MANAGEMENT

For small projects of less than 50 single family houses and small single building nonresidential users, outside of the Pinelands, using septic systems, NJDEP has established standards for individual subsurface sewage disposal systems that are administered and enforced by local boards of health. Projects of 50 dwelling units or more that rely on septic systems require approvals directly from NJDEP, as do any multifamily housing developments that use a common septic system. Hamlets or the neighborhoods of some villages are the only types of Centers that may use septic systems, as generally one unit per acre is the minimum density for a house with a septic system.

Connecting a residential or nonresidential development above a certain threshold to an existing sewer system requires a Treatment Works Approval from NJDEP. The threshold is a development of two or more buildings or the conveyance of more than 8,000 gallons per day of flow (e.g. the flow from an 80,000 square feet office building or strip commercial center). This approval is sometimes called a sewer connection or hookup permit. Constructing new or expanded wastewater collection or treatment facilities also requires a Treatment Works Approval from NJDEP.

Before this Treatment Works Approval construction permit may be issued, other NJDEP approvals must first be obtained. A Discharge Allocation Certificate (DAC) from NJDEP establishes the volume and concentration of treated effluent that may be disposed of by a wastewater treatment plant in a waterbody, based on analyses of the quality and quantity of the surface waters of the waterbody, usually a stream. A NJPDES-DSW (New Jersey Pollutant Discharge Elimination System-Discharge to Surface Water) permit builds upon the Discharge Allocation Certificate and specifies performance standards for the wastewater treatment plant and its discharge of effluent. If the wastewater treatment system will discharge to groundwater, then a NJPDES-DGW (Discharge to Groundwater) permit is required from NJDEP. These renewable discharge permits are valid for five years.

To protect water quality, NJDEP imposes a Sewer Connection Ban when either the downstream sewerage facilities do not have adequate conveyance capacity, or when a treatment plant fails to comply, for three consecutive months, with the performance standards established for the discharge of treated effluent. No further sewer connections may generally then be made until the facilities gain adequate capacity and comply with pertinent permit conditions. NJDEP also administers a Sewer Ban Exemption Program that allows certain residential and nonresidential development to be approved and exempted from a connection ban.

To manage the capacity of wastewater collection and treatment facilities, and avoid overloading systems as they reach capacity, NJDEP requires wastewater agencies to establish a Capacity Assurance Program whenever the committed flow of facilities reaches or exceeds 80% of permitted capacity. A Capacity Assurance Program includes water conservation measures, steps to reduce infiltration and inflow, and construction of improvements to increase capacity.

In addition to the regulatory systems specific to wastewater facilities, construction of new or expanded sewers, pumping stations, and treatment plants often requires other land use approvals from NJDEP, such as Stream Encroachment Permits, approvals under the Freshwater Wetlands Protection Act and coastal Wetlands Act, Waterfront Development

Permits, or CAFRA permits, depending upon the location of the proposed wastewater facilities construction.

3. Ownership and Management

Several options exist in New Jersey for the ownership and management of wastewater facilities, referred to here as a wastewater agency. Each option has financial, institutional, political, and management advantages and disadvantages.

A municipality may own and operate a wastewater agency as part of its municipal services.

A municipality or a county may also establish an independent sewerage authority or a utilities authority with wastewater management responsibilities. Two or more municipalities may jointly establish a regional sewerage authority. A joint meeting is another form of regional sewerage authority. The treatment capacity of regional wastewater agencies is often allocated among the constituent municipalities or members of such regional agencies as contractual flow rights.

A municipality may also grant a franchise to a private entity established as a public utility, regulated by the State Board of Regulatory Commissioners, to own and provide wastewater services, within all or part of a municipality. Often the developer of a project, in cooperation with a rural or exurban municipality, establishes such a utility to provide wastewater services in a municipality that lacks such services.

An independent association of property owners may, with the approval of the municipality, own and manage the common facilities of a residential, nonresidential, or mixed use project, including the wastewater system of the project built by its developer.

Local governments need not manage wastewater systems themselves. Municipal and county governments and public wastewater agencies may enter into long term, 40 year contracts with private firms to design, finance, construct, operate, and maintain wastewater treatment systems, under the 1985 New Jersey Wastewater Treatment Privatization Act.

New Jersey also has a specialized independent regional wastewater agency which serves parts of a four county region of the Passaic River valley in northeastern New Jersey, the Passaic Valley Sewerage Commission established in 1902.

Finally, wastewater agencies may provide both collection and treatment-disposal services, or collection only. Many regional wastewater agencies provide regional interceptors, pumping stations, and regional treatment plants that serve two or more communities that own and operate separate municipal wastewater collection systems.

The responsibility and liability for the proper management of wastewater facilities has been heightened by passage of the 1990 state Clean Water Enforcement Act, which established new minimum civil-administrative penalties of up to \$50,000 per day for each water quality

violation and defined four water pollution crimes with penalties of up to \$1 million and imprisonment.

4. Paying for Wastewater Services

A wastewater agency incurs capital expenses to build, upgrade or expand wastewater facilities and then has ongoing expenses to maintain and operate the facilities. Grants, general obligation bonds, revenue bonds, loans, and contributions from developers fund capital expenses. Local taxes or the revenues of the wastewater agency support bonds and loans. User fees and/or local tax revenues pay for maintenance and operating expenses.

Generous Federal and State grants in the 1970s financed the creation and expansion of several vast regional and county-based wastewater systems in New Jersey. As federal funding dwindled in the 1980s, the State established the New Jersey Wastewater Treatment Trust, capitalized with State appropriations and State general obligation bonds, to provide low interest loans and loan guarantees to local governments and public wastewater agencies for wastewater treatment system projects. The Trust finances high priority repairs, rehabilitations, upgrades, and expansions of existing systems, based on an annual Priority List established by NJDEP.

Wastewater agencies typically charge connection fees, when developments and new customers tie into a wastewater system, in order to recoup some of the capital costs of building a system. Some wastewater agencies sell connection permits to property owners or otherwise make financial agreements with property owners and developers to allocate, commit, and reserve existing unused wastewater collection and treatment capacity for future use.

Some residential and mixed use developers finance the capital costs and build a new wastewater treatment facility as part of their developments, and then donate the completed, operational facility to the municipality. The municipality and its wastewater agency then become responsible for the facility's maintenance and operating costs, which are defrayed through user fees. Other developers establish a small public utility to own and operate the wastewater system that has been built privately, under a franchise from the municipality.

D. STATE PLAN POLICIES ON CENTERED GROWTH AND WASTEWATER MANAGEMENT

The adopted 1992 State Plan has three key policies on water resources and wastewater infrastructure investment that are intended to influence the course of centered growth and wastewater management in New Jersey:

Infrastructure Investments Statewide Policy 15 - Infrastructure Investments and Sanitary Sewer Systems.

Support sanitary sewer system installations that encourage the location of future growth in Centers and the Metropolitan Planning Area in ways that achieve water quality goals, including separating wastewater and stormwater systems where feasible and allowing decentralized systems in rural areas.

Water Resources Policy 6 (Ground Water) - Water Quality/Individual and Community On-Site Wastewater Treatment Systems

Provide for well-designed and maintained individual and community on-site wastewater treatment systems that produce treated effluent suitable for recharge to groundwater supplies to enhance the recharge of ground water systems.

Water Resources Policy 17 (Surface Water) - Water Quality/Individual and Community Wastewater Treatment Systems

Provide for well-designed and maintained individual and community on-site wastewater treatment systems that produce treated effluent suitable for assimilation in the surface water system.

The State Plan also contains unique "Policy Objectives" on public facilities and services, including wastewater management, for each of its five types of "Planning Areas."

Specifically, in the Metropolitan Planning Area, the policy objective is to complete, repair, or replace existing infrastructure. In the Suburban Planning Area, the State Plan policy objective is to time and sequence the extension of infrastructure to support development in Centers. In the Fringe Planning Area, the policy objective of the State Plan is similar to that of the Suburban Planning Area, with the significant exception that the extension of public services is to be primarily at private expense. The Rural Planning Area and Environmentally Sensitive Planning Area have similar policy objectives of establishing adequate levels of infrastructure to support and serve Centers. Private sector investment should provide the infrastructure in planned (new) Centers in the Rural Planning Area and the Environmentally Sensitive Planning Area, according to the State Plan. Also, growth is to be guided to existing Centers in the Fringe Planning Area, the Rural Planning Area, and the Environmentally Sensitive Planning Area before planned (new) Centers are to be established in these areas.

In summary, the State Plan favors centered growth with appropriate supporting wastewater infrastructure throughout New Jersey, with a preference for individual on-site and community scale wastewater treatment in rural areas. By implication, the State Plan

CENTERED GROWTH AND WASTEWATER MANAGEMENT

discourages regional (centralized) wastewater in rural areas, and instead prefers decentralized wastewater systems. The State Plan also calls for the private sector to fund both the extension of existing infrastructure and the establishment of new infrastructure to support planned (new) Centers outside the Metropolitan and Suburban Planning Areas.

The Governor's Executive Order No. 114 (1994-Florio) on the State Plan reinforced the importance of these policies on infrastructure by directing all State agencies to "...direct infrastructure to locations and in patterns recommended by the strategies and policies contained in the State Plan."

E. ISSUES

Six critical wastewater management issues must be resolved for new Centers to be developed and development to take place in existing or new Centers.

1. Wastewater Infrastructure Capacity

Capacity-based planning is a core principle of the State Plan's approach to growth management. The issue of wastewater infrastructure capacity is a critical starting point for such planning, as this type of infrastructure is essential for Centers or any growth to take place. If existing wastewater infrastructure has sufficient capacity to support Centers, growth may readily take place. Centers may blossom. If not, development of new Centers and in existing Centers simply cannot and will not take place. Sufficient capacity means existing unallocated, nonreserved, and uncommitted capacity to convey and treat wastewater.

If existing wastewater systems have insufficient capacity to support Centers, capacity needs to be expanded or otherwise provided. Additional infrastructure capacity may be provided by transferring or reallocating available capacity from an underutilized wastewater system to a system that seeks or will accept additional capacity. This transfer approach is achieved simply by building sewer lines and pumping stations as necessary to connect the two systems, but raises sometimes complex issues if the transfer is between two different watersheds. The capacity of a system may be expanded by increasing treatment plant capacity, adding interceptors and pumping stations to expand conveyance capacity, increasing water conservation, or decreasing infiltration and inflow. If wastewater infrastructure does not exist, it must be created to support Centers.

Whether wastewater infrastructure capacity can and will be expanded, provided, or created for Centers depends upon environmental, economic, legal, and political factors.

A principal environmental factor is the capacity of receiving waters to accept treated effluent from a wastewater treatment plant, whether for assimilation in surface waters or recharge of ground water, as established by NJDEP in a Discharge Allocation Certificate. This natural environmental constraint can generally be addressed by engineering solutions, but at a cost that may make a treatment system economically infeasible. Increasingly stringent water quality standards for certain streams, e.g. in State parks, and trout production and maintenance waters, heighten the importance of this issue. Interbasin transfer of discharges is an alternative that raises other environmental concerns. Non-point source pollution of receiving waters from increased growth due to new or expanded infrastructure is becoming an increasingly important issue.

The economic issue is whether the capital cost and operating expenses of the expanded or new wastewater system are feasible for its proponents, given the available, mostly private funding sources for such initiatives.

CENTERED GROWTH AND WASTEWATER MANAGEMENT

A key legal issue for regional wastewater treatment agencies and local wastewater collection agencies often is whether the additional or reallocated capacity is permissible within the contractual arrangements of regional and local agencies.

The political issue is whether the local government(s) and the wastewater agency or agencies are willing to allow the increase in wastewater infrastructure capacity to make centered growth possible. The refusal of wastewater agencies to provide or allow needed capacity will be the deathknell of Centers.

Existing unallocated wastewater collection and treatment capacity is typically allocated by wastewater agencies and reserved for specific properties or developments on a first-come, first-served basis. This practice, coupled with constraints on expanding system capacities, sometimes makes wastewater infrastructure capacity a scarce and contested resource. The Superior Court trial judges in *Mount Laurel* exclusionary zoning litigation and the New Jersey Council on Affordable Housing (COAH) have imposed restraints on the unfettered allocation of wastewater capacity by wastewater agencies. These restraints insure that where this capacity is scarce, it is reserved for the development of projects that produce affordable housing.

The cost of providing projected needed wastewater infrastructure capacity is staggering on a state-wide basis. Specifically, to assure sufficient wastewater capacity to implement the State Plan, the State Planning Commission estimated in 1992 that \$6.3 billion needs to be invested by 2010 in wastewater infrastructure, divided evenly between new infrastructure to support new growth and repair, rehabilitation, and upgrading of existing wastewater systems, in addition to the cost of individual on-site septic systems. However, pockets and regions of available wastewater infrastructure capacity do exist around New Jersey, creating opportunities for development of Centers without infrastructure expansion.

2. Wastewater Service Areas

Not only must sufficient capacity be available, but to be feasible a Center and its Community Development Boundary must also be within a wastewater service area with appropriate existing and planned infrastructure, as mapped in a Wastewater Management Plan approved by NJDEP. Sewer service area boundaries are powerful lines that define where and what type of Center may be developed. A second key issue for centered growth is whether a Center is within a wastewater service area with adequate capacity.

NJDEP requires that existing and future sewer service areas be mapped in a Wastewater Management Plan for each existing and proposed future treatment facility. Wastewater service areas should be mapped in a Wastewater Management Plan, according to NJDEP, to provide adequate wastewater service to land uses allowed under municipal zoning ordinances, future land uses shown on municipal and county master plans, developments authorized by variance, and developments with subdivision and site plan approvals, or the Wastewater Management Plan must offer compelling reasons for being inconsistent with zoning ordinances and master plans.

CENTERED GROWTH AND WASTEWATER MANAGEMENT

This means that, in theory, infrastructure investment follows land use planning. This implies that wastewater service areas should be mapped in wastewater management plans to accommodate Centers.

In practice, however, the designation of Centers and mapping of sewer service areas is likely to be an iterative land use-infrastructure planning process. Great weight will be placed at the outset on the extent of proposed Center overlap with existing sewer service areas with available treatment capacity. If an existing sewer service area does not encompass all of the developed and developable land envisioned as the Center by its advocates, then either: (a) the sewer service area must be expanded or (b) the Center's proposed Community Development Boundary and projected growth must be decreased to conform with the sewer service area and its infrastructure capacity.

If the scale of the Center must be decreased, infrastructure would appear to dictate land use. If the sewers service area must be increased, infrastructure would appear to follow land use. As a practical matter, if existing or planned infrastructure is inadequate for the land use goal of a proposed Center, then revision of the land use goal should be considered in this iterative land use-infrastructure planning process. The outcome of that consideration could well be a reaffirmation of the land use goal and a commitment to expand the infrastructure required to serve the proposed Center. In any case, the treatment capacity of a sewer service area's treatment facility must be adequate for the 20 year projected wastewater flow from a proposed Center and the remainder of the sewer service area. Determination of infrastructure capacity, based on environmental, economic, legal, and political factors, is a necessary part of this iterative process, when capacity is insufficient to meet the growth management goals of a proposed Center.

In the real world, sewer service area boundaries shift to accommodate new land use objectives and specific development projects, as well as to take advantage of opportunities for the provision of wastewater services, when environmental, economic, legal, and political factors all favor such service area changes. A challenge for Center advocates, from both the public and private sectors, will be to reach consensus and agreement with wastewater agencies on the scale of a Center, its projected population and employment growth, and the geographic scope of its Community Development Boundary. This challenge is particularly problematic as it is difficult in New Jersey to compel wastewater agencies to expand an established sewer service area.

While some Centers may involve a regional approach combining areas from more than one municipality, traditions of municipal independence in New Jersey are more likely to lead to municipal petitions to the State Planning Commission to designate Centers within a single municipality. This tendency runs counter to current NJDEP policy which favors regional approaches to wastewater management. NJDEP prefers upgrading and expanding existing regional treatment plants, rather than building a new treatment plant with a new effluent discharge at a new surface water location. These policy preferences, codified in NJDEP rules, mean that preferred sewer service areas serve a region of two or more municipalities, with interceptors and their sewer service areas extending great distances throughout a drainage basin from a centralized regional treatment plant. This regional approach to defining sewer service areas may conflict with centered growth principles of the State Plan, which ideally favors compact development surrounded by environs of protected open space.

Fortunately for Centers advocates, NJDEP and the Office of State Planning have embarked on a joint project to map, through their geographic information systems, existing and proposed sewer service areas, and establish a related data base of system capacities and current flows. The information from this project, scheduled to be completed by early 1995, will be invaluable for identifying the location and quantity of pockets of available wastewater treatment capacity. This information will also be helpful for evaluating proposed changes in sewer service areas from a regional perspective in accordance with the State Plan's principles.

3. Independent Wastewater Agencies

Diverse regional, county, watershed-based, municipal, and project-specific agencies provide wastewater collection and treatment services. The willingness and ability of these mostly independent agencies to provide wastewater management services needed for Centers is a third, critical issue for the implementation of Centers

As NJDEP policy has preferred regional approaches to wastewater management for at least two decades, New Jersey has numerous regional wastewater agencies, several with jurisdictions covering an entire county or major drainage basins of one or more counties. These major regional wastewater agencies typically operate one or more large-scale regional wastewater treatment plants and a network of interceptor sewers, which receive wastewater flows from collection systems owned directly by municipalities or by independent municipal utilities authorities. Counties and municipalities establish these agencies as autonomous governmental agencies for sound financial and political reasons. These agencies pay their bills, especially the debt service on bonds used to finance construction of system components, out of user fees. This makes the independent agency financially responsible to its bondholders for its decisions. As independent agencies without the power to levy taxes, wastewater agencies only undertake projects that they believe will be economically self-sustaining, regardless of land use considerations. Voting members of these agencies have terms of office longer than the governing bodies which appoint them, which provides a measure of autonomy and insulation from shifts in local politics and municipal land use decision-makers.

The willingness and ability of a wastewater agency to extend wastewater service depends to a great measure on the existing available capacity of the system, environmental constraints to expansion of the system, the financial feasibility of the expansion, contractual agreements and allocations of capacity, and commitments to bondholders. A regional wastewater agency with surplus treatment capacity may eagerly seek additional customers to promote more efficient operation of its existing system and expand its revenue base. A regional agency with limited uncommitted capacity and substantial environmental constraints making expansion costly is likely to be far less receptive to extending or expanding wastewater service. And, in both cases, wastewater agencies, whether regional or municipal, are likely to view their roles as being independent of and separate from municipal land use decision-making, even though the decision to provide wastewater service exerts enormous influence over the location and intensity of land uses.

While wastewater agencies shy away from explicit land use decision-making, they may assist land use agencies in their land use planning determinations by carrying out the

wastewater agencies' responsibilities for wastewater management planning in a manner that defers to the land use agencies on land use decisions.

4. Financial Responsibility for Wastewater Management

A fourth issue for Centers is whether a wastewater management agency exists that will be financially responsible for the wastewater infrastructure for a Center, especially in case repairs and improvements are needed to assure that water quality standards are met. This issue is most significant for smaller scale Centers, such as small Towns and small Villages with a projected population of about 2,000 people or less and all Hamlets, which could be served by a package treatment plant, discharging either to surface or ground water.

This issue is not as significant for larger Villages, Regional Centers, and any Center served by an established, financially responsible wastewater agency, such as a municipal utilities authority, which can charge increased user fees as necessary to defray the costs of system repairs.

Long-standing NJDEP policy regards small package treatment facilities, with capacity of not more than 150,000 gallons per day, as temporary facilities, to be abandoned when permanent, typically regional wastewater facilities are available. However, if regional facilities do not become available, the "temporary" package plants tend to become permanent. And as package plants age, these systems, particularly those with disposal beds, sometimes fail to function properly, causing water pollution problems. At that point NJDEP seeks some responsible party to fix the problem, but in the past NJDEP has often been frustrated by the lack of a financially responsible party.

The courts invalidated NJDEP's "co-permittee" approach to this problem, which had required a municipality or established wastewater agency to accept joint responsibility for new package plants. Established wastewater agencies, such as county utilities authorities and regional sewerage authorities, and municipalities were and are reluctant to assume financial liability for isolated package plants serving small areas and guarantee the adequate operation of these small systems, which they neither designed, built, nor operated. The local agency responsible for wastewater management plan preparation, typically a municipality or a separate wastewater agency, has some measure of control over such new package plants, as their locations and service areas must be included in the NJDEP-approved wastewater management plan, before any facility may be approved and built. Also, the development of package plants by a small, project-specific public utility, may be subject to financial scrutiny by and through the mandated establishment of reserve funds by the State Board of Public Utilities. Other potential approaches to this issue include establishing a warranty or insurance system for new package treatment plants, incentives for established wastewater agencies to oversee package plants in their franchise areas but outside of current sewer service areas, or cleanup funds for older package plants that fail.

5. Timely Decisions on Wastewater Infrastructure

To state the obvious, timely decision-making is an important issue for the complex, multi-jurisdiction, public-private process of creating or developing in designated Centers. Whether a Center may be created or whether additional centered growth may take place may not be assured until all necessary wastewater infrastructure approvals have been obtained. Delayed decisions frustrate growth and environmental protection, as well as prolong developers' risks. Decisions on wastewater infrastructure involve a frequent, time-consuming, and often uncertain interplay between and among wastewater agencies, municipal government, various parts of NJDEP, and property owners/developers, with several planning and permit approvals to develop infrastructure. Both institutional and environmental reasons account for these extended decision-making processes.

For example, seemingly minor decisions, such as an amendment to a Wastewater Management Plan to add a building lot to a sewer service area, can take a full year. Clearly more significant decisions, such as the delineation of the sewer service area for a new treatment facility, are subject to the same timetables. The sheer volume of wastewater management plan approvals and amendments, cumbersome administrative procedures, e.g. six weeks or more for public notices to appear in the *New Jersey Register*, imprecise decision-making criteria and program requirements, and insufficient staff are some of the institutional reasons the wastewater management plan process, for example, has become a stumbling block rather than a forceful, prompt decision-making tool. Other reasons include the submission of requests for such amendments late in the development process for a project and the fact that not all of the state is yet covered by current, NJDEP-approved wastewater management plans.

Before Wastewater Management Plan amendments are approved by NJDEP, developers who choose to submit other permit applications to NJDEP concurrently for the same project do so at their own risk, as projects inconsistent with such a plan will be rejected. And once a Wastewater Management Plan amendment is approved, other regulatory hurdles must still be overcome. Indeed, NJDEP's current standard public notice on these plan amendments appropriately warns:

This amendment represents only one part of the permit process and other issues will be addressed prior to final permit issuance. Additional issues which were not reviewed in conjunction with this amendment but which may need to be addressed may include, but are not limited to, the following: antidegradation; effluent limitations; water quality analysis; exact locations and designs of future treatment works (pump stations, interceptors, sewers, outfalls, wastewater treatment plants); and development in wetlands, flood prone areas, designated Wild and Scenic River areas, or other environmentally sensitive areas which are subject to regulation under Federal or State statutes or rules.

The length of natural annual cycles of wet and dry periods in streams explains some of the time required for some wastewater infrastructure decision-making. While the hydrogeological analyses for groundwater discharges can be accomplished within a year in comparatively closed and simpler groundwater-soils systems, the surface water quality sampling, analysis, modeling, and environmental assessment required for a Discharge Allocation Certificate from NJDEP can easily take more than two years. And then a wastewater

agency must design and obtain approvals for a treatment system to meet the specified effluent limitations to protect the water quality of the waters that will receive the discharge.

6. Wastewater Management and Other Environmental Mandates

Decisions on wastewater management are made in a complicated context of many environmental mandates, including water supply, habitat protection, coastal protection, and air quality, as well as water quality. An issue is the extent to which these other environmental mandates conflict with the provision of the wastewater services needed for vigorous implementation of the Centers concept.

A prime reason for requiring environmental assessments of varying scope and detail for wastewater decision-making is to identify and address these conflicts and potential adverse direct and secondary impacts to environmental resources. For example, the alignments proposed for interceptors may need to be rerouted to avoid sensitive habitats. Water supply treatment costs may increase to users downstream of an effluent discharge for a treatment facility. Interbasin transfers of wastewater may need to be mitigated by developing new water supplies, increasing water supply conservation measures, or protecting certain ecosystems. Upfront environmental planning for a wastewater infrastructure project should identify all relevant environmental mandates so that potential conflicts, if any exist for a particular project, can be identified and addressed in a timely manner and not delay the wastewater infrastructure project.

F. NJDEP INITIATIVES AFFECTING WASTEWATER DECISION-MAKING

The New Jersey Department of Environmental Protection is currently pursuing two broad initiatives to reform wastewater management decision-making: a watershed approach to water resources management and changes in the system of water quality/wastewater management planning.

1. NJDEP Watershed Approach

In an effort to move beyond the current site-specific, project-by-project regulation of development, including wastewater infrastructure, NJDEP began in 1993 efforts to establish watershed-based planning and management. These initiatives aim to address the traditionally-regulated point source discharges to ground and surface waters, as well as pollution prevention, pollution source reduction, and nonpoint source pollution, such as urban-suburban stormwater and runoff from farms. A fundamental principle of the watershed approach is the upfront evaluation of the potential secondary and cumulative impacts of individually permitted projects on the environmental resources of concern of an entire watershed, so that individual regulatory, investment, and planning decisions are made in the context of an entire watershed. To begin these initiatives, NJDEP divided New Jersey into 103 separate watersheds, arranged into five major groups: Passaic River Basin, Raritan River Basin, Upper Delaware River-Walkill River, Lower Delaware River-Delaware Bay, and Atlantic.

NJDEP has proposed an extensive restructuring of its statewide system of regulation of point source discharges to surface waters, the NJPDES permitting system, in order to address water quality issues in an entire watershed. In order to allocate the amount of pollutants that can safely be discharged into specific waterbodies, NJDEP proposes to undertake comprehensive water quality studies of entire watersheds, with intensive water quality sampling, modeling, and determination of the maximum wasteload that may be permitted for each water quality parameter for each waterbody segment from all sources. This is a massive project, which NJDEP proposes to undertake over an eight year period, while at the same time addressing its backlog of expired NJPDES permits, reissuing those permits and issuing new permits in a manner that incorporates new discharge standards as they are developed.

At the same time, NJDEP has launched the Whippany River Watershed Project in Morris County, a pilot project to develop a watershed protection approach to water resources management, both water quality and water supply. NJDEP aims to integrate, coordinate, and improve its existing water resources and related programs, both regulatory and non-regulatory, through this project. The development of a comprehensive watershed management plan for the Whippany Watershed is intended to demonstrate how integrating NJDEP's planning, permitting, monitoring, modeling, financing, and enforcement activities can better protect the water resources of a specific watershed. The geographic focus on a watershed is designed to knit together programs that previously functioned somewhat autonomously within NJDEP, such as stream encroachment, wetlands, habitat protection, wellhead protection, and water supply programs, so that these programs can contribute to comprehensive water resources management. NJDEP hopes that the lessons learned from this project can lead eventually to

making watershed-based environmental planning and management the general approach for NJDEP decision-making state-wide. In the interim, insights from the Whippany River Watershed Project are expected to be helpful for other regional watershed management projects underway elsewhere in New Jersey, such as the Great Swamp in Morris and Somerset Counties and the Barnegat Bay Watershed in Ocean County.

Skeptics question whether NJDEP can indeed create a reasonable model of a watershed for planning and management purposes, with comprehensive, clear, equitable performance standards for the uses of particular environmental resources. These critics assert that the task is either impossible or that NJDEP will become paralyzed or so conservative in its assessments that few specific projects will be approved.

The watershed-based approach is likely to provide more effective protection for environmental resources, but it is not being structured to address land use goals directly, such as facilitating the establishment of Centers. If more timely decisions on wastewater infrastructure spring from this initiative, the cause of Centers may indirectly be advanced by NJDEP.

2. NJDEP Water Quality and Wastewater Management Planning Reforms

In addition to initiating its watershed-based approach to water resources management, NJDEP began taking interim steps in 1993 to reform its water quality management planning program, and in particular the requirements for wastewater management plans. The proposed reforms center on three themes: (a) emphasize the responsibility of municipal and county governments to plan properly for wastewater management, (b) reduce the time and effort required for NJDEP reviews of wastewater management plans and consistency determinations, and (c) increase the environmental effectiveness of these NJDEP reviews. NJDEP proposes to expand significantly the depth and scope of planning analysis required for a wastewater management plan, by mandating the preparation of a detailed and comprehensive environmental assessment following a prescribed format, together with a separate environmental constraints analysis to determine the potential wastewater flow for developable areas.

These reforms, if adopted, mean that wastewater infrastructure for proposed Centers could be scrutinized comprehensively for a wide range of possible impacts, from traffic impacts to air quality, from ground water recharge to water supply, from secondary impacts to alternatives analyses that must demonstrate that the proposed plan is the best alternative. Whether NJDEP will marshal the staff resources to review promptly and thoroughly the new style wastewater management plans is an open question. While these new style plans may well be more effective from an environmental perspective, they are not yet being structured to facilitate establishment of Centers. NJDEP expects to propose formally its new rules for wastewater management plans in the winter of 1995.

G. CASE STUDIES OF CENTERS AND WASTEWATER ISSUES

1. Initial Center Designations by the State Planning Commission

The first three existing Centers designated formally by the State Planning Commission demonstrate the strategic importance of wastewater infrastructure as a resource used to manage growth.

Hopewell Borough in northern Mercer County is a compact, 480 acre, nearly fully developed community of about 2,000 people, 800 dwelling units, and 450 jobs. The first Village designated by the State Planning Commission, Hopewell relies on wastewater service provided by a 0.3 MGD treatment plant owned by a regional sewerage authority and located outside of the Borough, but designed and sized primarily to serve the Borough. This plant served only the Borough until recently, when a failing package plant for a residential development in adjacent Hopewell Township was converted to a pump station and its flow directed to the regional authority's plant. The municipal boundary is the Community Development Boundary for this Village. The surrounding "environs" in Hopewell Township are generally rural and agricultural, with scattered houses.

Land ownership patterns, existing environmental conditions, and large minimum lot sizes limit the potential for extensive suburban type development in these environs of the designated Village Center of Hopewell Borough. Some property owners-developers in these environs do, nevertheless, seek sewer service, which the Borough opposes. While the existing treatment plant has available capacity of 0.07 MGD, the Borough has advised the regional wastewater agency that it intends to use this capacity eventually to accommodate build out, with an allowance for infiltration/inflow. At least one property owner has questioned whether Hopewell's designation as a Village would preclude development of cluster housing and extension of sewer service. In fact, the Borough sought Center designation as a Village in part to reinforce its position that the independent regional wastewater agency should not establish a sewer service area for its Hopewell treatment plant that would extend sewers beyond the Borough boundary. The Borough hopes that NJDEP will consider seriously its designation as a Center, including its non-sewered environs, if the regional sewerage authority ever seeks wastewater management plan approval for sewer service area expansion beyond the Borough boundary.

Newton is the County seat, health care, legal, and higher education center of Sussex County, and the first Regional Center designated by the State Planning Commission. This 3.25 square mile community has about 7,500 people, 3,100 dwelling units, and 5,500 jobs. The municipal boundary is the Community Development Boundary. Adjoining lands in the immediate environs lack sewers and are zoned for low density residential land uses. Newton recently upgraded and expanded its wastewater treatment plant to a capacity of 1.4 MGD, with the financial assistance of the new Jersey Wastewater Treatment Trust. The facility has a current flow of about 1.0 MGD. The available capacity is adequate to serve the 20 year projected increase in population and jobs, which would constitute build out for this community.

Woodstown Borough in Salem County is a compact community at the crossroads of US 40 and Route 45, an established commercial center for the surrounding farming region, and the

first Town designated by the State Planning Commission. This 1.56 square mile community has about 3,100 people, 1,350 dwelling units, and 1,540 jobs. The municipal boundary is the Community Development Boundary. NJDEP imposed a Sewer Connection Ban on Woodstown in 1988. The Borough's 0.3 MGD wastewater treatment plant operates at capacity and is being expanded to a capacity of 0.5 MGD. Once the plant expansion is completed, an additional 400 new residential connections to the sewer system will be available, which are sufficient to accommodate more than the projected population and job growth through 2010.

Since these first three Center designations, the State Planning Commission has designated most of Millville-Vineland in Cumberland County as a Regional Center and Ridgefield in Bergen County as a Town. No petitions have been submitted yet to the Office of State Planning for designation of Planned (New) Centers. Eleven petitions for Center designation are currently pending before the State Planning Commission.

The three initial Centers designated by petition demonstrate three different wastewater-Centers scenarios: (a) sewer ban with upgrading under way to accommodate projected growth, (b) treatment plant expansion completed with capacity to accommodate build out, and (c) existing treatment plant with capacity for Center build out or sewerage of the environs. All three examples met the adequate wastewater infrastructure prerequisite established by the State Planning Commission for Center designation. The NJDEP role on this issue in these three designations was limited to confirming the wastewater infrastructure capacity bases for the designations.

2. Chesterfield Township, Burlington County

For thirty years, Chesterfield Township, a rural community in northern Burlington County with a population of about 5,000 people, has pursued various efforts to preserve farmland and manage growth. The Township has purchased the development rights on 3,150 acres of farmland with considerable State and County financial assistance. In cooperation with the Burlington County Board of Chosen Freeholders, the Township has conducted detailed studies toward a master plan and zoning ordinance based on transfer of development rights (TDR). The timely availability of wastewater collection and treatment services in the "receiving areas" proposed for higher density, clustered development has been a critical issue in formulating a feasible TDR plan.

The four proposed receiving areas in the Chesterfield plan--three moderately expanded existing historic villages and a new planned village--require sewers to be feasible, but the Township has neither a wastewater treatment system of its own nor access to a regional system. The Township once considered participating in the upgrading and expansion of an existing treatment plant located in Chesterfield Township, and owned and operated by the New Jersey Department of Corrections, but rejected that feasible alternative, as local consensus had not yet been achieved on the TDR master plan itself.

Concern over the municipal role, capital cost, and local property tax implications of providing wastewater services prompted the County to analyze the issue and demonstrate that all major wastewater treatment facilities built in New Jersey since 1970 that were not part of

existing regional wastewater systems had been built by developers of large residential and mixed-use projects, and then either transferred to a public wastewater agency or retained in private ownership by a utility or a homeowners' association. This study established that municipalities did not invest in wastewater treatment in anticipation of development of land zoned for higher density development, but rather negotiated with developers on where, how, when, and at whose expense wastewater services would be provided, and then owned and operated. The lack of private or public investment in the requisite wastewater treatment infrastructure continues to stymie adoption and implementation of the TDR-based master plan for Chesterfield, as the feasibility of higher density development in the receiving areas cannot be assured without sewers.

3. Elk Township, Gloucester County

Elk Township is a medium sized rural community in southern Gloucester County with a population of about 3,000 people. Bisected by a new limited access state highway completed in the 1980s, Route 55, Elk Township appeared poised for growth provided sewers could be obtained. The Township, in concert with major property owners, established a municipal utilities authority which made grand plans for a large sewer service area, with treatment to be provided by extending interceptors across open lands to two existing regional wastewater treatment plants with available capacity. Questions about the economic feasibility of installing extensive sewers and changes in the real estate economy led to abandonment of that overly ambitious plan for more sprawl development. Elk Township is now considering designation of a Center. The Center designation process may serve as the vehicle to develop a realistic wastewater management plan, with a realistic and more limited sewer service area focused in the Route 55 corridor.

4. Problematic Scenarios of Centers with Wastewater Issues

Where adequate wastewater infrastructure does not exist to accommodate projected growth in a Center, then a proposed Center is not ripe for formal designation. To avoid a stalemate in such a scenario, proponents of specific Centers need to initiate wastewater management planning well in advance of beginning the formal Centers designation process.

Other problematic scenarios of proposed Centers designation with significant wastewater issues can easily be imagined. For example, in Washington Borough-Washington Township in Warren County, two adjoining municipalities share a wastewater treatment facility with limited remaining available capacity that is owned by one municipality. Upgrading is needed to meet water quality standards. Treatment plant expansion is essential if growth is to take place. Yet, disputes exist over both the amount and location of growth and which community is to pay for upgrading and which is to pay for plant expansion. The older, established municipality which owns the treatment facility is hesitant to establish a joint regional wastewater agency and relinquish control over wastewater services and their cost to an independent agency. The municipality without a treatment plant prefers to build its own treatment plant and has established a sewerage authority to oversee several package plants. The assimilative capacity of the area's streams is limited, prompting almost a race to the stream between the two

CENTERED GROWTH AND WASTEWATER MANAGEMENT

municipalities with their potentially competing proposals for upgraded and new facilities seeking the same stream for their discharges. And Centers designation, with its promise of priority for public investment in infrastructure, is an incentive for the older, more developed municipality that faces a multi-million dollar mandated upgrading of its facility. As both communities lie in the State Plan's Rural Planning Area, designation of a Center is the appropriate mechanism to organize growth under the State Plan.

An active role by the Office of State Planning in facilitating discussions among such municipalities and NJDEP may well be needed to resolve such problematic scenarios. In addition to oversight, approval, and enforced consistency of wastewater management plans from two such communities, an advocacy role by NJDEP may also be needed, in the spirit of the Governor's Executive Order No. 114, in order to "...facilitate the establishment of development 'centers'."

H. CONCLUSION AND RECOMMENDATIONS

Centers require wastewater infrastructure, which requires either public or private investment, or both, as well as planning and regulatory approvals from NJDEP before centered growth may take place.

NJDEP is well positioned to facilitate the establishment of Centers, and should act to:

- (a) encourage Centers-based wastewater management plans,
- (b) prepare watershed-based environmental management plans that expedite the regulatory odyssey of wastewater infrastructure projects needed for Centers,
- (c) invest scarce public wastewater infrastructure grants and loans in these priority Center-oriented projects, and
- (d) serve as an advocate, in cooperation with the Office of State Planning, where wastewater infrastructure is a prerequisite for centered growth.

To forge this key link between planning for Centers and wastewater management planning, NJDEP should require that all new, amended, or revised wastewater management plans include explicit alternatives analyses of at least two scenarios of settlement patterns for the projected population and employment growth, both centered growth and conventional development. Explicit assessments of the costs and benefits of these different settlement patterns could then readily inform public decision-making in the iterative land use-wastewater infrastructure planning process.

The Governor's Executive Order No. 114 instructs NJDEP to direct infrastructure to locations and in patterns recommended in the State Plan. This means that land use policy emphasizing Centers, with the assistance of informed, carrying capacity analyses, is to govern infrastructure decision-making in New Jersey. Once this simply stated directive permeates NJDEP, local government, and wastewater agency wastewater infrastructure decision-making, then Centers will steadily and increasingly take hold in New Jersey in a manner that organizes future growth and redevelopment, while protecting environmental resources.

REFERENCES

- Association of New Jersey Environmental Commissions and New Jersey Department of Environmental Protection and Energy, *The Environmental Manual for Municipal Officials*, Trenton, N.J., Fall 1992.
- Edward A. Clerico, *Final Report: Wastewater Treatment and Water Supply Facilities component of the Transfer of Development Rights Feasibility Study for Upper Freehold Township*, prepared by Applied Wastewater Technology, Inc., Belle Mead, N.J., December 15, 1993.
- Lewis Goldshore and Marsha Wolf, *New Jersey Environmental Law*, two volumes, New Jersey Institute for Continuing Legal Education, New Brunswick, N.J., 1994.
- Amanda Jones Gottsegen, *Planning for Transfer of Development Rights: A Handbook for New Jersey Municipalities*, funded by the Burlington County Board of Chosen Freeholders and the New Jersey Conservation Foundation, Mount Holly, N.J., Burlington County Land Use Office, 1992.
- Anton Clarence Nelessen, *Visions for a New American Dream: Process, Principles, and An Ordinance to Plan and Design Small Communities*, privately printed, Princeton, N.J., 1993.
- New Jersey Department of Environmental Protection, *The New Jersey Pollutant Discharge Elimination System, New Jersey Administrative Code 7:14A, and Summary of Anticipated Rule Change Proposal and Request for Preliminary Public Comment*, October 1994.
- New Jersey Department of Environmental Protection, *Statewide Water Quality Management Planning, New Jersey Administrative Code 7:15, Interested Party Review Document*, February 1994, and *Proposed Readoption*, August 1, 1994.
- New Jersey Department of Environmental Protection, *Visions for the Whippany Watershed*, Winter 1993.
- New Jersey Office of State Planning, *The Centers Designation Process*, Document #99, Trenton, N.J., February 1993.
- New Jersey State Planning Commission, *Communities of Place, The New Jersey State Development and Redevelopment Plan*, Trenton, N.J., June 12, 1992.

ACKNOWLEDGMENTS

Dianne Brake, President of MSM, commissioned this working paper. In addition, several individuals provided information and insights helpful for the preparation of this working paper:

Narinder Ahuja, NJDEP, Division of Water Quality
Martin Bierbaum, NJDEP, Office of Land and Water Planning
Edward A. Clerico, Applied Wastewater Technology, Inc.
Thomas Dallessio, New Jersey Office of State Planning
Jill Edwards, NJDEP, Office of Land and Water Planning (formerly)
Abby Fair, ANJEC
Allen Fisher, Borough of Washington (Warren County)
John W. Gaston, Jr., Stony Brook Regional Sewerage Authority
Joanne Harkins, New Jersey Builders Association
William Kruse, Middlesex County Planning Department
Robert Kull, New Jersey Office of State Planning
Carl G. Lindbloom, Carl G. Lindbloom & Associates
Charles Romick, Gloucester County Planning Department
Larry Schmidt, NJDEP, Office of Program Coordination
Herbert Simmens, New Jersey Office of State Planning
Dan Van Abs, NJDEP, Office of Land and Water Planning

POSTSCRIPT

The NJDEP initiatives described in this working paper (at pages 20-21) continue to evolve. The two appendices on the following pages reproduce two rule-making documents that are central components of these initiatives:

(a) The Statewide Water Quality Management Planning Rules (proposed readoption, with summary of the existing rules and summary of issues identified in comments on the NJDEP February Interested Party Review Document), and

(b) The Notice of Availability of Rule Proposal Summary and Request for Public Comment on the New Jersey Pollutant Discharge Elimination System (NJPDES).

(a)

OFFICE OF LAND AND WATER PLANNING
Statewide Water Quality Management Planning
Proposed Readoption: N.J.A.C. 7:15

Authorized By: Robert C. Shinn, Jr., Commissioner, Department of Environmental Protection.

Authority: N.J.S.A. 13:1D-1 et seq., 58:10A-1 et seq. and 58:11A-1 et seq.

DEP Docket Number: 34-94-06/469.

Proposal Number: PRN 1994-443.

Submit written comments, identified by the DEP Docket Number given above, by August 31, 1994 to:

Janis E. Hoagland, Esq.
 Administrative Practice Officer
 Department of Environmental Protection
 CN 402
 Trenton, NJ 08625

The agency proposal follows:

Summary

The Department of Environmental Protection (Department) administers the Statewide Water Quality Management Planning (WQMP) rules, N.J.A.C. 7:15, in conjunction with the Statewide Water Quality Management Plan, which constitutes the Continuing Planning Process conducted pursuant to the Water Quality Planning Act, N.J.S.A. 58:11A-1 et seq., the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., and N.J.S.A. 13:1D-1 et seq. The rules serve two basic functions. Subchapters 1 through 3 serve the first of these functions, which is to set forth the Department's general regulatory framework for Water Quality Management Planning activities. Subchapters 4 and 5 supplement other Department rules pertaining to wastewater management, including, but not limited to, New Jersey Pollutant Discharge Elimination System rules (N.J.A.C. 7:14A), Standards for Individual Subsurface Sewage Disposal Systems (N.J.A.C. 7:9A), wastewater discharge requirements (N.J.A.C. 7:9-5), Surface Water Quality Standards (N.J.A.C. 7:9B), Ground Water Quality Standards (N.J.A.C. 7:9-6) and rules concerning financial assistance for wastewater treatment facilities (N.J.A.C. 7:22).

In accordance with the requirements of Executive Order 66(1978), N.J.A.C. 7:15 is scheduled to expire on October 2, 1994. The Department has reviewed the rules and determined them to be necessary, reasonable and proper for the purpose for which they were originally promulgated. However, the Department also recognizes that there are components of the rules that could be improved through substantive revisions. Therefore, the Department has initiated two processes by which such changes will take place. First, as a component of its efforts to revise the NJPDES rules at N.J.A.C. 7:14A, sections will be moved from the NJPDES rules (the environmental assessment requirements of the Discharge Allocation Certificate program) or added (more detailed rules regarding the development and adoption of Total Maximum Daily Loads, or TMDLs) to the WQMP rules. Additional information on these issues was published in the New Jersey Register at 25 N.J.R. 411(a) (Notice of Interested Party Review regarding NJPDES rules).

Second, the Department initiated an effort to solicit public comments through a Notice of Opportunity for Interested Party Review in the New Jersey Register on possible changes to the WQMP rules which would provide for administrative simplification, program delegation to regional and local planning agencies, and improved environmental impacts (see 26 N.J.R. 792(a)). The Department held two public roundtables on February 24 and 28, 1994 and received extensive oral and written comments on the Interested Party Review document. Based on this input and further Department consideration of the rules, the Department will be preparing a proposal which will substantively improve the existing WQMP rules. The Department anticipates that these changes will be proposed in the Fall of 1994. The anticipated schedule for the rule proposal slipped in part due to an administrative decision to focus available staff time on reducing existing backlogs of Water Quality Management Plan amendments submitted by regional and local planning agencies and by private sector interests. The Department decided that a delay in the proposal of rule changes was less critical to environmental protection and the State's economy than reduction of the backlogs.

The primary issues identified by commenters to the WQMP Interested Party Review document include the following:

(1) Need for reduced administrative complexity for minor projects and projects with minimal environmental impact. Commenters generally agreed with the Department's concept of minimizing information and procedural requirements for such projects. One specific method identified by the Department—delegation of reviews to local planning agencies—was both supported and opposed, in part because some of the planning agencies are utility authorities rather than county, regional or municipal planning boards. Representatives of utility authorities were concerned about adding roles unrelated to their primary function.

(2) Responsibilities for wastewater management planning. Some utility authorities and associations opposed the reliance of the current rules on utility authorities as local planning agencies, feeling that planning boards were more appropriate vehicles. The decision in 1987 to impose this requirement was based upon legal advice at that time. The Department promised to seek additional legal advice as to whether the full planning mandates could be moved from utility authorities in some or all cases, or whether some aspects of the planning process could be assigned to agencies other than the authorities.

(3) Environmental assessment requirements. Commenters generally agreed with the Department's proposal to combine environmental assessment requirements of the WQMP and NJPDES rules. However, concerns were raised about the most appropriate scope and detail of assessment requirements at different levels of planning (for example, Areawide Water Quality Management Plan, wastewater management plan, sewerage facility expansion or creation). The general consensus was that the level of detail should increase as proposed actions move from the regional scale to the site-specific scale.

(4) Incorporation of environmental objectives. Most commenters from all sectors agreed that a major concern with the existing regulations is that the policies either are unclear or unstated; that applicants and respondents have difficulty determining what standards of review the Department will use. They supported the Department's proposal to codify its policies and standards for review.

Due to the complexity and scope of the proposed changes which were released for public comment in the WQMP Interested Party Review document, the extensive public comments that are being considered at this time by the Department, and the priority for reducing the current backlog of WQMP amendments, the Department will not be able to revise the chapter before the October 2, 1994 expiration date. Expiration of the chapter would have very negative economic impacts, due to statutory mandates that the Department may not approve a permit for any action that is inconsistent with Water Quality Management Plans (all such plans were adopted by the Governor of New Jersey). Without the WQMP rules, the Department will have no regulatory mechanism in place to allow amendments of the plans. Therefore, to continue the rules N.J.A.C. 7:15 in effect until the necessary revisions can be adopted, the Department is proposing herein to readopt the chapter without change.

In light of the limited effect of this proposed readoption, the Department suggests that interested persons direct their comments concerning N.J.A.C. 7:15 to the proposal expected to be issued in the Fall of 1994, which will include significant amendments to the existing rules. Persons interested in receiving notice of the proposal and information about public involvement in the rulemaking process should contact the Office of Land and Water Planning at CN 423, Trenton, NJ 08625, or call (609) 633-1179.

The following is a summary of each subchapter in N.J.A.C. 7:15:

Subchapter 1. General Provisions

N.J.A.C. 7:15-1.1 identifies the chapter's general subject matter. The construction section at N.J.A.C. 7:15-1.2 promotes implementation of the Water Quality Planning Act, Water Pollution Control Act, and N.J.S.A. 13:1D-9; the purpose section at N.J.A.C. 7:15-1.3 emphasizes basic provisions of those statutes. The severability section is located at N.J.A.C. 7:15-1.4. N.J.A.C. 7:15-1.5 defines terms used in the regulations, some of which are taken from the Statewide Water Quality Management Plan (Plan).

Subchapter 2. Planning Requirements

N.J.A.C. 7:15-2.1 and 2.2 identify the Statewide WQM Plan and this chapter as the written provisions of the Continuing Planning Process (CPP). N.J.A.C. 7:15-2.1 describes the CPP components required by the Water Quality Planning Act, the Clean Water Act (33 U.S.C. 1251 et seq.), or the Federal regulations at 40 CFR 130.5. As one means of addressing the Department's statutory supervision, integration, and related responsibilities (N.J.S.A. 58:11A-2, 58:11A-7), N.J.A.C. 7:15-2.2

prohibits areawide WQM Plans from conflicting with specified components of the Statewide WQM Plan and the other provisions of the rules. N.J.A.C. 7:15-2.3 and 2.4 identify WQM planning responsibilities of the Department and designated planning agencies.

Subchapter 3. Plan Assessment, Amendment and Adoption

N.J.A.C. 7:15-3.1 requires that projects, activities, and Department permits be consistent with WQM Plans and this chapter, identifies projects and activities requiring detailed "consistency determination review," and identifies Statewide WQM Plan components used in consistency reviews. N.J.A.C. 7:15-3.2 sets forth the procedures for consistency determination reviews. N.J.A.C. 7:15-3.2(c)4 allows the Department to issue permits in some cases without issuing separate consistency determinations. N.J.A.C. 7:15-3.4 establishes procedures for amending Statewide and areawide WQM Plans. Only the Department can process amendments that address effluent limitations, total maximum daily loads, State or Federal programs, or actions regulated by the Solid Waste Management Act. There is a 60 day period for statements of consent. A special expedited amendment procedure is available for public schools, health and correctional facilities, and for treatment works on margins of depicted sewer service areas. N.J.A.C. 7:15-3.5 requires periodic review of plans, allows limited changes to plans to be adopted as "revisions" (without advance notice) rather than as "amendments," and provides for certification of areawide plans by the Governor or his designee. Provisions at N.J.A.C. 7:15-3.6 and 3.7 set forth policies concerning coordination of WQM planning with programs for the New Jersey Coastal Zone (including the Hackensack Meadowlands District) and Pinelands. Provisions at N.J.A.C. 7:15-3.8 and 3.9 establish a one year time limit for procedural challenges to WQM Plan amendments, and appeal procedures for Departmental decisions made pursuant to this chapter.

Subchapter 4. Water Quality and Wastewater Management Policies and Procedures

N.J.A.C. 7:15-4.2 identifies projects and activities deemed to be consistent with WQM plans and this chapter, including upgrades of treatment works to improve effluent quality; treatment works whose sole purpose is to abate existing pollution problems; "interim" treatment works to be abandoned or incorporated at a definite time into other treatment works; and emergency activities. N.J.A.C. 7:15-4.3 identifies treatment works that require amendments to areawide WQM Plans to be eligible for Department permits, or for financial assistance under the Clean Water Act or N.J.A.C. 7:22. This section also requires that WQM Plan amendments use existing regional domestic treatment works where appropriate, and avoid unsound sewer service area modifications to evade sewer connection bans. N.J.A.C. 7:15-4.4 allows construction in depicted future sewer service areas of individual residential septic systems if future connection is guaranteed, and on the same basis, certain other small domestic treatment works (individual wastewater management plans may impose additional requirements: see N.J.A.C. 7:15-5.19). N.J.A.C. 7:15-4.5 limits financial assistance for domestic treatment works under the Clean Water Act or N.J.A.C. 7:22 to Wastewater Management Agencies identified in WQM Plans.

Subchapter 5. Wastewater Management Planning Requirements

Subchapter 5 concerns "wastewater management plans" which are short, concise documents, adopted as amendments to areawide WQM Plans, that describe present and future wastewater management at a municipal or regional level. N.J.A.C. 7:15-5.1 identifies WQM Plan amendments requiring preparation or amendment of such wastewater management plans. N.J.A.C. 7:15-5.2 provides that existing wastewater management plans remain in effect and establishes a transition period from the pre-existing rules to the current rules for plans under review at the time of adoption. N.J.A.C. 7:15-5.3 contains general rules about "wastewater management plan responsibility," which is mainly the duty to submit and periodically update a wastewater management plan for a specific "wastewater management plan area." N.J.A.C. 7:15-5.4 provides that designated planning agencies may request such responsibility for their planning areas. Where such responsibility is not so requested, N.J.A.C. 7:15-5.5 through 5.8 assign such responsibility to governmental units in this order: Passaic Valley Sewerage Commissioners (for its statutory district); sewerage and municipal authorities (for their statutory districts); joint meetings (for service areas in member municipalities); and municipalities (within their boundaries). Municipalities and municipal authorities that do not perform "sewerage-related functions" are exempt.

Criteria in N.J.A.C. 7:15-5.6 assign wastewater management plan responsibility for locations within two or more authority districts (giving priority to county utilities authorities and regional sewerage authorities). N.J.A.C. 7:15-5.9 provides that alternative assignments of wastewater management plan responsibility, differing from N.J.A.C. 7:15-5.4 through 5.8, shall be made only by amendments or revisions to areawide WQM Plans, and contains the general rules for such assignments. N.J.A.C. 7:15-5.10 through 5.13 identify some possible alternatives for assignment of plan responsibility: linkages to financial assistance for sewerage facilities or to complete sewer service areas, assignments of joint wastewater management plan responsibility to two or more governmental units, and voluntary assignment of responsibility. N.J.A.C. 7:15-5.11 requires automatic expansion of wastewater management plan areas to include complete sewer service areas. To assist identification of wastewater management plan responsibility, N.J.A.C. 7:15-5.14 requires the Passaic Valley Sewerage Commissioners (PVSC), sewerage and municipal authorities, and joint meetings to submit information about district boundaries and member municipalities.

N.J.A.C. 7:15-5.15 identifies the required contents of wastewater management plans in general terms; N.J.A.C. 7:15-5.16 through 5.20 contain specific requirements. N.J.A.C. 7:15-5.16 and 5.17 require descriptions and maps of existing jurisdictions, wastewater service areas, and specific domestic treatment works and environmental features. N.J.A.C. 7:15-5.18 requires descriptions and maps of future wastewater service areas and specific domestic treatment works necessary to meet anticipated 20 year needs. Wastewater management plans shall provide for cost-effective, environmentally sound wastewater management, including regional management where appropriate, and with certain exceptions shall serve future land uses shown in municipal or county master plans. Under N.J.A.C. 7:15-5.19, wastewater management plans may require connection guarantees and installation of collection sewers when individual residential septic systems or certain other small domestic treatment works are built in sewer service areas. N.J.A.C. 7:15-5.20 contains specifications for the text and graphics for wastewater management plans, and provides that environmental features maps are for informational, not regulatory, purposes. N.J.A.C. 7:15-5.21 prohibits overlap of wastewater management plan areas. N.J.A.C. 7:15-5.22 requires those who prepare wastewater management plans to seek comments and written statements of consent from specified parties. Lastly, N.J.A.C. 7:15-5.23 establishes submission schedules for wastewater management plans. Updated wastewater management plans shall be submitted at least once every six years from the date of the previous submission. Alternative schedules may be established by amendments or revisions to WQM Plans.

Social Impact

The Department expects that generally positive social impacts will result from the proposed readoption of this chapter as have been realized in the past. The simplified legal structure of the Statewide WQM Plan is easier to understand and implement than the rules existing prior to 1988. Systematic procedures for evaluating projects and activities for consistency with WQM Plans (N.J.A.C. 7:15-3.1 and 3.2) promote Plan implementation. The Department's ability to issue permits without issuing separate consistency determinations under N.J.A.C. 7:15-3.2(c)4 benefits some permit applicants because it facilitates faster permit processing. It also eliminates confusion caused when a consistency determination approved at one point in time becomes invalid due to regulatory or WQM plan changes between that time and the time at which an applicant applies for permits.

The general public benefits from WQM plan amendment procedures that allow public comment on proposed amendments and allow interested persons to propose their own amendments (N.J.A.C. 7:15-3.4). Applicants for WQM plan amendments benefit from streamlining and simplification of the plan amendment process through use of a 60 day time period for written statements of consent (N.J.A.C. 7:15-3.4(g)3 and 4). Special amendment procedures expedite permits for public schools, health care, and correctional facilities, and for treatment works on margins of depicted sewer service areas (N.J.A.C. 7:15-3.4(h)). The benefits of these timesaving provisions should be passed on to the general public through lower development costs.

Treatment works and wastewater management plan requirements in N.J.A.C. 7:15-4.3 and 7:15-5 result in more cost-effective, environmentally sound wastewater management, better integrated with municipal and county master plans. Insofar as wastewater management plans promote implementation of municipal master plans, such plans reinforce the

positive or negative social impacts of such master plans. Wastewater management plans assist State and local planning by identifying, on a regularly updated basis, existing and proposed sewerage facilities and sewer service areas in most of the State. The 20-year horizon for wastewater management plans, the requirement for updating them every six years, and the provisions for amending them minimize any limiting effects the plans might otherwise have on the land supply for uses that need sewer service.

The general public may experience some higher development costs. Over an extended period, however, the rules generally satisfy the need for proper wastewater management planning and serve to insure the proper long-term operation and maintenance of wastewater treatment plants, thereby providing a positive social benefit to the residents of the State. The Passaic Valley Sewerage Commissioners and many sewerage authorities, municipal authorities, joint meetings, and municipalities are required to periodically submit wastewater management plans (except where this duty is assumed by designated planning agencies or assigned to other parties with Department consent). The rules minimize the workload by establishing requirements for wastewater management plans that are much less detailed than the requirements for Wastewater Treatment Facilities Plans (required by Section 201 of the Federal Clean Water Act for recipients of Federal wastewater facility construction funds) prepared by many of these governmental units.

Economic Impact

The Department expects positive and negative economic impacts from the proposed readoption. Treatment works and wastewater management plan requirements in N.J.A.C. 7:15-4.3 and 7:15-5 result in more cost-effective wastewater management. Insofar as wastewater management plans promote implementation of municipal and county master plans, wastewater management plans reinforce positive or negative economic impacts of such plans. The 20-year horizon for wastewater management plans, the requirement for updating them every six years, and the provisions for amending them should minimize any limiting effects the plans might otherwise have on the land supply for uses that require sewer service. Insofar as wastewater management plans deny sewer service to lands otherwise eligible for such service, wastewater management plans limit the land supply available for intensive uses that require sewer service, and affect the location of new development for such uses (by channeling development towards depicted sewer service areas with adequate sewerage capacity, and away from other locations). These limitations and alterations have complex effects on economic factors such as real property values and tax revenues, public service expenditures, and housing, labor, retail, and other markets.

The Passaic Valley Sewerage Commissioners and many sewerage authorities, municipal authorities, joint meetings, and municipalities are required to periodically submit wastewater management plans (except where this duty is assumed by designated planning agencies or assigned to other parties with Department consent). Most of these costs have already been incurred. The Department estimated in 1988 that the average cost of preparing a wastewater management plan was between \$5,000 and \$15,000 and that about 275 wastewater management plans would be prepared over five years in response to the proposal. The estimated total Statewide cost for preparing wastewater management plans was between \$1.4 million and \$4.1 million over five years, or between \$275,000 and \$825,000 on an annual average basis. The Department does not have updated cost estimates, but the 1988 cost estimates may have been low based on anecdotal evidence, with the most complicated plans costing on the order of \$60,000.

In addition, the Department requires about \$300,000 annually to administer the wastewater management plan program. After the initial five year planning cycle (with consideration of extensions), further costs are incurred to update each wastewater management plan at least once every six years. Future costs to wastewater management planning agencies and private interests are primarily limited to the preparation and processing of amendments and updates to the wastewater management plans under these rules. In most cases, the costs of preparing wastewater management plans are ultimately borne by sewer users and local taxpayers. Where developers choose to subsidize preparation of wastewater management plans by the planning agencies as a method for expediting plan preparation and adoption, the cost may be reflected in lower profits and wages in the building industry, in higher prices for new development, and in reduced land prices paid by the developers to landowners. However, the costs of preparing amendments to wastewater management plans (the cost most frequently assumed by developers) is very low relative to total development costs.

The Social Impact statement above discusses the anticipated social impacts of these rules on applicants for Department permits and WQM Plan amendments. These social impacts are mainly economic in nature and are noted here by reference; they include positive and adverse economic impacts on various parties. For example, some applicants for Department permits benefit economically when their projects are deemed to be "not consistent" or "consistent" with WQM plans under N.J.A.C. 7:15-4.2 (through reduced project delay costs and exemption from plan requirements). Conversely, the wastewater management plan requirements in N.J.A.C. 7:15-5.1 can have adverse economic impacts on some applicants for NJPDES permits (because their projects are prevented, delayed or otherwise made more expensive by such requirements). Over a five-year period, the rules should generally satisfy the need for wastewater management plans, however, and provide a general positive economic benefit. N.J.A.C. 7:15-4.5 provides that financial assistance for treatment works under the Clean Water Act or N.J.A.C. 7:22 may be awarded only to Wastewater Management Agencies identified in WQM Plans. Such identification is a routine process that generally creates no practical difficulties.

Environmental Impact

The Department expects generally positive environmental impacts from the proposed readoption. Systematic procedures for evaluating projects and activities for consistency with WQM plans (N.J.A.C. 7:15-3.1 and 3.2) help to ensure that the environmental protection requirements in WQM plans are followed. Special consistency provisions (N.J.A.C. 7:15-4.2) expedite permits for treatment works upgrades to improve effluent quality, and for treatment works whose sole purpose is to abate existing pollution problems. The treatment works and wastewater management plan requirements in N.J.A.C. 7:15-4.3 and 7:15-5 should result in more environmentally sound wastewater management. To the extent that wastewater management plans promote implementation of municipal and county master plans, wastewater management plans reinforce positive or negative environmental impacts of such master plans.

Regulatory Flexibility Analysis

Some of the rules proposed for readoption apply to many small businesses, as defined in the Regulatory Flexibility Act, N.J.S.A. 52:14B-16 et seq., that seek Department permits, amendments to WQM Plans, or construction of domestic treatment works. The average cost to a small business of complying with the plan amendment procedures of this chapter is expected to be about \$200.00, plus the cost of preparing the proposed amendment where a public agency does not assume that cost. Most of the costs incurred under these rules are incurred by public agencies having wastewater management plan responsibility. All small business applicants for Department permits are subject to the provision in N.J.A.C. 7:15-3.1(a) that the Department shall not issue permits for projects or activities that conflict with WQM plans or this chapter. Some such applicants may need the services of professional engineers or other professionals to design acceptable projects and activities. Many such applicants are required to submit proposals for consistency determination review under N.J.A.C. 7:15-3.2, and need the services of professional engineers or planners to prepare such submissions.

Small businesses that seek construction of treatment works that are inconsistent with areawide WQM plans, or that apply for amendments to such plans for other reasons, have to submit information and undertake actions required of applicants by N.J.A.C. 7:15-3.4(g), or follow plan amendment procedures used by designated planning agencies. If a requested amendment requires preparation of a wastewater management plan under N.J.A.C. 7:15-5.1, the small business must arrange for an appropriate governmental unit to submit a wastewater management plan. Small businesses that seek construction of certain small domestic treatment works in sewer service areas will have to provide connection guarantees required by N.J.A.C. 7:15-4.4(b). Wastewater management plans may extend this guarantee requirement to construction of individual residential septic systems, and may require installation of collection system sewers for use when sewer service becomes available (N.J.A.C. 7:15-5.19). Such installation would require the services of professional engineers.

The Department has balanced the need to protect the public health, safety, and general welfare against the adverse economic impact of the rules on small businesses, and has determined that use of different regulatory approaches for small businesses may endanger the public health, safety and general welfare. Therefore, the rules do not include exemptions or other approaches specifically targeted at small business. However, to the extent that small businesses are more likely than large

PROPOSALS

Interested Persons see Inside Front Cover

ENVIRONMENTAL PROTECTION

businesses to seek construction of small treatment works that do not trigger requirements in N.J.A.C. 7:15-4.3 and 5.1, these sections will have less impact on small businesses than on large businesses. Also, as discussed in the Social Impact statement above, the rules include provisions that benefit many applicants for Department permits and WQM Plan amendments, including many small business applicants.

Full text of the proposed reoption may be found in the New Jersey Administrative Code at N.J.A.C. 7:15.

(a)

ENVIRONMENTAL REGULATION**New Jersey Pollutant Discharge Elimination System
Notice of Availability of Rule Proposal Summary and
Request for Public Comment****N.J.A.C. 7:14A, 7:9, 7:9B, 7:14, and 7:15**

Take notice that the Department of Environmental Protection (Department) is preparing to propose substantial revisions and amendments to the rules under which discharges to the waters of the State are regulated (N.J.A.C. 7:14A, 7:9, 7:9B, 7:14, and 7:15). The Department is considering an extensive restructuring of the New Jersey Pollutant Discharge Elimination System (NJPDES). This notice briefly summarizes the anticipated changes to the NJPDES permitting program, provides notification that a comprehensive summary document (Summary) is available, and solicits public input and comments on the general policies, technical issues, and intended administrative reforms. The Department believes that public comment at this point in the process will help it complete drafting changes to the regulations it plans to propose by February 1995.

Historical Background

The current NJPDES rules were adopted and became effective on March 6, 1981, and have remained largely unchanged since that time, except for changes necessary to implement the 1990 amendments to the State Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq., the Clean Water Enforcement Act). The current rules have not kept pace with Federal and State changes in statutes, other rules, policies, and procedures that have an impact on the issuance and enforcement of discharge permits. Moreover, the program's effectiveness in improving water quality has not been adequately monitored and measured. In addition, the current NJPDES rules need to be better coordinated with the Department's Surface Water Quality Standards (SWQS), N.J.A.C. 7:9B, and the Water Quality Management Planning Rules, N.J.A.C. 7:15, in order to comprehensively address water quality issues, particularly aspects affecting water quality over an entire watershed or basin.

This Summary is also published in partial fulfillment of an Agreement of Settlement entered on January 17, 1991, in the Appellate Division of the Superior Court of the State of New Jersey and a Petition for Rulemaking submitted to the Department on December 5, 1990, by the Association of Environmental Authorities (AEA) concerning various provisions of N.J.A.C. 7:14A, 7:14, and 7:9. (See 23 N.J.R. 222(a)) The issues and concerns raised in the AEA's petition, as well as the Department's current position on each issue, are included for comment in this Summary and will be addressed in full when the Department publishes a formal rule proposal.

On November 2, 1992, the Department proposed a recodification of the SWQS, which was subsequently adopted on October 29, 1993. (See 24 N.J.R. 3983(a) and 25 N.J.R. 5569(a).) On January 19, 1994, the AEA filed a Notice of Appeal challenging the adoption of the recodified SWQS. On July 14, 1994, the Department and the AEA entered into an Agreement of Settlement which enumerated several modifications to the SWQS which the Department would either propose or would evaluate for subsequent proposal. Since the Department is evaluating its position on these modifications, this proposal will not address several issues raised in that appeal. The Department intends to prepare a proposal which addresses those issues before June 1, 1995.

On February 1, 1993, the Department issued a Notice of Opportunity for Interested Party Review (IPR) in the New Jersey Register to solicit comments on restructuring the NJPDES program. (See 25 N.J.R. 411(a)) A major component of the IPR was the use of a watershed approach to water resource management, including permitting. The Department held two public Round Table discussions and received extensive oral and written comments on the Interested Party Review document. Based on this input, the Department is currently preparing a proposal which will repeal the existing NJPDES chapter and replace it with an entirely new chapter. The comprehensive summary document discusses the anticipated content of that new chapter in detail.

Scope of the Anticipated Rule Proposal

The Department is preparing a set of comprehensive and fundamental changes in the NJPDES permitting program. These modifications and clarifications address the following primary areas:

1. Watershed based water quality management;
2. Determination of assimilative capacity for various waterbodies and development of total maximum daily loads (TMDLs) and allocations to the identified pollutant sources within each waterbody;
3. Development of effluent limits, including water quality based limits;
4. An Interim Permitting Strategy for point sources; and
5. Administrative reform for streamlining the permitting process to increase program efficiency and effectiveness.

Each area encompasses a set of substantial changes, which are briefly listed below. This comprehensive summary document, which is available on request, provides an outline of those changes, a discussion of various options that the Department has considered for each set of changes, and a description of the specific rule changes (along with the supporting rationale) that the Department is planning to propose.

The regulatory revisions to be proposed are intended to accomplish the following goals:

1. List requirements and describe procedures in clear and easy to understand language;
2. Reduce redundancy by consolidating overlapping or related requirements;
3. Provide fair and predictable mechanisms for making permit decisions;
4. Increase opportunities for meaningful public participation, particularly in the development of TMDLs and watershed management plans;
5. Provide the opportunity for regulated entities to work together, as well as with the Department, local governments, and the public, to develop cost effective approaches for attaining ambient water quality standards through mechanisms such as pollutant trading;
6. Increase administrative flexibility in the issuance of discharge permits;
7. Incorporate Federal mandates so that all requirements are located in a single comprehensive document. Where Federal requirements allow the State to determine specific procedures or mechanisms to satisfy Federal mandates, describe the specific process or procedure to be used. (This occurs most frequently when several technical approaches are available to determine a specific effluent limitation);
8. Reduce technical and administrative ambiguity, while providing adequate flexibility to address site specific issues, concerns, and opportunities;
9. Insure that available funds and staff resources are targeted toward creating the greatest improvements in water quality; and
10. Reduce the level of administrative paperwork and increase the efficiency of the program.

These goals respond to criticisms of the program in recent years by the public as well as the Department's staff and also are consistent with several of the recommendations set forth in the New Jersey Institute of Technology Report to the New Jersey Legislature, *A Review of the Economic Impact of Environmental Statutes, Rules and Regulations on New Jersey Industry*, dated March 1994. The Department anticipates that these reforms will result in greater efficiency in all phases of permit issuance, ranging from completion of the permit application and determination of permit conditions and effluent limitations to issuance of the final permit.

A brief outline of the main subject areas discussed in the Summary is provided below:

Watershed Based Water Quality Management

The Department is developing a watershed based approach to resource management, including permitting, to better address regional problems and opportunities. A watershed approach will allow the Department to assess the implications of various water supply allocation scenarios, provide a sound scientific basis to assess and evaluate pollution from all sources (agricultural inputs, municipal discharges, industrial discharges, groundwater inputs, storm water impacts, etc.), and make decisions regarding the most prudent and effective ways to control pollution from all contributing sources. This represents a significant improvement over the current site specific approach used to control many chemical compounds found in effluents. Such a coordinated approach will help the Department to better identify pollution problems affecting both human health and aquatic biota, to establish priorities and mechanisms

for addressing those problems, and to issue discharge permits that are tailored to assure the environmental well-being of the State. A watershed based approach to water quality studies and permitting will also lead to a sound, scientifically based watershed management program encompassing both point source and nonpoint source loadings, and will also address the associated water quantity issues related to water supply allocations and other withdrawals from waterbodies. The Department would then be able to issue wastewater discharge permits that are designed to address previously identified needs or opportunities in the watershed.

A watershed based approach, as opposed to the site specific approach currently used to control the discharge of many chemical compounds found in effluents, would enable the Department to focus attention on specific pollutants in each waterbody and to better evaluate the effectiveness of various control measures. The process to be proposed will include:

1. Identification of those watersheds where a comprehensive approach is necessary to achieve or maintain significant water quality improvements or to preserve ambient water quality for high quality waters;
2. Development of watershed goals through a public participation process. This process will also better enable the Department to work with local governments toward environmentally sensitive land use planning;
3. Development of water quality models to assist in the determination of the assimilative capacity for various waterbodies and the allocation of that capacity to various pollutant sources;
4. Development of an implementation strategy or watershed management plan which will result in attaining the surface water quality standards (including maintenance of existing high quality waters that currently exceed the SWQS) and attaining goals established for the watershed. Additional goals may be established in the development of the watershed management plan;
5. Implementation of the plan through issuance of discharge permits and/or controls on pollutant sources. This will include the imposition of water quality based effluent limitations, which protect instream water quality and instream uses, such as drinking water and aquatic life propagation. In addition, the allocation process will encourage the development and implementation of applicable Best Management Practices (BMPs) for stormwater and nonpoint sources of pollution; and
6. Subsequent monitoring and re-evaluation of the watershed to determine if the goals have been attained as a result of the implementation of the plan.

The anticipated rule proposal will include the following necessary procedures to facilitate this process:

1. Procedures to develop waterbody and watershed lists identifying those watersheds where a comprehensive management plan is necessary to achieve significant improvements in water quality, to attain the applicable water quality standards, or to maintain existing water quality;
2. Public participation processes for the development of watershed goals, TMDLs, and watershed management plans;
3. Procedures for the assignment of wasteload allocations (WLAs) and load allocations (LAs) to various pollutant sources; and
4. Procedures for calculating effluent limitations, including water quality based limits calculated from WLAs and an interim permit limits development process for use prior to the determination of wasteload allocations.

The changes necessary to implement a watershed based permitting process will take substantial time and resources, particularly in specifically identifying the existing water quality problems, assessing the extent of those problems, and evaluating the options available for their control. In the interim, the Department is required to continue issuing discharge permits.

The Department does not, however, intend to issue permits with new final water quality-based toxics limitations for most existing dischargers. Rather, where a watershed analysis is not available, chemical specific toxics limits for most dischargers will be determined using a phased TMDL approach. This phased approach utilizes a technology-based approach for each parameter combined with a water quality goal for each parameter. The technology-based effluent standards should mostly be attainable, using existing treatment. The approach also includes requirements to complete a pollution reduction study to meet the water quality goal. As expired permits are reissued with the technology-based effluent standards, the permittees will also be assigned water quality based limitations for whole effluent toxicity, usually with a schedule to attain the effluent limitation. The Department has begun to successfully

issue discharge permits using this phased TMDL approach. As TMDLs are developed for various parameters, final water quality based limits would be determined and incorporated into the discharge permit.

The Department plans to propose the phased TMDL numbers described above as effluent standards for chemical specific toxicants. The proposal will also include procedures to determine if a limitation based on the effluent standard is required for a specific discharge.

When the Department issues a permit renewal using the proposed phased TMDL procedures, it would be able to incorporate effluent standards which have the effect of making the permit more protective of water quality. The pollutant reduction study requirements that the Department would incorporate into discharge permits would have the further benefit of directing permittees to find additional ways to improve effluent quality. The permittees will be able to examine factors and opportunities that may be unique to their location or facility. At the same time, permittees would have greater certainty concerning regulatory requirements, enabling them to better anticipate the expenditures needed to improve water quality.

Changes to the Surface Water Quality Standards

In the proposal to be published in February 1995, the Department will propose changes to the SWQS in three areas:

1. Antidegradation policies and procedures;
2. Mixing zone policies and procedures; and
3. Deletion of the procedures for calculating water quality based effluent limitations. These procedures will be incorporated into the NJPDES rules.

In addition, the Department is preparing subsequent proposals which will incorporate updated ammonia-N criteria specific to New Jersey, procedures for the development of site specific criteria, issues related to the analytical quantitation of various parameters, and updating metals criteria. The Department is also considering changes in the stream design flows and applicable criteria durations.

The antidegradation proposal will include:

1. Procedures to determine whether an activity will result in significant changes in water quality;
2. Procedures to determine whether an economic and social analysis is required as a part of the proposal to lower water quality; and
3. The criteria to evaluate social and economic analyses.

The mixing zone proposal will include procedures to determine the size and shape of each regulatory mixing zone.

Administrative Reform

The administrative reforms included in the proposal are designed to make the permit application and issuance procedures more efficient. Regulations will be reorganized and consolidated to the maximum extent possible and rewritten to reduce ambiguities and eliminate inconsistencies. The proposal currently being prepared will substantially rewrite, reorganize, and restructure the existing rules to reduce unnecessary internal cross-referencing and to more readily facilitate cross-referencing with the required sections of the Federal rules and requirements governing the NJPDES program. The Department is already implementing some of the administrative changes it will formally propose for inclusion in the rules. The administrative changes to be proposed include:

1. Allowing permittees the option of submitting their applications in the form of draft permits which the Department will review and, if acceptable, offer for public comment. Additionally, permittees may perform some other permit process related actions such as issuance of public notices and making arrangements for public hearings;
2. Expanding the scope of changes to existing permits that can be accomplished through minor modifications;
3. Establishing an expedited renewal process for those permits where a new review would not provide any environmental benefit, so that the Department's resources can be used to address issues of greater environmental concern;
4. Eliminating Discharge Allocation Certificates and transferring most of the current Environmental Assessment to the water quality management plan amendment process;
5. Allowing for concurrent review and processing of water quality management plan amendments and NJPDES permit applications; and
6. Providing for increased use of general permits.

Process for Public Comment on Summary

A copy of the comprehensive summary document may be obtained by contacting:

Victor Staniec, Senior Environmental Engineer
Division of Water Quality
New Jersey Department of Environmental Protection
CN 029
Trenton, NJ 08625
Telephone: (609) 292-4543

The Department will hold two Round Table discussions to provide opportunity for discussion of this Summary. The first will focus primarily on administrative aspects, while the second will focus primarily on technical aspects, as follows:

Subject: Watershed Approach, Interim Permitting Approach, Administrative Reforms
Date: Tuesday, November 1, 1994
Time: 10:00 A.M. to 2:00 P.M.
Location: New Jersey Department of Environmental Protection Public Hearing Room, First Floor, 401 E. State Street Trenton, New Jersey

Subject: Surface Water Quality Standards, Effluent Limits Calculation, TMDL Development
Date: Thursday, November 10, 1994
Time: 10:00 A.M. to 2:00 P.M.
Location: New Jersey Department of Environmental Protection Public Hearing Room, First Floor, 401 E. State Street Trenton, New Jersey

The Department is requesting that individuals interested in participating in the Round Table or in attending as an observer pre-register before **October 21, 1994** by calling Nicole Garrette at (609) 292-4543. **Interested persons** are also encouraged to submit, in writing, views, proposed regulatory language, or comments relevant to this Summary by **November 30, 1994** to the address below:

Dennis Hart, Director
Division of Water Quality
New Jersey Department of Environmental Protection
CN-029
Trenton, NJ 08625

Following the close of the public comment period, the Department will consider all comments received (both in writing and during the public meetings) in completing the formal rule proposal that is currently being prepared.

The comprehensive summary document has been divided into seven sections.

Section I provides a description of the approach the Department is considering for watershed management.

Section II describes the development of water quality models, TMDLs, and allocations to pollutant sources.

Section III describes the development of effluent limitations.

Section IV describes the types of technical data that are needed to develop TMDLs and to make water quality decisions.

Section V describes changes the Department is considering for the SWQS related to water quality-based permit development, including mixing zones and implementation of the antidegradation policy.

Section VI describes the permitting approach the Department plans to use in the interim until permitting by watershed can be accomplished.

Section VII describes administrative and procedural changes that will be included in order to streamline the permitting process and to increase program efficiency.

Section VIII is a summary of the Petition for Rulemaking filed by the Association of Environmental Authorities which provides a cross-reference between the issues raised by the AEA and the Summary document.

Generally, within each section, several issues have been summarized, the options considered by the Department for each issue are discussed, and the Department's current position, along with the supporting rationale, is provided. Public comment and suggestions are sought on each of the issues described, as well as on any other aspects of the NJPDES program.