BROOME COUNTY WASTEWATER MANAGEMENT

A Study Report submitted to:

Broome County Department of Planning and Economic Development

by:

The Hudson Group, LLC

In association with

Lawler, Matusky & Skelly Engineers, LLP

Feller and Ferrentino

and Leo J. Hetling, Ph.D., P.E.

August 20, 2002

CONTENTS

Appendices

LIST OF TABLES

SECTION 1: EXECUTIVE SUMMARY

OVERVIEW

Broome County has commissioned this study to determine the feasibility of county involvement in wastewater management and recommend a prescribed course of action for county government. The consulting team developed information about the current systems of wastewater management in the county by interviewing city, town and village officials and selected wastewater management operational staff, making site visits to facilities and problem areas, reviewing available legal documents, engineering reports and plans and other pertinent data. An evaluation was also made of county roles in wastewater collection and treatment in 5 other New York counties. Interim findings were discussed with and guidance received from the Broome County Wastewater Steering Committee. Helpful guidance throughout the study was provided by Julie M. Sweet, Commissioner, and Frank Evangelisti, Chief Planner of the County Department of Planning and Economic Development.

There are two categories of wastewater treatment in the county: currently sewered areas and unsewered areas served by on-site wastewater disposal systems primarily septic tanks.

CURRENTLY SEWERED AREAS

Wastewater Treatment Plants in Broome County

Wastewater treatment plants in Broome County primarily serve the Binghamton metropolitan area with the exception of several small systems in the eastern part of the county. Table 1-1 describes these wastewater treatment plants and the areas served.

Conclusion

Based on our analysis of information developed during the course of the study, we conclude that there is presumptive justification for direct involvement of Broome County government in the management of wastewater management and collection systems.

Findings

Our conclusion is based upon findings that:

1. The eight outlying municipalities in the metropolitan area of the county dependent upon its largest treatment facility have and will continue to experience uncertainty about their capability to discharge increased volumes of wastewater to it, thus clouding their own ability to plan for and make decisions about further sewering within their own communities and to provide for growth. Outlying municipalities have no voice in decisions governing rate setting, operation, maintenance, and capital investments beyond the terms of their contracts with the owners.

Table 1-1
Wastewater Treatment Plants in Broome County[1-1]

PLANT	AREA SERVED (All or Parts)
Binghamton-Johnson City Joint Sewer Board	Binghamton (C), Binghamton (T), Conklin (T),Fenton (T), Kirkwood (T),Union (T), Vestal (T), Dickinson (T), Johnson City (V), Port Dickinson (V)
Village of Endicott	Endicott (V), Union (T), Vestal (T
Town of Chenango: Northgate	Sewer Districts 4, 8 and 9
Town of Chenango:Pennview	Sewer District No. 10
Town of Windsor: Pine Valley Sewer District No. 1	Pine Valley Sewer District No. 1
Town of Windsor: Pine Valley Sewer District No. 2	Pine Valley Sewer District No. 2
Town of Fenton Porter Hollow Road Sewer District	Porter Hollow Road Sewer District
Town of Binghamton Parkwood Sewer District	Parkwood Sewer District
Village of Deposit	Deposit (V)
Town of Sanford: Oquaga Lake	Oquaga Lake in Sanford (T)

2. Policies determining allocation of primary and secondary treatment capacity, and rates and charges for treatment services are controlled by the Binghamton-Johnson City Joint Sewer Board (BJCJSB) which governs the operation and maintenance of their wastewater treatment facility. The BJCJSB manages the facility primarily to serve the communities which own it, and understandably treats outlying municipalities as customers to whom the authority sells services.

3. Increased emphasis by regulatory agencies on correcting I and I,[1-2] and separating

[1-1] Table does not include privately owned Transportation Corporations providing wastewater treatment (Chenango Heights Subdivision in the Town of Chenango and Springbrook Lake in the Town of Windsor).

[1-2] I and I or Inflow and Infiltration is caused by ground, storm, and surface waters discharging to or seeping into sanitary sewers, and has a number of negative impacts on wastewater management. I and I is an extraneous flow that increases the cost of wastewater collection and treatment and consumes system capacity. Even in separate storm/sanitary systems, I and I can overload the capacity of sewers and pump stations and lead to sewage overflows. Increased sewage flow velocities resulting from I and I can exacerbate wear in the sewer pipe. Wastewater treatment plants can be burdened to the point where a severe loss of treatment efficiency occurs or the influent levels become high enough that it becomes life threatening and the sewerage flow is allowed to by-pass treatment and be discharged directly to a river. I and I is defined as being "significant" when the cost for the I /I conveyance/treatment exceeds the cost for the I and I removal or correction.

storm water from sanitary sewers complicates the relationship between outlying municipalities and the owners of the plant.

4. No entity within Broome County is responsible for (a) acting to remedy the lack of wastewater infrastructure to address the needs of existing problem areas; or b) assuring that there will be adequate wastewater service available to accommodate new industrial, commercial, and residential growth, wherever that growth may occur within the county.

5. Most municipalities located in more remote areas of the county and geographically separated from the metropolitan area which either own and operate wastewater treatment facilities, or are confronting the imminent need to construct them, face major issues of financing facility upgrades to comply with State regulatory orders, or to build new facilities.

Recommendations

Our findings lead us to recommend that the county government adopt the following course of action.

1. As the first step in a phased program of establishing a county role in sewered system wastewater management to support the county's economic development goals, the county should acquire ownership and operational control of the BJCJSB wastewater treatment plant and those appurtenant interceptor mains and trunks which receive and control the flow of wastewater from the sewer systems of communities now served by the plant. The recommendation is intended to serve two purposes. The case for county acquisition and management of the BJCJSB treatment plant to remedy the uncertainty and equity issues confronting the outlying municipalities served by that facility is, standing alone, marginal. However, the collateral policy goal of positioning county government to assure timely availability of sufficient wastewater infrastructure to facilitate future growth complements the first case, and reinforces the recommendation.

2. Subsequent to acquisition of the BJCJSB plant as we here propose, we recommend also that the county further investigate the phased expansion of the district to include the Endicott and Northgate wastewater treatment facilities, and their service areas. Increasing the number of treatment facilities brought under county management, such as phasing in the acquisition of the Endicott and Northgate facilities after county acquisition of the BJCJSB plant, does not infer that economies of scale will be realized by bringing the operational supervision of several treatment facilities under the managerial direction of a single entity. While there will probably be efficiencies gained through the consolidation of overhead and administrative support systems, the plants involved serve the wastewater treatment needs of distinctly different and separated communities. Only if the community sewer collection and distribution systems associated with each of the plants were interconnected with the others in order that all of the treatment facilities might be operated as an integrated system would there be some opportunity for the attainment

of scale economies. Such economies might be realized, for example, by shifting flows among plants to take advantage of capacity surpluses, or to take advantage of the differential cost-effectiveness of individual plants at different times of the day or week, or at different seasons.

3. Create a county sewer district under the provisions of Article 5A of the Municipal Law by resolution of the County Legislature as the institutional basis for managing the BJCJSB treatment plant and appurtenant facilities. Include in the resolution provision for creation of a Commission or Board of Directors of the Sewer District which would oversee and govern its operations, providing for representation of the interests of all municipalities served by the District on such governance entity. Define the district to include the sewered and developed areas of those municipalities in the county currently served by the BJCJSB plant, with provision in the resolution for phased expansion of the district as described in No. 2 above.

4. Enact a county sewer ordinance that would define and govern all operational objectives and practices of the new county Sewer District, and specify the responsibilities of municipalities and individual customers served by the county District.

5. Finance operation and maintenance costs of the District, including debt service, through a system of user charges. New debt would be issued or encumbered by County government, but financing the cost of debt service would be the responsibility of the Sewer District through charges to its users.

6. Invite proposals from qualified private firms to: operate and maintain the BJCJSB facility, and later the Endicott and Northgate plants; to control and manage the key interceptors and CSO[1-3] remediation programs attendant to each plant; manage associated I and I and industrial pretreatment programs; and share responsibility for regulatory compliance associated with each facility with the new county District.

7. Evaluate early provision of additional primary and secondary treatment capacity needs at each plant to accommodate increased near term wastewater flows from member municipalities and prospective new industrial, commercial, and residential growth that could be served by those facilities.

8. Revise existing inter-municipal contracts to eliminate anomalies, and to clarify terms and conditions.

The recommendation to move towards a county wastewater system and to begin with the acquisition of the BJC plant, is dependent on successfully concluding negotiations between the county, the plant owners and the other municipalities that are currently

[1-3] CSO or combined sewer overflow is typically caused by runoff generated after a heavy rainfall. The high volume of stormwater and sewage flow in the combined sewer will exceed the capacity of the sewer collection system and overflow from various relief chambers [hence the term CSO] to rivers and streams. Sewage discharged without treatment to the river is a source of biological, chemical and aesthetic pollution.

served by the plant The impacts of a transfer of plant ownership and operation to the County, on its face, are much more favorable to the outside municipalities, and to the county as facilitator of economic growth in the county as a whole, than they would be to the current plant owners. Since it is clear that the transfer of ownership could only take place with the consent of the owners, the challenge is to arrive at an adequate incentive package that is satisfactory to all parties involved and within the framework of what the law permits.

If arrangements can not be agreed to for expanding the sewer systems of the outlying communities, the BJCJSB may agree to allow an expansion of one portion of the outlying system, if another portion is removed from the BJCJSB service area and connected to another WWTP. Thus, there would be no net increase in the size of the outlying service area tributary to the BJCJSB WWTP. The county government would probably have to provide a strong management role to implement such changes, which are outlined below:

1. A portion of the Vestal wastewater presently treated at the BJCJSB WWTP could be diverted to the Endicott WWTP. This change may be possible for the Twin Orchard and adjacent areas of Vestal, in which the sanitary sewers drain to pump stations. In order to implement the change, a new force main would have to be constructed to connect with the area to the west, possibly at the Imperial Woods Pump Station. In addition, additional I and I control within the Vestal sewer system would be needed, so that the Endicott WWTP would not be overloaded during wet weather. All, or a portion, of the cost for these changes could be paid by another locality wishing to construct new sewers into the BJCJSB system. One such possibility would be payment by the county in order to obtain public sewage treatment for the county landfill and airport and the surrounding Airport Road area. It is unlikely that the change with the Vestal sewer system, when viewed in isolation, would ever be cost-effective against simply allowing the BJCJSB service area to expand. However, as an alternative to constructing new satellite WWTPs to provide needed service, the change may be economical.

2. The site of the Northgate WWTP in Chenango is now fully developed, with a significant portion of the space being used for sludge composting. Without the composting, the site appears to have ample room to increase capacity by 50% with the addition of another SBR unit, chlorine contact chamber expansion, and upgrade or expansion of the digester and thickener. Immediately across the Chenango River, the Town of Fenton has been unable to obtain permission from the BJCJSB to expand its sewer system. Fenton has a large amount of agricultural land, and there is at least one commercial composting operation, that, while inactive, is reportedly still permitted. A solution to the problems faced by both towns would be for Fenton to divert all of its wastewater across the Chenango River to an expanded Northgate WWTP. Chenango would dismantle the composting structures, and truck dewatered sludge to a site in Fenton for composting. Chenango would benefit by eliminating a potential source of odor and having an enlarged WWTP that could service presently unsewered areas of

the town. Fenton would benefit by allowing the town to enlarge its collection system, and avoiding the need to have its wastewater pumped at the Port Dickinson pump station. Fenton's wastewater would instead flow by gravity through a double-barrel siphon beneath the Chenango River. Partial funding for the construction could be available from another outlying community, if the BJCJSB were willing to allow expansion of one portion of the outlying collection districts, in exchange for eliminating the Fenton contribution. Involvement by the county government would probably be needed to facilitate the exchange. As is the case for Vestal, this arrangement would not be cost-effective in comparison to expansion of the BJCJSB service area. The arrangement would be considered as a backup to the preferred approach of expanding the regional system.

Including Small Communities in a County Sewer District

We have considered whether smaller communities like Deposit, Whitney Point and the Village of Windsor might beneficially be included in a county sewer district. That district would constitute, initially, the BJCJSB plant and its service area, with subsequent phasing into the district the Endicott and Northgate plants and their respective service areas. Such a county district would be in a position, as a single organization, to serve the wastewater treatment needs of the majority of the sewered population of the metropolitan region of Broome County, as well as owning the infrastructure capacity or potential and the management capability to meet the needs of future industrial, commercial and residential growth in the metropolitan area.

Smaller communities that are remote from the metropolitan region confront significant issues in financing their wastewater treatment needs in ways that are affordable to their residents. The per capita debt burden that each would assume to build or upgrade the treatment capacity needed to serve its currently sewered or prospectively sewered population is, in the view of the local leadership of these communities, onerous. County government should actively partner with each small community to jointly seek grants to help finance each of their sewage treatment infrastructure requirements. We believe this approach is the most equitable and efficient way for the county to help these small communities address their wastewater needs.

It may be plausible, however, to include some or all of these small communities in a county sewer district (several non-contiguous parcels of a single district, or a multiple county district), should the county decide to proceed with formation of the initial district as we have recommended. The small community districts or parcels could be added to it over time, depending upon the preference or option of those communities. The district would finance, construct, and manage the treatment facilities serving these communities. There may be opportunities for creative or more efficient financing of the small community wastewater infrastructure requirements by a county sewer district that would, combined with some grant or non-repayable funds, increase their affordability to local residents. Such creative financing might include the adoption of average cost pricing as the basis for rate design by the county district. This would entail combining the debt service and O&M costs of all of the sewer district’s treatment plants, and billing all users

for their respective usage at each plant an average price sufficient to recoup the sewer district's total revenue requirements for each billing period.

The county may wish to consider establishing such a multiple district system that would include small communities as it proceeds with the implementation of our primary recommendations.

CURRENTLY UN-SEWERED AREAS

Nearly 30 % of the residential and small business establishments in Broome County are not connected to public sewer systems. They rely instead on individual on site treatment methods for wastewater disposal, predominantly septic tanks and leach fields, or where soil conditions are poor, on small lagoons, sand filters, and mechanical aeration devices.

Residents and small businesses in nine of the fourteen Towns in the county, most of them in the northern and easternmost reaches of the county, rely entirely on these methods to dispose of their sanitary wastewater. Even in the more remote and sparsely settled portions of the densely developed southern and south-central municipalities, parts of which are already sewered, residents and small business establishments rely on these on-site methods for disposal of their sanitary wastewater. For economic and financial reasons, most of these properties will not be able to install sewer systems that convey their wastewater to central treatment facilities.

Inadequate design or maintenance of on site systems can cause serious environmental and public health problems in neighborhoods and communities. While some property owners are diligent in maintaining systems properly, such as pumping them out regularly and maintaining leach fields in good working order, many others are not.

On-site systems are causing serious environmental and public health problems in several specific areas of the County. The areas are identified in Table 1-2.

CONCLUSION

The Broome County Health Department is responsible by State Law for providing oversight and regulation of on site wastewater management systems in the county. There is no question, therefore, about whether Broome County government has a role in this aspect of wastewater management in the county, but only whether the exercise of that

Table X-2
Identified Non-Sewered Problem Areas

Problem Area	Description of Problem (Poor soil, small lots, surface discharges, etc.)	Approx No. of Homes	Other Comments on Area
Whitney Point (V)	Poor soils, Small Lots, Surface Discharges	360	Funding for a sewer system has been secured
West Windsor, Windsor (T)	Poor soils, Small Lots, Surface Discharges	260	
Windsor (V)	Poor soils, Small Lots, Surface Discharges	300	
Deer Lake, Windsor (T), Sanford (T)	Poor soils, Small Lots, Surface Discharges	100	
Laurel Lake, Sanford (T)	Poor soils, Small Lots, Surface Discharges		
Blueberry Lake, Sanford (T)	Poor soils, Small Lots, Surface Discharges		
White Birch Lake, Windsor (T)	Poor soils, Small Lots, Surface Discharges		
Beaver Lake, Windsor (T)	Poor soils, Small Lots, Surface Discharges		
Roads leading to the urban core, which are becoming development corridors for residential uses.	Poor soils, Small Lots, Surface Discharges New construction is large lots with sand filters/fill systems. Usually a sand filter with a discharge trench to a roadside ditch.	Unknown but could be estimated.	
Fenton (T)	Older Systems, failing due to saturation		
Kirkwood (T) (Bell School Area)			A petition circulated recently among residents of that area resulted in a 56 % vote in favor of sewering.

role is adequate and sufficient. Our conclusion is that the program is wanting, and could generate better results by the county assuming a more proactive role as described below.

FINDINGS

This conclusion is based upon the following findings:

1. Failing or improperly maintained on site systems are producing serious environmental and public health threats in at least nine specific areas of the county. The County Health Department does from time to time, as resources permit, perform surveys and provides technical services to homeowners. There is no organized program in place to help the residents of these areas work collectively to address their problem.

2. However, it does not engage in a program of consistent proactive monitoring of all on-site systems in the county. Because of limited resources, the Department only responds to complaints. Serious on site problems and failing systems other than those identified to us in this study may exist elsewhere in the county.

3. There are no comprehensive records of information about the condition of on site systems throughout the county, and no system in place to develop and keep such records. The Broome County Health Department has records on many but not all on site systems throughout the County.

4. Residential and commercial growth in urban corridors could lead to future on site wastewater problems unless policies are instituted by appropriate municipal authorities to prevent them.

5. Homeowners, inspectors, realtors, code enforcement officers, and municipal officials do not have adequate information systematically made available to them to understand the design, installation and proper maintenance of on site systems.

Recommendations

Our findings with respect to on site wastewater management systems in the county, as well as examining precedents in Cayuga County and in the Town of Cazenovia, New York, prompt us to recommend that the following measures be instituted by the Broome County Health Department.

1. Schedule mandatory inspection of all on site wastewater treatment systems in the county: conventional systems on a five year cycle; systems with mechanical or pumping features on a three year cycle; systems that discharge to the surface annually. Provide for the contractual employment of non-Health Department employees, certified and trained by the Health Department, to conduct on site system inspections under Health Department oversight.

2. Assure that an adequate number of hearing officers are available to carry out efficient and effective enforcement procedures.

3. Expand the existing county's GIS system to include up-to-date records of all on site systems, identified by tax parcel, current owner and change of owner, record of inspections; corrective action taken; maintenance records submitted by septic tank pumpers, etc.

4. Engage in a continuous program of education and training directed at property owners, professionals working in the field, and municipal officials to promote awareness and understanding of the design, operation and proper maintenance of on site treatment systems.

5. Outsource the provision of technical information and services to property owners for the siting, design, and installation of on site systems to the extent possible.

6. Enact county legislation encouraging and providing for the creation of On Site Wastewater Management Districts to be instituted by voluntary petition of property owners and supervised by Town and County government.

7. Enact county legislation to require certification that at the time of property sale the septic system is in good condition and working order, or that failing systems are upgraded or repaired, as a precondition of sale.

8. The county Health Department should institute a program to advise local zoning authorities of poor soil conditions that prevail in designated reaches of the urban growth corridors of the county where commercial development and large lot residential development proposals for small subdivisions that do not meet the State Health Department minimum 50- lot threshold for sewering will create septic related wastewater problems.

SECTION 2
BRIEF DESCRIPTION OF BROOME COUNTY

HISTORICAL OVERVIEW

The first settlements in Broome County occurred in 1785 in the valleys of the Susquehanna and Chenango Rivers, with some of the settlers being persons who had passed through the region during the Revolutionary War. However, it appears that missionaries from the Berkshires in Massachusetts and Litchfield Connecticut were in the area as early as 1753.

The County was created in 1806 from a larger Tioga County, which itself had been spun off from Montgomery County in 1791. At that time its boundaries were different from today and it was not until 1822 that it boundaries conformed to its current configuration.

As a result of a treaty with the Native Americans around 1787 a group of Massachusetts speculators purchased 230,000 acres covering a large area to the north of present day Binghamton. In its early years nearly two thirds of the settlers were from western Massachusetts and Connecticut. The City of Binghamton, located on the confluence of the two Rivers, was founded by William Bingham and was known in 1801 as Chenango Point. When the County was created a few years later it became the County seat and Binghamton was officially incorporated as a village in 1834. It was approved for re-incorporation as a city in 1867 by the State Legislature.

Even before the County was formed in 1806 certain towns were formed as early as 1791. The political boundaries of present day Broome County's 16 Towns and the City of Binghamton occurred in the 1890, when the Town of Dickinson was created from the northern portion of the Town of Binghamton. The current seven Village governments were formed between 1851, when Deposit was created in Sanford, to initially 1906 when Endicott was created in the Town of Union and then in 1920 when the Village of Union merged with Endicott. Along the way Lestershire, formed in 1901, changed its name to Johnson City in 1916.

At its establishment in 1806, Broome County was farming oriented, as was most of upstate. But, by the end of the Civil War its core, Binghamton, became a manufacturing center. Cigar manufacturing started in the 1870's and by 1890 over 50 factories employed 5,000 people; the City ranked second nationally to New York City in this industry. At the end of the 19th century industrialization become the dominant engine of growth.

During the first half of the 20th Century there was the manufacturing boom, with Census of Population data showing the number of county residents employed in manufacturing growing from 8,500 in to 20,000 in 1930, and even through the Depression years to almost 28,000 in 1940. A good deal of this growth can be attributed to the dynamic growth of the Endicott-Johnson shoe company, which traces its roots back to 1854. In

that year Lester Boot Company was formed in Binghamton, but soon moved to its new company town, Lestershire (see above).

Another company started in 1889 in Binghamton as the Bundy Manufacturing Company, now in the 21st century a "blue chip" global powerhouse, fueled Broome County's growth in the Post WW II era until the early 1990's. In 1914 Thomas Watson Sr. joined this evolving enterprise and in 1924 its name was changed to IBM. [2.1]

Table 2-1
Population Trends In Broome County By Municipality 1980-2000

	2000 Population	1990 Population	1980 Population	1990-2000 Percent Change	1980-2000 Percent Change
Barker	2,738	2,714	2,244	0.90%	22.01%
City of Binghamton	47,380	53,008	55,860	-10.60%	-15.18%
Binghamton (Town)	4,969	5,006	5,007	-0.70%	-0.76%
Chenango	11,454	12,310	12,233	-7.00%	-6.37%
Colesville	5,441	5,590	4,965	-2.70%	9.59%
Conklin	5,940	6,265	6,204	-5.20%	-4.26%
Dickinson	5,335	5,486	5,594	-2.80%	-4.63%
Port Dickinson (Village)	1,697	1,785	1,974	-4.90%	-14.03%
Fenton	6,909	7,236	7,400	-4.50%	-6.64%
Kirkwood	5,651	6,096	5,834	-7.30%	-3.14%
Lisle (Town)	2,707	2,486	2,039	8.90%	32.76%
Lisle (Village)	302	361	357	-16.30%	-15.41%
Maine	5,459	5,576	5,262	-2.10%	3.74%
Nanticoke	1,790	1,846	1,425	-3.00%	25.61%
Sanford	2,477	2,576	2,635	-3.80%	-6.00%
Deposit Village (Part)	835	937	1,017	-10.90%	-17.90%
Triangle	3,032	3,006	2,618	0.90%	15.81%
Whitney Point (Village)	965	1,054	1,093	-8.40%	-11.71%
Union	56,298	59,786	61,179	-5.80%	-7.98%
Endicott (Village)	13,038	13,531	14,457	-3.60%	-9.82%
Johnson City (Village)	15,535	16,578	17,126	-6.30%	-9.29%
Vestal	26,535	26,733	27,238	-0.70%	-2.58%
Windsor (Town)	6,421	6,440	5,911	-0.30%	8.63%
Windsor (Village)	901	1,051	1,155	-14.30%	-21.99%
Total County Population	**200,536**	**212,160**	**213,648**	**-5.50%**	**-6.14%**

In 1810 the population of the then new Broome County was over 8,100 and it grew to over 14,300 in 1820. By 1900 the County's population was 69,000 and by 1930 it had

more than doubled to 147,000 people. The population continued to grow and reached 185,000 in 1950 and peaked at 222,000 in 1970.[2.2]

DEMOGRAPHIC AND ECONOMIC TRENDS

Census 2000 data shows a population of 200,536, down from over 212,000 in 1990 and almost 214,000 in 1980.

The key demographic and economic trends and characteristics for Broome County and its municipalities that are germane to the study of its municipal and sewage systems, their capacities and the issue of onsite septic systems can be summarized in the following findings.

Demographics

1. While almost all of the County's municipalities experienced overall population declines over the past 5-10 and 20 years-except for four small rural towns- the greatest losses, which have been even longer term, have occurred the core Tri-Cities. In 1950 the City of Binghamton and the villages of Endicott and Johnson City accounted for 65 percent of the County's population. By 1980 their share had dropped to 41 percent and in 2000 it was 37 percent. [3] (See Table 2-1).

2. Total population changes by itself, however, masks significantly different demographic changes over the past two decades in number of households, which are likely more important factors in sewage planning and capacity issues. A number of municipalities -nine by count, with many small rural towns- have had relatively rapid growth in the number of households. Still others –five by count- have had more modest growth while the City of Binghamton and all of the five villages and one town have experienced declines also in household counts. (See Table 2-2)

3. Virtually all of the high population density municipalities in the County are served by sewers. The important exception is the Village of Whitney Point. All of the medium density municipalities have areas that have sewers, while two Villages are not sewered. Almost all of the low-density rural towns do not have sewers, with two having very limited sewer services. (See Table 2-3).

Table 2-2
Relative Changes in Total Households in Broome County by MCD, 1980-2000

Rapid Growth*	Moderate Growth*	Stable or Decline
Barker	Colesville	City of Binghamton
Town of Binghamton	Conklin	Dickinson
Chenango	Fenton	Port Dickinson
Town of Lisle	Sanford	Village of Lisle
Maine	Vestal	Village of Deposit
Nanticoke		Whitney Point
Triangle		Endicott
Union exc. 2 Villages		Johnson City
Windsor		

*Rapid growth has been defined as MCD's having three times or more the growth rate of 5.1 percent for the overall County between 1980-2000. Moderate is positive growth, but less than three times the County rate.

Source: Derived from data from the US Censuses of Population provided by the Broome County Department of Planning and Development.

4. Data on building permits for new residential construction provided by the Broome County Department of Planning and Development. affirms the decline in new residential development in the core Tri-Cities municipalities. In 2000 these areas accounted for only 14 percent of these permits; in 1990, 30 percent and in 1980, 46 percent. Many rural towns, particularly in northern Broome have had, surprisingly, a relatively large number of building permits, with many appearing to be for mobile homes.

Economic Trends

Broome County, like almost all of the upstate areas of New York, has over the past decade since the national recession in the early 1990's suffered economic difficulties. Longer term, its traditional and key manufacturing sector economic base had eroded significantly. IBM, the key to its economic development and health in the post WW II Era, and other very important high tech industries have all either downsized, closed or left the County.

In 1980 the County had almost 32,800 jobs in its manufacturing sector, which represented 34 percent of all wage and salary jobs; by 1990 it was down to about 28,400 and in 2000 to 18,300, representing only 18 percent of jobs. These mostly high paid jobs have been replaced by jobs in industries that pay less on average. The combined wholesale, retail, finance, insurance, and services sectors, which in 1980 accounted for 39 percent of all jobs, rose to 61 percent in 2000. (See Appendix E)

Table 2-3
Municipal Population Densities
And Sewer Areas In Broome County

High Density* **Partially Sewered**	**Medium Density*** **Sewered**	**Low Density*** **Partially Sewered**
City of Binghamton	Town of Binghamton	Barker
Port Dickinson	Chenango	Colesville
Village of Deposit	Conklin	Town of Lisle
Whitney Point	Fenton	Maine
Union	Kirkwood	Nanticoke
Endicott	Vestal	Sanford
Johnson City	Village of Windsor	Triangle
	Dickinson	Windsor
	Village of Lisle	

Notes:
* High density = Over 800 persons per square miles;
* Medium density = 120 to 800 pps;
*Low density = under 120 pps.
** Completely sewered
*** Reflects unincorporated areas of Town.
**** Very limited areas sewer service in these towns.
NS = Non-sewer service
PS = Partially sewer service

Sources: 2000 population data from Table 2-1. Land areas from the Comptroller's Special Report on Municipal Affairs for New York State, July 2000. Information on sewer service status from The Hudson Group research.

Not only has the economic structure shifted, but the total number of wage and salary jobs in the County has declined significantly since 1990, a major factor in the substantial decline in overall county population the past decade.

Of importance to the expansion, management and operation of the municipal sewage systems is the changing geographic patterns that have occurred in location of economic activity, which include the following findings:

1. The City of Binghamton has absorbed a large share of the losses in manufacturing over the past few decades. The 1972 Census of Manufacturing shows 12,100 of the County's 26,900 manufacturing jobs were in the City (41%). By the latest Census, in 1997 the City had but 6,000 of the 20,400 jobs recorded for the County (29%). (See Table 2-4). Although not available from the Census data, there has been some significant industrial growth in areas such as Kirkwood, Conklin and parts of Union.

2. Retail trade has also shifted from the City. According to the Economic Census data, in 1977 the City had 705 retail establishments employing 5,200, but by 1992 these figures had dropped to 375 and 4,300, respectively. The City share of retail employment dropped from 37 percent to 25 percent. (See Table 2-5).

Table 2-4
Manufacturing Trends in Broome County and City of Binghamton, 1972 –1997

Year	Broome County		City of Binghamton		City as a Percentage of County Employment
	Number of Establish-ments	Employment	Number of Establish-ments	Employment	
1997*	242	20,429	79	5,994	29%
1992	254	25,900	90	8,700	34
1982	254	33,400	110	11,900	35
1977	276	30,700	116	8,400	27
1972	-	29,600	-	12,100	41

* Information for 1997 reflects the shift from the historic use of the SIC classification system to the federal government adopted NAICS system. However, at the overall manufacturing level it does not appear that the change significantly affects trend analysis.

Source: US Bureau of the Census, Censuses of Manufacturing for selected years, 1997 and 1992 complied from the Census Bureau Web Site and prior years hard copy for New York State volumes located at the New York State Library in Albany.

3. For the core Tri-Cities municipalities, from 1977 to 1992 their share of County retail trade employment declined from 65 percent to 58 percent. However, in that period major shopping centers were developed in Johnson City and its retail jobs grew from 2,000 to nearly 4,100 (See Table 5).

4. The scattering of retail trade, other commercial businesses and institutional facilities outside of the core Tri-Cities can be documented by information on building permits for all nonresidential construction. In 1980 the Tri-Cities accounted for 46 percent of these permits in the county. By 1990 they were down to 30 percent and to only 14 percent in 2000, based upon information provided by the County Department of Planning and Development. In the past ten years significant amount of retail as well as office development has occurred in Vestal and Town of Chenango, and to a lesser degree in places like Dickinson.

THE OUTLOOK: SEWAGE NEEDS AND ECONOMIC GROWTH

While Broome County has experienced economic difficulties and general population declines in almost all jurisdictions during the past two decades, there have been some pockets of development. New households have been added in many towns and some suburban commercial development has occurred in the towns surrounding the Tri-Cities. There has been a smattering of individual home building in some of the rural municipalities to the north of the Tri-Cities and less, but some, in the eastern end of the County.

It is common knowledge that Binghamton University plans major additions to its residence capacity, a new field house, and other on-campus improvements, all of which will generate wastewater requiring treatment. The University, located in the Town of Vestal, is currently a customer of the BJCJSB plant; all of its wastewater flows to and is treated by that facility. Unless new or alternative wastewater treatment infrastructure is made available, additional capacity will be needed at the BJCJSB plant in the near future to support the University's growth

There are no official demographic and/or economic projections for Broome County, or any of its sub-areas. However, over the next ten and twenty years it is difficult to expect any reason for any general rapid growth and development. National and regional economic forces and public policies might, however, help reverse the severe declines experienced by all of upstate New York in recent years.

If some degree of growth can happen in certain areas of the County, the presence of adequate public infrastructure, water and sewers, transportation and other utilities is absolutely critical to its achievement. The lack of capacity for new or expanded users of certain municipal sewage systems in currently sewered areas, such as those served by the Binghamton-Johnson City JSB waste treatment plant, would be a strong disincentive for economic development or redevelopment.

GEOLOGY, TOPOGRAPHY AND HYDROLOGY[2.4]

Topography

Broome County is situated in the Appalachian Plateau Province of the Appalachian Highlands of southern New York. Geologic folding, glaciation, and stream action have produced a landscape of varied topographic features. Hills are gentle and rolling with elevations ranging from 750 feet to 2,000 feet above mean sea level in the area. The topography has a slightly northeast to southwest orientation.

The lowest elevations and most level terrain are found along the Susquehanna River Valley while the highest elevations and most rugged terrain are found in the Delaware River Valley in eastern Broome County. Approximately 13% of the land in Broome

County has slopes of 0-5%, 60% has slopes of 2-15%, and 27% has slopes of greater than 15%.

Table 2-5
Retail Trade Trends in Broome County and for Selected Municipalities, 1992-1977*

Year	Broome County		City of Binghamton		Village of Endicott		Village of Johnson City	
	Estab.	Employ.	Estab.	Employ.	Estab.	Employ.	Estab.	Employ.
1992	1,323	17,448	375	4,343	189	1,801	244	4,081
1977	1,878	13,641	705	5,182	273	1,787	232	2,000

* 1997 data is available and has been collected. However, because of the shifts to the NAICS industry classification system, (see Table 2-4), it does not appear that using this data would provide reasonable trend analysis.

Source: US Bureau of the Census, Economic Censuses for selected years, 1992 from the Census Bureau Web Site and 1977 from the hard copy from the State Library.

Geology

There are three major geologic formations in the area: sedimentary bedrock, unconsolidated Pleistocene deposits, and recent Holocene deposits. Consolidated sedimentary bedrock materials of sandstone, siltstone, and shale were originally laid down as sand, silt, and mud during the upper Devonian Period in geologic history. The bedrock is nearly horizontal, dipping slightly toward the south. Beneath the Susquehanna River Basin, shale predominates and is interspersed with beds of siltstone and sandstone. The sandstone content of the bedrock increases toward the eastern and southern sections of the area. The overlying unconsolidated deposits are derived primarily from these parent bedrock materials.

Dominant Pleistocene deposits in the county include glacial till, and glacial outwash. The till is primarily derived from bedrock materials and is composed of clay, silt, and sand, which are compact, unsorted, and unstratified. Loose, well -sorted stratified glacial outwash (material deposited by glacial meltwaters) consisting primarily of sand and gravel can be found nearly everywhere in the major valleys. The average thickness of the outwash deposits is 10 to 40 feet. The most extensive outwash with a thickness of more than 40 feet occurs in the Binghamton-Endicott area. The outwash supports public water supply wells with reported yields of 1000 gpm.

The most recent geological action includes numerous alluvial, marsh, and swamp deposits. These Holocene materials are distributed throughout the area.

There are three main categories of soil in the county: soils developed on glacial till, soils developed on glacial outwash, and soils developed on recent alluvium. Glacial till soils are very strongly leached and may not have a fragipan. A fragipan is a horizon in the

subsoil that is very tightly packed and slowly permeable to water. The occurrence of a fragipan in the county poses severe constraints to the successful deployment to standard on-site septic systems.

Hydrology

The two major river systems that drain the area are the Susquehanna and Delaware Rivers. Most of Broome County is drained by the Susquehanna River and its tributaries; approximately 60 square miles in eastern Broome County are drained by the Delaware River.

In eastern Broome County, the Susquehanna River flows north to south until it crosses into Pennsylvania where it begins to flow in a generally east to west direction recrossing the New York-Pennsylvania border blow Conklin in Broome County. The Chenango River converges with the Susquehanna in the City of Binghamton. Numerous large streams and creeks including Nanticoke Creek flow into the Susquehanna as it proceeds west. At Vestal, the river's MA7CD10 flow (Minimum Average 7 Consecutive Day 1 in 10 year flow) upon which wastewater plans are derived is 330 CFS.

WATER QUALITY CONDITIONS

Broome County is primarily drained by the Susquehanna River and its tributaries. A small portion of the eastern end of the county drains into the Delaware River Basin. According to the NYS Department of Environmental Conservation most of the water quality problems in the county tend to be the result of agricultural activities and other non point sources of pollution.

Point source pollution issues in the county are primarily related to ammonia and nitrogen compounds discharged from large plants to the Susquehanna River. High loadings of nitrogen compounds are a major concern in the management of Chesapeake Bay, the receiving body for the waters of the Susquehanna River.

Combined Sewer Overflows in the more urban Binghamton-Endicott-Johnson City area are cited as causing aesthetic problems and affecting aquatic life. DEC specifically named the following Water Quality Impacted/Threatened Segments in it latest statewide report on water quality.

Table 2-6
Priority Water Bodies List (Water Quality Impacted/Threatened Segments)

Stream	Stream Class	Primary Use Affected	Problem Severity	Primary Pollutant/ Cause	Primary Source
Brooks Creek	C	Aquatic Life	Impaired	Metals	Landfill/Land Disposal
Phelps Creek	C	Aesthetics	Stressed	Silt/Sediment	Construction
Whitney Point Res.	C	Aquatic Life	Impaired	Nutrients	Agriculture
Nanticoke Creek	C(T)	Aquatic Life	Stressed	Silt/Sediment	Streambank Erosion
Susquehanna River	A	Public Bathing	Impaired	Pathogens	Municipal

Source: NYS Department of Environmental Conservation, New York State Water Quality 2000.

SECTION 3
CURRENT WASTEWATER MANAGEMENT SYSTEMS

CURRENTLY SEWERED AREAS

Wastewater Treatment Plants in Broome County

Wastewater treatment plants Broome County primarily serve the Binghamton metropolitan area with the exception of several small systems in the eastern part of the county. Table 3-1 describes these wastewater treatment plants and the areas served. A description of each plant is contained in Appendix F.

Table 3-1
Wastewater Treatment Plants in Broome County[3-1]

PLANT	AREA SERVED (All or Parts)
Binghamton-Johnson City Joint Sewer Board	Binghamton (C), Binghamton (T), Conklin (T),Fenton (T), Kirkwood (T),Union (T), Vestal (T), Dickinson (T), Johnson City (V), Port Dickinson (V)
Village of Endicott	Endicott (V), Union (T), Vestal (T
Town of Chenango: Northgate	Sewer Districts 4, 8 and 9
Town of Chenango:Pennview	Sewer District No. 10
Village of Deposit	Deposit (V)
Town of Sanford: Oquaga Lake	Oquaga Lake in Sanford (T)
Town of Windsor: Pine Valley Sewer District No. 2	Pine Valley Sewer District No. 2
Town of Fenton Porter Hollow Road Sewer District	Porter Hollow Road Sewer District
Town of Binghamton Parkwood Sewer District	Parkwood Sewer District

UN-SEWERED AREAS

Description of Area Served and Population

Almost 30% of the housing units in Broome County are not connected to public sewers and rely on individual on site home treatment and disposal systems (Table 3.2). Nine of the 14 towns in the county rely entirely on non-public systems for wastewater disposal. In most of the unsewered areas, housing density is low, public sewers are not feasible and individual on site wastewater disposal is the only option.

[3-1] Table does not include privately owned Transportation Corporations providing wastewater treatment (Chenango Heights Subdivision in the Town of Chenango and Springbrook Lake in the Town of Windsor).

Table 3-2 1990 Broome County Census Data

POPULATION	212,160
TOTAL HOUSING UNITS	87,969
SEWAGE	
PUBLIC SEWER	62,897
SEPTIC TANK	24,650
OTHER MEANS	422
WATER SUPPLY	
PUBLIC SYSTEM	66,808
DRILLED WELL	19,121
DUG WELL	1,135
OTHER SOURCE	905

Projected Changes in Population, Commercial and Industrial Development

Significant growth in population is not expected to occur in most of the non-sewered areas of the county. Following national trends, some growth can be expected to occur along highways leading into the urban areas as urban resident and small commercial operations move into the countryside. There is some potential for commercial development along State Rt. 17/I86 east of Binghamton.

Types and Methods of Wastewater Disposal

Most non-sewered areas use conventional septic tanks and leach field for wastewater treatment and disposal. In some cases, because of poor soil conditions, other methods are used. They include lagoons, sand filters, and mechanical aerations treatment devices. Most systems installed in the last three decades are alternative systems.

Description of Operation and Maintenance

Conventional septic tank and leach field require minimal operations and maintenance. Pumping out the solids from the septic tank periodically and an inspection of the leach field to assure that it is operating properly is normally all that is requires of a properly designed and installed system. There are no data on how often systems in Broome County are pumped out.

Lagoons, sand filters and mechanical systems require a greater maintenance effort. The effort required depends on the complexity of their design. Except for aerobic (mechanical) systems for which the Health Department requires the homeowner to have a maintenance contract no data exist on how such systems are maintained.

There are several areas (Table 3.3) in the county where housing density, poor soils and inadequately designed, installed or operated individual wastewater disposal systems are causing environmental and or public health problems. Small lots do not have replacement area to allow system expansion or the desirable resting period. Housing density in other non-sewered areas is low and reported problems are minimal.

There are several areas (Table 3-3) in the county where housing density, poor soils and inadequately designed, installed or operated individual wastewater disposal systems are causing environmental and or public health problems. Housing density in other non-sewered areas is low and reported problems are minimal.

Regulatory System

Insuring the proper design, insulation and operation of individual on site wastewater disposal systems is primarily the responsibility of the County Health Department. Program guidance to the county and design criteria for on site wastewater disposal systems are provided by the State Health Department. When discharges from individual systems cause water quality problems or when public sewer systems are being considered, the State Department of Environmental Conservation becomes involved. Because of some conflicting regulations and administrative problems, the relative roles and relationship between the State Health Department and the Department of Environmental Conservation are currently under review. The federal government has shown an increasing interest in this area through guidelines, sponsored research and studies and demonstration grants.

Many of the existing problems with on site systems occurred prior to the Broom County Health Department and are due to are due to poor siting and lack of adequate regulatory control. They are older developments that pre-dated or used older New York State Department of Health Standards, were built on marginal soils, and were in many cases originally intended for seasonal use only. As with most counties, the Broome County Health Department has lacked the resources to fully implement a proactive regulatory and management program. Resource constraints have limited the Health Department in the areas of education and training, regular inspection, enforcement, providing county specific design standards, providing technical services, and monitoring and record keeping. Because of these limitations, the problem areas shown in Table 3.3 persist. Unless changes are made, conditions in these problems areas can be expected to worsen

Impediments to Installing Sewers

Because of low housing density, except for the problem areas listed in Table 3.3, public sewers are not a cost effective option. Even in the problem areas, cost, lack of understanding and a reluctance to change limit the possibility of public sewers.

Table 3-3 Identified Non-Sewered Problem Areas

Problem Area	Description of Problem (Poor soil, small lots, surface discharges, etc.)	Approx No. of Homes	Other Comments on Area
Whitney Point (V)	Poor soils, Small Lots, Surface Discharges	360	Funding for a sewer system has been secured
West Windsor, Windsor (T)	Poor soils, Small Lots, Surface Discharges	260	
Windsor (V)	Poor soils, Small Lots, Surface Discharges	300	
Deer Lake, Windsor (T), Sanford (T)	Poor soils, Small Lots, Surface Discharges	100	
Laurel Lake, Sanford (T)	Poor soils, Small Lots, Surface Discharges		
Blueberry Lake, Sanford (T)	Poor soils, Small Lots, Surface Discharges		
White Birch Lake, Windsor (T)	Poor soils, Small Lots, Surface Discharges		
Beaver Lake, Windsor (T)	Poor soils, Small Lots, Surface Discharges		
Roads leading to the urban core, which are becoming development corridors for residential uses.	Poor soils, Small Lots, Surface Discharges New construction is large lots with sand filters/fill systems. Usually a sand filter with a discharge trench to a roadside ditch.	Unknown but could be estimated.	
Fenton (T)	Older Systems, failing due to saturation		
Kirkwood (T) (Bell School Area)			A petition circulated recently among residents of that area resulted in a 56 % vote in favor of sewering.

SECTION 4:
VIEWS OF COUNTY AND LOCAL OFFICIALS
ON CURRENT WASTEWATER MANAGEMENT SYSTEMS

INTRODUCTION

Personal interviews were conducted with local officials in the following communities during July, August and November, 2001:

City of Binghamton
Town Of Binghamton
Town of Chenango
Town of Conklin
Village of Deposit
Town of Dickinson
Town of Endicott
Town of Fenton
Village of Johnson City
Town of Kirkwood
Village of Port Dickinson
Town of Sanford
Town of Union
Town of Vestal
Village of Whitney Point
Town of Windsor

While issues are discussed in more detail in subsequent sections, following is a summary of the more important concerns expressed during the interviews. Issues reserved for a more complete discussion in Section 5 are Inflow and Infiltration (I andI) and compliance with state and federal regulations. This discussion is divided into the following sections:

*Binghamton-Johnson City Joint Sewage Board Service Area
*Village of Endicott WWTP Service Area
*Other Sewered Areas
*Non-sewered Areas

BINGHAMTON-JOHNSON CITY JOINT SEWAGE BOARD SERVICE AREA

The Binghamton-Johnson City Joint Sewage Board (BJCJSB) WWTP serves all of the City of Binghamton, all of the villages of Johnson City and Port Dickinson, and portions of the unincorporated areas of the towns of Union, Vestal, Binghamton, Kirkwood, Dickinson, Fenton, Chenango, and Conklin.

Officials of the city of Binghamton, the village of Johnson City and the

outlying towns and villages under contract to the for treatment of wastewater at the BJC JSB wastewater treatment plant discussed the issues of the regional nature of the facility, the governance structure, the allocation of treatment capacity at the WWTP, the differential rates charged to the outside users, the pervasive Inflow/Infiltration problems and other issues.

Position of the Village of Johnson City

The Village of Johnson City is joint owner (45.8 %) with the City of Binghamton (54.2.%) of the BJCJSB wastewater treatment plant. Operational management of the plant is governed by a six member Joint Board, and the Mayor has avoided interference with the Joint Board and its responsibility for efficient management of treatment plant operations. If there are problems or issues that need to be taken up with the owners, i.e. Binghamton and Johnson City, it is up to the Board to bring those to the attention of the owners for decision or resolution.

The village has undertaken a long-term, multi-year program to remedy its own I and I problem, as well as to separate its storm water system from the sanitary sewer system. These projects are undertaken as part of scheduled street renovation in the village, and are financed chiefly with village general funds

Mayor Lewis agrees with Mayor Bucci that the BJCJSB plant is not, a regional service facility; it is a facility intended, managed, and financed primarily to serve the needs of Binghamton and the Village of Johnson City. Regional service it not the responsibility of the two current owners. Providing wastewater infrastructure to support regional economic growth outside of Binghamton and Johnson City is not the responsibility of the current owners.

The Mayor would support a County buy-out of the interests of Binghamton and Johnson City in the B-JC plant, including assumption of the two owner's debt, to operate it as a regional facility. Expansion of that facility at the existing site could provide the capacity necessary to support future growth, providing the needed additional land could be secured from NYSEG.

Position of the City of Binghamton

The BJCJSB wastewater treatment plant was built in the early1960's to accommodate the wastewater treatment needs of the two owner
communities, which includes domestic wastewater as well as a significant amount of I and I. Mayor Bucci is on record that the BJCJSB plant is not the answer to providing wastewater infrastructure to support future economic growth in Broome County. A new plant needs to be built at another location to serve that purpose, and that is the responsibility of the County or some other entity. There is inadequate space at the BJCJSB plant site to accommodate more capacity. There have been assertions that if Binghamton fixed its I and I problem, there would be adequate capacity at the treatment facility to serve both future economic growth in the County as well as the expanding

treatment needs of outside users who are currently served by the plant. The City has been taking steps to address its I and I problems. The process is long term and expensive. It is also somewhat uncertain with respect to its ultimate effectiveness in curing the problem. In the meantime, the City as joint owner of the facility has a right to use installed plant capacity for its I and I flows as well as its sanitary wastewater. The City would probably not object to a County takeover of the treatment plant to regionalize its service function if Binghamton and Johnson City were adequately compensated, and if there is assurance that their respective interests in use of the plant's capacity were protected.

Position of Outlying Communities

The Towns of Binghamton, Chenango, Dickinson, Fenton, Union and Vestal and the Village of Port Dickinson all expressed dissatisfaction with current contractual arrangements with the BJCJSB and were strongly in favor of the county assuming a role in wastewater management.

The Town of Kirkwood would prefer to build its own treatment facility, although it cannot afford to do so without financial assistance.

A common issue expressed was the lack of direct control in the management and financing of the B-JC sewage plants, and particularly rate increases because of upgrades to the facility. Other concerns centered around the difficulty of accommodating economic expansion because of flow limitations. The Town of Fenton believes its development is severely hampered by an apparent moratorium on the creation of new sewer districts attendant to its service area established by the BJCJSB. While Fenton's agreement with the Joint Board includes provision for a capacity limit that would permit sending substantially more flow to the treatment plant than the town currently uses, the contractual limitation on the number of sewer districts authorized to Fenton effectively blocks any additional flow to the plant from that portion of Hillcrest that remains unsewered. Recently, the creation of additional sewer districts for the remainder of Hillcrest was not approved by the BJCJSB.

The BJCJSB plant has also been the cause of significant odors to neighboring residential areas on both sides of the river.

VILLAGE OF ENDICOTT WWTP SERVICE AREA

The Village of Endicott WWTP serves the village and portions of the towns of Union and Vestal.

Position of the Village of Endicott

The Mayor considers Endicott's wastewater treatment facility one of the village's greatest assets. The plant is wholly owned and operated by the village, and revenues generated from users served are cumulating a surplus (currently about $ 1.5 million) in the wastewater sinking fund. Rates charged are among the lowest in the County ($1.75 /

1000 gal). All decisions involving the plant are made by the Village Board. Outside users (Union and Vestal) do not participate in governance of the plant.

There is a significant I and I problem probably due to the age of the system. Endicott is currently undertaking a comprehensive assessment of its own I and I situation, and is financing a contractor to evaluate Union's.

The process to revise agreements with Union and Vestal is underway. Union and Vestal have no voice in treatment plant management, although revision of the agreements may provide them with some greater measure of involvement, perhaps an advisory one. The village considers that it is selling wastewater treatment services to Union and Vestal (at the same rate charged to village residents), but only as a service to them. The Mayor and the Village Board oppose full participation by outside users in governance decisions about the plant and its operation.

The Mayor is firmly opposed to a County takeover of the Endicott plant, or to the formation of a County sewer authority that would involve Endicott's plant and its operation. While there is unused capacity in the treatment facility under current service arrangements and flows, the Mayor and Village Board prefer to retain that capacity under village control to provide for future economic growth in the village.

Position of Outlying Communities

The towns of Union and Vestal expressed dissatisfaction with current contractual arrangements with the Village of Endicott.

The Town of Union is concerned that it has no voice in treatment plant management or operating policies. Residents of Union should have a say in setting the rates they are charged for this service, as well as in the policies governing operation and maintenance of the treatment facilities. This can only be achieved through a regionalized system in which Supervisor Cheevers advocates very strongly that the County government assume responsibility for all wastewater management in the County, and that all the communities served participate in its governance.

The Town of Vestal is concerned about lack of direct control in the management and financing of the Endicott sewage plant. Supervisor Starzak pointed out that Endicott had recently established an advisory "Committee of Six" which included representatives from the other towns whose sewers discharge to the Endicott plant.

OTHER SEWERED AREAS

Village of Deposit

The entire Village of Deposit which includes areas in both Broome and Delaware Counties is sewered. The system is 20 years old, and the village has the debt is due to be retired in 2014. Numerous improvements to the treatment system have been identified

which will require upgrades costing an estimated $ 4.5 million. The Mayor claims that an additional debt of $4.5 million is an amount that the village cannot afford because a large portion of the village population are either elderly or young children.

There are several significant economic development opportunities outside the village in the Town of Deposit, Delaware County. The village could extend sewers and collect charges from any new development, but these developments would not increase the village tax base. There have been discussions with elected representatives to try to obtain some funding from higher level government to finance the sewage treatment plant expansion. Mayor Hayes said that there should be a meeting between the Broome County Executive and the Chair of the Delaware Board of Supervisors to address possible cooperative measures to assist the village in financing improvements to the wastewater treatment plant. The Mayor also indicated his belief that any "excess" county funds, e.g.; from the tobacco settlement might be beneficially passed on to local governments like Deposit to help meet major capital expenditures

Town Of Sanford

Sanford has one sewer district serving Oquaga Lake This includes a sewage treatment plant which discharges to the lake outlet. There are no reported problems with this system.

Town of Chenango

Although a small portion of western Chenango is served by the BJCJSB system, service in most of the town is provided by 11 sewer districts and two wastewater treatment plants (Northgate and Pennview), which it owns and operates with town employees,

Supervisor Turna believes the excess capacity at Northgate and Pennview is sufficient to provide for forseeable future residential and commercial growth in the town. There are no industrial discharges to the treatment plants. No new sewer districts will be created.

The town has a problem with sludge management. All sludge generated in the town is composted and hauled to landfill in Pennsylvania. There is inadequate sludge holding/composting capacity at Northgate. The town is currently upgrading the composting system at Northgate to install comptainers that will improve compost quality and reduce odor.

According to Supervisor Turna, Chenango has experienced no significant problems with septic systems in its non-sewered areas. The town policy has been to wait for residents to petition for sewers, rather than to initiate oversight of septic system maintenance.

Town of Windsor

The town has two small sewer districts serving approximately 24 resident properties. Sanitary waste from these districts, Pine Valley # 1 and Pine Valley # 2, has been discharged to holding tanks. There is no main connection of any portion of Windsor's wastewater system to a full scale, permitted wastewater treatment facility. As discussed below under Unsewered Areas, there is a major need for additional sewering in the town, and efforts have been made to obtain grant funds without significant success.

UNSEWERED AREAS

Town of Sanford

With the exception of the sewer systems serving the village of Deposit and Oquaga Lake, the remaining portions of the town are unsewered, served by individual septic tanks. The Supervisor believes there are serious problems with septic systems in several lake communities in the southeastern part of the town which are important elements of the town's economy. He contrasted the deteriorating condition of the waters of these lakes' waters with the high quality of Oquaga Lake water. In his judgment, there is need for greater flexibility in applying County Health Department standards for septic systems retroactively to old existing systems and properties. He has asked the County Health Department to study the situation.

Supervisor Decker believes that a majority of the property owners around Laurel, Deer and Blueberry Lakes would approve the creation of septic districts for those lakes, and that they would agree to a modest annual assessment to help finance at least a portion of the cost of a program designed to remedy the septic pollution. If there are a significant number of failing systems, it could be an area for a septic district and that homeowners would agree to a modest annual assessment to help finance at least a portion of the cost of a program designed to remedy pollution from on site systems. However, he believes that a town-wide "On Site Wastewater District" would be rejected by the community. However, he believes that a majority of the property owners around Laurel, Deer and Blueberry Lakes would approve the creation of septic districts for those lakes, and that they would agree to a modest annual assessment to help finance at least a portion of the cost of a program designed to remedy the septic pollution.
He suggested, however, that the town could not unilaterally initiate such an activity without the involvement and leadership of the County government, including the promulgation of a policy and program that provided for flexibility in standards to meet different local conditions, and perhaps with some county financial support. He would welcome such a program, and believes that the town would and should partner with the County in administering it.

Town of Vestal

The developed area (and sewered area) of the town is primarily in the northern half of the town. The less densely populated unsewered areas of the town are served by individual

septic tanks. The town has had no significant septic tank problem, but would like to extend sewers to selected residential areas near the limits of its existing sewer service. However, the State Comptroller has rejected recent applications for extending sewers into areas now served by septic tanks because low density housing would result in very high annual costs to each unit.

Town of Conklin

Except for a small area of northern Conklin included in the BJCJSB service area, the town is unsewered.. The town has had no significant problems with septic systems. Soils in most of the developed areas generally are well suited to effective siting and functioning of septic systems. There are some problems in the more densely developed areas where septic systems have been in place for so long that the soils have become saturated. Residents in these areas are feeling pressure to hook up to the sewer system, but they are not in most cases ready to bear the cost of doing so.

Town of Fenton

The town has one sewer district serving a portion of the community of Hillcrest. Sewer debt will be paid off this year. Sewage is transmitted via a main built in 1968 with a design flow capacity of 650,000 gpd to a pump station owned by the village of Port Dickinson, and thence to the B-JC treatment plant. The remainder of the town relies on individual septic systems for wastewater disposal. Septic systems have been a problem for some time. While soil conditions in most of the developed areas are reasonably well suited to septic siting and operation, nearly 70 years of septic use have resulted in saturation. The County Health Department has cited numerous residents to replace their septic systems, but the replacements in many cases fail within two to three years.

Town of Kirkwood

Approximately two-thirds of the area of Kirkwood is not sewered. Septic systems are a problem in some locations, particularly in the Bell School area. A petition circulated recently among residents of that area resulted in a 56 % vote in favor of sewering.

Town of Union

About 50 % of the town is not sewered. No specific studies have been carried out but urban roads may be a problem if properly surveyed for discharges. There is a town policy which provides free pump-out of all septic tanks in the non-sewered areas of the town every two years. The costs of the pump-outs are paid from town general funds.

Town of Windsor

Only 24 residential properties out of a population of about 8,000 are served by sewers which discharge to holding tanks. There is a major need for additional sewering in the town. More than one hundred homes in the Marys Road / North Road sections of this area have been discharging raw sewage from inadequately sited or functioning septic systems to road ditches for some time. Reciently these systems have been improved to

sand filters systems with discharges to the roadside. They could be connected to a sewer with a common stream discharge point. The County Department of Health and the DEC had written town authorities about these conditions. The Environmental Facilities Corporation has offered assistances to the Town with coordination by the Broom County Health Department. Last year the County Health Department ordered a number of homeowners to install new septic systems, which they did. Recently, inspections of these new systems by the Health Department indicate that they are not functioning properly. Both agencies have recently asked the town to sewer this area.

Two years ago, the town engaged Hawk Engineering to develop a proposal for construction of a treatment plant to serve West Windsor. Estimated cost was $ 5.9 million. Even when scaled back to $3.4 Million, the project is only eligible for about $500,000 from the Rural Development Administration, an amount insufficient to proceed with the project. The town has investigated other possible sources of funding for this project, including Broome County IDA. While zero interest State SRF loans would be available to finance this project, the town needs non-repayable grant funds to finance a portion of the costs, since financing all costs with debt would impose too great a repayment burden on the residential property owners affected. According to the Supervisor Williams, Broome County government has not actively supported financing searches for this project proposal.

We discussed the existence of significant on site wastewater problems at White Birch, Beaver and Deer Lake. The consultant's site visit to these lakes showed small camps on smaller lots. The camps were of apparent modest value. This area may have some potential for cluster systems and/or an On Site Wastewater Sewer District but costs might be prohibitive.

The village itself needs to be sewered. Supervisor Williams pointed out that, although there are many failing systems in the Village of Windsor, the age and income status for the homeowners are likely to make it impossible to provide a sewerage system for the village. Located as the village is on the banks of the Susquehanna, sewage from malfunctioning septic systems along Main Street could well be finding its way to the river.

Supervisor Williams firmly believes that a major effort is needed to extend sewer infrastructure county-wide in the interest of economic stability and future growth. With the construction of I-86, large tracts of vacant land (150 acres plus) adjacent to the new interstate and near the junction with I-81 in both Windsor and Fenton will offer attractive opportunities to developers of both residential and commercial properties. Unless the infrastructure is in place or assured, these kinds of investments will not materialize.

Supervisor Williams has doubts whether the County government could or would be helpful with the kind of financing assistance the town needs to develop its wastewater system. His contacts with County Legislative members suggests that their abiding interest in reducing taxes would be an impediment to developing a program of providing such assistance. His perception is that the Legislature as a body has a greater commitment to

the metropolitan Binghamton area than they do for the outlying, less populated areas of the County.

Village of Whitney Point

Whitney Point currently is unsewered, and has experienced significant problems with inadequately sited or functioning septic systems. The Mayor believes that the County Health Department could have been more aggressive in requiring correction of failing systems by the homeowner. The village wants to provide sewers, but will need funding grants in order to carry out a project. In the Fall of 2001, the Mayor received a call from the local congressman informing him that the Village was going to receive $450,000 in federal funds for the sewer system, and additional grants next year. The Mayor believes that these federal grants would bring the cost of the system to below $500/ year per home, which he felt was the maximum that a homeowner would pay.

SUMMARY

The owners of the BJCJSB plant maintain that it is a facility managed, and financed primarily to serve the needs of Binghamton and the Village of Johnson City and it is not, a regional service facility. . The city believes that there is inadequate space at the BJCJSB plant site to accommodate more capacity, and that, as joint owner of the facility it has a right to use installed plant capacity for its I and I flows as well as its sanitary wastewater. The city would probably not object to a County takeover of the treatment plant to regionalize its service function if Binghamton and Johnson City were adequately compensated, and if there is assurance that their respective interests in use of the plant's capacity were protected. The village would support a county buy-out of the interests of Binghamton and Johnson City in the BJCJSB plant, including assumption of the two owner's debt, to operate it as a regional facility.

The Village of Endicott is firmly opposed to a County takeover of the Endicott plant, or to the formation of a County sewer authority that would involve Endicott's plant and its operation. While there is under current service arrangements and flows, the Mayor and Village Board prefer to retain unused capacity in the treatment to provide for future economic growth in the village

Most but not all of the towns and villages in the outlying areas presently served by the BJCJSB and Village of Endicott plants favor a county takeover of wastewater treatment systems. There is concern about the lack of direct control in management, financing and rate-setting, and the difficulty of accommodating economic expansion because of flow limitations.

Beyond the areas served by the BJCJSB and Village of Endicott plants, only a few opportunities are available for construction of centralized wastewater collection and treatment systems, e.g., the Town of Windsor and Village of Whitney Point. But construction of wastewater systems cannot be achieved without federal grants. The Village of Deposit has a functioning wastewater collection and treatment systems, but cannot afford to upgrade the plant to meet current standards without additional aid.

Where sewers are not practical, there is mixed reaction to more local government involvement with on-site wastewater systems, e.g., through formation of an "On Site Wastewater District".

SECTION 5
ISSUES ASSOCIATED WITH CURRENT SEWERED SYSTEMS

Operation And Maintenance

Issues may be considered in 2 categories: wastewater treatment plants, and inflow and infiltration.

Wastewater Treatment Plants

WWTPs Under 0.1 MGD: No significant issues regarding O&M were raised during the study regarding the Pine Valley Sewer District No. 1, Pine Valley Sewer District No. 2, Porter Hollow Sewer District, and Pennview WWTPs. No information has been obtained concerning the Parkwood Sewer District WWTP**.**

Oquaga Lake*:* The operator of the Oquaga Lake WWTP has noted that the facility should be provided fresh sand for the filter beds and that certain PVC pipes have become brittle, and should be replaced. Rupture of the PVC pipes would be a serious event, and the Town of Sanford should authorize the needed work. In addition, the operator believes that replacement of the filter bed sand would be cost-effective in reducing operational costs. The decision to complete the replacement can be made on economic grounds. Neither the pipe nor the sand replacement requires county management to facilitate the work.

Deposit: The Deposit WWTP requires a significant investment to refurbish the facility. The study team has recently been informed that the NYSDEC will be issuing the village a Consent Order as part of an enforcement initiative to compel this work. There appear to be two factors of concern with regard to the O&M at the WWTP. First, the sewer system receives a significant volume of I and I, which can overload the treatment works. I and I concerns are addressed in the following section. Second, the operational budget appears too low for a facility to allow the needed work to proceed. The decision to raise the sewer rates to provide sufficient funds for operations is not an issue that requires county management. Rather, the payment is needed to support an on-going service required by the local residents.

Endicott: Following completion of the current construction, the Endicott WWTP will be expanded from 8 to 10 MGD and upgraded to provide seasonal nitrification. The construction demonstrates the willingness of the village to properly fund the facility. I and I control (discussed separately, below) will remain an issue for the three municipalities served by this facility. Endicott may also play a role in expanding service beyond the current service area; this is discussed in conjunction with the operations of the BJCJSB WWTP, below.

Northgate: The Northgate WWTP has been expanded a number of times, and therefore, the current system poses a few operational difficulties, particularly with regard to solids handling. Odors emanating primarily from the composting have been a cause of

complaints, which has prompted the town to install new in-vessel compost systems. The WWTP site is now fully developed and there is no room for further expansion. As noted below, a cooperative agreement with the Town of Fenton may be possible to relieve Chenango of the solids handling problem.

BJCJSB: The key issues regarding O&M at this facility are the management of the cost allocations for the owners' sewers and WWTP, and the refusal of the BJCJSB to approve expansions to the service areas of the outlying communities. The cost allocation, addressed in Section 5.11, also has a bearing on the service area expansion, discussed below.

The City of Binghamton and the Village of Johnson City are currently funding a significant expansion and upgrade of the WWTP, as well as making improvements in the sewer system to control CSOs. The primary treatment capacity of the WWTP will be doubled to 60 MGD, and the secondary capacity will be increased by more than 50% to 35 MGD. Although the WWTP is presently undersized to accept the additional flows generated through an expansion of the sewer service areas of the outlying communities, capacity should be available once the upgrade/expansion has been completed, as noted in Section 3.2. In light of the large subsidy that the outlying communities provide for local sewers of the owners, I and I control, and the 25% surcharge on debt service, there should be a great inducement for the BJCJSB to accept, even encourage, additional flows from those communities.

There appears to be opportunity to increase the effective capacity of the wastewater management system to accept additional flows from the outlying communities. As indicated in Section 3.2, Binghamton has separated a significant portion of its combined sewers, and has committed to continue the effort in the city's south side. These activities free capacity of the system to accept additional dry weather flow. Johnson City has also completed a number of separation projects. The outlying communities have contributed significant funds toward the separation projects and, under the current method of cost allocation, they can be expected to contribute in the future. Therefore, some benefit should be provided to those localities for those payments.

The additional flow to the WWTP from the sewer expansion could be treated with minor operational/system changes. Chemicals could be added to the influent to enhance the performance of the primary clarifiers. Since the need to improve performance would occur with flows near the 60-MGD capacity, chemical addition would be needed only during isolated, large storms.

If arrangements can not be agreed to for expanding the sewer systems of the outlying communities, the BJCJSB may agree to allow an expansion of one portion of the outlying system, if another portion is removed from the BJCJSB service area and connected to another WWTP. However, the BJCJSB has not given any indication that these arrangements would be acceptable. Thus, there would be no net increase in the size of the outlying service area tributary to the BJCJSB WWTP. The county government would

probably have to provide a strong management role to implement such changes, which are outlined below:

1. A portion of the Vestal wastewater presently treated at the BJCJSB WWTP could be diverted to the Endicott WWTP. This change may be possible for the Twin Orchard and adjacent areas of Vestal, in which the sanitary sewers drain to pump stations. In order to implement the change, a new force main would have to be constructed to connect with the area to the west, possibly at the Imperial Woods Pump Station. In addition, additional I and I control within the Vestal sewer system would be needed, so that the Endicott WWTP would not be overloaded during wet weather. All, or a portion, of the cost for these changes could be paid by another locality wishing to construct new sewers into the BJCJSB system. Once such possibility would be payment by the county in order to complete the hoped-for airport industrial park. It is unlikely that the change with the Vestal sewer system, when viewed in isolation, would ever be cost-effective against simply allowing the BJCJSB service area to expand. However, as an alternative to constructing new satellite WWTPs to provide needed service, the change may be economical.

2. The site of the Northgate WWTP in Chenango is now fully developed, with a significant portion of the space being used for sludge composting. Without the composting, the site appears to have ample room to increase capacity by 50% with the addition of another SBR unit, chlorine contact chamber expansion, and upgrade or expansion of the digester and thickener. Immediately across the Chenango River, the Town of Fenton has been unable to obtain permission from the BJCJSB to expand its sewer system. Fenton has a large amount of agricultural land, and there is at least one commercial composting operation, that, while inactive, is reportedly still permitted. A solution to the problems faced by both towns would be for Fenton to divert all of its wastewater across the Chenango River to an expanded Northgate WWTP. Chenango would dismantle the composting structures, and truck dewatered sludge to a site in Fenton for composting. Chenango would benefit by eliminating a potential source of odor and having an enlarged WWTP that could service presently unsewered areas of the town. Fenton would benefit by allowing the town to enlarge its collection system, and avoiding the need to have its wastewater pumped at the Port Dickinson pump station. Fenton's wastewater would instead flow by gravity through a double-barrel siphon beneath the Chenango River. Partial funding for the construction could be available from another outlying community, if the BJCJSB were willing to allow expansion of one portion of the outlying collection districts, in exchange for eliminating the Fenton contribution. Involvement by the county government would probably be needed to facilitate the exchange. As is the case for Vestal, this arrangement would not be cost-effective in comparison to expansion of the BJCJSB service area. The arrangement would be considered as a backup to the preferred approach of expanding the regional system.

Infiltration and Inflow

I and I has a number of negative impacts on wastewater management. It adds extraneous flows that increase the cost of wastewater collection and treatment and consumes system capacity. Even in separate storm/sanitary systems, I and I can overload the capacity of sewers and pump stations and lead to sewage overflows. I and I. is defined as being "significant" when the cost for the I and I conveyance/treatment exceeds the cost for the I and I removal or correction. In Broome County, determination of these costs is complicated by the fact that planned expansions of the Endicott and BJCJSB WWTPs will provide new significant capacity for treating I and I. Accordingly, there appears to be little inducement in an area such as Vestal, for example, to control I and I until (1) the town's flows near an agreed limit, (2) flow-based sewer bills become high (Endicott-served portion of the collection system), or (3) another community contributes to the work, such as for a larger agreement regarding a service area expansion. The following summarizes the available information regarding the status of I and I control in the different municipalities:

Oquaga Lake, Pine Valley Sewer District No. 1, Pine Valley Sewer District No. 2, Porter Hollow Road Sewer District WWTP and Pennview WWTP: The collection systems tributary to these WWTPs appear free of significant I and I.

Fenton (Hillcrest Sewer District), Binghamton (Town), Port Dickinson, Dickinson and Conklin: No information, reports, or correspondence has been obtained to indicate whether or not there is significant I and I in the collection systems of these communities.

Vestal: Correspondence between Vestal and Endicott indicate that Vestal flows to Endicott significantly increase during wet weather. Available information indicates that only preparatory work at I and I control has been conducted in Vestal, and that little in the way of correction has actually been completed. Correspondence between the BJCJSB and the NYSDEC shows that a meter will be installed on the influent line from Vestal to monitor flows from that portion of the collection system. The implication is that BJCJSB and/or the NYSDEC believes that there is significant I and I in that area. If BJCJSB begins to bill Vestal based on metered sewage flow, rather than potable water use, Vestal would have an incentive to take some steps to control I and I to the sewers that drain to BJCJSB treatment plant.

Union: Union is presently completing a sewer system evaluation, the costs for which are being reimbursed by Endicott. This cost sharing method (owner of the WWTP paying for an outlying community's sewer study) is unusual. Whether or not Endicott will also reimburse Union for the cost of any correction recommended by the evaluation is unknown. Preliminary findings of the evaluation are that a storm sewer connection to a sanitary pump station has been identified. This source of I and I is apparently relatively large and readily rectified. If this assessment is correct, it is possible that most of the significant I and I from Union to the Endicott WWTP can be controlled in the near future. No information is available on whether there is significant I and I from Union to the BJCJSB system.

Kirkwood: Kirkwood is presently conducting an I and I study, which is being funded out of the current annual budgets for the collection districts. Kirkwood is billed by the BJCJSB based on metered sewage flow. Unless the town agrees to some other standard of control with the BJCJSB, it is assumed that Kirkwood would control I and I to the extent that there is a cost-effective reduction in the bill from the BJCJSB.

Deposit: Reportedly, the NYSDEC and the village will be signing a Consent Order that will require an investigation and possible correction of I and I to the collection system, as well as an upgrade to the WWTP. The cost for the work will have to be funded through long-term debt to the extent that the village can not obtain outside funding.

Chenango (Northgate WWTP): As noted in Section 3.2, a 2-inch rain (a relatively large storm) will increase plant flows by about one-third. Even with the increased load, the WWTP stays within its permit limits, and consequently, the town has not aggressively pursued I and I control. Even if the town did control I and I, it does not appear that the WWTP could accept an increase in the size of its service area, because the WWTP capacity appears limited in terms of its solids handling capability.

Regulatory Compliance

Wastewater Treatment Plants

WWTPs Under 0.1 MGD: No significant issues on regulatory compliance were raised during the study regarding the Pine Valley Sewer District No. 1, Pine Valley Sewer District No. 2, Porter Hollow Sewer District, and Pennview WWTPs. No information has been obtained concerning the Parkwood Sewer District WWTP**.**

Oquaga Lake*:* No significant issues on regulatory compliance were raised during the study regarding the Oquaga Lake WWTP.

Deposit: The treated effluent from the Deposit WWTP may not always be in compliance with the SPDES permit, because of the need to control I and I and upgrade the treatment works. The study team has recently been informed that the NYSDEC will be issuing the village a Consent Order as part of an enforcement initiative to compel this work. As noted previously, the issue with the Village appears to one of inability or unwillingness to adequately fund the wastewater collection/treatment maintenance and upgrades.

Endicott: No significant issues on regulatory compliance were raised during the study regarding the Endicott WWTP. Once completed, the current WWTP upgrade/expansion should allow the facility to achieve compliance with its SPDES permit. Efforts to control I and I in the three tributary collection systems will be ongoing.

Northgate: No significant issues on regulatory compliance were raised during the study regarding the Northgate WWTP in the Town of Chenango. If the WWTP receives increased flow in the future, the town may have to take active steps to control I and I to

remain in compliance with the SPDES permit, since the site is too small to allow expansion of the treatment works. The composting operation has an Air Facility Registration Certificate and Solid Waste Permit from the NYSDEC.

BJCJSB: Issues regarding regulatory compliance are related to (1) the inability of the WWTP to adequately treat the current wastewater load, and (2) control of CSOs. The NYSDEC has issued Consent Orders to the joint owners to require the expansion/upgrade of the WWTP, as well as a CSO control program. Construction mandated by the Consent Orders is currently underway, but the work is well behind schedule. The NYSDEC has issued fines to the owners (the final disposition of the money is unknown, and the fines may be suspended). Additional fines may be issued in the future if the work falls further behind schedule or the WWTP can not meet its interim effluent limitations during the construction. Clearly, the WWTP can not accept any new significant loads without further endangering the owners with more fines. However, once the work is completed, available information indicates that new loads could be connected to the system without causing noncompliance with the SPDES permit, as discussed in the previous section.

SECTION 6
ISSUES ASSOCIATED WITH NON-SEWERED AREAS

EFFICIENCY AND EFFECTIVENESS OF CURRENT WASTEWATER DISPOSAL METHODS

For the most part, the individual on-site wastewater disposal systems used in the county are adequate and serve the county residents well. However several problem areas have been identified:

- On-site systems are causing serious environmental and public health problems in nine specific areas of the County. The areas are identified in Table 6-1.
- Growth in urban corridors is likely to lead to future wastewater related problems unless some steps are taken to prevent them.
- Because of lack of resources, the County Health Department has only been able to perform surveys of selected area and respond to complaints. Serious on-site problems and failing systems may be going unnoticed in other parts of the county.
- There is no systematic record keeping of information on on-site systems. The lack of records makes it difficult to identify developing problem areas and to direct resources to where they are most needed.

There has been limited opportunity for gaining an understanding of the design, installation and operation of on-site systems by homeowners, inspectors, realtors, code enforcement officers, and municipal officials.

Issues and Problems Associated with Pump-Out and Disposal of Septage

There are an estimated 25,000 septic tank systems in Broome County. If each system was pumped out on a biannual basis it would generate 13 million gallons of septage per year. The NYS Department issues permits to transporter of septage. These permits provide the only public records of the number of systems and volume of septage pumped. Table 6.2 summarizes the permits issued for transporters in Broom County.

The number of systems and volume of septage pumped is significantly lower than the volume that would be generated if all systems were pumped on a regular biannual basis. The difference may be in part due to septage transporters from outside of Broome County and the lack of information on transporters that discharge only to wastewater treatment plants. But the differences are so great that it leads to the conclusion that many systems are not pumped on a regular basis. It is likely that an inspection system requiring systems to be pumped on a regular basis will significantly increase the volume of septage that must be disposed of. Much of this increased volume will go the wastewater treatment plants for disposal.

There are no reports of significant problems with the land spreading operations.

Table 6-1
Identified Non-Sewered Problem Areas

Problem Area	Description of Problem (Poor soil, small lots, surface discharges, etc.)	Approx No. of Homes	Other Comments on Area
Whitney Point (V)	Poor soils, Small Lots, Surface Discharges	360	Funding for a sewer system has been secured
West Windsor, Windsor (T)	Poor soils, Small Lots, Surface Discharges	260	
Windsor (V)	Poor soils, Small Lots, Surface Discharges	300	
Deer Lake, Windsor (T), Sanford (T)	Poor soils, Small Lots, Surface Discharges	100	
Laurel Lake, Sanford (T)	Poor soils, Small Lots, Surface Discharges		
Blueberry Lake, Sanford (T)	Poor soils, Small Lots, Surface Discharges		
White Birch Lake, Windsor (T)	Poor soils, Small Lots, Surface Discharges		
Beaver Lake, Windsor (T)	Poor soils, Small Lots, Surface Discharges		
Roads leading to the urban core, which are becoming development corridors for residential uses.	Poor soils, Small Lots, Surface Discharges New construction is large lots with sand filters/fill systems. Usually a sand filter with a discharge trench to a roadside ditch.	Unknown but could be estimated.	
Fenton (T)	Older Systems, failing due to saturation		
Kirkwood (T) (Bell School Area)			A petition circulated recently among residents of that area resulted in a 56 % vote in favor of sewering.

Table 6.2 DEC Septage Transporters Permits

	Number of Permitted Waste Transporters	Volume of Septage Handled (Million Gallons)		
		Land Spreading	Sewage Treatment Plant	Total
Land Spreading Only	6	0.88	0.00	0.88
Wastewater Treatment Plants	2	*	*	*
Land Spreading & Wastewater Treatment Plants	3	0.09	0.32	0.41
Total	11	0.97+	0.32+	1.28+
Total Number of Systems Pumped	538+			

* Not required to be reported.

Regulatory Compliance

The Department of Environmental Conservation, the County Health Department and the towns have identified nine areas causing water quality and or public health problems. However, because there is no regular inspection program in place or a method of systematic record keeping other problem areas may exist or be developing, and not be reported.

Potential for Installing Sewers

Because of low housing density, there is little potential for installing public sewers in most of the rural areas of the County other than in the problem areas identified in Table 8-1 on page 70. It is likely that 30% of the county residents will continue to rely on site systems for wastewater treatment and disposal.

Management Issues

The Broome County Health Department is responsible for regulation and management of on site wastewater treatment and disposal management. Design standards are contained in the New York State Department of Health's Administrative Rules and Regulations (10NYCRR Appendix 75-A). Limited training and technical assistance for the program is also provided by the State Health Department[6.1].

Future Outlook and Implications for the Status Quo

Because it is unlikely that most of the rural areas of the counties will be sewered, on site wastewater disposal systems will continue to be utilized by a significant number of the County's residents. Under the existing system of regulation and management of on site systems, a variety of health and environmental problem areas have developed. Unless management is improved and additional resources are directed to correcting existing problems and preventing the development of new problem areas, it is likely that the problems will worsen.

SECTION 7
ALTERNATIVE MODELS FOR COUNTY INVOLVEMENT

MANAGEMENT OF WASTEWATER TREATMENT SYSTEMS BY COUNTY GOVERNMENT: FIVE CASE PROFILES

While several local governments in Broome County participate jointly in the management of their sewered wastewater systems, the county government has not engaged in this function. Should the county decide to assume an active role, there are precedents in other counties in New York State that offer models which Broome County may wish to consider Many of the cities, towns, and villages in New York State that are sewered provide wastewater treatment and disposal service to their residents and businesses. They build, manage and operate their own facilities to treat that waste. However, some county governments perform this function and service for several or all of the sewered municipalities within the county.

The reasons for county participation in providing this service vary. In some instances, county government may obtain more favorable financing in public bond markets than can individual municipalities within the county by virtue of their bond rating. In others, it may be too costly or just unaffordable for a single town or small city to build and operate its own central treatment facility. Where several sewered towns in reasonable proximity to each other within the same county require sewage treatment, some have found it to be more cost-effective and efficient for the county government to build and manage a central facility or facilities that serve several communities collectively.

This report describes the principal features of wastewater system management by county government in five counties in New York State: Albany, Dutchess, Rensselaer, Rockland, and Saratoga. It examines the legal foundation and origins of the system; the organization, structure, governance, staffing and budget of each operation; facilities managed and services provided; communities and population served; and how the system is financed.

ALBANY COUNTY SEWER DISTRICT[7.1]

Introduction

Albany County government manages, through its established County Sewer District, the wastewater treatment system for three cities, portions of its two most populous towns, and three villages within the county. These eight municipalities, nearly all of the developed portions of which are sewered, comprise about 80 %, or approximately 250,000 residents, of the population of the county. One town, Bethlehem, located in the southern part of the county with a population of about 35,000 persons, owns and manages its own central treatment facility, and is not part of the county system. Other outlying

[7.1] Reference: Interview with Peter Anderson, Executive Director of the Albany County Sewer District on June 19, 2001 and review of written documents received.

small towns and villages in the county that are not sewered rely principally upon on-site treatment systems for wastewater management.

The Albany County District is served by two treatment facilities, each located on the second flood plain of the Hudson River approximately three miles apart, and within 500 feet of the river shore zone. One facility, designated the South Plant, is situated within the Port of Albany; the second, the North Plant, is located in the village of Menands just north of the Albany city line. Both plants provide secondary treatment of the wastewater discharged to them by constituent customer municipalities. Treated effluent from both facilities is discharged directly to the river. The wastewater including household sewage, commercial and industrial waste, storm water and I&I (inflow and infiltration from the eight municipalities served by the system is discharged to the two treatment facilities through a series of interceptors sewers that are interconnected with laterals and trunk sewer systems of each municipality. Points of discharge to the district's interceptors are metered. The Albany County District owns, manages and maintains the treatment plants and its metered network of interceptors; the municipalities served by the district own and maintain the sewer collection networks within their respective municipal boundaries.

Legal Foundation and Origin

The Albany County Sewer District was created by Resolution Number 45 of the Albany County Legislature dated May 13,1968. Prior approval to create the district was granted the county by order of the Comptroller of the State of New York dated April 30, 1968 under the provisions of Article 5-A of the County Law.

Resolution 45: (1) establishes the Albany County Sewer District; (2) defines the area it embraces by a description of the eight municipalities or portions thereof that are included within its boundaries; (3) creates a Board of Commissioners consisting of a Chairman and four Commissioners to be appointed by the County Legislature for terms of three years, and declares the Board to be the administering authority of the district; (4) appoints the first Chairman and four Commissioners, by name, to serve without compensation except for reasonable expenses; and (5) prescribes the hiring and compensation-setting authority of the Board.

The district has no power to issue debt or borrow funds to finance its activities, or to function independently of the county fiscal control and budgeting system. It is not an administrative Department within the Executive structure of the Albany County government. It is rather, by the terms of its organic legislation, an organizational entity of the County Legislature.

The Board of Commissioners is appointed by and accountable to the Legislature. The Resolution creating the Board contains no criteria governing the qualifications or representative affiliation of Board members.

The genesis of the county's decision to create the district stemmed from an order and report by the New York State Department of Health issued in 1968 for communities in

the Albany County reach of the Hudson River to take certain actions to abate pollution of the Hudson River from inadequately treated wastewater discharged to the river by those communities. Elected officials and civic leaders agreed that it would be more efficient and cost effective for the county to assume responsibility for this task than for individual municipalities to try to address the problem by themselves.

Functions

The Sewer District's chief responsibility is to convey and treat wastewater originating from its eight member communities: the cities of Albany, Cohoes, and Watervliet; the villages of Colonie, Green Island and Menands; and parts of the towns of Colonie and Guilderland The district also provides final sewage sludge disposal service for several small sewage treatment plants located in towns and villages within Albany county but outside the service boundaries of the district.

The district allows scavenger waste haulers to dispose of septic tank and grease trap waste generated within Albany county at its treatment plants. The district also treats glycol waste generated by de-icing of aircraft at Albany International Airport. Revenues from these additional services help defray charges to the eight member communities served by the district.

In order to protect district facilities from treatment process disruptions and possible damage caused by industrial discharges, the district enforces all local, state and federal regulations through the Federal Pretreatment Program and Albany County Local Law Number 1 of 1984. The district currently regulates 13 industrial facilities that discharge effluent to its system. It conducts quarterly and random inspections and sampling at these facilities to ensure compliance with its permits.

The stated outcome goal of district management is that Albany County citizens will be healthy and reside in environmentally safe communities as a result of proper treatment of wastewater.

Organization, Management and Staffing

Day to day operations of the district are managed by an Executive Director who is accountable to the Board of Commissioners. The district employs a staff of 84 persons organized in four different departments of the district: 6 in Administration; 49 in Process Operations; 21 in Maintenance and Instrumentation; and 8 in the Laboratory. All staff employed by the district are county employees and, except for the Executive Director, are in the competitive Civil Service class.

Administration

Overall administration of the district including fiscal, personnel, office operations and management, and office building custodial maintenance is supervised by the Business Office Manager.

Process Operation

The Superintendent of Operations directs all process and unit operations in both the North and South Plants in three shifts daily, 365 days a year. The Superintendent is also responsible for routine maintenance, cleanup and grounds keeping.

Maintenance

The Chief of Maintenance and Instrumentation. is responsible for major and preventive maintenance of all mechanical, instrument, and electrical equipment in the systems of both the North and South Plants. This includes all mechanical equipment, snow removal, vehicle maintenance, instrumentation, metering pits, incinerator control systems, and all electrical except high voltage systems.

Laboratory

The Superintendent of Operations directs the State certified laboratory. The laboratory runs all analytical tests necessary to control process in both plants, and for compliance reports to regulatory agencies. Also performs analysis of industrial wastes, and administers the industrial waste control and pre-treatment program. The Superintendent of Operations also directs a sewer crew responsible for maintenance of all storm water regulators under district control to insure that all dry weather wastewater flow reaches the treatment plants.

Facilities Owned and Operated

The district owns and operates two wastewater treatment facilities, designated North and South, which provide secondary treatment to the wastewater generated by the eight communities it serves. The North plant, located in Menands, is designed to treat an average daily flow of 35 MGD. This plant treats waste from the Cities of Cohoes, Watervliet, and parts of the City of Albany; the Villages of Menands, Colonie, and Green Island; and parts of the Towns of Colonie and Guilderland.

The South plant, located in the Port of Albany, is designed for an average daily flow of 19 MGD, but is permitted for 25 MGD. The South plant treats only waste from the City of Albany.

The South plant is operating at design capacity, but the North plant is operating at about 65%. There is therefore some room for growth.

As part of its regional service system, the district owns and maintains about 30 miles of interceptor sewers which receive wastewater from the sewer systems of the communities served.

The waste activated sludge generated by the secondary treatment systems of both plants is mixed with the primary sludge from both plants. This combined sludge is dewatered

and incinerated. The ash residue is disposed of in the Town of Colonie landfill. The district has applied to the State for and is awaiting a Beneficial Use Determination for its ash residue.

The district has instituted numerous capital projects within the past five years to both increase the wastewater treatment efficiency of its plants, and to reduce operating costs. Most prominent among these was a project instituted in 1997 to replace influent pumps at both plants with more energy efficient, variable speed technology. Given the volatility in electric markets that has ensued with electricity deregulation, these improvements have resulted in cumulative electric energy cost savings of at least $ 250,000 in the intervening years.

Other current capital projects include: (1) installation of an additional clarifier at the South plant to increase efficiency of BOD and suspended solids removal during high flow; (2) installation of an emergency power generator at the South plant to eliminate by-passes of effluent to the Hudson River during power outages; (3) installation of incinerator up-grades at both plants to reduce air emissions to meet new Federal and State emission standards; and (4) addition of new air emission scrubber up-grades at both plants to meet new standards.

All of these capital projects have been or will be financed with borrowings either in the form of municipal bonds issued by Albany County, or loans from the State of New York Clean Water Revolving Fund. The district has also received grants from State of New York Clean Water/Clean Air Bond Act funds in the past to finance portions or all of its capital projects.

Outstanding indebtedness on December 31, 2000 was $ 2,905,388. All of this debt was incurred to finance capital projects involving improvements to the two treatment plants. The debt instruments involved consist of a combination of long and short-term bonds and bond anticipation notes issued by Albany County, and SRF loans from the New York State Environmental Facilities Corporation. The last of this debt matures in 2014.

Annual debt service for both of the treatment plants and the county-owned interceptor system has been and continues to be financed wholly by a charge to the communities using the system. The district's total annual debt payment obligations are allocated to each of the municipalities served based upon a combination of the percentage of their respective peak flows through the district's collection system, and the percentage of their respective use of the treatment facilities. This basis for levying debt service charges and the calculation upon which it is founded is provided for in the contractual agreement between the district and each municipal Corporation receiving service.

Intermunicipal Provisions Governing Wastewater Service

The terms and conditions of wastewater treatment services to be provided each of the communities within the district are enumerated in contractual agreements between the district and each municipality involved. All of these agreements were executed in 1970,

or within two years after the district was created after adoption of the organic resolution by the Legislature. They have not been substantially modified since their adoption.

These agreements with all eight municipalities served provide that:

(1) The municipality shall be responsible for constructing, financing and maintaining lateral and trunk facilities connecting their sewer systems to the district interceptor system by a date certain;
(2) The municipality will take steps to minimize infiltration and the discharge of substances hazardous to the district treatment system.
(3) The municipality provides, at its expense, suitable metering and sampling devices at each connection to district facilities.
(4) The district's operation and maintenance costs shall be allocated and billed semi-annually to each municipality served based upon its proportionate share of metered flows to the system during the previous six month period.
(5) The district shall prescribe a scale of charges for the collection, conveyance, treatment and disposal of wastewater that provides for the allocation of such charges among the participating municipalities the cost of constructing, maintaining, and operating the system.
(6) Provision for debt service calculation and allocation and billing to participating municipalities annually
(7) Municipality shall pay a penalty for delivery of wastewater to the county system that is in excess of the district's treatment and transmission capacity normally allocated to the municipality.
(8) The wastewater treatment and intercept capacity of the district may be enlarged in the future as needed and prescribed by County Law 5A, and each municipality shall bear its proportionate share of the debt service attributable to such enlargement.
(9) The service territory of the district may be extended, and the costs of such extension shall be shared as determined by the district based upon the benefits to be derived there-from by each municipality.

Each agreement contains a numerical specification of the average monthly flow in mgd of wastewater treatment plant capacity reserved to each community, and of the wastewater flow carrying capacity of the district's interceptor and trunk sewer system measured in peak flow rate reserved to each community.

Rates, Fees And Billing

Charges to participating municipalities for wastewater treatment services provided by the district are determined by the proportion of metered flows delivered to the district's interceptors by each of the eight communities served compared with total flows treated during the billing period. That proportion is applied to the district's total operating and maintenance expenses for the billing period, and the resulting amount is billed to each municipal Corporation involved. The municipalities in turn collect the revenues needed to pay the district from all sewered residents, usually based upon metered water

consumption by each resident or establishment billed The district's annual O & M budget has remained relatively constant during the past seven years. Except for fluctuations in metered water consumption by individual users, therefore, sewage treatment billings to residential and other classes of users in the communities served have not risen significantly.

In 1999 the district's Board of Commissioners approved a $ 1,250,000 allocation from the district's unreserved/un-appropriated reserve fund to reduce operation and maintenance charges to member communities for fiscal year 2000. This appropriation reduced O&M charges to each member community by 17.7 % for that fiscal year.

Billings for debt service are rendered annually based upon allocation of debt formulations contained in the contracts, as discussed earlier.

Rates to scavenger haulers, outlying localities within the county, some industrial dischargers, and the Airport Authority are set by the district based upon the actual cost of providing service to them in individual cases.

The Albany County Comptroller bills and collects all O &M and debt services charges to member municipalities for the Sewer District and act as fiduciary for the district. Rates for O&M are based upon the combined total six month O&M costs of both plants, and are charged to each municipality based upon metered flows from each municipality as a proportion of total wastewater treated at both plants. Debt service charges to each municipality are different for each. They are a function of the capacity of each plant that is allocated to each municipality by their permanent contract with the District as that capacity is a percentage of total plant capacity; half of the annual debt service due is billed to each semi-annually.

Budget And Finance

Operation and maintenance appropriations to the district for the fiscal year 2001 totaled $ 6,921,740. Of this amount, $ 3,759,956 or 54 % was for personnel services and associated fringe benefits, and $ 1,899,000 or 27 % was for electricity and natural gas purchases. Thus 81 % of the Sewer District's operating budget was for personnel services and purchased energy. These proportions of personnel services and energy budgetary costs have remained consistent for the past three years. The district's 2001 O&M appropriation also included $ 65,000 for payment of school district and municipal property taxes by the district. The District pays municipal and school district property taxes on both treatment plants, to the City of Albany and the Albany school district on the South plant, and to the Village of Menands and the Menands school district on the North plant. The district pays no county taxes. The combined tax bill for both plants in 2000 was $ 75,000.

In addition to its operating budget, the 2001 appropriated budget provided $ 526,276 for debt service payments on county issued serial bonds and bond anticipation notes assignable to the Sewer District.

Revenues accrued and appropriated to the district in 2001 totaled $ 7,615,173. Of this amount, $ 6,974,573 was collected from the eight municipal governments served by the district for both operation and maintenance costs attributable to treatment of wastewaters metered to the district's facilities, and for debt service payments levied according to the provisions of the fee and assessment provisions of their established contracts with the district as referred to above. The additional revenues were collected principally from scavenger waste haulers, from the Albany County Airport Authority, and from outlying sewage treatment municipalities that dispose of their sludge to the district's treatment facilities.

The district's annual budget process is initiated with presentation of a recommended budget by the District Board of Commissioners directly to the County Legislature for approval. The district's budget is not an integral part of the County Executive budget recommendation to the Legislature.

None of the appropriation actions taken by the County Legislature in enacting the district budget impinge upon the county's general fund. All appropriations by the Legislature for the district budget authorize expenditures only from revenues paid to the district for both operating and maintenance costs and debt service by the local governments served under the terms of the fee and pricing provisions of their contracts. The Albany County Comptroller, acting as both the billing entity and fiduciary for the Sewer District, collects and holds such revenues received in a dedicated fund set aside for financing all district budgets.

Regulatory Responsibilities And Accountability

The district is legally responsible and liable to the appropriate Federal, State and local regulatory authorities for compliance with all public health and environmental regulatory requirements associated with its wastewater treatment, effluent discharge, air emissions and sludge management activities as required by pertinent law. This includes responsibility for the monitoring and reporting required by SPDES and air permits, and management of the wastewater treatment processes according to specifications as required by the appropriate regulatory authority.

It includes also administration and enforcement of Albany County Local Law # 1, a body of rules and regulations promulgated in 1984 that contain the policies and enforcement authority governing the conditions of wastewater management by the district. It includes provisions for the issuance and oversight of pretreatment permits to industrial dischargers to its facilities, and for licensing of waste haulers to discharge scavenger wastes to its system.

In 2000 the Association of Metropolitan Sewerage Agencies gave awards for excellence to the district's North and South plants for meeting all effluent permit parameters.

RENSSELAER COUNTY SEWER DISTRICT[7.2]

Introduction

Rensselaer County government's wastewater treatment responsibility is to abate pollution, through its Sewer District # 1, from 58 points of wastewater discharge to the Hudson River within the county. The District intercepts and treats waste that originates from public sewer systems and industries located in the cities of Troy and Rensselaer, and from portions of the Towns of Brunswick, North Greenbush, East Greenbush, Sand Lake and Schaghticoke. The District serves a population of approximately 75 thousand persons in addition to treating the wastewater from commercial establishments and several large industries.

The District owns, operates, and maintains one wastewater treatment facility designed to provide secondary treatment to an average daily flow of 24 million gallons per day (mgd). The plant is located adjacent to the Hudson River in Troy, New York. The effluent by-product of the treatment process is discharged directly to the Hudson River.

Legal Foundation and Origin

Rensselaer County Sewer District # 1 was created by Resolution Number 178-68 of the Rensselaer County Board of Supervisors dated November 14, 1968. Prior approval to create the district under authority of Article 5A of the County Law was granted by order of the Comptroller of the State of New York dated October 28, 1968.

Resolution 178-68 defines District # 1 to be comprised of all of the city of Troy and portions of the Towns of Schaghticoke, Brunswick, North Greenbush and Sand Lake as defined by a detailed metes and bounds description included in the resolution.

On November 26, 1968 the Board of Supervisors enacted Local Law Number 2 of 1968 confirming the District, and providing for its administration by a Board of Commissioners consisting of a Chairman and eight Commissioners, each to be appointed by the County Board of Supervisors. The resolution provides that the Board of Commissioners is empowered to employ such persons as are necessary to effect the purposes of the District, and to fix their compensation.

Subsequent enactment of Chapter 412 of the Laws of 1969 by the Board of Supervisors affirmed the District as established by earlier resolutions, and extended the service area of Sewer District # 1 to encompass also the City of Rensselaer.

The District is not authorized to issue debt or borrow funds to support its operations, or to function independently of the Rensselaer county government fiscal control and budgeting

[7.2] Reference: Interview with Charles De Fazio, Administrative Director of the Rennselaer County Sewer District on December 12, 2001 and review of written documents received.

system. The District is not part of the Executive Branch of Rensselaer County government. Organizationally and administratively, the District is an entity of the County Legislature.

Federal and State grants made available to finance wastewater treatment in the early 1970's were a major stimulus to creation of the Rensselaer County Sewer District. The local share of the original cost of $46 million required to construct the District's treatment facilities was $ 8.2 million. This amount was financed by the sale of Rensselaer County serial bonds. Of that original debt, approximately $ 855 thousand remains to be defrayed and will be retired by the end of 2003.

Organization, Management and Staffing

The District is managed by an Administrative Director, accountable to the Board of Commissioners, and is supported by a staff of 41 persons. With the exception of five staff who are laborers and one heavy equipment operator, and the Chairman and eight members of the Board of Commissioners, all staff are employees of the county in the competitive Civil Service class. Six Departments all report to the Administrative Director

Administration

Manage the District and administer office operations, human and fiscal resources, and bill and collect sewage treatment service charges.

Operations

Provide process operation services for the sewage treatment plant, pumping stations and solids handling and disposal, 24 hours per day, 365 days per year.

Laboratory

Perform standard daily process control testing, regulatory testing and reporting, and manage and maintain laboratory equipment and systems.

Industrial Waste Monitoring

Issue permits; administer and enforce industrial pretreatment program, including EPA categorical limits and local limits for industrial users. Conduct field inspections and discharge sampling.

Purchasing and Inventory Control

Procure, store and issue spare and replacement parts for treatment plant and pumping station equipment.

Maintenance

Perform preventive maintenance for treatment plant and pumping station equipment and instrumentation; buildings and grounds maintenance; maintenance and surveillance of interceptor sewers, pumping stations, and flow control regulators.

Facilities Owned and Operated

The District owns, operates and maintains twenty-two miles of interceptor and force main sewers, five pumping stations, and fifty-eight interceptor sewer flow regulators in addition to its wastewater treatment plant. The five pumping stations provide pre-treatment of wastewater to remove screening material. The Districts interceptors receive wastewater flow from the communities in the District by gravity.

The treatment plant is designed to remove CBOD and suspended solids for an average daily flow of 24 mgd. The District operates under a SPDES permit that requires average removal of 85% of both CBOD and suspended solids.

Sludge produced in the treatment process is dewatered to dry cake and land-filled.

Rates, Charges and Billing

The basis for establishing rates and billing procedures for services provided by Rensselaer County Sewer District # 1 are set forth in Local Law Number 3 enacted by the Rensselaer County Legislature on May 18, 1976. That law imposes sewer rents on all premises and real property within the boundaries of Sewer District # 1 using the sewer system or any part thereof. The sewer rent law provides that the Board of Commissioners of the District shall establish a schedule of sewer rents, and amend it periodically. Such schedule must be approved by the County Legislature before it shall become effective.

For properties served by a metered municipal water system, sewer rent charges are based upon the metered consumption of water by each of the premises served, and are billed and collected concurrently with the billing for water use. For properties not served by a metered municipal water system, but which use the sewer system, rents are established as an annual charge and billed to the property semi-annually.

The county, therefore, receives its sewer rent revenues from each municipality within Sewer District # 1 which bills and collects for metered water service, but bills and collects sewer rents directly from properties which use the sewer system but are not provided with metered water service.

Residential rates currently in effect, which were last established in 1998, are $1.10 per thousand gallons of metered water use with a minimum charge of $ 15.25 per quarter for each connection to the municipal water system. For properties not served by a metered municipal water system, the annual charge per unit is $ 78.00, with a single family residence constituting one unit. Rates for multi-family dwellings and schools are

multiples of $ 78.00 depending upon the number of units involved. Rates for industrial and commercial properties are set separately under the terms of County legislation enacted in 1970 and last amended in 1985.

Intermunicipal Relationships

Sewer District # 1 has no formal legal relationships with the municipal governments within whose jurisdictions it provides wastewater services to their residents. Except for the billing and collection of sewer rents as part of their metered water service billings, which is governed by Rensselaer County Local Law Number 3 as discussed above, municipal governments within the District have no contractual working arrangements with District management or the wastewater treatment service operations of the District.

Debt

The original construction cost of the District's wastewater treatment plant and appurtenant interceptor system was approximately $ 46 million, of which nearly $ 38 million was financed by Federal and State grants. The county sold serial bonds in the amount of $ 8.2 million to finance the local share. By the end of 2000, $ 855,000 of this original debt remained outstanding, and will be retired during 2003.

In 1998, the county issued general obligation bonds in the amount of $ 1,340,000 to finance construction of the District's odor control and mono-fill projects. This debt will be retired in 2013.

The county issued $ 600,000 in bond anticipation notes in 2000 to finance the District's final clarification improvement project. This amount is 15 % of total project cost. The additional 85 % is being financed with a State Environmental Bond Act grant.

Sewer District debt service is paid wholly from user charge revenues, and is included in the design of current sewer rents.

Budget and Finance

The District's annual operation and maintenance costs, and the cost of its debt service, are financed wholly from sewer rent revenues held in a dedicated fund by the Rensselaer County treasurer. Funds from no other sources, including County general fund revenues, are appropriated or expended to finance District costs.

Total District expenses for operation and maintenance and for debt service in fiscal year 2000 were $ 3,771,211. While revenue at $ 4,314,871 exceeded cost by nearly $ 550,000 that year, the excess was attributable chiefly to about $ 400,000 in credits and rebates received from Niagara Mohawk for energy overcharges, and to $ 100,000 in previously appropriated but unspent funds associated with the early completion of two capital projects. Year 2001 revenues were expected to equal total expenses.

Regulatory Responsibilities and Accountability

The District is legally responsible and liable to appropriate Federal, State, and local regulatory authorities for compliance with all public health and environmental requirements associated with its wastewater treatment, effluent discharge, air emissions, sludge management and industrial pretreatment regulatory activities.

The District administers the Federal industrial pretreatment program for all qualifying industrial dischargers to its treatment plant based upon delegation from the United States Environmental Protection Agency. The District is EPA's designated Pretreatment Program Control Authority. As such, the District issues permits, establishes standards and discharge limits, enforces compliance, and prosecutes violations. It also conducts inspections of industrial user sites and monitors industrial waste streams discharged to its treatment plant.

The District has begun working with the municipalities in the District to assist them in meeting recently issued EPA rules that require the institution of nine minimum controls for combined sewer overflows. The 58 combined sewer overflows within the District are owned by the cities of Troy (49) and Rensselaer (9). EPA's rules affect both CSO operation and wastewater treatment plants receiving flows from them. District # 1 operates and maintains the flow regulators located at each CSO in the District. The two cities have been issued SPDES permits by NYSDEC for each CSO. The District has also been issued a new SPDES permit by NYSDEC which specifies its responsibilities for CSO's.

ROCKLAND COUNTY SEWER DISTRICT NO. 1[7.3]

Introduction

Rockland County government provides wastewater collection and treatment , through its established County Sewer District No. 1, within the Towns of Ramapo and Clarkstown and several parcels in the Town of Orangetown. The district, which was formed in 1963, operates and maintains the major interceptors and pumping stations in the system and all sewers within the Villages of Spring Valley, New Square and Pomona (Ramapo portion). The Towns of Ramapo and Clarkstown maintain their own sewers outside of the villages.

Rockland County Sewer District No. 1 operates a wastewater treatment plant located in Orangeburg with a capacity of 26 MGD (million gallons per day). With an expansion of the District into western Ramapo approved in 2001, an additional treatment plant will be built in the Village of Hillburn in the Town of Ramapo. This additional plant will cost an estimated $50 million and have a capacity of 1.5 MGD.

[7.3] Reference: Telephone and written correspondence with Ronald C. Delo, Executive Director Virginia Farrell, Administrative Secretary of the Rockland County Sewer District No. 1 January through April 2002.

Legal Foundation and Origin

Rockland County Sewer District No.1 was created by Resolution Number 501 of the Rockland County Legislature dated October 23, 1963. The resolution does not mention any prior approval by the State Comptroller. Resolution Number 503 of the Rockland County Legislature dated October 23, 1963 provided for a referendum of eligible voters in the district with respect to whether Resolution No. 501 establishing the district should be approved. A Board of Sewer Commissioners was established by Resolution Number 53 in 1966, and amended several times since to provide for more equitable representation on the Board.

Through Resolution Number 101 of the Rockland County Legislature dated March 6, 2001, the district boundaries were extended to incorporate the Villages of Sloatsburg and a unincorporated western portion of Town of Ramapo**,** an additional population of about 5,000. The total district population, including the extension is estimated at 200,000. Through Resolution Number 611 of the Rockland County Legislature dated November 19, 2001, the composition of the Board of Commissioners was reconstituted to add representation from Western Ramapo. Most recent appointments to the Board of Commissioners in 2002 included members from both the towns and the villages in the district.

The policies and enforcement authority governing the conditions of wastewater management by the district are provide in Rockland County Local Law No. 19 (The Sewer Use Law) , a body of rules and regulations promulgated in 1997.

Functions

The Sewer District's chief responsibility is to provide for the economic, environmentally safe and legal operation of the Rockland County Sewer district's publicly owned treatment works. The district provides facilities to convey and treat wastewater originating in the Towns of Ramapo and Clarkestown and several parcels in the Town of Orangetown. The District operates a wastewater treatment plant in Orangeburg*,* and maintains the major interceptors and pumping stations throughout the district and all sewers within the Villages of Spring Valley, New Square and Pomona (Ramapo portion).

The district allows scavenger waste haulers to dispose of septic tank and grease trap waste generated within Rockland County at its treatment plant.

In order to protect district facilities from treatment process disruptions and possible damage caused by industrial discharges, the district enforces all local, state and federal regulations through the requirements of a pretreatment program The district currently requires pretreatment from 25 industrial and municipal facilities that discharge an average of 321 million gallons per year effluent to its system. It conducts quarterly and random inspections and sampling at these facilities to ensure compliance with its permits.

Organization, Management and Staffing

Day to day operations of the district are managed by an Executive Director who is accountable to the Board of Commissioners. The district employs a staff of 89 persons organized in three different departments of the district: 20 in Administration; 30 in Operations; and 39 in Maintenance.

Administration

Overall administration of the district including fiscal, personnel, office operations and management, and office building custodial maintenance is supervised by the Executive Director assisted by the Assistant Director of Sewer Operations.

Operations Department

The Chief Operator, assisted by a Supervising Operator, directs all process and unit operations in the wastewater treatment plant three shifts daily, 365 days a year. The Chief Operator also supervises the State certified laboratory. The laboratory runs all analytical tests necessary to control process in both plants, and for compliance reports to regulatory agencies. The laboratory also performs analysis of industrial wastes, and administers the industrial waste control and pre-treatment program.

Maintenance Department

The Director of Plant Facilities is responsible for major and preventive maintenance of all facilities for collection, pumping and treatment of wastewater including mechanical, instrument, electrical and vehicle maintenance.

Facilities Owned and Operated

The district owns and operates a wastewater treatment plant in Orangeburg, The plant when originally constructed in the mid 1960s had a capacity of 10 million gallons per day (MGD), and was expanded to 26 MGD in the mid 19802 to reflect increased population growth in the district. The plant provide secondary treatment with treatment processes consisting of mechanical bar screens, aerated grit chambers, primary settling tanks, rotating biological contactors, secondary settling tanks and chlorine contact tanks. Treated effluent is discharged into the Hudson River at Piermont through an outfall sewer.

Sludge from the primary and secondary settling tanks is concentrated and anaerobically digested. The digested sludge is then dewatered by centrifuges. Combustible gas produced during sludge digestion is compressed and stored for use to drive generators that produce electric power. Dewatered sludge is transported to the Torne Valley, Ramapo facility of the Rockland County Solid Waste Management Authority where it is combined with wood chips and waste paper and processed into compost.

The District also operates and maintains 22 pump stations and force mains, one screening facility, 106 miles of interceptor sewers and 530 miles of lateral sewers.

Intermunicipal Provisions Governing Wastewater Service

Rockland County Sewer District No. 1 signed an intermunicipal agreement with the Rockland County Solid Waste Authority on December 20, 1995 whereby it provided dewatered sludge to the Solid Waste Authority for composting as described above. Rockland County Sewer District No. 1 has no responsibility for paying the costs involved in hauling and processing sludge except for emergency deliveries of sludge occurring outside of established delivery hours.

Rates, Fees And Billing

Under the provisions of the Sewer Use Law, annual sewer rent charges are paid by the owners of real property occupied by users within the District, imposed and collected in the same manner as county taxes. Local municipalities may charge additional sewer rent, presumably to cover any costs incurred for maintenance and operation of municipal (as opposed to district) sewers and appurtenant facilities.

Property is classified for sewer rent purposes by unit of use. For example, a one family dwelling with1 kitchen is 1 unit; for hotels, each 2 rooms are 1 unit , and for schools, sixty pupils are 1 unit. A surcharge factor is assigned to commercial and industrial users based on the strength of the wastewater. The surcharge factor is calculated by formula based on biochemical oxygen demand (BOD), suspended solids (SS) and identifiable pollutants At the time of adoption of the county budget, the annual unit charged is be established by the Rockland County legislature based on fees established by the Executive Director and the Board of Sewer Commissioners. The basic user charge for 2002 is $89.
An additional charge is assessed to users in the Villages of Spring Valley, New Square and Pomona for maintenance of village sewer lines.

The Board of Sewer Commissioners also has the authority to impose impact fees on new development or rezoning which may result in enlargement of the service area and/or cause increased hydraulic and/or treatment loads on the plant This provision has been utilized.

Budget And Finance

The Sewer Use Law establishes a sewer operating fund. All revenues derived by the district are credited to Rockland County Sewer District No. 1. Monies in this fund can be used exclusively for wastewater management purposes including operation and maintenance, discovery and correction of inflow and infiltration problems, debt service and extension or replacement of wastewater facilities. For the now approved extension of

the district into the western portion of the Town of Ramapo, a grant was awarded by the US Department of Housing and Urban Development for $858, 108.

Operation and maintenance appropriations to the district for the fiscal year 2002 totals $20,375,731. Of this amount, $6.5 million or 32% was for personnel services and associated fringe benefits, and $1.6 million or 8% was for electricity, gas and fuel. The district also received a grant of $219, 384 in March 2001 from the NY State Energy Research and Development Corporation for pilot testing an innovative high efficiency wastewater treatment process in conjunction with Manhattan College and United Water

The 2002 appropriated budget also provides $7.2 million for debt service payments on county issued serial bonds and bond anticipation notes assignable to the Sewer District.

Projected revenues to the district in 2002 are estimated at $20, 346, 538. Of this amount, $14. 7 million or 72% is to be collected from property benefit taxes. The district's annual budget process is initiated with presentation of a recommended budget by the District Board of Commissioners directly to the County Legislature for approval an integral part of the County Executive budget.

The Rockland County Comptroller, acting as the fiduciary for the Sewer District, collects and holds such revenues received in a dedicated fund set aside for financing all district budgets. Actual billing is done by town government as part of the real property tax bill, and funds are transferred to the County Controller.

Regulatory Responsibilities And Accountability

The district is legally responsible and liable to the appropriate Federal, State and local regulatory authorities for compliance with all public health and environmental regulatory requirements associated with its wastewater treatment, effluent discharge, air emissions and sludge management activities as required by pertinent law. This includes responsibility for the monitoring and reporting required by SPDES and air permits, and management of the wastewater treatment processes according to specifications as required by the appropriate regulatory authority. The wastewater treatment plant at Orangeburg is permitted under NYS SPDES Permit No. NY 0031895, as modified on January 11, 1999.

The District is responsible for the administration and enforcement of the Sewer Use Law which includes provisions for the establishment of user fees, the regulation of individual, commercial and industrial users, the issuance and oversight of pretreatment permits to industrial dischargers to its facilities, the licensing of waste haulers to discharge scavenger wastes to its system.

SARATOGA COUNTY SEWER DISTRICT NO. 1[7.4]

Introduction

Saratoga County government manages, through its established County Sewer District No. 1, the wastewater collection and treatment system for the "Northway Corridor, " of the county which encompasses about 186 square miles of the 625 square miles in the county. The district includes the entire areas of the cities of Saratoga Springs and Mechanicville, the village of Ballston Spa, the town of Malta including the Village of Round Lake and portions of the towns of Ballston, Clifton Park, Greenfield, Milton, Saratoga, Stillwater and Wilton.

These municipalities, nearly all of the developed portions of which are sewered, comprise about 56 %, or about 112,000, of the approximately 200,620 residents in the county. Both the village of Stillwater and the village of Waterford in the southeastern part of the county own and manage their own central treatment facilities, and are not part of the district. There are also a few scattered areas served by packaged plants, e.g., the Town of Clifton Park has taken over 6 or more systems outside the district which were virtually abandoned by private developers. But, in general, other areas of the county outside the district rely principally upon on-site treatment systems for wastewater management.

Saratoga County District No. 1 is served by one wastewater treatment plant just south of Mechanicville in the Town of Halfmoon, located near the west bank of the Hudson River. The plant provides secondary treatment through the activated sludge process for all wastewater in the District system, and discharges treated effluent to the river.

The wastewater (sanitary, inflow and infiltration [I and I], and storm water) from the municipalities served by the system is discharged to the treatment facility through a series of interceptor sewers that are interconnected with laterals and trunk sewer systems of each municipality. The Saratoga County District owns, manages and maintains the treatment plants and its network of interceptors. The sewer collection networks within the Cities of Saratoga Springs and Mechanicville are owned and maintained by those municipalities. Other collection systems involve a variety of ownership and maintenance: private transportation companies, town government, Saratoga State Park as well as the county district.

Origin

The district formation was an outgrowth of a 1968 comprehensive county sewerage study. The Saratoga County Sewer District was created by Resolution Number 145 of the Saratoga County Board of Supervisors dated September 16, 1970. The resolution defines the area included in the district through a description of the municipalities or portions

[7.4] Reference: Interview with James Di Pasquale, Executive Director of the Saratoga County Sewer District No. 1 on March 22, 2002 and review of written documents received.

thereof that are included within its boundaries. Approval to create the District was granted the county by order of the Comptroller of the State of New York under the provisions of Section 258 of the County Law on September 29, 1971. Resolution No. 208 of the Saratoga County Board of Supervisors dated October 4, 1971 gave final approval for establishment of the district.

By Resolution No. 230 of the Saratoga County Board of Supervisors dated November 8, 1971, the management of the district was assigned to the Saratoga County Sewer District Commission. Membership and terms of office on the Sewer District Commission has been amended several times, most recently by resolution No. 127 dated July 10, 1972. Membership is now set at 9 members with staggered terms. Members are selected at-large and serve without compensation except reimbursement for mileage.

The District has no power to issue debt or borrow funds to finance its activities, or to function independently of the county fiscal control and budgeting system. It is not an administrative Department within the Executive structure of the Saratoga County government. It is rather, by the terms of its organic legislation, an organizational entity of the County Legislature.

The Board of Commissioners is appointed by and accountable to the Legislature. The Resolution creating the Board contains no criteria governing the qualifications or representative affiliation of Board members.

Functions

The Sewer District's chief responsibility is to convey and treat wastewater originating from its member communities: of the cities of Saratoga Springs and Mechanicville, the village of Ballston Spa, the town of Malta including the village of Round Lake and portions of the towns of Ballston, Clifton Park, Greenfield, Milton, Saratoga, Stillwater and Wilton. The district also receives wastewater from a small portion of the town of Wilton just north of the district boundary, and is currently considering taking wastewater from a portion of the Town of Schaticoke in Rensselaer County across the Hudson River.

The District allows scavenger waste haulers to dispose of septic tank and grease trap waste generated within Saratoga County at its treatment plant and at a designated disposal point in the Village of Ballston Spa.

In order to protect district facilities from treatment process disruptions and possible damage caused by industrial discharges, the district enforces all local, state and federal regulations through the Federal Pretreatment Program. The district currently regulates 8 industrial facilities that discharge an average daily flow of 0.5 MGD of effluent to its system. It conducts quarterly and random inspections and sampling at these facilities to ensure compliance with its permits.

Organization, Management and Staffing

Day to day operations of the district are managed by an Executive Director who is accountable to a Board of Commissioners. The district employs a staff of 52 persons. organized in an administration section headed by an Administrative Assistant, a Plant Operations Section headed by the Chief Operator, and a Collection System headed by the Collection System Manager. All staff employed by the District are county employees and, are in the competitive Civil Service class. All staff are unionized (CSEA) with the exception of the Executive Director, Chief Operator and Senior Account Clerk who are classified as management/confidential.

Administration

Supervised by the Administrative Assistant, this section is responsible for overall administration of the District including fiscal, personnel, office operations and management.

Operations

Directed by the Chief Operator, this section carries out all process and unit in three shifts daily, 365 days a year. Also responsible for routine, major and preventive maintenance of all mechanical, instrument, and electrical equipment in the treatment plant and providing maintenance staff to assist the Collection System Manager. Also includes supervision of the State-certified laboratory. The laboratory runs all analytical tests necessary to control process in both plants, and for compliance reports to regulatory agencies. It also performs analysis of industrial wastes, and administers the industrial waste control and pre-treatment program

Collection System

Directed by the Collection System Manager, responsible for routine and preventive maintenance of sewers, pump stations and appurtenant facilities in the wastewater collection system. The section also includes a Quality Assurance Inspector.

Facilities Owned and Operated

The District owns and operates a wastewater treatment facility, which provides secondary treatment to the wastewater generated by the communities it serves. The plant is located on NYS Route 4 in the Town of Halfmoon, a few miles south of the City of Mechanicville.

The wastewater treatment plant was originally designed to treat a design maximum monthly flow of 13 MGD, and with expansion in the 1990s to 21.3 MGD, and has a peak hydraulic capacity of 47 MGD but is permitted for 25 MGD. There are no combined sewer overflows. The treatment process includes mechanically-cleaned bar screens, grit

chambers, primary settling tanks, activated sludge aeration tanks, final settling tanks, belt press sludge drying, ash dewatering tank and disinfection by ultra violet radiation. The waste sludge, after drying, is incinerated on site. The ash residue is carted away by private contractor.

As part of its regional service system, the District owns and maintains 61 pump stations and over 175 miles of trunk and collection sewers, which receive wastewater from the sewer systems of the communities served. In addition, approximately 35 to 40 pump stations owned by private transportation corporations also discharge into district sewers.

Rates, Fees And Billing

With the exception of direct billing to the Cities of Saratoga Springs, Mechanicville and the Saratoga state Park, billing is directly to the individual user. There are 56,000 billable units (an equivalent to a one family home)

Customers are billed by municipalities along with the annual real property tax. Proceeds are turned over to the Saratoga County Treasurer who acts as fiduciary for the District.

Budget and Finance

Operation and maintenance appropriations to the District for the fiscal year 2002 totaled $ 10.9 million. Of this amount, $ 2.8 million was for personnel services and associated fringe benefits.

In addition to its operating budget, the 2002 appropriated budget provided $ 2.2 million for debt service payments on County issued serial bonds and bond anticipation notes assignable to the Sewer District. This amount includes $1.6 million for principal and $0.6 million for debt service.

Total outstanding bonded indebtedness for the district in 2002 is $15.8 million including $750,000 for which the district is reimbursed by the Town of Clifton Park. Of the $15.8 million total debt, $13.8 million is for the wastewater treatment plant.

Revenues accrued and appropriated to the District in 2001 totaled $ 8.9 million. Of this amount, $7.7 million was received in user charges, penalties, etc; and $ O.5 million was received in state aid for capital projects

. The District's annual budget process entails presentation of a recommended budget by the District Board of Commissioners directly to the County Legislature, and subsequent Legislative action directly there on. The District's budget is not an integral part of the County Executive budget recommendation to the Legislature.

None of the appropriation actions taken by the County Legislature in enacting the District budget impinge upon the County's general fund. All appropriations by the Legislature for the District budget authorize expenditures only from revenues paid to the District for both

operating and maintenance costs and debt service. The Saratoga County Treasurer, acting as both the billing entity and fiduciary for the Sewer District, collects and holds such revenues received in a dedicated fund set aside for financing all District budgets.

Regulatory Responsibilities And Accountability

The District is legally responsible and liable to the appropriate Federal, State and local regulatory authorities for compliance with all public health and environmental regulatory requirements associated with its wastewater treatment, effluent discharge, air emissions and sludge management activities as required by pertinent law. This includes responsibility for the monitoring and reporting required by SPDES and air permits, and management of the wastewater treatment processes according to specifications as required by the appropriate regulatory authority.

It includes also administration and enforcement of Saratoga County Local Law # 1, a body of rules and regulations promulgated in 1984 that contain the policies and enforcement authority governing the conditions of wastewater management by the District. It includes provisions for the issuance and oversight of pretreatment permits to industrial dischargers to its facilities, and for licensing of waste haulers to discharge scavenger wastes to its system. There are currently 8 industrial discharges with a total flow of O.5 MGD.

DUTCHESS COUNTY WATER AND WASTEWATER AUTHORITY[7.5]

Introduction

The Dutchess County Water and Wastewater Authority is a public benefit corporation created in 1992 to assist the county and its municipalities in providing adequate supplies of drinking water at reasonable prices, and the proper treatment of wastewater. The Authority owns six water supply systems and two wastewater treatment plants that provide service to approximately 2,500 persons in the Towns of Beekman, Dover, Hyde Park, Pleasant Valley, Rhinebeck, and Red Hook.

Legal Foundation and Origin

The Authority was created in 1992 by act of the New York State Legislature under the provisions of the State Public Authorities Law [L. 1991, c.592, section 2]. The legislation was enacted pursuant to a home rule message adopted by the Dutchess County Legislature in 1990 and submitted to the State Legislature. It is a public district as defined by the Public Authorities Law, empowered to operate throughout Dutchess County to undertake any and all actions necessary to execute it's functions as defined by its authorizing legislation.

[7.5]Reference: Telephone interviws with Scott Chase, Executive Director of the Dutchess County Water and Wastewater Authority and http://www.co.dutchess.ny.us/wauthority.htm accessed April 05, 2002

The Authority is governed by a Board of Directors appointed severally and independently by the County Executive and the County Legislature, without the approval of either. The Executive Director and Assistant Director are civil service employees of the county; the 12 other office and operations staff are employees of the Authority.

Powers of the Authority as prescribed by its authorizing legislation include: to enter into contracts; to sue and be sued; to borrow money and issue bonds and other obligations; to acquire real and personal property by purchase, lease, contract or by condemnation pursuant to eminent domain law; to develop, construct, or maintain a project or projects; to operate or contract for the operation and management of its properties; to apply for and accept grants and loans; to fix rates and to levy and collect charges for the use of its facilities and services; to enter into cooperative agreements with municipalities, special districts, corporations, utilities, or individuals within or outside Dutchess County; and to apply for and accept licenses and permits from federal, state and local government agencies.

Functions

The Authority has provided facilities and services in both water supply and wastewater treatment to eight municipalities in the county. The majority of its activities since its inception, however, have been concentrated in the water supply area. These include its largest project to date, the Route 9 expansion of the Hyde Park Regional Water System; improvements in the Mountain View area of Staatsburg; a water main extension on St. Andrew's Road; and continuing improvements to the Authority's water distribution systems throughout the county.

Its wastewater management responsibilities are confined to the ownership, operation and maintenance of two small treatment plants: the Chelsea Cove plant located in the Town of Beekman, and the Valley Dale Sewer plant located in the Town of Pleasant Valley. The former has a design capacity of 120,000 gpd; and the latter of 38,000 gpd. The Chelsea plant serves a community of 480 condominiums in Beekman, and the Valley Cove Sewer plant serves 118 single family homes in Pleasant Valley. There are no industrial discharges to either plant.

Both plants were constructed in the late seventies and early eighties to serve the residential communities indicated above. The Towns financed construction of the plants. Beekman financed Chelsea Cove with an SRF loan, and Pleasant Valley with a Town general obligation bond issue. Both plants were initially operated and maintained by the developers of the residential housing projects, but were subsequently abandoned by the developers and left to the Towns to manage. After several years of management by Town created Sewer Districts under the provisions of Article 5A, the Towns conveyed title to both plants to the Authority in the mid-nineties. The Authority subsequently assumed the outstanding debt on both plants, and finances debt service with revenues it collects from the individual customers served by the plants.

A number of other wastewater treatment plants in Dutchess County are owned and managed by the municipalities they serve. The Authority has no responsibility for these plants or their operation.

Organization, Management and Staffing

Total staff of the Authority numbers fourteen, including an Executive Director and Assistant Executive Director. The latter two are civil service employees of the county, but remaining staff are Authority employees without civil service status.

The Chelsea Cove and Valley Dale Sewer plants are operated and maintained by private firms under contract to the Authority. Authority professional staff provide general supervision and oversight of the contractors. The firms that manage the plants were selected as the result of an RFP process issued by the Authority in 1996.

Intermunicipal Agreements

The Authority has formal agreements with the Beekman and Pleasant Valley Sewer Districts to operate and maintain the plants, and an agreement with the Dutchess County Legislature which by its terms gives the Legislature final authority over rates and rate changes applicable to the plants.

Rates, Fees and Billing

The fee structure employed by the Authority for both plants is a flat rate system, currently $ 576 annually per household for Chelsea Cove customers and $ 782 annually per household for Valley Dale Sewer customers. Rates are set to cover both O&M costs paid to the contractors, and debt service paid by the Authority. The Authority bills individual household customers directly.

Regulatory Responsibilities and Accountability

The Authority is the responsible party for regulatory conditions applicable to both plants under federal, state and local law, and holds the SPDES permits for them. The Authority has complete control of CSO and I and I in the collection and distribution systems that transmit wastewater to both the Chelsea Cove and Valley Dale Sewer facilities.

ISSUES RELATED TO BROOME COUNTY DISTRICT FORMATION

The Steering Committee requested that the Consultants examine the various ways the County could legally take on responsibility for wastewater management. Based on a review of the experience of these 5 other counties, and a review of the provisions of County Law Article 5A the issues related to formation of a county sewer district are addressed in Appendix L.

SECTION 8
OPTIONS AVAILABLE FOR NON-SEWERED AREAS

MANAGEMENT AND REGULATORY

Installation and operation of on site systems are normally a homeowner's responsibility. The traditional role of government is regulation of the installation and operation to assure that the systems do not pose an environmental or public health problem. In New York State, the county has the primary responsibility for such regulation. Problem related to on site systems are of two types; identified problems areas where there are concentrations of unsewered homes and isolated failing systems in rural areas. Changes in the Broome County regulatory and management oversight could significantly improve management of such systems, solve existing problems, and prevent future problems. There are some areas identified below where improved management of on site systems is not a solution. These areas have small lots and poor soils that make proper design and operation of on site systems untenable and other alternatives will have to be pursued.

Strengthen County Health Department

Following are recommendations for specific activities that should be taken by the county Health Department to better insure that on-site wastewater disposal systems are installed and operated properly

Education and Training

The County Health Department has from time to time provided training to septic tank owners and professional in conjunction with Cooperative Extension, Board of Realtors, Systems Installers and other groups. The following recommendations provide for more formal continuous enhanced training and education programs to promote awareness and understanding of onsite wastewater treatment systems among owners, professionals and municipal officials.

Owners

Promote and provide public education to property owners.

A general countywide program should be directed at:

- Recognizing health and safety threats from failing septic systems.
- Increasing awareness and understanding of on site treatment systems maintenance needs among homeowners.
- Gaining public acceptance of the need to repair failing septic systems.
- Developing peer pressure from neighbors on non-cooperating property owners with failing systems.
- Encouraging improved maintenance and repair of existing systems.

Specific programs should be aimed at homeowners with on site wastewater treatment systems. This program should initially be targeted towards owners of failing septic systems and should provide owners with specific information on how to operate and maintain their system.

Professionals

It is important that professionals working with onsite systems understand not only the technology but also the need for proper design and operation. This includes inspectors, realtors, code enforcement officers, designers and installers. Workshops should be tailored for each group and held annually.

Inspectors

At current staffing levels, the County Health Department is unable to carry out the number of inspections necessary if more periodic inspections of onsite wastewater disposal systems are required. An option is the use of non County Health Department inspectors. Such inspectors may include contractors, town code enforcement officers, sewage treatment plant employees, Soil and Water Conservation staff, home reality inspectors, private inspectors and/or consulting engineers. Inspectors should not include system installers in order to avoid potential conflict interest.

Training and monitoring of inspectors are major program commitments. Use of non-County Health Department inspectors will require a continuous training program to insure the use of standard inspection procedures and forms.

Certifying inspectors who meet certain requirements is a commitment that can significantly improve the quality and uniformity of inspections.

Realtors

Realtors have frequent contact with homeowners when a property transfer takes place. It is important that they understand and are able to explain to potential homeowners the responsibilities of using an on site system for wastewater disposal. The County Health Department should consider conducting annual workshops or presentations at realtor associations meetings.

Code Enforcement Officers, Designers and Installers

Code enforcement officers, and designers and installers of on-site systems are all vital links in a comprehensive onsite wastewater disposal program. Workshops tailored to their needs will provide them with the tools they need to carry out there responsibility.

Municipal Officials

Local officials must be familiar with on site wastewater disposal system problems, technology and applicable county and state regulations since they are involved in many planning and building permit issues. It is important to provide these decision makers the information they need to act. Workshops tailored to their needs will provide them with the tools they need to carry out their responsibility.

Inspection

A program requiring mandatory inspection of all on site wastewater treatment systems in the county on a set schedule should be implemented.

Table 8-1
Recommended Inspection Frequency
On Site Wastewater Treatment Systems

Type of System	Inspection Frequency
Conventional systems	Every 5 years
Other systems with pumps mechanical parts	Every 3 years
Any system with a surface discharge	Every year, Water Quality testing may be required

Table 8.1 above indicates a typical recommended inspection frequency. The Broome County Health Department should revise the above schedule for system inspections as experience dictates to assure that systems operate so as to preclude water quality and public health hazards.

Enforcement

The Broom County Health Department presently uses an enforcement procedure recommended by the NYS Department of Health. This is an efficient and effective system but often gets slowed down by lack of hearing officers. The County should assure that an adequate number of hearing officers are available.

Design Standards

New York State Administrative Rules and Regulations (10NYCRR Appendix 75-A) provide the minimum standards for design and construction of onsite waster water disposal systems in the State. The State allows Counties to adopt more stringent regulations where local conditions make them necessary to protect the health and environment. The State Health Commissioner may also issue general waver to the requirements of Part 75 where it could be shown that local conditions make such a

general waver desirable. The County Health Department has evaluated these standards and does utilize some variations that reflect local conditions. The County should continue review the state standards to determine if local conditions make more stringent standards or a general waver desirable.

Technical Services

Although the design and operation of a basic septic tank and absorption system is not complicated, homeowners need a place to call with specific technical questions. Where the site is unsuitable for a conventional system or where the owner has a failing system, they require technical advice as to the options available. Making this advice readably available can significantly improve an owner's responsiveness to design and operation requirements.

The County Health Department now provides this service to the extent that its staffing resources permit. However, providing this service is a drain on Health Department staff and may raise conflict of interest issues with the Department approving its own recommendations.

Whether it is better for the County Health Department to continue to provide this service directly or have it provided by others needs to be determined. Other counties have an arrangement with the county Soil and Water Conservation District that provide interested property owners an alternative to going to a private firm directly. For property owners who choose this option, Soil and Water Conservation District staff investigates proposed sites and creates design proposals. These proposals are then submitted to engineers under contract to the Soil and Water Conservation District for review and possible changes and then to the County Health Department for final review and approval.

Monitoring and Record Keeping

Is the periodic mandatory inspection program effective? How many systems have been repaired or replaced as a result of the mandatory inspections? Should the frequency of inspection be changed? How many systems have been repaired or replaced as the result of complaints from neighbors and actions by property owners not prompted by the mandatory inspections? To what extent do mandatory inspections prevent future system failures and pollution by altering owners' maintenance practices? How effective is the Education and Training program? I am a homeowner and have lost the plans to my system. Where can I obtain a copy? To answer these questions, an extensive information management system is required.

The County Health Department has an electronic record of all systems installed in Broome County since 1969. This supplements the paper files that the county is required to maintain. The County has a GIS system and the Health Department is working with other County departments to use it for on site system mapping and records. In addition the New York State Department of Health data management system also provides a system of tracking individual septic systems and program time and activities.

Development of a system to integrate these various systems into a single electronic system of records for ease of recall and update should be considered. All records filed with County Health Department offices should continue to reference the tax parcel as a coherent means of tracking septic systems and maintaining an up to date record of owners responsible for maintenance. This would reduce resource costs since local assessment offices that maintain the State Real Property System already determine the type of utility for each parcel. All new systems would require a site map and as-built designs to be filed with County Health Department.

Septic tank pumpers should be required to keep records as to location of tanks and fields and to send their maintenance records to the county.

This would also become part of the realty record for realtors who should have a maintenance record for the septic system when the property is listed along with a certification that the system is functional and meets minimum standards.

FUNDING

The county on site wastewater management program is presently funded by county funds and a partial reimbursement grant from the State Health Department. Additional county funding to support the above recommendation could come from a system of fees including permit fees, inspection fees, filing fee, sludge management fees, and fines. A schedule of fees based on the cost of the county to perform the service would have to be developed. These funds would be eligible for the State Health Department matching grant program. An estimate of the resources involved is given in the following table.

Table 8-2
Cost Estimate of Strengthening County Health Department

Item	**Annual Costs**	**Personnel Costs**
Program Direction, Subdivision review	Sr. Engineer	$90,000
Education & Training	Full Time Public Health Educator	50,000
	Contracts for 4 courses annually. 15 people per course @ $80 person.	4,800
Inspector Certification	Contract	40,000
Additional Inspections	Contract	10,000
Enforcement	Additional Hearing Officers (Contract)	10,000
Technical Services	Contract with other agency	50,000
Monitoring and Record keeping	One full time technical specialist	45,000
Promotion of On site districts	Contract under direction of Public Health Educator	50,000
Total		**$349,800**

The state and federal government are interested in developing new management options in the on site system area. The county should aggressively track and apply for available Federal and State grant funds as they become available. A partnership with Cornell University should be considered. Cornell has an active Local Government Program that was created to assist local government in dealing with such problems. The Program includes a state wide study of on-site systems. [8.1]

ZONING TO PREVENT SPRAWL

There is a great potential for urban corridors in the county to develop significant wastewater problems. Although the Health Department regulations require sewers for any subdivision over 50 lots there is no regulation of commercial systems or small subdivisions. Because of poor soils the only way for homes or commercial establishments to develop is on large lots. This has resulted in new development of rural areas in the form of large lots along major corridors leading to major population centers. Because of the large lot size, the cost of connecting these homes and businesses to a centralized treatment system is always likely to be prohibitive. This not only leads to future environmental and public health problem but also is a cause of urban sprawl. Zoning to prevent this type of development should be implemented. Such zoning may make the town a more attractive placed for development.

Zoning is a town not a county function. However the County can take an active role in assisting Towns by identifying areas where such zoning could be useful and assisting in development of the zoning regulations.

ON SITE WASTEWATER MANAGEMENT DISTRICTS

Several unsewered areas in the county have been identified that have a dense population, poor soils, a significant number of failing wastewater disposal systems and are isolated from the rest of the county. The failing wastewater systems are discharging raw or particularly treated sewage to lakes, streams or the ground surface and cause environmental and/or public health problems. The cost of a conventional centralized sewage system makes it unfeasible. It is probable that these homes will remain dependent on Onsite Wastewater Disposable systems for the foreseeable future. An improved management system for such area appears desirable. For these areas an Onsite Wastewater Disposal District could provide the management necessary to assure that onsite wastewater disposals systems within the district are properly installed, operated and maintained, so that they accomplish their intended purpose.

There is authority in existing Town law to create such districts but there is little experience with these districts. Appendix J provides a basis for a model program for On Site Disposal Districts.

OMBUDSMAN AS A RESOURCE.

Funding for formation and implementation of town sewer districts is available from a number of federal and state grant programs. Individual town officials have difficulty keeping up to date on funding sources and on how to apply for grants. A county resource for assisting in this area would increase the opportunities for receipt of grants and thus solution of problem areas.

INSPECTION AT TIME OF PROPERTY TRANSFER

County legislation should be proposed for an inspection at time of property sale and that failing systems be upgraded or repaired before property transfer. At the time of sale the owner would have to have a certification that the septic was in good working order and met appropriate standards. These certifications would also be on file at the County Health Department. Such Legislation would provide for a means to bring older systems into compliance gradually as properties transfer. Many financial intuitions require on site inspections when issuing a mortgage on a property. Such inspections are not regulated by the County Health Department. There is no readily available data on the percentage of homes sold that are subject to such inspections nor is the quality of the inspections and follow up on requiring corrections clear.

ASSISTANCE TO PROPERTY OWNERS

Funding to support inspections, incentives for upgrading systems and assistance to low-income property owners was repeatedly indicated as a need. Revolving loan funds or similar funding may be more appropriate at the county level instead of town level. Low interest loans were not considered sufficient incentive for low-income property owners because of their inability to repay and the limited amount of equity available in their property.

SPECIFIC PROBLEM AREAS

Village of Whitney Point

The village has applied for and received partial federal funding for a sewer system. The village is scheduled to receive $450,000 in federal funds for the sewer system this year. An additional grant $500,000 is expected next year. These grants should bring the cost of the system to below $500/ year per home. The feeling is that no one would petition for a permissive referendum, as long the cost was less than $500 per homeowner. Construction and operation of system should solve this problem**.**

West Windsor, Town of Windsor

Plans for a public sewer system for this area have been developed. Implementation is hampered by estimated high costs to the homeowner. Pursuit of state and federal grants should proceed so that the system cost will be acceptable to the homeowners.

Windsor Village

There are many failing systems in the Village and the density is such that a sewer system is appropriate. The area is not likely to experience any future growth. The age and income status for the homeowners are likely to make it impossible to provide a sewerage system for the Village without outside funding. The Village and the County should continue to pursue state and federal grants to bring the system cost to a level acceptable to the homeowners.

Deer Lake, Towns of Windsor and Sanford

Construction of a conventional sewer system for this area is unlikely to be cost effective. The homes on the east side of the lake are on small lots and close to the lake. It is unlikely the conventional on site systems can be designed for these homes because of the small lot size and their proximity to the lake. The concept of a small diameter sewer, which pumps septic tank effluent to a common site away from the lake for treatment and disposal, should be explored. This will require the formation of a special onsite treatment district with element of the district outlined in Section 8.1.3.

The homes on the west side of the lake are larger and this area should be considered for an on site disposal district as outlined in Section 8.1.3.

Laurel Lake, Town of Sanford

The camps on this lake are modest with small lot sizes. The failure rate of existing systems is not known but is believed to be low. Creating a public support for public district in this area will be very difficult. As stated above, Cornell has found lake associations to be a source of the leadership capable of the sustained effort needed to implement such districts. The County Health Department should promote these potential solutions by education and technical assistance to the lake association and town.

Blueberry Lake, Town of Sanford

Blueberry Lake. The camps surrounding this lake are large and are on large lots. More detailed information of the effectiveness of the existing on site systems needs to be done before the need for corrective management measures can be made.

White Birch Lake and Beaver Lake, Town of Windsor

A site visit to these lakes showed small camps on smaller lots. The camps were of apparent modest value. This area may have some potential for cluster systems and/or an On Site Wastewater Sewer District but given the value of the camps it may be a difficult to justify economically. Further detailed study will be necessary to evaluate the situation.

Bell School Area, Town of Kirkwood

On site systems have been identified as a problem in the Bell School area. A petition circulated recently among residents of that area resulted in a 56 % vote in favor of sewering. Sewering of this area may prove to be prohibitively expensive. Consideration of other options such as an On Site Management District" or cluster sewers should be considered.

Funding

Adoption of the options outlined will require an initial capital investment and continued operating cost.

Capital Cost

It is unlikely that existing problem areas will be able to afford the initial investment required for creation of the conventional or on site sewer districts needed to solve their problem. Creation of such districts will require legal and administrative cost for startup of new sewer districts and capital to upgrade existing on site systems, construct cluster systems and/or new sewers and treatment systems.

Strengthening the County Health Department will also require startup costs for development of educational programs, an inspection certification program, and a monitoring and record keeping system.

Discussions with state officials indicate that both the state and federal government are interested in developing new management options in the on site system area. The county should aggressively track and apply for available Federal and State grant funds. A partnership with Cornell University or others familiar with grant application procedures should be considered.

To facilitate creation of sewer districts for existing problem area the county should consider setting up a revolving fund and capitalizing it with grants or loans from EPA, State Bond act pollution prevention funds or other appropriate sources. A modest county match to the fund (10% or 20%) would show that the county is seriously committed and enhance the potential for grant funds. Capitalization of the fund could be preserved to some extent by requiring a match for capital improvements to on site systems from the property owner or owners who benefit. Although towns could apply for and receive such grants, a countywide grant application is more likely to be successful. A revolving loan

fund or similar funding also may be more appropriate at the county level instead of town level.

Operational Cost

The existing county on site wastewater management program is funded by county funds and partial reimbursement from the State Health Department. Additional County funding to support an enhanced education and training, inspection, enforcement, technical services, and improved monitoring and record keeping will be necessary. The funds could come in part from a system of fees including permit fees, inspection fees, filing fee, sludge management fees, and fines. A schedule of fees based on the cost of the county to perform the service would have to be developed. These funds would be eligible for the State Health Department matching grant program. An estimate of the additional cost for the recommended program is $400,000.

SECTION 9
ISSUES, NEEDS AND OPTIONS

There are currently ten wastewater treatment facilities serving sewered areas of Broome County. In addition, large areas of the county depend upon on-site systems (primarily septic tanks) to dispose of sanitary waste This study of the management of wastewater in Broome County reveals a number of weaknesses and issues associated with both of these methods of wastewater management that will require resolution if this area of public infrastructure service is to be effectively and reliably managed in the future.

These weaknesses and issues are identified here. Optional arrangements that might be employed to remedy them are suggested. Alternative policies and initiatives that could be adopted to remedy the issues which embody selected options are presented , along with an assessment of their advantages and disadvantages.

SEWERED AREAS

Ownership Of Wastewater Treatment Facilities

Decentralized ownership and control of some wastewater treatment facilities by a few local governments subjects customers in outlying municipalities to present and future uncertainties about growth and costs

The two largest of the ten public, SPDES- permitted wastewater treatment facilities in the county are owned by three municipalities. The largest, the Binghamton-Johnson City Joint Sewer Board facility, (hereafter BJCJSB) is jointly owned by the City of Binghamton and the Village of Johnson City. In addition to treating the wastewater of their combined resident population of 62,915, the BJCJSB plant provides treatment service to parts or all of the sewered areas of eight other outlying municipalities in the county: the Towns of Binghamton, Conklin, Dickinson, Fenton, Kirkwood, Union, and Vestal; and the Village of Port Dickinson. Collectively, these eight outlying municipalities, with a resident population of 113,334, account for about 48 % of the total population of the county. The BJSJSB plant also treats all of the wastewater generated by the State University at Binghamton, which is located in the Town of Vestal.

The second largest treatment plant in the county is owned by the Village of Endicott. This plant serves the wastewater treatment needs of its own residential population of 13,038, plus an additional population of about 37,000 residents of Union and Vestal who reside in sewered areas of those two municipalities that are not served by the Binghamton-Johnson City plant. Union and Vestal had a combined year 2000 population of 82,833.

Of the eight other public wastewater treatment facilities owned by municipalities in the county, none serve customers other than their own residents. Two are located within and owned by the Town of Chenango, with a year 2000 population of 11,454. These plants

treat wastewater generated only by residents of the sewered parts of Chenango, and do not provide treatment service to municipalities outside of the Town.

The Village of Deposit's plant serves its population of 1699, about half of whom reside in the Broome County and half in the Delaware County portion of the Village, plus a small number of customers who reside outside of the Village in the Town of Sanford. Windsor's two community treatment facilities, Pine Valley # 1 and # 2, consisting of a holding tank and settling pond each, serve 10 homes and 14 homes respectively in that Town. The Porter Hollow Road sewer system, located in a rural area of the Town of Fenton and serving only residents of the Town; has a design capacity of 6,000 gpd, and consists of dual sand filter fields. The Parkwood sewer district plant serves an isolated residential area in the Town of Binghamton.

The owners of both the BJCJSB plant and the Endicott plant consider their respective treatment facilities, as a matter of both policy and practice, to be dedicated foremost to serving the wastewater treatment needs and requirements of their own residents. While they do accept wastewater from outlying municipalities to be treated at their plants, they do not consider this action to be obligatory as a matter of municipal policy. Their position as stated to consultant is that they are merely selling a service to other communities, which in turn provides a benefit to their residents, chiefly in the form of revenues to help finance the cost of managing and operating the treatment facilities. They assert that they have no commitment to address existing or new needs of the outlying municipalities presently tied to their plants by interceptor mains and other infrastructure, nor to consider and provide for business development and other elements of economic growth in the county beyond their own communities. In summary, they are not, as a matter of policy, regional wastewater treatment service providers, and do not intend to become so.

Remedial Options

Transfer ownership of those locally owned treatment facilities that currently sell wastewater treatment services to other municipalities to an entity that would manage them as a true regional service provider. This could be:

1. A County sewer district or multiple sewer districts created under Article 5A of the Municipal Law; or
2. An independent county sewer authority; or
3. A private firm that would be franchised and regulated under the terms of the State Transportation Law

Governance Of Wastewater Treatment System Operations

Customers and public officials in municipalities whose wastewater is treated at facilities owned by other municipalities have no voice in policies and decisions affecting the operation, maintenance, and capital investments in those facilities

The municipal owners of wastewater treatment facilities in the county decide and control the policies and practices that govern all aspects of plant management and procedures.

The governments of the City of Binghamton and the Village of Johnson City exercise this control through the BJCJSB which governs the management of their jointly owned plant. Board members are co-equally appointed by the respective Mayors of those two municipalities.

The Mayor of the Village of Endicott shares this governance responsibility with the Endicott Village Board. Similarly, the Supervisors of Chenango, Fenton, Windsor, the Town of Binghamton, and the Mayor of the Village of Deposit share this responsibility with their respective legislative bodies.

Governance functions include but are not limited to setting rates and charges for wastewater treatment at the facility; allocating plant capacity to various sewer districts and municipal customers served; billing customers for service and collecting fees charged; financing all operating and capital costs; deciding upon capital improvements to the facility or facilities; hiring staff and setting rates of compensation; and responding to and complying with requirements of State and Federal regulatory authorities.

The outlying municipalities that are served by the B-JC and Endicott plants have no voice in the governance of those facilities. The terms of the service they receive from these plants are governed wholly by the inter-municipal agreements between them and the owners. Those agreements speak primarily to the basis for services rendered, the sewer districts to be served, conditions of payment, and in some cases capacity limitations allocable to the municipality served.

Those officials of the outlying jurisdictions that were interviewed universally expressed dissatisfaction with the absence of representation in the governance function. They asserted that decisions about capital improvements, in particular, have a dramatic and permanent affect on treatment costs passed on to them and their residents; and that existing governance is unresponsive to their needs for increased capacity and service associated with growth, and in some instances the conversion of residential wastewater management from individual to sewered systems.

Remedial Options

Assuming that ownership of the plant or plants that now sell wastewater treatment services to several municipal governments is transferred to a regionalized service provider as discussed above, provision could be made to include representation of customer interests in the composition of the governing body of such a regional provider.

Operational Responsibility And Effectiveness

Responsibility for day-to-day management of treatment plant operations and maintenance is a function of plant ownership in Broome County. The efficiency and effectiveness with which municipally owned facilities are managed directly affects the costs that customers pay for wastewater treatment service.

Traditional operation and maintenance of wastewater treatment plants and related wastewater infrastructure by municipal government agencies and personnel have not always generated the efficiencies and productivity gains that are so essential to cost containment and the resultant stabilization or potential reduction in rates and charges to residential, business, and other classes of customers for wastewater services. As existing technology and infrastructure ages, and the requirements of federal and state regulatory mandates grow more stringent, there will be increasing pressure on localities to manage and finance their wastewater systems more effectively to contain costs and to keep rates in check.

Remedial Options

Contract with private firms to operate and maintain treatment facilities and manage other features and functions of the wastewater service system.

A variation in government owner-operated and maintained wastewater treatment system practice that is gaining in attractiveness with municipal government throughout the United States are public / private partnership arrangements in which government retains ownership of the facility or facilities, but operation and maintenance is performed by private firms under contract with the public owner. Such arrangements have proven in many cases to reduce or at least stabilize costs and increase the effectiveness of service. (See later discussion for more on private / public partnerships)

Wastewater Management Capability
To Facilitate And Support Economic Growth In Broome County

There is no established entity in Broome County positioned to assure wastewater management services to new business and residential growth, wherever in the county that may occur.

Arrangements to provide for wastewater management services and treatment capacity to support prospective new industrial, commercial and residential growth in the county, and to meet treatment needs of communities that wish to shift from on site treatment to sewered systems, was raised or recognized by all those interviewed in this study as necessary and desirable. The owners of existing facilities assert that they have no responsibility to provide capacity to support growth beyond their own municipal jurisdictions. There is unused capacity in the current design of the Endicott facility, and in the two plants owned by Chenango. There is no uncommitted capacity in the B-JC plant, although there may be after the current up-grade is completed depending on the extent to which the City of Binghamton and the Village of Johnson City reduce their I and I flows and separate their storm-water from their sanitary sewer systems.

Remedial Options

The county government assumes responsibility for providing adequate wastewater management capacity to support economic development and growth in the county.

1. Acquire ownership and management control of one or several existing facilities, and allocate existing capacity or construct additional capacity at those sites to support new growth.
2. Build new capacity at a new undeveloped site or sites.

Ownership And Management Of Sewer System

Local sewer systems and related treatment facilities in the county might be more efficiently and effectively managed under a single owner at the county / regional level.

Several local officials raised with the consultant the desirability of vesting ownership of all sewer collection and transfer systems in a county-wide entity. This would place control and management of the entire sewered wastewater management system in each community in the hands and control of a single, county-wide organization. Correcting I and I problems, separating storm-water from sanitary systems, maintaining the systems, and constructing and financing new sewering capacity in each municipality would be assumed by a county-wide organization.

Remedial options

1. Create a single county sewer district
2. Create multiple county districts
3. Create a public sewer authority
4. Privatize by sale, contract, or by a franchised utility arrangement
5. Status quo

Financing treatment facility upgrading and new facilities in small communities

A number of small, sparsely populated communities in the county confront financing issues associated with needed upgrading of existing treatment plants, or to build new facilities.

The Villages of Deposit, Whitney Point, and Windsor are each faced with the need to incur significant expense to finance either upgrading of existing treatment plant, or to build new facilities to support wastewater treatment for the anticipated sewering of portions of their communities..

The Village of Deposit is on notice from the State Department of Environmental Conservation that a consent order will be issued presently requiring major improvements to its wastewater treatment plant. Current estimates are that the improvements entailed will cost approximately $ 4.5 million. Financing these improvements through municipal obligation or SRF borrowing would encumber Deposit's year 2000 population of 1699 persons (835 in Broome County; 864 in Delaware County) with a long term new debt liability of about $ 2,648 per capita. Ignoring interest, which could vary widely depending upon the form of debt issuance, repayment of the principal over 20 years

would amount to about $ 132 per capita annually. These charges would either be added to the charges to pay the operation and maintenance costs of the wastewater plant billed to each sewered property, or levied as an annual ad valorem charge to each property. Village officials advised the consultant that they are unwilling to impose this great a burden on Village residents and businesses, and are seeking funds in the form of non-repayable grants to write down a substantial portion of the borrowing required to finance the plant upgrades. As of this writing, they have not been successful in securing such grants.

The Villages of Whitney Point and Windsor confront financing problems similar to Deposit's. In their case, however, their issue is not how to finance the upgrade of an existing plant, for they have none, but to pay for the construction of new wastewater treatment facilities. Both Villages have a pressing need to sewer most of the settled areas of their communities. New treatment plants would be needed to support the sewering of these Villages. The cost of these facilities is not known based upon detailed engineering estimates. But assuming for discussion purposes that the cost of siting and building new treatment plants and related interceptors and pumping facilities in each Village would be, conservatively, $ 4.0 million, the debt liability per capita based on Census 2000 population would be $ 4,145 for Whitney Point (pop. 965), and $ 4,440 for Windsor (pop. 901). Annual per capita repayment costs of principal over 20 years, excluding interest, would average $ 207 for Whitney Point, and about $ 222 for Windsor.

Local leadership of both Whitney Point and Windsor have expressed reluctance to impose this kind of long term debt repayment liability on residents for wastewater treatment services associated with a conversion to sewering. These costs would be added to the assessments imposed on property owners to finance the expenses associated with sewering and connecting, and to the annual charges levied on them for wastewater treatment. As in the case with Deposit, local leaders are seeking non-repayable grant funds to finance a substantial portion of the cost of building new wastewater treatment facilities to support their community sewering objectives. They have not been successful to date in securing such grants.

Remedial Options

1. Broome County government intervenes to aid small communities to finance wastewater treatment facilities.

    a. Broome County IDA explores collaborative effort with Delaware County IDA to assist Deposit.
    b. Broome County government actively supports and joins Village grant seeking initiatives at State and Federal levels.

Alternatives Available to Address Needs

We examine here a number of alternative actions and steps we believe are available to address some of the shortcomings in wastewater management in Broome County that have been identified in this study. These alternatives embody and elaborate on most of the remedial options identified briefly in the foregoing discussion of issues. With one exception, they all involve a more direct role by the county government in wastewater management.

Alternative A: No County Role

This alternative means that none of the issues and needs that have been identified in this study will, with any certainty, be addressed. It does not draw county government directly into dealing with the difficult challenges of attempting to assure a healthful, safe and reliable system of wastewater management for the present and future residents and businesses of the county. Instead, those challenges are left to the current, decentralized system driven entirely by residents and elected leadership of the City, Towns, and Villages of the county. Issues that have confronted some localities for years, and still do, will probably continue to languish unaddressed.

Business firms looking to locate in the county will confront a vacuum of assistance and assurance that wastewater infrastructure needed to support their operations will be adequate and available on time, unless they are able to negotiate satisfactory arrangements with one of the few municipalities that have some installed capacity and are willing to accommodate them.

The advantage of this alternative is that the county bears no direct operational or financial burden for addressing wastewater issues, although this can also be viewed as its principal disadvantage.

Alternative B: County Acquires One or Several Existing Treatment Plants and Creates a County Sewer District or Districts to Manage Services Provided by Them

The county would become a direct provider of wastewater treatment services to sewered customers within the district. This alternative assumes that the county sewer district would be created under the provisions of Article 5A of the County Law. The process for establishing the district is discussed in Appendix I of this report.

The county would acquire ownership of only the wastewater treatment facility and the interceptors and mains immediately appurtenant to the plant to enable it to control flows to the facility. Sewer collection systems in the communities within the defined district would remain the property and responsibility of each municipality involved.

In acquiring the treatment plant or plants and related facilities, the county would assume all outstanding debt of the previous owner(s), as well as liability and responsibility for

meeting and managing the environmental and public health requirements to which the facilities are subject under federal and state law. In creating the district or districts, the county would designate a governance entity responsible for directing the operational policies and practices of the district. The county could provide for representation of the communities and customers served by the district on such a governance body.

Advantages of this alternative are:

- The county would be enabled to deliver wastewater treatment services to customers within the district functioning as a true regional service provider, and could overcome many of the shortcomings and address the more intractable issues associated with the current decentralized system of ownership and control.
- County government would be in a position to assure wastewater treatment service to facilitate new business and residential growth within the district, or extensions of the district. If installed capacity of the plants it acquires is insufficient to accommodate growth, the county could finance and construct additional capacity and needed interceptors and mains at the existing plant site or sites.
- Establishing the sewer district under the provisions of Article 5A keeps its wastewater service policies, budgeting, debt financing, and operational practices under the control of county government. The district becomes an entity, organizationally and legally, of Broome County government, accountable to the County Legislature.
- Creation of the sewer district is within the province of the county's discretion under existing law, subject to approval of the State Comptroller and a permissive referendum. This contrasts with other methods of instituting a legal role for the county in wastewater management operations, such as creation of a county sewer authority, which would require approval by the State Legislature.

Disadvantages of the alternative are:

- The county engages in a new public service function previously left wholly to one or several of its municipalities.
- Substantial debt assumed with the acquisition of one or more existing treatment facilities increases the county's debt burden, which could in turn affect its future bond rating and borrowing limits. Future financing of facility improvements and capacity up-grades to meet both regulatory requirements and economic growth needs would increase the county's fiscal exposure.
- Assumption of legal and operational responsibility for compliance with Federal and State regulatory law applicable to the facilities it acquires (and related CSO regulation affecting treatment plant operation) exposes the county to risks and possible penalties associated with violations, as well as possible future rules that would impose new constraints and costs.
- Uncertainties associated with possible costs and restrictive terms demanded by current owners as conditions of transfer of facilities to county ownership could render this alternative infeasible or impracticable.

- Continued local ownership of municipal sewer collection and distribution systems leaves correction of CSO and I and I problems to the discretion of each municipality, thereby rendering uncertain the preferred improvement of the efficiency of the total wastewater system over time.

Alternative C. Create a Broome County Wastewater Authority to Function County-wide to: (1) Acquire and Operate Some Systems and Facilities; and (2) Assist in Developing Others

The county government would enact a home rule message and petition the Legislature of the State of New York to enact legislation to create a Broome County Wastewater Authority under the provisions of the New York State Public Authorities Law. The Dutchess County Water and Wastewater act [L. 1991, c. 592, section 2], which we discuss elsewhere in this study, could serve as one model for creation of a Broome County Wastewater Authority.

The Authority would be a public benefit corporation, and would be a public district as defined by the State Public Service Law. Its jurisdiction would encompass the entirety of Broome County. It would be a legal entity empowered to operate in Broome County, for wastewater management purposes, independent of the powers and authority of constituted municipal government. Its functions would embrace any and all action necessary to advance its program charter as prescribed by its authorizing legislation. The Authority would be governed by a body of persons appointed severally and independently by the County Executive and the County Legislature, without the approval of either.

The Authority would have the power to enter into contracts; to sue and be sued; to borrow money and issue bonds and other obligations; to acquire real or personal property by purchase, lease, contract, or by condemnation pursuant to eminent domain law; to develop, construct, or maintain a project or projects; to operate or contract for the operation and management of its properties; to apply for grants and loans; to fix rates and collect charges for the use of its facilities or services; to enter into cooperative agreements with municipalities, special districts, corporations, utilities, or individuals within or outside Broome County; and to apply for and accept licenses and permits from federal, state and local government agencies.

Advantages of this alternative are:

- An agency legally independent of county and municipal government would be established to address all issues and problems associated with sewering, sewage, and wastewater treatment throughout the entire county, depending upon how its charter is enacted by the New York State Legislature.
- An authority could build and operate new treatment facilities and wastewater infrastructure to accommodate new industrial and residential growth, independent of existing facilities and infrastructure.

- The county Executive and Legislature could appoint members to the authority governing board who would represent the interests of the municipalities and residential interests to be served by the authority.
- The authority could acquire existing facilities to serve its purposes.

Disadvantages of this alternative are:

- Creation of a Broome County Wastewater Authority would be at the discretion of the New York State Legislature acting under the provisions of the State Public Authorities Law. This may incur delays or ultimate inaction.
- As a public entity functioning throughout Broome County independent of constituted county and municipal governments, the Authority may not and need not always be responsive to the wastewater related policy and program needs of those bodies.
- The public may have little or no voice in the rates and charges set by the Authority for the provision of its services.
- Wastewater treatment facility financing benefits of an authority are diminished because of the existence of the State Revolving Fund.
- Uncertainties about the terms required by existing owners as conditions for transferring control of existing wastewater treatment and related facilities to an Authority could render this alternative economically and financially infeasible.

Alternative D: Contract With Private Firms For Operation and Maintenance and Financing of Wastewater Infrastructure Systems and Services

Opportunities for improving cost-effective management and alternative methods of financing wastewater management infrastructure are available to local government.
Municipal governments have increasingly looked to private firms to manage, and to maintain and operate, both their water supply and wastewater treatment services and facilities. Currently, more than three hundred localities in the United States are engaged in private / public partnership agreements to provide many of these services. The majority of these are for wastewater management.

Local governments have turned to private contract arrangements to provide these services chiefly for two reasons: (1) properly written incentive concession agreements with private firms generate significant savings in operation and maintenance costs, attributable largely to improvements in productivity, as compared with the traditional management of these services by government agencies; and (2) private firms are a willing source of capital to finance both infrastructure development and expansion, as well as needed upgrades of existing facilities, thus relieving municipal government of the need to finance such improvements through public borrowing.

Recent estimates by the U.S. Environmental Protection Agency (EPA) suggest that between $300 and $400 billion will be needed to replace aging wastewater infrastructure, and to build new plants and expanded system capacities to meet the requirements of the Clean Water Act over the course of the next twenty years. Localities will have to

increase capital spending by about 5 % annually over the next two decades to meet these needs. The Federal share of these investments will average about $2 to $3 billion per year to finance State Revolving Fund capitalization. The remainder will have to be raised by local government, largely through the issuance of municipal debt or from other sources.

The trend in water related operation and maintenance cost is just as dramatic. EPA estimates that O&M costs for existing plant is growing at 5 % to 6 % annually, and in many municipalities will exceed the annual cost of debt service during the next twenty years.

These trends mean that the costs of water and wastewater service to households, businesses, and not-for profit institutions will increase steadily in most communities, and affordability will be affected, especially for low income households.

Many communities have looked to private firms to assume the responsibilities for managing their water supply and wastewater systems to secure the rate stabilizing and cost saving advantages that such arrangements offer, as well as the access to private capital that these public / private partnerships provide. In nearly all such arrangements that have been concluded up to now, the municipality retains ownership of the facilities and infrastructure involved.

Contract services provided by private firms vary in scope. While some include management services for both water supply and wastewater, the majority are for wastewater. Most of the arrangements in place provide for operation and maintenance of the wastewater treatment facility, including related interceptor and trunk lines and pump stations. These also include contractor responsibility for the management of biosolids. In some cases, the contractor is responsible also for managing the related community CSO system.

Many of the contracts include provisions for overseeing and administering the industrial pretreatment responsibilities of the municipal owner. Some provide also for contractor financing and building of facility upgrades and improvements needed to increase treatment capacity or to comply with regulatory orders. In nearly all instances, the partnership arrangements include provision for sharing with the municipal owner the responsibility for compliance with applicable federal and state regulatory requirements, and the liability for violation of any such requirements that may occur in connection with contractor responsibilities under terms of the contract.

Our research indicates that there are many firms engaged in providing contractual wastewater management services to municipalities throughout the United States. Therefore, opportunities for municipalities to secure such services competitively in order to meet their particular needs to the best advantage of their constituents are available in the market place. While many of the firms so engaged operate only regionally, a number function nationwide. We include as Appendix L to this report the identification of five firms that could serve as the starting point for a competitive invitation by Broome County to explore alternatives to meet its future wastewater operational management and

investment needs through partnership agreements The specific firms listed are offered without preference to each or all of them.

Contracting for provision of municipal wastewater management services by private firms is complex. Earnings and profit goals of the private firm must be balanced with the public goals of the municipality to assure efficient and cost-effective delivery of wastewater services to the community, and quality management of the associated infrastructure that supports those services over time.. In order to insure that such contracts are drawn and entered into to the greatest advantage of local governments and their constituents, the services of experienced persons and firms should be engaged to assist in the process. Appendix L lists three such consultants that collectively have assisted more than 80 % of those municipalities in the United States currently contracting with private firms for wastewater services to design and negotiate those contractual agreements. We urge the county government or a municipality within the county that may contemplate entering into a public / private partnership to manage its wastewater system to engage an experienced professional to advise them at the outset.

Option

Broome County government should actively investigate opportunities to employ a private firm to partner with it in managing and maintaining wastewater services should the county become an active entity in delivering such services to residents and businesses in part or all of the county. Municipalities within the county which currently own and operate wastewater treatment facilities and related systems should also consider investigating private service opportunities, whether or not the county government becomes an active participant in managing and delivering some wastewater services.

Advantages of this option are:

- Government secures the incentive-driven services of for-profit enterprise to manage its wastewater system efficiently and effectively.
- Responsibility for regulatory compliance and liability for violations is shared with the private provider.
- Private partnership offers ready access to capital to finance facility improvements and address CSO and I and I problems.
- Opportunities for rate stabilization over time are enhanced under private management.

Disadvantages of the option are:

- Public employees and unions may resist privatization on grounds that it threatens job security and pay scales.
- Private contractors may defer investing in necessary preventive maintenance and system upgrades in order to maintain earnings margins.
- Private earnings and profit goals may be inconsistent with optimizing public goals of service quality and rate minimization.

- Municipal owners have less control of treatment plant and related infrastructure operation and maintenance policies and practices than under public management.

NON-SEWERED AREAS

Our assessment of conditions in those areas of the county which are not sewered, and which rely instead on the use of on site systems to dispose of sanitary wastewater, suggests the need for improvements in public policies and programs to enable the county to deal effectively with this method of wastewater management. We conclude that, like most counties in New York State, the county's responsibility to assure that on site wastewater systems are properly installed and continuously maintained in good order fall short of meeting the public health and environmental protection goals of State Health and Environmental Conservation laws. Our review of the county's performance in this area lead us to attribute this deficiency in its on site system controls largely to a lack of sufficient resources which results in a largely passive program regime on the part of the county Health Department, and generally to the absence of county policy and law which defines clearly and advances public objectives in this area.

Alternatives for Management of On Site Systems

Alternative A: Do Nothing

Continuation of passive program management of non sewered areas, which relies to a great extent upon complaints to identify problems after they have already developed, and upon the good faith and presumably informed effort of individual property owners to voluntarily maintain their systems in proper working order, will inevitably lead to more of the kinds of problems that the limited information available to us in this study illustrate. The outcome can only be negative for both public health, and for the quality of life and the natural environment, in the non-sewered neighborhoods and communities of the county.

Alternative B. Redirect the Program Orientation of the County Health Department's On Site Management Efforts

Changing the program orientation of the County Health Department from passive to proactive will place the county in a positive position to educate, oversee and direct the proper maintenance of on site systems. The county's role becomes preventive rather than reactive.

Advantages of this alternative are:

- Improperly maintained, and inadequately designed or functioning, on site systems are systematically identified and corrected before they become public health and / or environmental problems for the property owner and the community.
- Property owners will become more aware of and sensitive to the need for proper and regular maintenance of their on site wastewater systems.

Disadvantages of the alternative are:

- County budget and personnel resources committed to on site wastewater system management must be substantially and permanently increased.
- The cost and inconvenience of periodic inspection of on site systems will have to be borne by property owners.
- Costs to some property owners for system maintenance and correction of failed systems will increase
- The county government becomes a more ubiquitous and aggressive regulator of one element of private property management.

Alternative C. Enact New Policies and Program Tools to Advance Community Goals in On Site System Management

A proactive program of on site wastewater system inspection and monitoring by the County Health Department will contribute substantially to the improvement of on site conditions and the protection of public health and the environment throughout the county.

This effort could be reinforced with selected new policies and program tools. Such policies and tools might include: (1) enactment of county legislation to require the certification of adequately functioning on site facilities as a condition of real property sale transactions; (2) enactment of county model legislation and promulgation of a county advisory system to encourage the voluntary creation of on site system management districts by property owners to be administered by local government as currently authorized by Article 12 of the Town Law; (3) creation of a county fund to share with property owners the costs of a cooperative effort to arrest pollution caused by groups of failed on site facilities, where individual efforts may not prove satisfactory or sufficient; and (4) the issuance of county advisory maps to local planning and zoning authorities which identify soil types that cannot support the adequate functioning of on site wastewater systems. These and other policies are discussed in detail elsewhere in this report.

Advantages of this mix of alternatives are:

- These measures would add policies and program resources not now available to county and municipal government and property owners to address on site wastewater system management and remediation more effectively.
- Some features would forge a working partnership between the county and municipal governments to help address certain local on site problems.
- Such measures would complement (but not substitute for) an enhanced program of systematic inspection and enforcement of on site systems by the Health Department.

Disadvantages of this mix of alternative are:

- Certain measures would increase the workload of some county departments like Health and Planning, and may require additional budget and personnel resources to administer them.
- Real estate interests and property owners may oppose legislation that would impose new conditions on property transactions on grounds that it would introduce transaction uncertainty, impede sales, and delay closings.
- Creating a county fund to share with property owners in the costs of financing on site system remediation poses significant challenges to the county in securing funds from grants, assessments on property owners, and other sources such as sales tax revenues, to capitalize or finance such a fund.

SECTION 10:
POLICY RECOMMENDATIONS AND NEXT STEPS

INTRODUCTION

The primary charge to the consultant in this study is to:

> "Determine feasibility of County involvement in wastewater management and recommend a prescribed course of action for County government"

The conclusions are driven by the objective of the study as articulated by the county in undertaking it: that there be an adequate and efficient system of wastewater management within the county as a whole which is capable of addressing (1) the health and safety of all residents and other constituents i.e. business, not-for-profits, etc.; and (2) is of sufficient capacity to insure continued economic growth and development of the county

Sewered Systems

We conclude that there is presumptive justification for direct involvement of Broome County government in the management of wastewater management and collection systems

Findings

Our conclusions are based upon findings that:

1. The eight outlying municipalities in the metropolitan area of the county dependent upon its largest treatment facility have and will continue to experience uncertainty about their capability to discharge increased volumes of wastewater to it, thus clouding their own ability to plan for and make decisions about further sewering within their own communities and to provide for growth. We also find that the design of rates and charges upon which outlying municipal customers are billed for the wastewater treatment services provided them by the Binghamton-Johnson City Joint Sewer Board (BJCJSB) facility are skewed in favor of the communities which own that facility. Outlying municipalities have no voice in decisions governing operation, maintenance, and capital investments beyond the terms of their contracts with the owners.

2. This uncertainty is attributable to the policies that control operation and maintenance of the plant as those policies determine allocation of permanent primary and secondary treatment capacity, and rates and charges for treatment services. Those policies are controlled by the BJCJSB which governs the operation and maintenance of their wastewater treatment facility. This governance authority manages the facility primarily to serve the communities which own it, and understandably treats outlying municipalities as only customers to whom the authority sells services.

3. Increased emphasis by regulatory agencies on correcting Inflow and Infiltration, and separating storm water from sanitary sewers complicates the relationship between outlying municipalities and the owners of the plant.

4. No entity within Broome County is responsible for assuring that there will be adequate wastewater infrastructure service available to accommodate new industrial, commercial and residential growth wherever that growth may occur within the county.

5. Most municipalities located in more remote areas of the county and geographically separated from the metropolitan area which either own and operate wastewater treatment facilities, or are confronting the imminent need to construct them, face major issues of financing facility upgrades to comply with State regulatory orders, or to build new facilities.

Recommendations

Our findings lead us to recommend that the county government adopt the following course of action.

1. As the first step in a phased program of establishing a county role in sewered system wastewater management to support the county's economic development goals, the county should acquire ownership and operational control of the BJCJSB wastewater treatment plant and those appurtenant interceptor mains and trunks which receive and control the flow of wastewater from the sewer systems of communities now served by the plant. The recommendation is intended to serve two purposes. The case for county acquisition and management of the BJCJSB treatment plant to remedy the uncertainty and equity issues confronting the outlying municipalities served by that facility is, standing alone, marginal. However, the collateral policy goal of positioning county government to assure timely availability of sufficient wastewater infrastructure to facilitate future growth complements the first case, and reinforces the recommendation.

2. Subsequent to acquisition of the BJCJSB plant as we here propose, we recommend also that the county further investigate the phased expansion of the district to include the Endicott and Northgate wastewater treatment facilities, and their service areas.

Increasing the number of treatment facilities brought under county management, such as phasing in the acquisition of the Endicott and Northgate facilities after county acquisition of the BJCJSB plant, does not infer that economies of scale will be realized by bringing the operational supervision of several treatment facilities under the managerial direction of a single entity. While there will probably be efficiencies gained through the consolidation of overhead and administrative support systems, the plants involved serve the wastewater treatment needs of

distinctly different and separated communities. Only if the community sewer collection and distribution systems associated with each of the plants were interconnected with the others in order that all of the treatment facilities might be operated as an integrated system would there be some opportunity for the attainment of scale economies. Such economies might be realized, for example, by shifting flows among plants to take advantage of capacity surpluses, or to take advantage of the differential cost-effectiveness of individual plants at different times of the week, or at different seasons.

3. Create a county sewer district under the provisions of Article 5A of the Municipal Law by resolution of the County Legislature as the institutional basis for managing the BJCJSB treatment plant and appurtenant facilities. Include in the resolution provision for creation of a Commission or Board of Directors of the Sewer District which would oversee and govern its operations, providing for representation of the interests of all municipalities served by the District on such governance entity. Define the district to include the sewered and developed areas of those municipalities in the county currently served by the BJCJSB plant, with provision in the resolution for phased expansion of the district as described in No. 2 above.

4. Enact a county sewer ordinance that would define and govern all operational objectives and practices of the new county Sewer District, and specify the responsibilities of municipalities and individual customers served by the county District.

5. Finance operation and maintenance costs of the District, including debt service, through a system of user charges. New debt would be issued or encumbered by County government, but financing the cost of debt service would be the responsibility of the Sewer District through charges to its users.

6. Invite proposals from qualified private firms to: operate and maintain the BJCJSB facility, and later the Endicott and Northgate plants; to control and manage the key interceptors and CSO remediation programs attendant to each plant; manage associated I and I and industrial pretreatment programs; and share responsibility for regulatory compliance associated with each facility with the new county District.

7. Evaluate early provision of additional primary and secondary treatment capacity needs at each plant to accommodate increased near term wastewater flows from member municipalities and prospective new industrial, commercial, and residential growth that could be served by those facilities.

8. Revise existing inter-municipal contracts to eliminate anomalies, and to clarify terms and conditions.

Benefits

We believe adoption of these measures by the county will lead to resolution of a number of the immediate and long-standing issues that impede realization of county goals for wastewater management. Assumption of ownership of the BJCJSB plant by the county, and later the Endicott and Northgate facilities, will establish the conditions for their management as true regional service facilities to support future economic growth in the metropolitan region of the county. This is the most significant benefit of a change in ownership and management of these important components of the public utility infrastructure of the county. We see no opportunity for a near term reduction in sewage treatment charges to the current users of these plants, although placing them under operation and maintenance contract by a private contractor as we recommend later could lead to cost reductions and at least leveling of rates in the future. In the near term, rates will increase substantially when the new debt incurred to finance the current upgrades in the BJCJSB and the Endicott plants is included in the rate base for those facilities.

A county Sewer District would establish general oversight of management, budget and fiscal practices, and decisions about new capital borrowings, within the control of the county government. Employing the authority of Article 5A of the County Law to create the county District avoids the more time-consuming and uncertain process of securing the local concurring resolutions and subsequent approval of the State Legislature that would be required to create a county sewer authority. Article 5A requires only the approval of the Office of State Comptroller, and is subject to permissive referendum.

There is ample experience in New York State to demonstrate that a county sewer district is able to efficiently and equitably provide regional wastewater treatment services to the municipalities and individual property owners it serves We refer to similar arrangements by county government reviewed elsewhere in this study as examples.

Should the county decide to act on our recommendations to acquire and manage the BJCJSB facility, consideration should be given to contracting with a private party to operate and maintain the plant, address CSOs, and appurtenant interceptors and trunk lines. There are a number of private firms that operate nation-wide to deliver these kinds of contract services to municipalities, particularly in urban areas. We have discussed these types of partnerships elsewhere in this report. Incentive contracts with private firms to manage municipal wastewater services can generate improved efficiencies in operation and maintenance which may lead to reductions in costs not attainable under traditional governmental management. Operation and maintenance cost reduction is critical to rate stabilization. One of the criticisms of privatization is that contractors often secure their profit margins by deferring maintenance of treatment works, and then require the owner to finance a construction upgrade at a future date. Contracts for plant operation should accordingly be established with great care to avoid this.

Our proposal that the county acquire ownership of the BJCJSB treatment plant and manage it as a regional service facility under a county sewer district type of organization also places the county in a position to provide wastewater infrastructure support for future commercial, industrial, and residential growth in the metropolitan region of the county without the need to build new plants. There are land ownership related space constraints at the existing BJCJSB site that would have to be addressed to expand treatment plant capacity to accommodate new wastewater discharges arising from future growth, which the existing plant, subsequent to completion of the upgrades currently in process, may not be capable of assimilating without risk of additional SPDES violations. Our technical analysis indicates that there should be some capacity available for additional allocations after the new construction is completed, but this cannot be ascertained with certainty until after the upgrade changes are completed and become operational.

We believe space constraints at the BJCJSB site could be solved by negotiation with NYSEG to acquire part or all of its existing maintenance yard facility that lies immediately west of and adjoins the BJCJSB plant site. If plant expansion becomes necessary and negotiation is not successful, the county could employ its eminent domain powers to meet the public need. Expansion of the current upgrade design capacity of the plant when under county ownership to accommodate future growth in the metropolitan region of the county would be less environmentally intrusive than building an additional treatment facility at a green-field site elsewhere.

The Consent Order between the NYSDEC and the City of Binghamton, Village of Johnson City, and the BJCJSB requires that the BJCJSB facility expansion/upgrade be completed and operational by October 31, 2002. The Final Facility Plan[1] recommends operational compliance by the end of November 2002. According to the Chairman of the BJCJSB, the current upgrade to the wastewater treatment facility will not be completed until the end of 2004.

Detailed information on the expansion/upgrade is provided in the Final Facility Plan [10.1] for the work. According to the plan, the peak day primary treatment capacity will increase to 60 MGD. Peak-day secondary treatment (plus nitrification) capacity will increase to 35 MGD. The average day design flow used to prepare the plan is 25 MGD, which is slightly greater than the current average-day load of 23.2 MGD. However, this current average-day flow is simply the average of the monthly flows over a four-year period. (The existing plant has an average-day design flow of 18.25 MGD.) The Chairman of the BJCJSB has informed the study team that the plant capacity will actually increase from 18.25 MGD to 26 MGD; again, these figures are for average, not peak daily flows.

Billable flows, calculated from water meter readings for most of the users and sewage meters for a few of the outlying communities, are in the range of 12 MGD to 15 MGD. With an average load of about 23 MGD, approximately 40% of the influent to the WWTP

is I and I. The plant superintendent advised the consultant that all of the new capacity would be reserved for I and I.

Assumption of operating responsibility for the plant by the county would have to include a major program requiring all users to address their I and I. Reducing wet weather flows to the plant is key to releasing design capacity for permanent new load. Successful efforts in this regard would preclude the need for future capital improvements to expand plant capacity in support of growth.

Feasibility

All that we have recommended above are practicable and actionable if the county should choose to adopt them. However, there remain at least four areas of uncertainty that would influence the feasibility of proceeding as we have outlined. They are:

1. Securing agreement from all constituent municipalities that now hold contracts for wastewater treatment service with the Joint Board that transfer of ownership is acceptable.

2. Potential additional costs and penalties that may be associated with transferring and refinancing debt from the current owners to the county.

3. The willingness of the joint owners of the BJCJSB plant to convey ownership of that facility to the county, and if so, the terms upon which such a transfer would be conditioned.

4. A requirement by the current owners that the BJCJSB plant be purchased by the county from them for other than a nominal payment.

It makes no economic or financial sense from the public's point of view for the county to pay the two owners of the BJCJSB treatment plant a price approximating its fair market value, or any price other than a nominal one, as a condition of the transfer of ownership of the plant to the county. A market value price could conceivably amount to tens of millions of dollars. The county would borrow the money to make such a payment. The county would then have to increase rates to all users of the treatment plant, including the residents and businesses of Binghamton and Johnson City, probably for the next 15 to 20 years, in order to pay the interest and principal required to retire that debt.

If the two owners have an equity interest in the plant as publicly incorporated entities, it is not in its market value as a publicly owned and managed facility to serve an essential public purpose. The Federal government gave the two owners 75 % of the original cost of building the plant; the State of New York gave them another 12 ½ % of the construction cost. None of that money had to be repaid. The City of Binghamton and the Village of Johnson City issued bonds to finance their remaining share of the construction cost. That original debt has been retired, paid for in their sewage treatment bills by the residents and

businesses of Binghamton and Johnson City and the outlying municipalities whose wastewater has been treated at the plant.

The equity interest in the plant, therefore, resides with all of the public whose wastewater treatment needs it serves. Its been paid for once; there's no public interest case for making the users pay for it again.

With regard to securing agreement from all constituent municipalities that now hold contracts for wastewater treatment service with the Joint Board, the chief elected officials of the outlying municipalities that hold contracts with the BJCJSB have expressed to the consultant their favorable support for transfer of ownership to the county under the right terms. The County Law requires consent of the public entities affected as a condition of county acquisition of such facilities and creation of a County Sewer District, subject also to a permissive referendum. Consultant had no contact with the State University of New York at Binghamton, a significant client of the BJCJSB, during this study. During our discussions with officials representing the joint owners (the City of Binghamton and the Village of Johnson City), they indicated they might support the transfer provided there is fair compensation, although that was left undefined. Presumably, the host municipalities would support the transfer if the terms and conditions set down by the joint owners are acceptable. We believe it is important that the county address the process by which it would secure consent of existing parties to the transfer of plant ownership and the relinquishment of all parties' contractual rights pertaining to the plant and its management.

Another element of uncertainty is the possible cost penalty associated with transfer of the current owner's plant- related debt to the county. We have been unable at this point in our study to examine the debt instruments involved to determine the extent, if any, to which this may be a significant factor affecting the feasibility of our recommendations. It is a factor that requires further inquiry, and we urge the county to pursue it if we cannot resolve it before our report is completed.

Most significant, in our view, are the specific terms and conditions that would be expected by the joint owners as a condition of agreeing to the transfer of ownership of the BJCJSB plant to the county, as well as later phased acquisition by the county of the Endicott and Northgate facilities. If those terms and conditions impose such constraints on policies governing future management of the plants as to impair or undermine the principal purpose of county management of them as a regional infrastructure service function, our proposal would not be feasible. Such terms as could rigidly reserve excessive allocations of plant treatment capacity to the current owners; skew rate design in favor of the current owners to the detriment of other users; frustrate county policies intended to reduce excessive wet weather flows to the plant by all users; or restrict the acceptance of new wastewater load are examples.

The consultant has not probed this question extensively with the owners of the BJCJSB plant as part of our study. We have not raised this question at all in our discussions with the owners of either the Endicott or Northgate plants. The only guidance we received in

our interviews pertaining to the BJCJSB plant was that the owners may be willing to transfer ownership of the plant to the county provided they received fair compensation. We did not explore what they meant by fair compensation. Should this be defined further by the owners as a demand for payment to each for their respective share interests in the plant of a payment approximating the fair market value of the facility or some surrogate thereof, other than a nominal amount to secure a contract for the transfer, we believe transfer of ownership as we have proposed it would not be feasible.

Apart from question of fair compensation as we have just referred to it, we cannot emphasize too strongly the importance of securing the agreement of current owners to advance the objectives of our proposal.

We recommend, therefore, that the county confer with the City of Binghamton and the Village of Johnson City to detail the specific terms under which they would be willing to transfer their ownership to the county. If the terms of prospective agreement with the two owners are sufficiently congenial with the intended future management objectives under county ownership, the county could then proceed with the other measures required to institute our recommendations. We anticipate that, at a minimum, the current owners would require that the county assume liability for all outstanding debt associated with the plant at the time of transfer, as well as liability and accountability for all environmental and other pertinent regulatory performance operations of the plant. These would be, in our view, reasonable requirements.

Apart from these and other terms that the owners may offer as conditions they believe essential to secure the interests of their own constituents, we believe it is important that the county explore other incentives to facilitate the transfer. Such incentives might include, for example, annual payments to the two owners of capital amounts for a defined future period to assist them with financing a program of combined sewer separation and I and I remediation. Such payments could be financed with surcharges on all users of the treatment plant. Other incentives should be explored with the owners. Our discussions with all local officials suggest that a reasonable basis for agreement can be developed if the county and the owners are willing to negotiate the terms of transfer in good faith.

Framework for Negotiations

The recommendation to move towards a county wastewater system and to begin with the acquisition of the BJC plant, is dependent on successfully concluding negotiations between the county, the plant owners and the other municipalities that are currently served by the plant. The following discussion is intended as guidance for any future negotiations.

The impacts of a transfer of plant ownership and operation to the County, on its face, are much more favorable to the outside municipalities, and to the county as facilitator of economic growth in the county as a whole, that they would be to the current plant owners. Since it is clear that the transfer of ownership could only take place with the consent of the owners, the challenge is to arrive at an adequate incentive package that is satisfactory to all parties involved and within the framework of what the law permits.

As an analytical starting point, the following recites the principal assets and liabilities associated with the ownership and operation of the plant.

These owner's principal assets associated with the BJC plant include:

a. The physical assets of the plant

b. Contracts with outside users

c. Other intangibles, notably control over governance of the plant that encompasses rate setting, allocation of plant capacity, and managerial decisions on plant expansions and the acceptance of new wastewater load.

The owner's principal liabilities associated with the BJC plant include:

a. Outstanding debt

b. DEC consent orders

c. The responsibility of operating the plant, encompassing risks associated with regulatory non-compliance and tort liability based on the operation of the facility.

Discussion of each of these components follows:

1. Physical Assets of the Plant.

The original assets were financed by grants from USEPA and NYSDEC. These grants paid 87.5% of the capital cost of construction. The local share was paid from charges to users in the City of Binghamton and the Village of Johnson City and from contract payments from the outside user municipalities. All of this original debt has been retired.

It would seem unconscionable for the owners to attempt to recoup the value of plant that is attributable to the federal and state grants.[10-1] There are two views concerning payment of the local share. Explicit contract provisions contained in the standard agreements call upon the outside users to pay a flow-based charge tied to the capital cost (i.e. the local

[10-1] There may also be legal impediments to recouping this value as well. USEPA has issued guidance regarding transfers of POTWs funded by federal grants to private entities (Guidance on the Privatization of Federally Funded Wastewater Treatment Works: EPA publication EPA_8332-B-00-002, August 2000). While not directly applicable to the Broome County situation, the document does evidence an intent to recoup the federal grant in certain situations where the municipal owner of the plant is receiving consideration for the sale of the plant.

share) of the plant. In fact, this charge is 25% higher than the comparable charge paid by users in the City of Binghamton or the Village of Johnson City.

This surcharge clearly does not result in the outside users having any legal claim to title. These payments can be viewed as a mere rental payment, or alternatively can be viewed as entitling the outside users to some equitable interest in the plant, especially since the surcharges have continued far beyond the retirement of the original debt.

In our view, the better approach would be to give the outside users credit for the based payment but not for the 25% premium. To allow for no credit would seem to be highly inequitable in light of the terms of the contract itself and would leave the impression that these users were paying for the plant twice. On the other hand, the 25% premium that was presumably negotiated at arms length and more reasonably should inure to the benefit of the current owners. Further, any calculation concerning the amount of equity in the physical assets that the current owners should receive must take into account the length of time each of the outside municipalities contributed to the capital charges.

2. Contracts with Outside Users.

Presently, the owners and their constituents enjoy a significant rate advantage over the outside users. This advantage is as a result of arms length negotiations among the parties. The owners cannot be expected to surrender this advantage without adequate consideration.

This consideration could take the form of a similar rate advantage for users in the City of Binghamton and the Village of Johnson City within the context of a new county district. It is possible that this could be accomplished by setting up zones of assessment (see memo on County district formation). However, if it is ultimately concluded that this is not legally possible, the same result could be achieved by limiting the district boundaries to the City of Binghamton and the Village of Johnson City and continuing to serve the other municipalities by contract. While this approach may seem problematic from the point of view of the goals of constituting a county district, it should be noted that such an approach could still be achieved consistent with the desired change in governance structure.

Alternatively, some other form of consideration could be substituted that is roughly equivalent in value to the current rate advantage to the owners. This could be in the form of some benefit to the municipal owners that could then be passed along by them to the individual users.

3. Other Intangibles.

There is no way to easily value other intangible advantages now enjoyed by the owners. However, it is unmistakably true that those advantages exist and that the owners can reasonably ask for some form of consideration for surrendering these advantages to transfer of ownership and creation of a new governance structure.

The negotiation of consideration for these intangible assets should focus on items that are of significant value to the owners and/or those that would be costly for the owners to provide but which could be provided by the County to the owners at a considerably reduced cost. Services for which the County can provide using existing infrastructure but which, if provided by the owners, would require them to create such an infrastructure, would be prime candidates to consider.

4. Outstanding Indebtedness.

The owners have recently taken on substantial indebtedness for the upgrades at the plant. These upgrades are necessary for the plant to operate satisfactorily and would inure to the benefit of all users. Therefore it is essential that County assume this debt.

A separate issue is whether the payment of the county debt would be paid off using the same formula as the existing contracts. However, the contracts do not clearly obligate the outside users to pay for capital improvements needed to separate the combined sewer systems. This resolution of this ambiguity should be an important bargaining point for the County and the outside municipal users.

5. DEC Consent Orders.

The County will have to become a responsible party under DEC consent orders related to the BJC plant. These are obligations that must follow ownership of the plant and are properly system charges. However, as stated above, there is ambiguity whether the County should assume the obligations for the capital improvements. Similarly, the contracts are also unclear as to whether fines and penalties for illegal conduct can be incorporated into the payments that are passed on to outside users.

6. Plant Operational Risks.

As stated repeatedly by the owners, there are innumerable risks associated with plant ownership. They have argued repeatedly that the preferential rates in the standard contracts with outside users that they enjoy is, in part, compensation for the assumption of that risk. A County acquisition would shift all those risks to the County. While some of those risks can themselves be transferred to third parties for discrete compensation (e.g. insurance policies), many of the risks cannot.

The cost of assuming the risks attendant to ownership cannot be reduced to a monetary value. Nonetheless, the value to the current owners is real and must be recognized as a component of the overall negotiations for transfer of the plant.

Including Small Communities in a County Sewer District

We have considered whether smaller communities like Deposit, Whitney Point and the Village of Windsor might beneficially be included in the county sewer district we recommend be created. That district would constitute, initially, the BJCJSB plant and its service area, with subsequent phasing into the district the Endicott and Northgate plants and their respective service areas. Such a county district would be in a position, as a single organization, to serve the wastewater treatment needs of the majority of the sewered population of the metropolitan region of Broome County, as well as owning the infrastructure capacity or potential and the management capability to meet the needs of future industrial, commercial and residential growth in the metropolitan area.

As we have pointed out elsewhere in this report, smaller communities that are remote from the metropolitan region, like those we identify here, confront significant issues in financing their wastewater treatment needs in ways that are affordable to their residents. The per capita debt burden that each would assume to build or upgrade the treatment capacity needed to serve its currently sewered or prospectively sewered population is, in the view of the local leadership of these communities, onerous. That is why local leaders are seeking grant or other forms of non-debt financing to meet their wastewater treatment needs. We have also recommended elsewhere herein that county government actively partner with each small community to jointly seek grant or other non-repayable funds to help finance each of their sewage treatment infrastructure requirements. We believe this approach is the most equitable and efficient way for the county to help these small communities address their wastewater needs.

It may be plausible, however, to include some or all of these small communities in a county sewer district (several non-contiguous parcels of a single district, or a multiple county district), should the county decide to proceed with formation of the initial district as we have recommended. The small community districts or parcels could be added to it over time, depending upon the preference or option of those communities. The district would finance, construct, and manage the treatment facilities serving these communities. There may be opportunities for creative or more efficient financing of the small community wastewater infrastructure requirements by a county sewer district that would, combined with some grant or non-repayable funds, increase their affordability to local residents. Such creative financing might include the adoption of average cost pricing as the basis for rate design by the county district. This would entail combining the debt service and O&M costs of all of the sewer district's treatment plants, and billing all users for their respective usage at each plant an average price sufficient to recoup the sewer district's total revenue requirements for each billing period.

The county may wish to consider establishing such a multiple district system that would include small communities as it proceeds with the implementation of our primary recommendations.

Other Sewered System Issues

We believe the course we recommend is the most prudent for the county to follow in the near term. It will address some of the more pressing impediments to realization of the county's goals in wastewater management. Issues associated with the Endicott plant concerning its regional service functions and its potential capacity to support future growth in the metropolitan area are conceptually similar to those attending the BJCJSB facility. However, Endicott's user rates and charges to the outlying municipalities and the owner's residents are comparable, and capacity constraints at the treatment plant have not been a factor in limiting customer sewer extensions. We are persuaded, never-the-less, that the county should investigate expansion of its wastewater management role in furtherance of economic development in the county through acquisition of the Endicott plant, as well as the Northgate plant owned by the Town of Chenango.

As a first step in assuming a direct role in wastewater management, the challenges to the county in organizing and revising management policies to operate the BJCJSB plant as a true regional system are sufficiently daunting to warrant confining its efforts to that facility in the near term.

Our assessment of the wastewater management outlook in the other metropolitan municipality that owns and operates major treatment facilities, Chenango, is that its capability to serve its existing sewered system needs, as well as expected growth within the Town, appears adequate. Chenango's Northgate facility does, however, offer the installed wastewater treatment capacity that could contribute measurably to advancing county goals to support economic growth in the metropolitan region of the county, We believe the county should explore acquisition of that facility in discussions with Chenango Town officials as a part of its strategy for strengthening county capability to facilitate economic growth in the metropolitan area of the county.

There are communities in the county which are currently sewered or anticipating sewering that confront significant wastewater management issues which would not be addressed by our recommendations regarding the BJCJSB system The most immediate of these are the need to upgrade the wastewater treatment plant in the Village of Deposit, and the need for a sanitary sewer system in the Village of Whitney Point.

Village of Deposit: Following several years of sustained urging by the State Department of Environmental Conservation to upgrade its aged and deteriorating treatment facility, the Village now faces an impending consent order by the State of New York to compel action. Required capital improvements to the wastewater treatment plant will cost in the range of $ 4 million to $ 5 million based upon recent engineering studies prepared for the Village. Our discussions with Village officials suggest that the Village' small population, 1699 residents based upon the 2000 census, 835 of whom reside in the Broome County portion of the Village, will be hard pressed to pay the higher sewer bills that will result from adding this much new debt to the rate base. This would be true, according to Village officials, even assuming that the upgrade were to be financed with a zero interest loan from the State Revolving Fund.

Consequently, Village officials have been searching for sources of non-repayable grant funds that could be used to pay down half or more of the cost of the upgrades in order to reduce the impact of debt service on its residents. That search has not been successful as of this writing.

We see no opportunity for the county government to constructively help address Deposit's dilemma in a wastewater management role. Regardless of whether the county were to assume ownership and operational control of the treatment facility either by embracing the Village in a county sewer district under an Article 5A type of organization, or under the umbrella of a county sewer authority if one were to be created, the debt service associated with the upgrade would still have to be paid by the beneficiaries, that is, the Village users. A county sewer authority could not finance the upgrade at better than a zero interest SRF loan. We assume also that the county government would not consider it feasible to finance a substantial part of the upgrade cost with a one-time grant to the Village appropriated from the county's general fund revenues, or from its sales tax receipts.

There may be an opportunity for the county to assist Deposit with its treatment plant financing problem as part of its economic development program. We were told by Village officials that they are facing a business retention issue from one of the community's most important employers. The Broome County Industrial Development Agency (IDA) may be able to participate with the Village in financing the upgrade of its treatment plant on repayment terms favorable to Village residents as part of a business retention strategy, and to investigate financial participation in the upgrade jointly with the New York State Department of Economic Development. We have not pursued this question with the Broome County IDA.

Village officials have indicated also that Delaware County is committed to the development of an industrial park close to or partly within the Village limits of that portion of Deposit which lies within Delaware County. The Delaware County IDA's intentions are unknown regarding the provision of wastewater treatment infrastructure for the park. A joint effort by the Broome County and Delaware County IDA's may provide a plausible solution to at least a portion of Deposit's financing problem. We recommend a consultation initiated by the Broome County Executive or IDA with their counterparts in Delaware County to explore this opportunity further. The Village is not in a position, in our judgment, to pursue this inquiry unilaterally.

Whitney Point: Whitney Point's problems in wastewater management are similar to those facing other small communities that are remote from centralized sewer systems. Unlike Deposit, which is already sewered and has a treatment plant that needs expensive upgrading, Whitney Point is not sewered, but is pressed to do so given the deteriorating condition of its on site systems, poor soils, and ubiquitous surface discharges of sanitary waste that threaten to impair public health and the quality of its community environment.

As is the case with Deposit, the principal issue for Whitney Point is essentially one of financing, and how particular methods of financing of the sewering infrastructure costs could be made affordable to its residents. Its 2000 population of 965 persons, down from 1,054 in 1990, is challenged now to address community action on a major capital investment that will remedy these problems. The consultant was advised that the Village has been fortunate in securing part of the funds needed to sewer approximately 360 homes. These funds are non-repayable. Whether they are sufficient in amount to keep costs to residents affordable, assuming funds to finance the remainder of the cost would have to be secured in the form of repayable loans, is a decision for the residents affected and their local leadership to deliberate.

We do envision an important role for county government to advocate the interests of remote, small communities in the county to explore alternative avenues of funding by Federal and State government that would help address wastewater management financing needs. We urge the county to establish a permanent collaborative arrangement with its localities to advance such an advocacy program. We recommend that the county consider designating its Wastewater Management Steering Committee with which we have consulted in the process of this study, as the county's permanent forum to advocate for new sources of wastewater financing for small communities.

As we suggested earlier in our discussion of the circumstances confronting the Village of Deposit, we cannot in good conscience recommend, as a matter of sound public policy, a formal role for county government in directly managing sewered and related wastewater treatment infrastructure in the remote, thinly populated areas of Broome County. Neither a geographically widely-spread county sewer district, nor a county-wide sewer authority, could practicably answer the affordable financing issues confronting these small, low income communities without relying upon a policy of subsidy, a subsidy that would necessarily have to be paid by other users of a county managed system.

On Site Systems

Nearly 30 % of the residential and small business establishments in Broome County are not connected to public sewer systems. They rely instead on individual on site treatment methods for wastewater disposal, predominantly septic tanks and leach fields, or where soil conditions are poor, on small lagoons, sand filters, and mechanical aeration devices. Residents and small businesses in nine of the fourteen Towns in the county, most of them in the northern and easternmost reaches of the county, rely entirely on these methods to dispose of their sanitary wastewater. Even in the more remote and sparsely settled portions of the densely developed southern and south-central municipalities, parts of which are already sewered, residents and small business establishments rely on these on-site methods for disposal of their sanitary wastewater. For economic and financial reasons, most of these properties will not be able to install sewer systems that convey their wastewater to central treatment facilities.

Inadequate design or maintenance of on site systems can cause serious environmental and public health problems in neighborhoods and communities. While some property owners

are diligent in maintaining systems properly, such as pumping them out regularly and maintaining leach fields in good working order, many others do not.

The Broome County Health Department is responsible by State Law for the oversight and regulation of on site wastewater management systems in the county. There is no question, therefore, about whether Broome County government has a role in this aspect of wastewater management in the county, but only whether the exercise of that role is adequate and sufficient. Our conclusion is that the program is wanting, and could generate better results provided certain measures are adopted by the county. This conclusion is based upon the following findings:

1. Failing or improperly maintained on site systems are producing serious environmental and public health threats in at least nine specific areas of the county. These problem areas were identified to us by the Towns, NYSDEC and the County Health Department based on complaints they had received. There is no organized program in place to help the residents of these areas work collectively to address their problem.

2 The County Health Department does not engage in a program of consistent proactive monitoring of all on-site systems in the county. Because of limited resources, the Department only responds to complaints. Serious on site problems and failing systems other than those identified to us in this study may exist elsewhere in the county.

3. There are no comprehensive records of information about the condition of on site systems throughout the county, and no system in place to develop and keep such records. The Broome County Health Department has records on many but not all on site systems throughout the County.

4. Residential and commercial growth in urban corridors could lead to future on site wastewater problems unless policies are instituted by appropriate municipal authorities to prevent them.

5, Homeowners, inspectors, realtors, code enforcement officers, and municipal officials do not have adequate information systematically made available to them to understand the design, installation and proper maintenance of on site systems.

Recommendations

Our findings with respect to on site wastewater management systems in the county, as well as examining precedents in Cayuga County and in the Town of Cazenovia, New York, prompt us to recommend that the following measures be instituted by the Broome County Health Department.

1. Schedule mandatory inspection of all on site wastewater treatment systems in the county: conventional systems on a five year cycle; systems with mechanical or

pumping features on a three year cycle; systems that discharge to the surface annually. Provide for the contractual employment of non-Health Department employees, certified and trained by the Health Department, to conduct on site system inspections under Health Department oversight. This would include training and certification of local code enforcement officers, Soil and Water District Staff, building contractors, consulting engineers, and sewage treatment plant employees.

2. Assure that an adequate number of hearing officers are available to carry out efficient and effective enforcement procedures.

3. Expand the county's digitized GIS system for maintaining up-to-date records of all on site systems; identified by tax parcel; current owner and change of owner; record of inspections; corrective action taken; maintenance records submitted by septic tank pumpers; etc.

4. Engage in a continuous program of education and training directed at property owners, professionals working in the field, and municipal officials to promote awareness and understanding of the design, operation and proper maintenance of on site treatment systems.

5. Outsource the provision of technical information and services to property owners for the siting, design, and installation of on site systems to an agency such as the County Soil and Water District.

6. Enact county legislation encouraging and providing for the creation of Town On Site Wastewater Management Districts to be instituted by voluntary petition of property owners and supervised by Town government. See Appendix J for a discussion of experiences in other parts of New York State.

7. Enact county legislation to require certification that at the time of property sale the septic system is in good condition and working order, or that failing systems are upgraded or repaired, as a precondition of sale.

8. The county Health Department should institute a program to advise local zoning authorities of poor soil conditions that prevail in designated reaches of the urban growth corridors of the county where commercial development and large lot residential development proposals for small subdivisions that do not meet the State Health Department minimum 50- lot threshold for sewering will create septic-related wastewater problems.

Benefits

Our recommendations are designed to both strengthen and expand county government's role to deal with the environmental and public health related problems associated with on site treatment of sanitary wastewater. We believe that the enhanced role for the county as

we have outlined it, including those elements that entail significant departures from the traditional exercise of those responsibilities, will auger to the benefit of all residents of the county. County government has by law and tradition exercised the primary responsibility for this sector of wastewater management. It remains for county leadership to choose whether that role shall remain as it has traditionally been exercised, or to expand on it.

Detailed discussion of each of these recommendations can be found elsewhere in our report.

A number of our proposals call for placing the Health Department in a more proactive position to inspect on site systems; modernize record- keeping to support tracking their condition; adopt a more aggressive, timely, and effective enforcement regime to correct violations; and engage in a continuous program of public education to instruct property owners about the proper maintenance and repair of their on site systems. We suggest also that the Health Department adopt a program of training and certifying others to assist in its inspections of on site systems. This will relieve workload on Departmental employees, although we emphasize that additional staff should be authorized to the Department in order to implement these and other of our recommendations.

Strengthened inspection and enforcement will contribute much to improving the condition of on site systems throughout the county. Proper maintenance and correction of failing systems is now left to the discretion of individual property owners.

These of all our recommendations are the more important for the county to address in the near term.

Promulgating a county policy and defining a program that would encourage and facilitate the creation of on site system management districts, initiated by property owners and overseen by Town government, will enable property owners to address their septic system problems collectively. There are circumstances where individual initiatives will not be effective in solving some problems, such as the conditions we have examined in the Blueberry and Laurel Lakes areas of the Town of Sanford, and the problems that residents confront in the White Birch Lake and Beaver Lake areas of the Town of Windsor. We discussed this concept with several Town Supervisors during our interviews with them, and they reacted favorably to it.

Enacting county legislation that would require certification that the on site system is in good working order as a precondition to closing a residential or commercial property sale transaction would assure the new owner, as well as requiring correction of failing systems prior to closing. We have determined that enactment of such legislation by the county would be legal under state law, although we urge that the county seek an advisory opinion from the Office of the State Attorney General before proceeding to do so.

Providing information to local planning and zoning authorities about soil conditions in the urban growth corridors of the county that would not support the effective siting and

reliable functioning of on site wastewater systems would be helpful to them in considering the terms of development proposals before them, and could advance the objectives of a smart growth policy.

Feasibility

The enhanced program actions and new policies that we recommend are, in our judgment, legally and programmatically feasible, assuming they are politically congenial with the residents of the state and its counties Their implementation and adoption and subsequent credible administration are, however, contingent upon the willingness and capability of the county government to provide the financial and human resources necessary to install and execute them.

Resource support needed for these initiatives are of two kinds.

First, the staff authorized and the annual budget appropriated to the county Department of Health must be increased. There are at present no full time employees of the Department committed to on site wastewater monitoring and enforcement. After consultation with the county Commissioner of Health, we believe these program enhancements require authorization of, at a minimum, three additional permanent staff positions for the Department at an annual estimated budgetary cost of approximately $ 275,000 to $ 300,000. The cost of these additional staff could be financed in part with revenues earmarked from a new system if inspection fees; increased enforcement fines and penalties; filing fees; sludge management fees; and permit fees. Revenues from these sources would have to be supplemented, at least in the early years of the program, with appropriations from the county's general fund.

Our recommendation for regularized, periodic inspections of on site systems by the Health Department, utilizing the services of certified, non-Health Department personnel to deliver these services, would incur a cost to property owners ranging from about $ 75 for the inspection of simple, septic tank / leach field systems to about $ 200 for more complex mechanical systems. These fees would be payable by property owners periodically only on the multi-year cycle of inspections ultimately adopted by the Health Department.

In addition to these staffing and associated financial support needs, the county would necessarily have to provide an estimated $ 150,000 to $ 200,000 annually to finance the estimated expenses associated with the outsourcing of inspection services; technical advisory services to residents provided by the County Soil and Water District; contractual education and training services; and the employment of contract hearing officers to adjudicate enforcement rulings by the Department.

Funds made available and appropriated by the county to support these annual financing requirements for the enhanced program we recommend would be eligible for some proportionate share of matching fund support from the New York State Department of Health.

Second, in addition to providing for the new staffing and budgetary needs that we believe is essential to enable the county Health Department to advance and administer a proactive on site wastewater management program, we believe provision must be made also to facilitate the financing of remediation costs to property owners and Town administration in order to advance the objectives of the On Site Management District program we recommend be instituted by the county.

We believe this need can best be addressed by creating a county on site remediation revolving fund to be administered by the Health Department. Apart from establishing the rules upon which such a fund would be administered, the challenge that must be addressed initially in creating such a fund is how to capitalize it. Such a fund should in our judgment be capitalized in the range of $ 7 million to $ 12 million to enable property owners to secure the financial help necessary to implement solutions to their on site wastewater management problems. In addition to special assessment fees that would be paid by property owners who elect to be included in an on site district, and assuming beyond that, that there would be some cost-sharing by the property owners involved in correcting problems and upgrades to their individual systems, we are persuaded that a county supported financing system would be required to ensure achievement of the objectives of such an on site district management program.

Such a fund could be capitalized initially with one-time grants from New York State and the Federal EPA, as well as from national not- for-profit organizations which have program agendas related to this subject. Our discussions with relevant State of New York officials suggest that such a program, driven by local initiative in the area of on site system management, would be attractive to them for prospective grant financing support. We urge Broome County to explore these opportunities for State and Federal financing support of an on site management system, if the county should elect to proceed as we recommend.

ENDNOTES

2.1 Information on the history of Broome County and the formation of its municipalities found in this section was obtained from the following sources: Marjory B. Hinman, The Creation of Broome County, New York: Published for the 175th Anniversary of the County 1806 –1981, published by the Author, Windsor, NY, 1981. J. H. French, Gazetteer of the State of New York, Syracuse NY, R. Persall Smith, 1860 (as found Broome County Local History Page web site). History of Broome County (http://www.geocities.com/behistorian/counthis.htm).

2-2 All historic Census of Population data found in this section was obtained from the following web site: http://fisher.lib.virginia.edu accessing the information contained organized on the US Census Historical Browser.

2.3 Census of Population data for 1950, 1960 and 1970 for the Tri-Cities was obtained from the Broome County Department of Planning and Economic Development.

2.4 Geology, Topography And Hydrology section is taken from Binghamton Wastewater Management Study, Background Information Appendix, Baltimore District, US Army Corps of Engineers, June, 1976

3.1 Stearns & Wheler, LLC. August 2000

6.1 See for example "Individual Residential Wastewater Treatment System Design Handbook, NYS Department of Health, 1996").

8.1 The study results are currently in draft formation in Cornell University's "Guide to the Public Management of Private Septic Systems."

10.1 C&S Engineers, Inc., op. cit.

APPENDIX A

Broome County Wastewater Management Steering Committee

Kenneth Badger, Director, Broome County Budget and Research

Bob Bennett, Engineer, Village of Johnson City

Richard Bucci, Mayor, City of Binghamton

Chris Burger, Legislator, Broome County Legislature and Chair of Economic Development and Planning Committee

Robert Denz, Director, Broome County Environmental Health

William Gibson, Jr., County Attorney, Broome County

Gary Holmes, Engineer, City of Binghamton

Terrence Kane, Deputy County Executive, Broome County

Harry Lewis, Mayor, Village of Johnson City

Michael Marinaccio, Supervisor, Town of Dickinson and Chair, Council of Governments

Timothy O'Hearn, Supervisor, Town of Conklin (and representing Association of Towns and Villages

Julie Sweet, Commissioner, Broome County Planning and Economic Development

William Sczesny, Commissioner, Broome County Dept. of Public Works

APPENDIX B
LIST OF DOCUMENTS REVIEWED

Binghamton-Johnson City Joint Sewer Board

Agreement No. 1 dated July 14, 1965 between City of Binghamton and Village of Johnson City establishing the BJCJ joint sewage project and establishing a Joint Board to administer the project

Agreement No. 2 dated December 7, 1967 between City of Binghamton and Village of Johnson City providing amendment to Agreement No. 1 dated July 14, 1965 pertaining to the BJCJ joint sewage project.

Agreement No. 3 dated April 24, 1968 between City of Binghamton and Village of Johnson City providing amendment to Agreement dated July 14, 1965 pertaining to The BJC joint sewage project

Agreement (generally referred to as No. 4). dated March 5, 1973. Surcharges.

Undated Appendix A Standard Agreement for Treatment of Sewage from Outside Users.

Village of Johnson City. Local Law No. 2 of 1989. Charges at STP.

City of Binghamton Ordinance dated June 19, 1989. Charges at STP.

Bylaws of Board adopted August 6, 1968
Agreement between BJCJSB and Town of Conklin dated May 26, 1983

Agreement between BJCJSB and Town of Kirkwood dated July 2, 1998, including Memorandum of Understanding (control of industrial flows).

Agreement between BJCJSB and Town of Binghamton dated September 23, 1968

Agreement between BJCJSB and Town of Dickinson June 29, 1973

Agreement between BJCJSB and Town of Fenton dated December 30, 1985

Agreement between BJCJSB and Town of Union dated December 15, 1969

Agreement between BJCJSB and Town of Vestal and Central School District No. 1 of the Town of Vestal dated April 24, 1968

Agreement between BJCJSB and Village of Port Dickinson April 19, 1968

City of Binghamton one page sewer rate analysis 1982-1997

City of Binghamton Local Law #2 of 1967 adopted August 7, 1967 establishing Sewer Ordinance

City of Binghamton Local Law #2 of 1968 adopted April 1, 1968 amending Sewer Ordinance

2000 Budget Summary

1999 Budget Summary

Estimated billing for quarter ending March 31, 2001

List of Employees as of January 1, 2001

Rules and Regulations: Use of Joint STP issued by Board 1984

Rules and Regulations: Use of Joint STP issued by Board 1997

April 2000 Final Facility Plan Phase III Improvements (C&S Engineers, Inc.)

August 2000 Final Report Combined Sewer Overflow Monitoring and Surveillance Program (Stearns & Wheler, LLC): full text & selected tables

November 1984 Resolution of Board requiring municipal users to enact industrial waste sections in respective local laws on sewer systems and copy of transmittal letter to Vestal

July 19,1994 Estimated Infiltration rates in City of Binghamton by McFarland Johnson to support cost estimates for II removal in County Sanitary sewer study

Undated Table with alternative cost estimates for BJC plant with and without nitrification

Consent Order from NYS DEC dated 2/3/00 and correction to order dated 6/21/00

Letter from DEC Regional Attorney dated 10/23/01 advising of violation of effluent limits and need to schedule compliance conference

July 1994 Estimated Infiltration

Amendment to Agreement between BJCJSB and Frito Lay dated March 5,1973 to increase sewer loadings from Kirkwood plant. (original agreement not available to consultants).

November 1984 Resolution of Board requiring municipal users to enact industrial waste

sections in respective local laws on sewer systems and copy of transmittal letter to Vestal

Cover Letter dated March 22, 2001 from BJCJSB transmitting 2000 Annual Report to DEC Regional Water Engineer BUT no report with it

BJCJSB 2000 (Financial) Report dated 4/6/01 provided by City of Binghamton Comptroller

Town of Chenango

Solid Waste Permit issued by NYS DEC dated 5/11/01 for sludge composting at Northgate WWTP

SPDES Permit issued by NYS DEC dated 4/10/01 for Northgate WWTP

SPDES Permit issued by NYS DEC dated 6/1/93 for Pennview WWTP

SPDES Permit issued by NYS DEC dated 6/1/87 for Quinn Estates WWTP

Air registration certificate from NYS DEC effective 2/11/00 for vent from compost facility

Town Sewer Ordinance dated 5-25-97, Chapter 56

Resolution No. 43 dated 3/21/94 establishing Sewer District No. 2

Resolution No. 47 dated 4/4/94 authorizing issuance of $1, 892,000 in serial bonds for

Resolution No. 31 dated 4/4/88 establishing Sewer District No. 4

Resolution No. 146 dated 11/15/99 establishing Sewer District No. 5

Resolution No. 30 dated 2/6/95 establishing Sewer District No. 7

Resolution No. 41 dated 3/20/95 authorizing issuance of $6,451500 in serial bonds for Sewer District No. 7

Resolution No. 16 dated 1/5/98 establishing Sewer District No. 7A

Resolution No. 30 adopted 1/26/98 appropriating $622,410 for SD# 7A.

Resolution No. 30 dated 3/4/91 establishing Sewer District No. 8

Resolution No. 31. Bond Resolution 3/4/91. SD. NO. 8.

Resolution No. 32 dated 4/14/88 establishing Sewer District No. 9

Resolution 42 Bond Resolution 4/19/88. District No. 4.

Resolution No. 43 dated 4/18/88 authorizing issuance of $580,000 in serial bonds for Sewer District No. 2

Resolution No. 121 dated 7/7/93 approving of consolidation of SD Nos. 2,3,4,8,9 and 10

Resolution No. 127 dated 7/7/93-authorizing issuance of $700,000 in serial bonds for Sewer District No. 9

Listing of Remaining Sewer Debt 10/2001

Budget—Revenue and Expenditures approved for 2001 and comparisons with 2000 and 1999

Sewer District Directory broken down by streets

Sewer District Map. October 1995.

Air Facility Registration undated

Town of Conklin

Summary information for Hillcrest SD. Base documents not provided.

Porter Hollow Sewer System remote WWTP with SPDES permit.

Sewer Use Ordinance adopted 1967 AND local Law #4 of 1987

Water District No. 2: Rules and Regulations for Water Services: undated

Subdivision Regulations: undated, chapter 115

Public hearing order dated 4/9/01 regarding SD No. 1 Ext. No. 7

Petition (undated) to Town board for establishment of SD No. 1 Ext. No. 5

Town Budget for FY 2001 adopted 10/25/00

Resolution dated 6/3/86-approving SD No. 1

Resolution dated 6/13/89-approving SD No. 1 Ext. 2

Resolution dated 2/13/90-approving SD No. 1 Ext. 3

Resolution dated 7/12/88 approving SD No. 1 Ext. No. 1

Resolution dated 7/1/88 approving SD No. 1 Ext. No. 1

Resolution dated 8/12/98 approving SD No. 1 Ext. 6

Resolution for hearing 3/12/91. SD No. 1 Ext. 4.

Resolution 11/10/92. Establish SD No. 1 Ext 4.

Resolution dated 4/24/01approving SD No. 1 Ext. 7

Several financing documents for issuance of bond anticipation notes for SD No. 1 Ext. 3 and 2, 4, and 5Dated: 2000-2001

Standard agreement for outside users dated 5/26/83

Village of Deposit

NPDES Permit from USEPA dated 6/30 75 for WWTP and expiring on 6/30/80

Lateral Sewers (undated drawing).

October 2000 Wastewater Treatment Plant Upgrade Final Report (Stearns & Wheler, LLC)

Proposed Land Use Plan dated 12/98

Minutes of Village Board of Trustees dated 3/13/01 including establishment of water and sewer rates

Village Report dated 3/01 on need and costs for WWTP upgrade ($4.5 Million) (Index and Exec. Summary Only)

Sewer Ordinance Chapter 33 adopted 1974

Village Budget FY 1999-2000, 2000-2001 and 2001-2002

Letter from NYS DEC Regional Engineer dated 2/15/00-providing copy of annual inspection report and noting several deficiencies0

Letter from NYS DEC Regional Engineer dated 2/20/01-providing copy of annual inspection report and noting several deficiencies

Town of Dickinson

Sewer Ordinance: undated, Chapter 110

Standard agreement for outside users of SD #5 dated 6/29/73

Schedule of Salaries of Elected and Appointed officers: undated

Agreement with village of Port Dickinson re: SD #6 dated 12/3/82

Summary of Budget for FY 2001 including Pleasant Court Sewer Capital Project

Districts Nos. 5 and 6 legal descriptions and map; undated

1992 Sewer Districts (full size drawings)

Village of Endicott

NYS DEC Consent Order dated 12/13/93 re: WWTP exceeding effluent limits

Sewage Treatment Expense Distribution Period Ending 9/30/01

Agreement among Village of Endicott, Town of Vestal and Town of Union dated 3/5/75 regarding construction of sewers and treatment of sewage

Agreement between Town of Union and Village of Endicott dated 12/28/70 (original) and revised 1/1/90 (Revised) providing for sewage transport to and treatment at Endicott WWTP

NYS DEC Consent order dated 2/1/90

Clean Water SRF Project Priority List Update Form dated 3/22/00 estimating $8, 140,00 total project cost

Letter from Malcolm Pirnie Engineers dated 6/8/00 to DEC Regional Water Engineer transmitting Addendum No. 3 to Village WWTP Upgrade Facility Plan

Letter from Malcolm Pirnie Engineers dated 8/7/97 to DEC Regional Water Engineer. Cost Amendment Revision No. 2.

Letter 1/5/95 from Village Supt. Of PW to Director of Engineering, Town of Vestal transmitting data on Vestal Pump station but no data attachment

Two pages of Information forms completed by Village dated 3/00 for Clean Water State Revolving Fund submitted to NYS EFC

December 1999 Summary Report Infiltration/Inflow Study

Flow Diagram Endicott STP (no date).

Staff organizational chart Endicott STP (no date).

Malcolm Pirnie July 1997 Wastewater Treatment Plant Upgrade Facilities Plan.

Town of Fenton

Sewage Disposal System for Porter Hollow Road Sewer District, 1984 (full size drawings).

Preliminary Plan for Sewer Extension. 2000. (full size drawing).

SPDES permit renewal (Porter Hollow WWTP). 4/16/01.

Letter 7/10/01 to Stu Bassell from Town providing detailed information summary information but no base documents

Contract with village of Port Dickinson for SD #1 Hillcrest lawn home and extension dated 12/10/96

Town Sewer Ordinance adopted 3-27-85, Chapter 110

Flow Analysis for Hillcrest SD N0. 1 dated 1/11/00

Village of Johnson City

Sewer Ordinance adopted 1973 with subsequent amendments, Chapter 222

Sewer Department Working Budget dated 5/1/01

NYS DEC Consent Order dated 2/3/00

SPDES Permit issued by NYS DEC dated 5/23/00 for Village overflows

201 Facility Plan for BJCJSTP Service Area: Village of JC Sewer Evaluation Study dated 12/82

CSO report dated 8/00

Letter from Director of Public Services dated 7/31/00 listing sewer separation projects and approximate drainage areas

Local Law No. 1 of 1968. Sewer rents.

Local Law No. 2 of 1968. Sewer rents.

Town of Kirkwood

Special District Budget 2001

Letter from J. Brian Molloy. Esq. to Herbert Kline, Esq. Dated 3/4/85
Re: opinion that BJCJSB proposed regulation on industrial users not mandated by EPA regulations.

Sewer Ordinance: Local Law #1 of 1986 (originally adopted 12/1/64)

Village of Port Dickinson

District map hard to read: undated

Presentation Graphics: Sewer Interceptor System: Undated

Agreement between Village and Town of Dickinson dated 12/3/82
accepting and transporting sewage generated in Town District No. 6

Budget for Sewer Fund FY 1999-2000 and FY 2001-2002

Agreement dated 12/10/96 with Town of Fenton accepting and transporting sewage from Town SD No.1 (Lawn Home, Hillcrest and Ext. 1)

Sewer Ordinance: undated, Chapter 49

Subdivision ordinance: undated, Chapter 53

Town of Sanford

Map and Plan of Oquaga Lake sewer project: date not readable

Hawk Engineering Special Report Oquaga Lake Sewer District dated 8/93

Budget for Sewer O&M 2001, 2000, 1999

Local law # 2 of 2000 imposing sewer rents for Oquaga Lake SD

Resolution dated 11/14/00 adopting Oquaga Lake SD User Charge system

Town of Union

Resolution dated 12/2/70 dissolving sewer districts in the Town in order to manage as town function

Agreement between BJCJSB and Town of Union dated December 15, 1969

Agreement between Town of Union and Village of Endicott dated 12/28/70 providing for sewage transport to and treatment at Endicott WWTP

Agreement between Town of Union and Village of Johnson City dated 6/25/85 approving capital improvements and repairs to system in Westover/Oakdale/Fairmont park areas within the Town and Village

Sewer Ordinance adopted 1985, Local Law #9

Zoning Plan dated 4/4/84, Chapter 42

List of Town Zoning District Codes dated 12/9/66

Full size sewer drawings.

Town of Vestal

Resolution dated 9/27/67 granting tax abatement for BJCJWWTP

BJCJSB estimated billing for quarter ending 3/31/01

Letter Town Engineer to Supt. of PW dated 4/4/95 estimating 14,000 to 15,000 gpd inflows eliminated through repair to interceptor

Cover letter dated 1/5/95 (but no enclosure) from Endicott Supt of PW to Town forwarding Vestal Pump Station data for 1994

I and I Study prepared by Town Engineer 12/85

Resolution dated 9/27/67 granting tax abatement for BJCJWWTP

Letter Agreement dated 3/17/86 signed by NYS DEC and Town requiring specific actions to reduce I and I

Letter Director of Engineering Services to Supt. of PW dated 12/4/92 advising of completion of 4 sanitary sewer projects

Present and Projected Sewer Service Area. January 1994. (Full size drawings).

Town of Vestal Sewer System. (undated full size drawing).

Town of Windsor

Undated Map for Pine Valley Subdivision Sewer Districts No. 1 and No. 2

Sewer ordinance; undated

Several documents pertaining to $76,000 direct loan to Town by NYS EFC under Revolving Loan Program

Budget for 1998 through 2001 for Pine Valley SD No. 1 and Pine Valley SD No. 2

SPDES Permit issued by NYS DEC dated 3/5/92 for Pine Valley SD No. 1

SPDES Permit issued by NYS DEC dated 3/5/92 for Pine Valley SD No. II.

Engineering drawings dated 1985 for Pine Valley SD No. 2.

Engineering drawings dated 1991 for Pine Valley SD No. 1.

State Of New York

Department of Health, Division of Environmental Protection**,** Individual Residential Wastewater Treatment Systems Design Handbook: 1996.

Department of Environmental Conservation, Division of Water, Descriptive Data of Municipal Wastewater Treatment Plants in New York State, December 1999.

US Army Corps of Engineers

Binghamton Wastewater Management Study. Background Information Appendix. Baltimore District Corps of Engineers. June 1976.

APPENDIX C
List of Officials Interviewed

City of Binghamton

Louis Kelly, Commissioner of Public Works, Gary Holmes, City Engineer, Beverly Palmer, City Director of Finance and Gregory Poland, Member of the BJCJSB were interviewed by Dennis Rapp and Terry Curran on Friday, August 3, 2001. Beverly Palmer, Director of Finance, was interviewed by Stuart Bassell on Wednesday, October 24, 2001. Pertinent material was photocopied at that time.

Town Of Binghamton

Supervisor Timothy P. Whitesell was interviewed by Dennis Rapp and Robert Feller on Thursday, August 23, 2001

Town of Conklin

Supervisor Timothy M. O'Hearn was interviewed by Dennis Rapp and Robert Feller on Thursday, August 23, 2001.

Village Of Deposit

Mayor Ronald Hayes and Robert Mills, Public Works Superintendent were interviewed by Dennis Rapp and Terry Curran on Tuesday, July 10, 2001

Town of Dickinson

Supervisor Michael Marinaccio was interviewed by Dennis Rapp and Robert Feller on Thursday, August 23, 2001.

Village of Endicott

Mayor Michael E. Colella and Rick Miller, Coordinator of Public Works were interviewed by Dennis Rapp and Terry Curran on Thursday, August 2, 2001.

Town of Fenton

Supervisor Edward Banks and Don Brown, Town Engineer BJCJSB were interviewed by Dennis Rapp and Terry Curran on Friday, August 3, 2001.

Village of Johnson City

Mayor Harry G. Lewis, Robert A. Bennett, P.E., Director of Public Services and Ken Kinsman, Member and current Chair of the B-JC Plant Joint Board Works were interviewed by Dennis Rapp and Terry Curran on Thursday, August 2, 2001. Robert

Bennett, Director of Public Services, was interviewed by Stuart Bassell on Tuesday, October 23, 2001. Pertinent material was photocopied at that time.

Town of Kirkwood

John M. Finch, Superintendent of Public Works was interviewed by Dennis Rapp and Terry Curran on Friday, August 3, 2001.

Village of Port Dickinson

Mayor John Wilfley and Steven Horoschak, Village Trustee were interviewed by Dennis Rapp and Terry Curran on Monday, July 9, 2001.

Town Of Sanford

Supervisor Dewey Decker was interviewed by Dennis Rapp and Terry Curran on Tuesday, July 10, 2001, and by Leo Hetling on Friday, November 16, 2001.

Town of Union

Supervisor John Cheevers, was interviewed by Dennis Rapp and Terry Curran on Thursday, August 2, 2001. Peter Olevano, Commissioner of Public Works, was interviewed by Stuart Bassell on Tuesday, October 23, 2001. Pertinent material was photocopied at that time.

Town of Vestal

Anndrea Starzak, Supervisor, Gary Campo, Town Engineer and Keith Wahl , Water Superintendent were interviewed by Dennis Rapp and Terry Curran on Tuesday, July 10, 2001. Gary Campo, Town Engineer, was interviewed by Stuart Bassell on Tuesday, October 23, 2001. Pertinent material was photocopied at that time.

Village of Whitney Point

Mayor Gerald Whitehead was interviewed by Leo Hetling on Friday, November 16, 2001.

Town of Windsor

Supervisor Randy J. Williams was interviewed by Dennis Rapp and Terry Curran on Friday, August 3, 2001 and by Leo Hetling on Saturday, November 17, 2001.

Mail and Telephone Interviews

The supervisors of the Towns of Fenton, Lisle, and Maine provided written comment to Leo Hetling related to the status of on site systems in their towns.

The following individuals were interviewed during telephone calls with Stuart Bassell:

Town of Binghamton: Tim Whitesell, Supervisor

Town of Chenango: Margaret Turna, Supervisor; Donald Benjamin, Water/Sewer Administrator; and Edward Gent, McFarland Johnson, Consultant

Town of Conklin: Timothy O'Hearn, Supervisor

Town of Dickinson: Michael Marinaccio, Supervisor; Joseph Winterstein, Water & Sewer Superintendent and Ron Lake, Hawk Engineering, Consultant

Village of Endicott: Eugene Kudgus, Commission of Public Works (now Consultant)

Town of Fenton: Ed Banks, Supervisor and Donald Brown, Town Engineer

Village of Johnson City: Harry Lewis, Mayor and Robert Bennett, Director of Public Services

Town of Kirkwood: John Finch, Commissioner of Public Works

Village of Port Dickinson: John Wilfley, Mayor

Town of Union: Peter Olevano, Commissioner of Public Works

Town of Vestal: Anndrea Starzak, Supervisor; Gary Campo, Town Engineer and Laura McCain, Comptroller

Town of Windsor: Randy Williams, Supervisor

APPENDIX D
Summary of Site Visits and Inspections

Village of Deposit WWTP

Stuart Bassell visited the facility on Monday, October 22, 2001. Robert Mills, Commissioner of Public Works, and Scott Conklin, Operator, guided the tour. Dennis Rapp and Terry Curran visited the plant briefly on Tuesday, July 10, 2001.

Oquaga Lake (Town of Sanford) WWTP

Stuart Bassell visited the facility on Monday, October 22, 2001. Robert Mills, contract operator, guided the tour.

Pine Valley Sewer District No. 1 (Town of Windsor) WWTP

Stuart Bassell visited the facility on Monday, October 22, 2001. Francis Stone, Code Enforcement Officer (and facility operator), guided the tour.

Pine Valley Sewer District No. 2 (Town of Windsor) WWTP

Stuart Bassell visited the facility on Monday, October 22, 2001. Francis Stone, Code Enforcement Officer (and facility operator), guided the tour.

Porter Hollow Road Sewer District (Town of Fenton) WWTP

Stuart Bassell visited the facility on Wednesday, October 24, 2001. Donald Brown, Town Engineer, guided the tour. Prior to the tour, a meeting was held with Edward Banks, Town Supervisor.

Pennview (Town of Chenango) WWTP

Stuart Bassell visited the facility on Wednesday, October 24, 2001. Donald Benjamin, Water/Sewer Administrator, guided the tour.

Northgate (Town of Chenango) WWTP

Stuart Bassell visited the facility on Wednesday, October 24, 2001. Donald Benjamin, Water/Sewer Administrator, guided the tour.

Parkwood Sewer District (Town of Binghamton) WWTP

Arrangements could not be made for a visit to this facility.

Village of Endicott WWTP

Stuart Bassell visited the facility on Tuesday, October 23, 2001. Thomas J. Schofield, Chief Operator, guided the tour. After the tour, a meeting was held with Richard M. Miller, Public Works Coordinator.

Binghamton-Johnson City Joint Sewer Board WWTP

Stuart Bassell and Dennis Rapp visited the facility on Thursday, October 25, 2001. Bill Miller, Assistant Supervisor, guided the tour. Prior to the tour, a meeting was held with Bill Horrigan, Jr., Superintendent.

Site Visits to Non-Sewered Areas

On November 15, 2001, Leo Hetling made site visits to Laurel Lake and Blueberry Lake in the Town of Sanford; White Birch Lake, Beaver Lake, and the hamlet of West Windsor in the Town of Windsor; the Bell School Area in the Town of Kirkwood; and Deer Lake in the Towns of Sanford and Windsor.

APPENDIX E
Reporting Units and Employment in Broome County 1980,1990, and 2000

Table E-1
Reporting Units and Employment
Broome County

Industry	Year	Units (March)	Average Employment per Quarter				Annual Average Employment
			I	II	III	IV	
ALL INDUSTRIES	1980	3,887	94,061	94,881	91,164	94,462	93,642
TOTAL PRIVATE	1980	3,773	75,024	75,517	75,683	75,874	75,524
MANUFACTURING	1980	229	32,095	31,825	31,438	31,716	31,768
CONSTRUCTION	1980	444	2,962	3,478	3,901	3,660	3,500
TRANSPORTATION AND PUBLIC UTILITIES	1980	124	3,910	3,914	3,979	3,934	3,934
WHOLSALE AND RETAIL TRADE	1980	1,466	18,222	18,304	18,213	18,362	18,275
FINANCE, INSURANCE AND REAL ESTATE	1980	288	3,494	3,469	3,510	3,464	3,484
SERVICES	1980	1,170	14,114	14,258	14,288	14,366	14,256
ALL OTHER INDUSTRIES	1980	52	225	268	352	371	304
TOTAL GOVERNMENT	1980	114	19,037	19,363	15,481	18,588	18,117
FEDERAL	1980	31	828	1,650	967	792	1,059
STATE	1980	14	5,136	5,104	4,838	5,309	5,097
LOCAL	1980	69	13,072	12,609	9,675	12,486	11,961

Source: Summary information on employment and payrolls covered by unemployment insurance in NY State available from www.labor.ny.us/labormarket/LMI

Table E-2
Reporting Units and Employment
Broome County

Industry	Year	Units (March)	Average Employment per Quarter				Annual Average Employment
			I	II	III	IV	
ALL INDUSTRIES	2000	4,385	98,594	100,034	97,902	101,921	99,613
TOTAL PRIVATE	2000	4,232	79,080	80,512	81,602	81,957	80,788
MANUFACTURING	2000	246	18,188	18,302	18,283	18,519	18,323
CONSTRUCTION	2000	380	3,119	3,718	4,068	3,733	3,659
TRANSPORTATION AND PUBLIC UTILITIES	2000	172	4,428	4,619	4,591	4,692	4,583
WHOLSALE AND RETAIL TRADE	2000	1,431	21,093	21,400	21,664	22,289	21,611
FINANCE, INSURANCE AND REAL ESTATE	2000	361	4,246	4,151	4,243	4,191	4,208
SERVICES	2000	1,565	27,681	27,888	28,285	28,060	27,978
ALL OTHER INDUSTRIES	2000	77	323	433	465	470	423
TOTAL GOVERNMENT	2000	153	19,514	19,521	16,300	19,964	18,824
FEDERAL	2000	35	777	932	810	757	819
STATE	2000	18	6,188	6,035	5,991	6,353	6,142
LOCAL	2000	100	12,548	12,553	9,498	12,853	11,863

Source: Summary information on employment and payrolls covered by unemployment insurance in NY State available from www.labor.ny.us/labormarket/LMI

Table E-3.

Reporting Units and Employment
Broome County

Industry	Year	Units (March)	Average Employment per Quarter				Annual Average Employment
			I	II	III	IV	
ALL INDUSTRIES	1990	4,289	102,935	104,150	102,173	103,681	103,235
TOTAL PRIVATE	1990	4,193	84,400	85,419	86,895	85,478	85,548
MANUFACTURING	1990	243	28,583	28,409	28,594	28,165	28,438
CONSTRUCTION	1990	512	3,911	4,323	4,933	4,497	4,416
TRANSPORTATION AND PUBLIC UTILITIES	1990	133	3,935	3,998	3,985	3,893	3,953
WHOLSALE AND RETAIL TRADE	1990	1,495	22,856	22,990	22,892	22,678	22,854
FINANCE, INSURANCE AND REAL ESTATE	1990	303	3,752	3,816	3,828	3,907	3,826
SERVICES	1990	1,427	21,022	21,461	22,205	21,969	21,664
ALL OTHER INDUSTRIES	1990	80	340	419	457	367	396
TOTAL GOVERNMENT	1990	96	18,535	18,730	15,277	18,203	17,686
FEDERAL	1990	32	777	954	830	768	832
STATE	1990	18	6,107	5,910	5,764	6,086	5,967
LOCAL	1990	46	11,650	11,865	8,682	11,348	10,886

Source: Summary information on employment and payrolls covered by unemployment insurance in NY State available from www.labor.ny.us/labormarket/LMI

APPENDIX F
Description Of Current Wastewater Management Systems For Sewered Areas

Village of Deposit Wastewater Treatment Plant

Overview

The Village of Deposit includes lands within two counties: Broome County (Town of Sanford) and Delaware County (Town of Deposit). The current (2000 census) population in the village is 1699 persons. The portion of the village population within Broome County is 835 persons, which is approximately one-half the village total.

The village's Wastewater Treatment Plant (WWTP), located at Old Scott Center Road in the village, is near the confluence of Oquaga Creek and the West Branch of the Delaware River. The WWTP has a nominal capacity of 0.4 MGD.

The village sanitary sewers and WWTP are owned by the village and run by the village's Department of Public Works.

Use of the sanitary sewers is regulated by the village's sewer use ordinance (Chapter 33 - Sewers). There is no formal industrial pretreatment program; regulation of commercial/industrial discharges is through enforcement of the sewer use ordinance.

Service Area

Although an isolated property may still be discharging wastewater to an on-site septic system, the village is effectively fully served with sanitary sewers. Outside the village, a Wendy's restaurant, QuickWay (convenience store), and automotive repair shop are connected to the sanitary sewer system. Discharges from the repair shop are pretreated with an oil-water separator. In industrial park will be connecting in the near future; the expected discharge from this connection is 3,000 to 4,000 gpd, though the design flow for the park is 12,000 gpd. The village permits two septage haulers to dispose of their wastes at the WWTP.

Discharge Requirements and Regulatory Compliance

Treated wastewater from the WWTP is discharged to the West Branch of the Delaware River, as authorized by SPDES Permit No. NY0029211. The point of discharge is downstream of New York City's Cannonsville Reservoir. The receiving water at this location is designated as a Class B(T) water, which is to be suitable for direct contact recreation and trout propagation. The SPDES permit limits the discharge for the following parameters: temperature, flow, pH, BOD, TSS, settleable solids, fecal coliform, total chlorine, flow, and ammonia-nitrogen. The 7-day and 30-day average BOD/TSS concentration limits are 45 and 30 mg/L, respectively, which are conventional limits for secondary treatment. The permit limits the plant flow to 0.4 MGD (30-day average).

Loadings

According to a recent engineering study (Stearns & Wheler 2000), average annual flow to the WWTP is 0.28 MGD, and the monthly maximum is 0.44 MGD, which is above the permitted limit. The 0.44-MGD maximum occurred during an unusually wet April and exceeded the next highest monthly flow of 0.36 MGD by 20%. For the purposes of system evaluation, Stearns & Wheler recommend the use of the 0.36-MGD loading to represent the actual maximum monthly flow. Hydrographs of the plant flow indicate that much of the wet weather hydraulic loading is I and I. The peak daily flow is 1.0 MGD. The annual average and monthly maximum BOD loadings are 834 and 2,728 ppd, respectively.

Between 1990 and 2000, the village population declined by 12% from 1936 to 1699 persons. Other than new connections extended to unincorporated areas of the towns, loadings to the plant are not projected to grow in the future.

Treatment Works

The sanitary sewers are separate from the village's stormwater management system.

The WWTP was constructed in 1977. Wastewater is treated as follows:

Screening
Comminutor (no longer working)
Grit Removal
Activated Sludge (Contact Stabilization), including Clarification
Chlorination

Except for occasional equipment replacement, the only changes to the facility since 1977 have been the 1991 construction of an additional clarifier and new chlorine contact chamber.

The nominal capacity of the WWTP is 0.4 MGD, though the capacities of some individual components are higher. The information below is taken from the recent engineering report on the facility (Stearns & Wheler, 2000).[F-1]

Influent to the WWTP is first treated with a hand-cleaned bar rack and then bypasses the now inoperable comminutor. The comminutor, motor, and control panel are damaged as a result of flooding. The wastewater then flows to a wet well for pumping to an aerated grit chamber, which has a capacity of 1.35 MGD. The grit removal system is provided with a bucket conveyor to a grit washer; however, the bucket elevator and air-operated valves on the wash system are inoperable. There are three pumps in the wet well: two variable speed units rated at 610 gpm at 66.4 ft TDH at maximum speed, and one constant speed pump rated at 400 gpm at 66.5 ft TDH. With one pump required for redundancy, the combined capacity of one variable speed pump and one constant speed pump is 1010 gpm (1.45 MGD). At present, one of the variable speed pumps is not working, so the system is now functioning without any redundancy.

From the grit chamber, wastewater flows to two above ground metal tanks for treatment by contact stabilization. The tanks are partitioned into three concentric tanks for aeration (outer ring), secondary settling (middle), and sludge handling (inner). Course-bubble diffusers are used to supply air in the aeration tanks. The mixed liquor from the aeration tanks then flows to the settling tank for clarification. Scrapers push the settled solids to a hopper in the center of the unit, and a pump recycles a portion of the material back to the aeration tanks as return activated sludge. The aeration tanks have a capacity to remove 975 ppd of BOD. The capacity of the settling tanks is 1.96 MGD.

The supernatant from the settling tanks then flows to a new (1991) concrete clarifier for further settling. Sludge from this clarifier is also pump to the activated sludge return.

Disinfection is accomplished in a new chlorine contact chamber, which has a reported capacity of 500 ft^3 (3700 gal). With a recommended standard retention time of 15 minutes, the rated capacity of the chamber is 250 gpm (0.36 MGD). This rating is less than nominal capacity of the WWTP, and as a result, there reportedly are frequent violations of the SPDES limitation for bacteria in the plant effluent. Chlorine is added by mixing chlorine gas with potable water and injecting the fluid to the contact tank influent.

[F-1] Stearns & Wheler, LLC. August 2000

Airlift pumps are used to convey waste sludge from the secondary treatment tanks to aerobic digester tanks, which have a total volume of 15,800 ft^3. This volume is sufficient for a population of 2821 people, which is 66% greater than the current (2000) census. The supernatant from the digesters is recycled to the contact stabilization tanks. According to the engineering report, the air-supply piping and valves for the aeration tank should be replaced. In order to thicken the digested sludge, the pumps to the air diffusers are turned off, after which the thickened sludge is removed with submersible pumps. According to the engineering report, these pumps are subject to constant plugging, and access to the units is hindered by their location away from the walkway and failure of their hoists to work as intended. The pump discharge is directed to covered sludge drying beds (11,700 ft^2 in area). Rainwater penetrates the roof cover through several holes, which increases the amount of time needed to dewater the sludge. The dried sludge is landfilled off-site.

Administrative and Financial Management

Wastewater collection and treatment is supervised by the Village Public Works Superintendent.

The adopted budgets for running the sanitary sewer system and WWTP are summarized in Table F-1 below:

Table F-1
Village of Deposit Budget for Wastewater Collection and Treatment

Year	Financing	Operations
1998-1999:	$169,000	$95,900
1999-2000:	$173,216	$97,830
2000-2001:	$185,899	$94,525
2001-2002:	$185,899	$112,807

The 2001-2002 financing (debt service) includes $25,000 for improvements to the WWTP, which does not appear on earlier budgets. About 90% of the operations budget can be attributed to the WWTP (remainder for sewers). All of the financing costs are allocated to the WWTP. Outstanding debt on the WWTP is $550,000 on bonds maturing in 2014.

The 2001-2001 budget specifies a user rate of $272 per year for within-village users to recoup the costs for O&M and debt reduction. Commercial rates outside village limits total $378 per year. Additional charges are levied for new hookups and use by septic haulers.

Wastewater collection and treatment is supervised by the Village Public Works Superintendent.

Needs

Based on the department's annual inspection, the NYSDEC (February 20, 2001 letter) stated the following:

1. Various critical plant processes and equipment need to be evaluated, repaired, or upgraded and replaced.

2. The accuracy of the flow measurements of the plant is questionable.

3. The plant is subject to excessive plant I and I, and a workplan is required to begin to address this problem.

4. A permanent dechlorination process or alternate disinfection process is required to address residual chlorine and coliform violations.

The Stearns & Wheler report[3.1] recommended the following to rectify the deficiencies and needs at the plant:

1. New comminutor and grit handling equipment.

2. New raw wastewater pumps.

3. New diffusers, piping and blowers for the aeration system.

4. Repiping, valves, etc. for the secondary clarification stage.

5. Replace the chlorination system with a UV disinfection unit.

6. Replacement of the pumps and associated hardware in the digestion tanks.

Stearns & Wheler recommended 22 additional improvements, which include, among other items, painting, roof repairs, leak repairs, monitoring equipment and systems, and investigation and repair of the sanitary sewer system. The total cost for these improvements is $2,500,000. This estimate includes the study of the I and I problem, but not its actual correction. The village has investigated possible grants for some or all of the recommended work, but other than loans through the NYSEFC, no such funding appears available at present. As indicated above, the latest budget includes $25,000 for improvements to the WWTP.

Oquaga Lake (Town of Sanford) WWTP

Overview

The Town of Sanford has one sewer District, the Oquaga Lake Sewer District.

The WWTP is located on Smith Road approximately one-half mile south of Oquaga Lake. The WWTP has a nominal capacity of 0.055 MGD.

Use of the sanitary sewers is regulated by the town's sewer use ordinance (Local Law No. 2 of 2000 "A Local Law Establishing and Imposing Sewer Rents for Oquaga Lake Sewer District"). There is no formal industrial pretreatment program. Local Law No. 2 prohibits industrial discharges, unless consent has been given by the Town Board. In any event, Local Law No. 2 specifies an industrial sewer use rate of $500/gal, which effectively eliminates the cost-effectiveness of such use.

Service Area

The Oquaga Lake Sewer District includes property on both sides of the roads that surround the lake: Oquaga Lake Road and Golf Course Road. The service area includes a mix of year-round and seasonal houses and cottages, and resort hotels.

Discharge Requirements and Regulatory Compliance

Treated wastewater from the WWTP is discharged to Starboard Creek, as authorized by SPDES Permit No. NY0110795. The receiving water at the point of discharge is designated as a Class B water, which is to be suitable for primary and secondary contact

recreation and fish propagation and survival. Starboard Creek flows to the West Branch of the Delaware River downstream of New York City's Cannonsville Reservoir. A copy of the actual SPDES permit was not available during this study. According to the U.S. EPA website, the SPDES permit limits the discharge for the following parameters: dissolved oxygen, flow, pH, BOD, TSS, settleable solids, fecal coliform, residual chlorine, flow, and ammonia-nitrogen. The 30-day average BOD and TSS concentration limits are 10 and 15 mg/L, respectively, which are more stringent than conventional limits for secondary treatment. The permit limits the plant flow to 0.05 MGD (30-day average).

Loadings

Because of the large percentage of summer residences in the service area, the loadings to the WWTP are subject to significant seasonal variation. According to a study prepared to establish the sewer rate schedule (Hawk Engineering 1993), summer influent to the WWTP is in the range of 3,000 to 5,000 gpd and the off-peak flow is in the range of 1,200 to 3,200 gpd. (The operator reported that as few as a dozen houses in the service area are occupied during the winter.) The average April flow can exceed 8,000 gpd, which indicates that the collection system is subject to significant I and I. The peak day flow is 15,000.

There are 193 equivalent dwelling units connected to the system. One hotel accounts for 47 of these units. Assuming minimal other commercial development, these figures indicate that there are 146 connections to the system, which is consistent with the 1993 tabulation of 142.[F-2]

Treatment Works

Each property in the service area has a septic tank, which overflows to a 300-gal pump station. The pump stations discharge to the collection sewers which circumference the lake. There are a number of small pump stations and cleanouts on the sewer system. The sewer ultimately discharges to a large pump station near the main gate to the plant, which lifts the wastewater to the WWTP.

The WWTP was constructed in 1985. Wastewater is treated as follows:

Sand Filtration
Chlorination
Aeration

Because the sanitary sewers collect just septic tank overflow, there is no primary treatment. The WWTP does not generate sludge. The sand filter is divided into a number of cells to control dosing. One of the cells is covered by a Quonset hut-shaped structure and is used for treating the small amount of influent flow generated during the winter.

[F-2] Hawk Engineering Special Report Oquaga Lake Sewer District dated August 1993

To control the possible discharge of solids into the sewers, the town arranges for the pump out of the septic tanks for the properties connected to the sewer system. The pump out is conducted at least once every five years, or more frequently if maintenance is conducted on the individual systems.

Administrative and Financial Management

The sanitary sewers and WWTP are owned by the District, managed by the Town Board, and operated by a contract operator. The present contract operator is Robert Mills, the Superintendent of Public Works of the Village of Deposit. and the operator of the Deposit WWTP. Deposit is an incorporated village partly in the Town of Sanford.

The adopted budgets for running the sanitary sewer system and WWTP are summarized in Table F-2 below:

Table F-2
Town of Sanford, Oquaga Lake Sewer District
Budget for Wastewater Collection and Treatment

Year	Financing	Operations
1999:	$38118	$43,360
2000	$36,752	$48,151
2001	$29,724	$55,300

According to the Town Supervisor, the remaining debt on the sewer system and WWTP is $76,000.

Local Law No. 2 specifies a user rate of $180 per equivalent dwelling unit to recoup the costs for O&M. Debt service costs are recouped through an ad valorum tax of $250 per unit.

Needs

The sand beds at the WWTP are those originally provided when the facility was first constructed. According to the operator, the imported sand had a significant amount of clay, and therefore, the actual capacity of the WWTP is below the rated capacity. Although the WWTP is still capable of treating the current loads, the clay results in higher manpower and contractor costs for routine bed refurbishment and control of rooted plants.

The PVC pipes at the WWTP have become brittle with age and are in danger of cracking as the influent pump station cycles on and off. The operator has also indicated that the pump station controls should be updated.

Pine Valley Sewer District No. 1 (Town of Windsor) WWTP

Overview

The Town of Windsor has two sewer districts: Pine Valley Sewer District No. 1 and Pine Valley Sewer District No. 2. The districts are adjacent to each other, are similar in size, and have nearly identical WWTPs.

District No. 1 serves the northern loop of Pine Valley Road. The WWTP is located at the downhill (west) foot of that section of Pine Valley Road.

The sanitary sewers and WWTP are owned by the district, managed by the town board, and operated by a contract operator. The present operator the town Code Enforcement Operator.

Use of the sanitary sewers is regulated by the town's sewer use ordinance (Chapter 48 "Sewer Installation and Use Law"). Since the district serves a small residential subdivision, there is no formal industrial pretreatment program. However, Chapter 48 still has provisions concerning possible industrial use of the sewers.

Service Area

The service area consists of 10 residential properties on the north loop of Pine Valley Road.

Discharge Requirements and Regulatory Compliance

Treated wastewater from the WWTP is discharged to Stillson Hollow Creek, a tributary of Park Creek, as authorized by SPDES Permit No. NY0090662. The receiving water at the point of discharge is designated as a Class C water, which is to be suitable for primary and secondary contact recreation and fish propagation and survival, although other factors may limit the use for these purposes. Park Creek flows to the Susquehanna River. The SPDES permit limits the discharge for the following parameters: dissolved oxygen, flow, pH, BOD, TSS, settleable solids, flow, and ammonia. The 30-day average BOD and TSS concentration limits are 5 and 10 mg/L, respectively, which are more stringent than conventional limits for secondary treatment. The permit limits the plant flow to 0.0045 MGD (30-day average).

Loadings

There is no flow metering at the WWTP. Therefore, flows can only be estimated from the size of the development. Assuming 300 gpd/property, average flows are about 3,000 gpd, 33% below the permitted maximum.

Treatment Works

Raw wastewater is discharged from the connected properties to a gravity sewer, which runs to the foot of the north leg of Pine Valley Road. The wastewater is pretreated in two central septic tanks, which capacities of 5,000 gallons and 2,000 gallons. The supernatant from the tanks is filtered through a screen, which is manually washed as needed, and enters a dosing chamber, which directs the flow to either of two 2300-ft^2 filter beds. The underflow from the beds is collected and directed to a chlorination chamber, after which the treated effluent is discharged to Stillson Hollow Creek. The design for the WWTP provides for a third filter bed, if needed in the future. The WWTP was constructed in 1992 to replace the previous one, which provided treatment in oxidation lagoons.

Solids that accumulate in the two septic tanks are pumped out twice a year.

Administrative and Financial Management

The adopted budgets for running the sanitary sewer system and WWTP are summarized in Table F-3:

Table F-3
Town of Windsor , Pine Valley Sewer District No. 1
Budget for Wastewater Collection and Treatment

Year	Operations	Financing
1998	$3,880	$4,344
1999:	$3,880	$1,970
2000	$3,880	$4,344
2001	$3,880	$4,350

The cost for the upgrade to the WWTP was $77,600, which was financed through a 0% interest loan from the New York Environmental Facilities Corporation. Information on the amount of remaining debt is not available. Approximately 10 years have transpired since the work was completed. Based on the yearly financing costs, there should remain approximately $38,800 of remaining debt.

Properties within the district are assessed $800 per year for O&M and debt service.

Needs

The outfall to the receiving stream is beneath stone rubble, an installation that was reportedly approved by the NYSDEC. Accordingly, the effluent cannot be sampled. Otherwise, there are no identified needs for improvements to the collection system or WWTP.

Pine Valley Sewer District No. 2 (Town of Windsor) WWTP

Overview

The Town of Windsor has two sewer districts: Pine Valley Sewer District No. 1 and Pine Valley Sewer District No. 2. The districts are adjacent to each other, are similar in size, and have nearly identical WWTPs.

District No. 2 serves the southern loop of Pine Valley Road. The WWTP is located at the downhill (west) foot of that section of Pine Valley Road.

The sanitary sewers and WWTP are owned by the district, managed by the town board, and operated by a contract operator. The present operator the town Code Enforcement Operator.

Use of the sanitary sewers is regulated by the town's sewer use ordinance (Chapter 48 "Sewer Installation and Use Law"). Since the district serves a small residential subdivision, there is no formal industrial pretreatment program. However, Chapter 48 still has provisions concerning possible industrial use of the sewers.

Service Area

The service area consists of 14 residential properties on the south loop of Pine View Road.

Discharge Requirements and Regulatory Compliance

Treated wastewater from the WWTP is discharged to Stillson Hollow Creek, a tributary of Park Creek, as authorized by SPDES Permit No. NY0156825. The receiving water at the point of discharge is designated as a Class C water, which is to be suitable for primary and secondary contact recreation and fish propagation and survival, although other factors may limit the use for these purposes. Park Creek flows to the Susquehanna River. The SPDES permit limits the discharge for the following parameters: dissolved oxygen, flow, pH, BOD, TSS, settleable solids, flow, and ammonia. The 30-day average BOD and TSS concentration limits are 5 and 10 mg/L, respectively, which are more stringent than conventional limits for secondary treatment. The permit limits the plant flow to 0.0056 MGD (30-day average).

Loadings

There is no flow metering at the WWTP. Therefore, flows can only be estimated from the size of the development. Assuming 300 gpd/property, average flows are about 4,200 gpd, 25% below the permitted maximum.

Treatment Works

According to the engineering drawings, each property in the service area has a 1000-gal septic tank, which overflows to the gravity collection sewers, which run to the foot of Pine View Road. The wastewater enters a dosing chamber, which directs the flow to either of two 2400-ft^2 filter beds. The underflow from the beds is collected and directed to a chlorination chamber, after which the treated effluent is discharged to Stillson Hollow Creek.

Because the sanitary sewers collect just septic tank overflow, there is no primary treatment. The WWTP does not generate sludge. To control the possible discharge of solids into the sewers, the town arranges for the pump out of the septic tanks for the properties connected to the sewer system.

Administrative and Financial Management

The adopted budgets for running the sanitary sewer system and WWTP are summarized below:

Year	Operations	Financing
1998	$4,344	
1999:	$3,018	$3638
2000:	$4,344	$3,461
2001:	$4,350	$3,460

Information on the amount of remaining debt is not available.

Properties within the district are assessed $600 per year for O&M and debt service.

Needs

There are no identified needs for improvements to the collection system or WWTP.

Porter Hollow Road Sewer District (Town of Fenton) WWTP

Overview

The Porter Hollow Road Sewer District is in the Town of Fenton and serves 16 residences on the northeast section of that street. The WWTP is located on Porter Hollow Road

The sanitary sewers and WWTP are owned by the district, managed by the town board, and operated by town employees.

Use of the sanitary sewers is regulated by the town's sewer use ordinance (Chapter 110 "Sewers"). Since the district serves a small residential subdivision, there is no formal industrial pretreatment program for that locality. The ordinance has provisions regarding industrial pretreatment; however, these provisions are organized around the portion of the town that is served by the Binghamton-Johnson City WWTP.

Service Area

The service area consists of 16 residential properties on the northeast section of Porter Hollow Road.

Discharge Requirements and Regulatory Compliance

Treated wastewater from the WWTP is discharged to Porter Hollow Creek, a tributary of Osborne Creek, which flows to the Chenango River. The discharge is authorized by SPDES Permit No. NY0156299. The receiving water at the point of discharge is designated as a Class D water, which is to be suitable for fish survival, and primary and

secondary contact recreation, although other factors may limit the use for these purposes. The SPDES permit limits the discharge for the following parameters: dissolved oxygen, flow, pH, BOD, TSS, settleable solids, flow, and ammonia. The 30-day average BOD and TSS concentration limits are 5 and 10 mg/L, respectively, which are more stringent than conventional limits for secondary treatment. The permit limits the plant flow to 0.0064 MGD (30-day average).

Loadings

There is no flow metering at the WWTP. Therefore, flows can only be estimated from the size of the development. Assuming 300 gpd/property, average flows are about 4,800 gpd, 25% below the permitted maximum.

Treatment Works

Each property in the service area has a 1000-gal septic tank, which overflows to the gravity collection sewer, which drains to the downhill section of the district. The wastewater enters a dosing chamber, which directs the flow to either of two 2900-ft^2 filter beds. The underflow from the beds is collected and directed to a chlorination chamber, after which the treated effluent is discharged to Porter Hollow Creek. The current SPDES permit does not require disinfection, and therefore, chlorine is not added to the effluent.

Because the sanitary sewers collect just septic tank overflow, there is no primary treatment. The WWTP does not generate a sludge. To control the possible discharge of solids into the sewers, the town requires that the property owners pump out their septic tanks once every three years.

Administrative and Financial Management

The remaining debt, if any, for the construction of the sewers and WWTP is unknown. Information on the budgets for running the district is not available. However, the annual assessment to each district property is $280, which indicates that the budget is approximately $4,500 per year. This figure indicates that there is probably no remaining debt. The district has a sinking fund, which amounts to about $6,000, for non-routine maintenance.

Needs

There are no identified needs for improvements to the collection system or WWTP.

Pennview Sewer District No. 10 (Town of Chenango) WWTP

Overview

The Pennview WWTP, constructed in 1994, serves Sewer District No. 10 in the Town of Chenango. The Pennview facility is one of two WWTPs in the town, and is located off Castle Creek Road in the center of the town. The other plant is Northgate discussed in the next section. The sanitary sewers and WWTP are owned by the District, managed by the Town Board, and operated by town employees.

Use of the sanitary sewers is regulated by the town's sewer use ordinance (Chapter 56 "Sewers"). Industrial discharges are controlled through enforcement of the provisions of the ordinance, and, for large dischargers, issuance of industrial discharge permits.

Service Area

The Pennview WWTP serves an apartment complex and is part of that development.

Discharge Requirements and Regulatory Compliance

Treated wastewater from the WWTP is discharged to Castle Creek, a tributary of the Chenango River, as authorized by SPDES Permit No. NY0233200. The receiving water at the point of discharge is designated as a Class C water, which is to be suitable for primary and secondary contact recreation and fish propagation and survival, although other factors may limit the use for these purposes. The SPDES permit limits the discharge for the following parameters: dissolved oxygen, flow, pH, BOD, TSS, settleable solids, flow, and ammonia. The 7-day average BOD and TSS concentration

limits are 30 45 mg/L, respectively, which are conventional limits for secondary treatment. The permit limits the plant flow to 0.04 MGD (30-day average).

Loadings

According to the operator, the current loading to the WWTP averages about 15,000 gpd, well below the system's rated capacity of 40,000 gpd. The population served by the system is estimated to be 200 persons.

Treatment Works

Wastewater is first treated with hand-cleaned bar racks/screens, followed by extended aeration, which consists of a pre-reactor, reactor, and clarifier. After settling, the secondary effluent is chlorinated (pellets) and then de-chlorinated. Soda ash is added to control pH. Sludge is digested and thickened in an aerated tank. The system does not have a standby electric generator. In case of a power outage, a portable generator would be brought to the site.

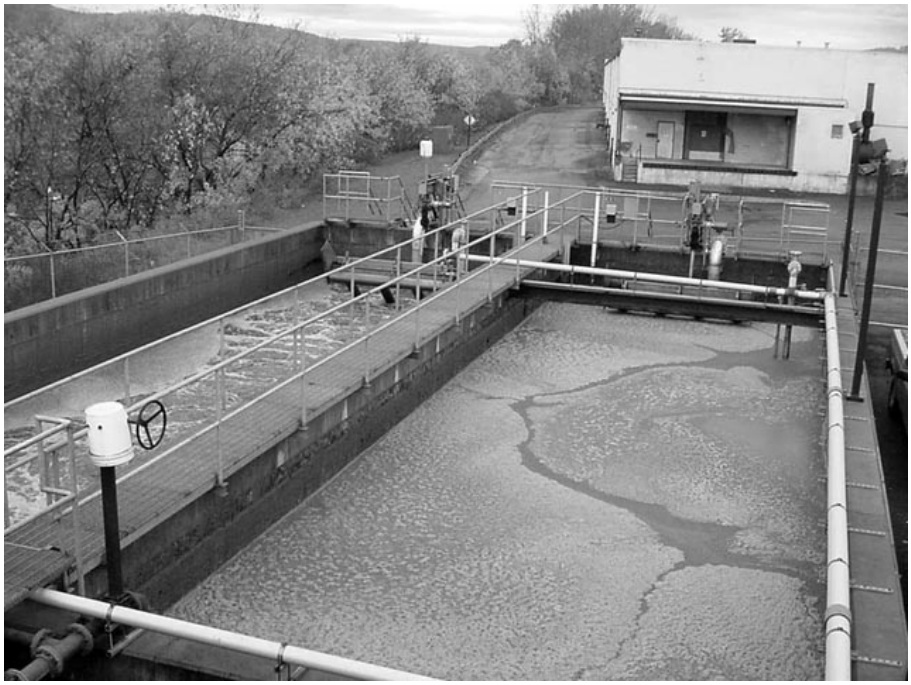
Administrative and Financial Management

The Pennview WWTP does not have a full-time operator. The system is operated by staff assigned to the town's larger Northgate WWTP. Separate budgets for O&M of the system are not available. User fees are uniform town-wide and are based on metered water use. The fee amounts to $13 per quarter for the first 1000 ft^3 of water use for that quarter, plus $1.30/100 ft^3 for consumption over the first 1000 ft^3. According to the Town Supervisor, this charge averages $120/year for the typical residence. Charges for District debt service are in addition to the user fees, and vary with property size and type of development (single family, apartment, commercial, etc.), as specified in the town sewer use ordinance. The remaining debt of Sewer District No. 10 is $225,000 (as of October 2001).

Needs

There are no identified needs for improvements to the collection system or WWTP. However, the town will be purchasing a new portable electric generator to augment the capabilities for the sewer department to respond to power outages at lift stations elsewhere in the town's sewer system, as well as the Pennview WWTP.

Northgate (Town of Chenango) WWTP



Overview

The Northgate WWTP, constructed in 1989, serves all sewer districts in the Town of Chenango, except for Sewer District No. 10, which is served by the smaller Pennview WWTP. The Northgate WWTP is located on Upper Front Street, behind the Northgate Plaza shopping center.

The sanitary sewers and WWTP are owned by the districts, managed by the town board, and operated by town employees.

Use of the sanitary sewers is regulated by the town's sewer use ordinance (Chapter 56 "Sewers"). Industrial discharges are controlled through enforcement of the provisions of the ordinance, and, for large dischargers, issuance of industrial discharge permits.

Service Area

As noted above the Northgate WWTP serves all but one of the sewer districts in the town. The service area consists of land in the more developed, southeast section of the town, primarily along or near Front Street and River Road. Essentially all of the commercial/industrial development is in this service area. The Northgate WWTP service area includes Sewer District No. 4, which at one time was serviced by the now-closed 56,000-gpd Quinn Estates WWTP (SPDES Permit No. NY0213292). Pretreated leachate from the Broome County solid waste landfill is trucked to the WWTP, as authorized by a contract between the town and the county. (The county also trucks a portion of the leachate to the Endicott WWTP.)

Discharge Requirements and Regulatory Compliance

Treated wastewater from the WWTP is discharged to the Chenango River, as authorized by SPDES Permit No. NY0213781. The receiving water at the point of discharge is designated as a Class B water, which is to be suitable for primary and secondary contact recreation and fish propagation and survival. The SPDES permit limits the discharge for the following parameters: flow, pH, BOD, TSS, settleable solids, bacteria, and flow. The 7-day and 30-day average BOD/TSS concentration limits are 45 and 30 mg/L, respectively, which are conventional limits for secondary treatment. The permit limits the plant flow to 0.8 MGD (30-day average), the third highest in Broome County.

Loadings

According to the operator, the current loading to the WWTP averages about 550,000 gpd. A 2-inch rain will increase plant flows by 200,000 gpd. The town has rehabilitated a few manholes over the years. However, there are no plans to complete a comprehensive identification of wet weather sources.

According to a 1999 NYSDEC compilation, the population served by the system is estimated to be 8000 persons, which represents 70% of the current 11,454 (year 2000 census) town population.

The population in the Town of Chenango dropped by 7% between the 1990 and 2000 censuses from 12,310 to 11,454 persons. Projections available from the county planning board indicate that the town population will remain relatively stable for the foreseeable future. Therefore, future loadings to the plant would only increase if new sewer districts are connected to the collection system, or there is infill in the existing commercial/industrial corridor. The WWTP was originally constructed just 13 years ago with a capacity of 0.1 MGD. Expansions to 0.5 MGD (in 1991) and the current 0.8 MGD (1997) were completed soon after the plant opened. As detailed below, with the present configuration of the WWTP, there is no room for further expansion, and the town has not allowed the connection of new sewer districts to this facility.

Treatment Works

The sanitary sewers are separate from the town's stormwater management system. The collection system has 20 lift stations, with two submersible pumps per station. About one-half of the lift stations use three-phase electric power; the remainder are single-phase. There are no standby generators at the lift stations. In case of a power outage, portable generators are mobilized.

Influent flow to the WWTP is lifted in two pump stations (one for the north service area, one for the south). The wastewater travels through bar and traveling screens, after which the flow is directed to one of three sequencing batch reactors (SBRs). The larger 300,000-gal unit has fine air aeration; the smaller units use less efficient course air

systems. The clarified SBR supernatant then flows to a contact chamber for seasonal disinfection (chlorine gas).

The sludge generated by the SBRs, which has a solids content of 1%, is pumped to a gravity thickener, which increases the solids concentration to 3%. This concentration is restricted to this relatively low level, because the thickened sludge is next treated in a 100,000-gal aerobic digester. The aeration system in the digester will not function properly at higher solids content. (Many WWTP first digest and then thicken sludge.) The digester is subject to occasional odors and a new biofilter is now being constructed to rectify the situation. The digested sludge is then dewatered on belt presses, which achieve a solids content in the range of 13.5 to 14.5 %.

The dewatered sludge is then composted in 40-yd^3 static piles on-site. The roof exhaust fans from the composting building are registered with the NYSDEC (Registration ID 7-0324-00054/02000). The composting can generate significant odors at times, the impact of which is exacerbated by the proximity of the WWTP to the Northgate Plaza shopping center. Therefore, the town is constructing on-site a series of closed vessels in which the sludge will be composted (the "Comptainer" system). The building, which now houses the static composting piles, will then be used to cure the Comptainer output. The operator has indicated that the Comptainer capacity may not be sufficient to handle all of the sludge generated by the WWTP, in which case there would be a need to re-establish a static pile to make up the shortfall. The NYSDEC permit number for the new containerized system is 7-0324-00054/00007.

Septage is no longer accepted at the WWTP, because of damage to the raw wastewater pumps from grit. However, the digested sludge from the town's smaller Pennview WWTP is trucked to the plant about once a month for dewatering and composting.

Administrative and Financial Management

The Northgate WWTP operational staff also operate the Pennview WWTP .

The adopted budgets for running the sanitary sewer system and WWTP are summarized below:

Year	Operations	BAN Principal/Interest
1999:	$347,237	$5,461
2000:	$441,606	$5,246
2001:	$435,500	$13,583

The budgets given above include operations for the town's smaller Pennview WWTP.

User fees are uniform town-wide and are based on metered water use. The fee amounts to $13 per quarter for the first 1000 ft^3 of water use for that quarter, plus $1.30/100 ft^3 for consumption over the first 1000 ft^3. Surcharges can be allocated to industrial users.

According to the Town Supervisor, this charge averages $120/year for the typical residence. Charges for district debt service are in addition to the user fees, and vary with property size and type of development (single family, apartment, commercial, etc.), as specified in the town sewer use ordinance.

The remaining debt (as of October 2001) for the individual districts within the Northgate WWTP service area is summarized below:

SEWER DISTRICT	REMAINING DEBT
1	19,810
2	1,430,000
4	440,645
7	5,255,000
7A	450,000
8	3,170,000
9	244,950
11	16,362
compost facility	485,000
Total	11,511,767

Needs

The operator has indicated that the town should purchase a portable three-phase generator for use at the lift stations and Pennview WWTP.

As noted above, wet weather can result in substantial I and I. However, this load is still not high enough to exceed the WWTP's permit limit for monthly average flow or limits on effluent quality. If there is a future need to extend the sewer service area, the town may have to complete an I and I evaluation to determine if these extraneous flows can be reduced.

The town hopes that the new composting Comptainer systems will eliminate the odors from the current static piles. If the capacity of the Comptainer systems is inadequate, a portion of the sludge will still have to be stabilized with static piles.

The expansions completed at the plant have resulted in a less efficient process layout than would be evident by construction conducted in one phase. With all the remaining vacant land at the site now being dedicated to the construction of the new Comptainer systems, there remains no room to revamp or expand the process in any significant way.

Parkwood Sewer District (Town of Binghamton) WWTP

[Photograph Not Available]

Overview[a]

The Parkwood Sewer District WWTP serves an isolated development in the center of the Town of Binghamton.

Service Area

According to the NYSDEC, the estimated population of the service area is 15 persons.

Discharge Requirements and Regulatory Compliance

Treated wastewater from the WWTP is discharged to a tributary of Little Snake Creek, which flows to the Susquehanna River. The discharge is authorized by SPDES Permit No. NY0213934. The receiving water at the point of discharge is designated as a Class C water, which is to be suitable for primary and secondary contact recreation and fish propagation and survival, although other factors may limit the use for these purposes. A copy of the SPDES permit is not available. However, available information indicates that the permit limits the plant flow to 0.004 MGD (30-day average).

Loadings

There is no available information on loadings to the WWTP. Assuming 75 gpd/capita for the 15 persons in the service area, the estimated hydraulic load is approximately 1100 gpd.

Treatment Works

The WWTP has sand filters.

Administrative and Financial Management

Administrative and budgetary information not available.

Needs

Information concerning needs at the WWTP is not available.

---

[a] Arrangements could not be made by the study team to visit this facility. The information reported in this section is based on *Descriptive Data of Municipal Wastewater Treatment Plants in New York State* (NYSDEC 1999). Although the U.S. EPA website identified this facility, the SPDES permit limits were not presented.

Village of Endicott WWTP

Overview

The Village of Endicott WWTP serves the village and unincorporated portions of the towns of Union and Vestal.

The village's WWTP, located on Anson Road in the westernmost section of the village, is on the west bank of the Nanticoke Creek near its confluence with the Susquehanna River. The WWTP presently has a nominal capacity of 8 MGD, the second largest in Broome County. A consent order (Case No. R7-0398-89-06) between the NYSDEC and the village provides that the WWTP be upgraded and expanded. Construction now underway will increase the size to 10 MGD.

The village sanitary sewers and WWTP are owned by the village and run by the village's Department of Public Works. The Town of Union has one consolidated sewer district that is served by the Endicott and Binghamton-Johnson City WWTPs. The Union sewers are owned by the district and operated by the town's Public Works Department. The Town of Vestal flows are also split between the Endicott and Binghamton-Johnson City WWTPs; the sewers are owned by the several districts in the town and operated by the Water/Sewer Department. Endicott is responsible for the O&M of the pump station and force main that conveys the Vestal flow across the river.

Available copies of the agreements between the three municipalities pertaining to the use of the WWTP are as follows:

- December 28, 1970 Endicott and Union
- March 5, 1975 Endicott, Union, and Vestal
- January 1, 1990 Endicott, Union, and Vestal

The WWTP's laboratory director administers the industrial pretreatment program, and each of the three municipalities controls the use of the sewers through their own sewer use ordinances. However, the final authority pertaining to the administration of this program in the towns rests with the village.

Service Area

All of Endicott is sewered. Most of the developed area in the Town of Union is sewered, and except for two small areas (Westover and a small area on the extreme east section of town along Little Choconut Creek: treated at Binghamton-Johnson City WWTP), the town sewer flows are treated at the Endicott WWTP. IBM has its own WWTP to treat its industrial and cafeteria flows. Sewer Districts 1, 8 and 10 in the western sections of Vestal are served by the Endicott WWTP.

The 1970 agreement between Endicott and Union limits the Union sewer service to the area shown on a 1969 drawing "Secondary Facilities for Sewage Treatment Plant -- Drainage Areas". This limitation does not appear to have been changed by the subsequent agreements. The 1990 agreement limits the Vestal service to Sewer District No. 1 and extension west of Brady Avenue, subject to a maximum flow of 2.5 MGD.

A recent engineering study of the WWTP estimates the population in the service area at 50,000 persons (Malcolm Pirnie 1997). The population of the Village of Endicott is 13,038 (2000 census), while the population of the unincorporated portions of Union is 27,725. Assuming that approximately 90% of the Union population is serviced by the Endicott WWTP, the population in Vestal serviced by this facility is approximately 12,000.

Legal Basis

The Village of Endicott constructed a WWTP with primary treatment capacity between 1964 and 1966. On December 28, 1970, it entered into an agreement with the Town of Union to upgrade the plant for their mutual use and benefit. The WWTP was upgraded to secondary treatment capacity between 1971 and 1973. The key elements of the Endicott – Union agreement are as follows:

- The plant is to be used for the Village and certain specified sewer districts in the Town (Endwell, Park Manor, N. Endicott, W. Endicott # 1&2, West Corners and Airport Heights SD).
- The Village owns the plant; each municipality owns the conveyance facilities it financed.
- The Village is responsible for operating the plant, intercepting sewers and pump stations.

- Any decision on capital expenditures must be approved by both municipalities.
- All expenditures for facilities that jointly benefit both municipalities will be shared.
- The basis for cost sharing will be the ad valorum assessments in the respective benefited areas within the two municipalities. The payments by the two municipalities will be paid into a sewer fund.
- Each municipality may raise funds from individual users any way it chooses.
- Any expansion of the service area must be on mutual agreement.
- Disputes are to be resolved by binding arbitration.
- Term of agreement extends to December 15, 2000.

On March 5, 1975, the agreement was expanded to provide service to certain areas in the Town of Vestal (i.e. those identified on a map prepared by RJ Martin). Vestal is responsible for the cost of all facilities needed to hook into the Endicott plant. In addition, Vestal is further responsible for a schedule of annual payment for capital facilities owned by Endicott that it will use. The schedule of payments is based on design flows plus an administrative surcharge. Operation and maintenance charges are based on actual metered flow. Flow capacity of 1.88 mgd, average daily flow is assigned to the Town of Vestal.

The agreement was modified an additional time on January 1, 1990. The modified agreement extended the contract term for ten years. It clarified some of the payment terms but left the basic payment approach for the Town of Vestal in place. It established ultimate responsibility for enforcing the industrial pretreatment program with the Village but gave each of the Towns authority to administer the program within its borders. Finally, it increased the flow capacity assigned to Vestal to 2.50 mgd, average daily flow.

On February 1, 1990, the Village of Endicott entered into a consent agreement with the DEC. The agreement was negotiated as a result of difficulties maintaining the permitted effluent limits for BOD5 and suspended solids.

The agreement calls for a comprehensive performance evaluation of the plant and an updated infiltration / inflow analysis and the implementation of their recommendations. Significantly, it also calls for the Village to update its sewer use ordinance and to adopt a local law that would require a certification to the purchaser and mortgager of commercial and industrial property that there is no source of illegal inflow connected to the sanitary sewer from that property. The expansion of this requirement to residential properties is made an option based on the result of the I and I study. This approach is similar is some respects to the property transfer requirements being recommended by the Consultants in this study with respect to non-sewered property (i.e. that a certification that the on-site septic system is properly functioning).

Discharge Requirements and Regulatory Compliance

Treated wastewater from the WWTP is discharged to the Susquehanna River, a Class A water at this location, as authorized by SPDES Permit No. NY0027669. The best uses of

Class A waters are: a source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. The waters shall be suitable for fish propagation and survival. The SPDES permit for the facility is not available. The 1997 Engineering Report indicates that the 7- and 30-day BOD limits are 40 and 25 mg/L respectively, and for TSS, the limits are 45 and 30 mg/L, respectively, which are conventional limits for secondary treatment. The permit has a seasonal limit of 830 lb/day (30-day average) for ammonia, which requires nitrification of the wastewater before discharge. The permit limits the plant flow to 10 MGD (30-day average), the second highest in Broome County. The flow limit represents an increase from 8 MGD and reflects an expansion/upgrade now underway at the WWTP. . More relaxed, interim limitations during the current construction to upgrade and expand the WWTP are provided in the above-referenced consent order. A flow limit of 10 MGD is shown in that document.

Loadings

According to the recent engineering study (Malcolm Pirnie 1997), average annual flow to the WWTP is approximately 7.4 MGD, and the monthly maximum is 12.2 MGD, which is above the permitted limit. During the period January 1995 to December 1996 for which Malcolm Pirnie evaluated plant loading, the original permit limit of 8 MGD for monthly average flow was exceeded almost 30% of the time. Average flow exceeded 10 MGD 8% of the time. A maximum-day flow of more than 23-MGD has been recorded. Hydrographs of the plant flow indicate that much of the wet weather hydraulic loading is I and I. Consequently, the three municipalities are engaging in I and I studies and correction efforts, which are at different levels of completion. A significant amount of inflow was found to occur during high river stage, which flooded the manholes along the river. Endicott sealed the manholes in the system, and raised others. A December 1999 report issued by the village stated that this work reduced river-induced peak inflow by at least 8 MGD and possibly by as much as 12 MGD. However, long-term statistics regarding that work are no available. The operator reports that wet weather flows to the plant are now lower; however, the benefit has not been quantified. The Union I and I study has apparently identified a storm drain leading to the Endwell pump station, which should be corrected. The 1999 village report estimated that peak inflow to that location amounts to as much as 10 MGD. About 40% of Vestal's flow has been estimated (1995 correspondence) to consist of I and I. Activity by Vestal since that date appears to be limited to inspection and correction of one 15,000-gpd source of inflow

The annual average and monthly maximum BOD loadings are 6,585 and 12,217 ppd, respectively.

Between 1990 and 2000, the population of Endicott declined by 3.6% from 13,531 to 13,038 persons. The population of the unincorporated population of Union declined by 7 % from 29,677 to 27,725 persons. The sewered population of these municipalities is not expected to grow in the future. Vestal's population likewise declined by 0.7% from 26,733 to 26,535 persons. Vestal has identified a number of areas where sewer service

could be extended. Based on acreage, these areas represent about a 100% increase in service area in the portion of Vestal served by the Endicott WWTP.

Treatment Works

The sanitary sewers are separate from the three municipalities' stormwater management systems. Vestal's wastewater drains to six pump stations, one of which is used to convey the flow through a 16-inch force main across the Susquehanna River to the Endicott WWTP. The Union/Endicott wastewater collection system also requires a number of pump stations.

The WWTP was constructed in 1966, upgraded in 1972, and is presently being upgraded again. Wastewater is treated as follows:

Influent pump station, which raises the wastewater 38 feet
Bar Screen/Comminutor
Aerated Grit Chamber
Primary Clarification
Trickling Filters (two 120-ft units, with 6 ft of media)
Secondary Clarification (two 80-ft diameter units, with 8 ft of sidewall depth)
Chlorination

As noted above, the nominal capacity of the WWTP is 8 MGD. In order to rectify past poor performance from the wet weather flows and allow compliance with the seasonal nitrification requirement, the village recently started construction of a plant expansion and upgrade. The future plant will have new, larger (18 feet of media) trickling filters installed on the foundations of the old units. The shells of the filters will be constructed to allow 25 feet of media, in case there is a future effluent requirement for denitrification. A new solids contact chamber (3,000 ft^2 by 15 feet deep) will be installed to enhance BOD/NOD and solids removal. Two new rectangular secondary clarifiers will be installed (each 2,500 ft^2 by 15 feet deep). Chlorination injection will be converted from gas to hypochlorite solution. Dechlorination will be added. The estimated cost of the project (including construction, engineering fees and other expenses) is $8.14 million.

Solids handling in the future will continue under the existing arrangement (anaerobic digestion, gravity thickening, belt filter press for dewatering, and composting)

Administrative and Financial Management

The village's Department of Public Works supervises the wastewater collection and treatment system.

The adopted WWTP budget for 2001 is $1,099,000, a total that includes $8,000 of landfill expenses, $189,470 in debt retirement (serial bond principal and interest), and

operation of the Oak Hill, Endwell, River Terrace, Loder Avenue, and Vestal pump stations. The only remaining bonds are for the composting facility; these bonds will be retired in the near future. The plant expansion/upgrade costs will be in addition.

Endicott representatives have stated that the village levies a $1.75/1000-gal sewer user charge, the same rate being billed to village and town users. Assuming 300 gpd/house, this rate results in an average bill of approximately $190/year. Endicott directly bills the individual village and Union users based on metered water consumption. Endicott sends one bill to the Town of Vestal, based on the metered volume at the Vestal pump station. Because the Vestal metered flow includes I and I, the effective user charge to Vestal is somewhat higher than the Endicott/Union rate.

It should be noted that the 1970 Endicott-Union agreement provides that debt service and O&M costs be shared between the two municipalities based on assessed value in the service areas. The subsequent agreements between the do not appear to change this formula. In the 1975 agreement, Vestal's share of debt service costs through year 2000 is calculated from the municipality's then design flow projections. O&M costs assigned to Vestal in the agreement are calculated from the proportion of Vestal's metered sewage flow to the entire flow at the WWTP, plus an administration charge of 1%.

The Union sewer budget is not available. Costs for sewer maintenance are paid through the general fund, rather than a district assessment. The town provides non-sewered areas a free septic tank pump out about once every two years, also paid through the general fund.

Information on the budgets for the Vestal sewer districts is not available.

Needs

The current construction at the WWTP is scheduled for completion in May 2002.

The I and I studies and corrections are still on going in Vestal and Union, with Union apparently being further along in this process.

The current agreement between Endicott and Vestal limits the Vestal flow to 2.5 MGD, though there is no other restriction on the expansion of the sewer collection system in the town. Assuming Vestal corrects its I and I, this limit does not appear to place a restriction on Vestal's ability to expand its sewer system.

Endicott representatives have indicated that the village is in the process of renegotiating the current agreements with Vestal and Union to reflect the changes for the current system upgrade/expansion.

Binghamton-Johnson City Joint Sewage Board WWTP

Overview

The Binghamton-Johnson City Joint Sewage Board (BJCJSB) WWTP serves all of the City of Binghamton, all of the villages of Johnson City and Port Dickinson, and portions of the unincorporated areas of the towns of Union, Vestal, Binghamton, Kirkwood, Dickinson, Fenton, Chenango, and Conklin.

The WWTP, located at 4480 Old Vestal Road in the northeastern-most section of Vestal, is on the south bank of the Susquehanna River. The WWTP presently has a nominal capacity of 20 MGD, the largest in Broome County. Consent orders (Case No. R7-0579-90-12 and R7-0580-90-12) among the NYSDEC, the City of Binghamton, the Village of Johnson City, mandate an expansion/upgrade at the WWTP and control of CSOs. Construction now underway will increase the primary and secondary treatment capacities of the plant to 60 MGD and 35 MGD, respectively.

The WWTP and two terminal pump stations are jointly owned by the City of Binghamton and the Village of Johnson City, and operated by the Board. The collection sewers in the city and two villages are owned by the respective municipalities, and the sewers in the towns are owned by the local collection districts. A separate sewer department in the City of Binghamton and a department of public works in Johnson City individually maintain the sewer systems within their borders, including pump stations.

Service Area

The service area is broadly considered to consist of two major areas - the Binghamton Service Area and the Johnson City Service Area. The Binghamton Service Area includes the city and the Town of Binghamton, Kirkwood, Port Dickinson, and Fenton. This area also includes portions of Vestal and Dickinson. The Johnson City Service Area includes Johnson City and portions of Vestal, Union, Chenango, and Dickinson. (Other sewered areas of Vestal and Union not in the BJCJSB service area is served by the Endicott WWTP.) The definition of the two major service areas is based the two terminal pump stations to which the collection areas discharge, except that the Town of Binghamton wastewater flows directly to the WWTP, not the terminal pump station.

Sewer service in the Town of Binghamton is available to an area of about 530 acres of land adjacent to the city border[F-3] Wastewater generated in northeast Vestal is treated at the BJCJSB WWTP and wastewater from the northwest flows to the Endicott WWTP. The Vestal collection districts served by the BJCJSB encompass about 2,550 acres, which are concentrated along the Vestal Parkway, SUNY-Binghamton, and Fuller Hollow portions of town. Most of Union is serviced by the Endicott WWTP. Portions of Union that discharge through Johnson City include Westover (west of the village), Reynolds Road area (north of Johnson City), and a small area in the extreme eastern area of town along the Little Choconut Creek (total 520 acres). A small portion of western Chenango reportedly receives service through the Little Choconut Creek area of Union; however, no statistics are available on the Chenango usage. Approximately 460 acres (17% of the town total) of unincorporated Dickinson is served by the BJCJSB system. The Kirkwood service area encompasses 1075 acres (6% of the town total) concentrated along the Route 17 and Route 11 corridor. A small area of northern Conklin is included in the Binghamton service area. A portion of the Hillcrest section of Fenton is in the Binghamton Service Area.

A recent engineering study[F-3] of the WWTP estimates the population in the several service areas as shown in Table F-4. Table F-4 also provides a projection of future population. Based on BJCJSB current policy, the projections assume no expansion of the outside collection districts.

Overall, the currently served population is greater than the projected future population, because of demographic trends in the region. Assuming an average 75 gpd/capita, the projected population change should result in 0.54-MGD decrease in dry weather flow at the WWTP. Therefore, with no expansion of service being considered, planning for the upgrade/expansion of the WWTP was based on current loads without allowance for future growth.

[F-3] C&S Engineers, Inc. Final Facility Plan Phase III Improvements for the Binghamton-Johnson City Joint Sewage Treatment Plant. April 2000.

TABLE F-4
ESTIMATED POPULATION BY MUNICIPALITY

MUNICIPALITY	2000 TOTAL CENSUS	POPULATION PRESENTLY SERVED (1991)	FUTURE POPULATION SERVED (2020)
Binghamton (C)	47,380	53,000	47,000
Johnson City	15,535	16,900	15,500
Binghamton (T)	4,969	2,200	2,300
Kirkwood	5,651	1,800	1,800
Port Dickinson	1,697	1,800	1,800
Vestal	26,535	12,800	13,700
Dickinson	3,638	2,400	1,600
Fenton	6,909	300	300
Conklin	5,940	600	600
Union	27,725	1,400	1,400
TOTALS	145,979	93,200	86,000

Legal Basis

Legal Construct, Current Ownership and Management

A Underlying Agreements concerning the BJC WWTP

On July 14, 1965, the City entered into an agreement with the Village of Johnson City (the "Village") pursuant to Article 5G of the General Municipal Law. The agreement establishes the Binghamton-Johnson City Join Sewage Board (the "Board") and establishes joint ownership of the WWTP and most, but not all, of the sewer system. Besides the WWTP, the pump plant in the Town of Vestal, all land and furnishings then in existence became joint property of the two municipalities. The agreement contemplated construction of additional capital improvements to the plant and terminal pumping station to serve the Village (all of which were indeed constructed) that would also be jointly owned. Facilities supporting additional secondary treatment capacity at the WWTP to accommodate outside users were also built and are similarly jointly owned. The agreement requires that both municipalities direct all sewage within their borders to the WWTP.

The joint ownership of all real property and improvements thereon is as tenants in common, with the City owning an undivided 54.8% interest and the Village owning an undivided 42.8% interest.

Not included in the joint ownership arrangement are the trunk sewer lines (except on the WWTP premises) and the force main from the proposed terminal pumping station to the WWTP (which is Village-owned).

The agreement divides the service area into a City of Binghamton and Johnson City service area. The City and the Village as well as any outside users will tie in at and be considered as in one or both of these areas.

The Board consists of six members, three appointed by the mayors of each municipality. The terms of the Board members are staggered.

The Board is in possession of all of the property that is jointly owned and has the obligation and authority to operate and maintain these facilities. Among its more important obligations, it must set and collect fees for the use of the wastewater facilities[2]

And adopts rules for the operation and maintenance of the joint facilities. It retains its own employees, but those employees are subject to the rules of the Civil Service of Binghamton and the Binghamton Civil Service Commission.

This agreement was valid until 7/14/05 but was later extended until 12/7/12.

B. Operation and Maintenance of the WWTP

O&M of the plant is controlled at four levels.

1. The State regulates the Owners and the Board through a SPDES permit and Board must meet federal pretreatment standards.
2. The Owners and the Board regulate industrial users through a local law known as the Binghamton-Johnson City Joint Sewage Treatment Law and the aforementioned rules. These authorities establish a permit program for significant industrial users and other industrial users with wet processes.
3. The Owners and the Board regulate municipal users through the individual contracts with outside users and the Board's Rules.
4. Each individual municipality has its own sewer use law or ordinance that governs the use of the sewers by residential, commercial and industrial customers.

State and Federal Regulation of the WWTP

The State's principal regulatory tool is the State Pollutant Elimination Discharge System (SPDES) permit. With limited exceptions, this permit is required of all discharges of pollutant to surface or ground water in New York.

[2] Although the Board is not responsible for the operation and maintenance of the Binghamton or Johnson City sewer system, it does act as a collection agent for the user fees.

There are three SPDES permits for the system. The most important one governs the discharge from the WWTP. The other two relate to discharges from the combined sewer overflows in the City and the Village.

SPDES permits are not required for sewer systems, per se, and hence the outside municipal owners of the sewer systems that feed into the BJC plant do not need or have SPDES permits.

Federal regulations also require the owner/operator to have a pretreatment program for industrial wastes that meets the federal requirements. Currently, in New York State, this program is administered by USEPA. As discussed below, the federal requirements are met though a local law adopted by both owners. No separate federal permit is issued but the USEPA is required to approve the portions of the local law that implement the pretreatment requirements.

Due to the fact that the WWTP has not met the effluent limits established in its permit, DEC entered into two orders dated April 14, 1992. The first was with the City alone and relates to the permit to the combined sewer overflows. The second was with the City, Village and the Board and it relates to the operation of the WWTP itself. The order placed the respondents on a schedule of compliance and temporarily imposed certain interim effluent limits that were less stringent than the SPDES permit limits.

The consent order that relates to the WWTP was amended by letter dated June 26, 1997 and later by a modified consent order dated February 3, 2000. The modified consent order changed the compliance schedule and imposed stipulated penalties that would be applicable to further non-compliance.

Board and Owner Regulation of Industrial Users

The City and Village adopted a local law, known as the Binghamton-Johnson City Joint Sewage Treatment Law (the "Law") that became effective March 1, 1985. The law applies principally to non-municipal, i.e., industrial, users of the plant. The Law establishes an industrial pretreatment program that includes a permit requirement for significant industrial users and others with a wet process discharge into the sewer system. It also provides additional powers for the Board, establishes administrative procedures for the Board and mechanisms for the Board to enforce pretreatment requirements.

Industrial users are also subject to the general requirements of the Board's Rules (discussed below). In at least one case, the Board entered into a contractual relationship with an industrial user (Frito-Lay) that agreed to treat certain conventional pollutants from the industrial plant in lieu of on-site pre-treatment.

Board Regulation of Municipal Users

Separate and apart from the Law, the Board itself has adopted a set of Rules and Regulations (the "Rules") governing the operation of the WWTP. The Rules were also effective March 1, 1985. The Rules are authorized by the contractual agreements entered into between the City and the Village and section 3.03 (b) (1) of the Law.

The Rules have more general applicability than the Law and govern virtually every aspect of the WWTP's operation, including the establishment of fee schedules. The Rules together with contracts entered into between the Owners and outside municipal users, govern the obligations and rights of these municipal users.

Local Sewer Use Laws and Ordinances

Each municipality is required to adopt a sewer use law or ordinance that meets the minimum requirements of the Owners for use of the system. These ordinances are generally modeled after the DEC model ordinance.

Contracts with Outside Municipal Users

The Owners have entered into agreements to supply wastewater treatment services to eight municipalities. As part of the agreement between the City and the Village, a standard form agreement was adopted for use with outside municipal users. That agreement is the basis for agreements with six of the eight municipalities served – the Towns of Conklin, Dickinson, Union, Binghamton, and Fenton and the Village of Port Dickinson. The Town of Kirkwood has an agreement with the City of Binghamton that predates the July 14, 1965, agreement between the City and the Village. The Town of Vestal, as the community that hosts the WWTP, has a contract that also differs in significant ways from the standard agreement. Although the WWTP serves Binghamton University (formerly Harpur College) directly (i.e. not as part of its agreement with the Town of Vestal), there does not appear to be any written agreement between the Owners and the University. The University receives a separate sewer use bill from the BJCJSB. The bill appears to be based on metered water use, but this has not been verified. The University was billed for 0.47 mgd in 2000, which amounted to about 5% of the total flow to the WWTP.

Standard Agreement

The basic provisions of the standard agreement are as follows:

1. Owners agree to accept and dispose of all wastewater from designated service areas in the outside municipalities ("Users"). Users agree to furnish all wastewater from these service areas.

2. Users construct and maintain all sewers both within their boundaries and without, if needed for interconnection.
3. Users pay following costs pursuant to a formula in the contract. Users collect fees from individuals and businesses tied into the system as the Users determine. Users pay:

    A. Debt service on cost of primary and secondary treatment facilities. Also pay debt service on future facilities that are needed and for pumping facilities for the general benefit. Payment is based on dry weather flows and is assessed at a 25% premium to the payments from City, Village, Town of Vestal or Harpur College.
    B. Debt service for construction of City's Interceptor Sewers or extension of Village's Trunk Sewer and force main, depending on which service area the User is in. Payments are based on flows and subject to the same 25% premium cited above. These payments would also apply for the construction of future interceptors or the reconstruction of existing one.
    C. Operation and maintenance costs for the WWTP, based on an annual dry-weather flow.
    D. Operation of
        (i) Binghamton Terminal Pumping Station and the Binghamton Sewer System; and/or
        (ii) Johnson City Terminal Pumping Station and the Johnson City Sewer System based on dry weather flow is a charge against Users in those service areas.

4. Users must adopt a conforming sewer use ordinance (SUO) and must adhere to the Rules of the Board.
5. Agreements are valid through Dec. 12, 2012, and may be renewed at Owners' option if there are any outstanding debt service payments at that time.

Specifics that differ in particular standard agreements generally concern the limits on the areas to be served or the maximum flows. They are as follows:

Village of Port Dickinson	4/19/68	
	Limited to:	Boundaries in Ex. 1 of Agreement
Binghamton	9/23/68	
	Limited to:	Boundaries in Ex. 1 of Agreement
Union	12/19/69	
On behalf of Westover S.D., G.E. Plant, and NYSEG		
	Limited to:	Westover S.D.
		G.E. Plant

		NYSEG Goudy station Other area in Ex. 1 of Agreement

Charges for O&M in Johnson City service area include 125% over debt service for construction of North Side Trunk Storm Drainage

Dickinson	6/29/73 Limited to:	SD#5
Conklin	5/26/83 Limited to:	Area in Ex. 1 of Agreement Flow limit of 1.5 m/g/day
Fenton	12/20/85 Limited to:	Hillcrest SD #1 Hillcrest Lawn SD #1 Ext 1 Flow limit 125,000 g/p/d Peak hourly not to exceed 150 g/p/minute

Agreement with the Town of Vestal

The agreement is comparable with the standard agreement in most aspects. The significant difference lies in the agreement to charge non-premium rates (i.e., those that would be charged to residents of the City or the Village, as opposed to those charged to the outside municipalities), in exchange for exempting the WWTP and related facilities from real property taxes and special ad valorum levies.

The agreement allows the tie-in of a defined geographic area and the Owners guarantee a minimum capacity of 2 mgd at the WWTP.

Agreement with the Town of Kirkwood

The Town of Kirkwood had an agreement with the City dated April 15, 1964. The agreement was modified by one dated December 20, 1968. The principal difference between this agreement and the other standard agreement is that it provides for the possibility that Kirkwood could extend the service area in the future to cover the entire Town.

Discharge Requirements and Regulatory Compliance

Treated wastewater from the WWTP is discharged to the Susquehanna River, a Class A water at this location, as authorized by SPDES Permit No. NY0024414. The best uses of Class A waters are: a source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. The waters shall be suitable for fish propagation and survival. The SPDES permit for the facility is not available. The April 2000 Engineering Report indicates that the 7- and 30-day BOD and TSS limits are 45 and 30 mg/L respectively, which are conventional limits for secondary treatment. Limits on mass loadings (in units of ppd) are also applicable. A 30-day average seasonal (summer) ammonia limit of 11 mg/L and 1,835 ppd necessitates nitrification. The consent order (Case No. R7-0579-90-12 and R7-0580-90-12) has relaxed interim limits for discharges during the construction of the upgrade/expansion. According to the April 2000 Engineering Report, the current permit requires that the secondary treatment capacity be increased to 35 MGD. A 25-MGD flow limit (180-day average) is included with that document.

Combined sewers are present in Johnson City and Binghamton, which overflow untreated wastewater during storms. In Johnson City, there are three overflows, two of which are active, permitted by SPDES Permit No. NY00223981. Most of the overflow occurs at CSO JC001 to Choconut Creek. CSO JC002 is relatively small. In Binghamton, there are 24 CSOs, nine of which are active (SPDES Permit No. NY0024406).

In 1994, the USEPA issued the *Combined Sewer Overflow Policy*, quoted below:

> As described in the CSO Control Policy, municipalities should immediately implement best available technology economically achievable (BAT) or best conventional pollutant control technology (BCT). At a minimum, BAT/BCT should include the nine minimum controls (NMC), which are determined on a best professional judgment (BPJ) basis by the NPDES permitting authority. The NMC are controls that can reduce CSOs and their effects on receiving water quality, do not require significant engineering studies or major construction, and can be implemented in a relatively short period (e.g., less than approximately two years). Implementation of the NMC is among the first steps a municipality is expected to take in response to EPA's CSO Control Policy. EPA recognizes that many municipalities have made significant progress in implementing the NMC as a result of the 1989 CSO Strategy.
>
> The NMC are as follows:
>
> 1. Proper operation and regular maintenance programs for the sewer system and CSO outfalls
>
> 2. Maximum use of the collection system for storage

3. Review and modification of pretreatment requirements to ensure that CSO impacts are minimized

4. Maximization of flow to the POTW for treatment

5. Elimination of CSOs during dry weather

6. Control of solid and floatable materials in CSOs

7. Pollution prevention programs to reduce contaminants in CSOs

8. Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts

9. Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

In addition, the USEPA requires that a long-term control policy be implemented:

> Permittees should develop long-term control plans (LTCPs) for controlling CSOs. A permittee may use one of two approaches: 1) demonstrate that its plan is adequate to meet the water quality-based requirements of the CWA ("demonstration approach"), or 2) implement a minimum level of treatment (e.g., primary clarification of at least 85 percent of the collected combined sewage flows) that is presumed to meet the water quality-based requirements of the CWA, unless data indicate otherwise ("presumption approach")

In order to achieve compliance with federal and state regulations and guidance on CSOs, the owners have elected to pursue the so-called "presumption approach". This approach requires, among other items, that no more than an average four overflow events occur per year (the NYSDEC may allow up to a total of six events) and elimination or capture for treatment of no less than 85 percent by volume of the combined sewage on a system-wide annual basis. New York's guidance further requires, among other items, that floatable and settleable solids in the overflows be controlled. In order to achieve compliance, the owners have determined that the primary capacity of the WWTP should be increased to 60 MGD and that Floatables Control Facilities be installed at the overflows. The cost of the Floatables Control Facilities will be $1.5 million (August 2000 Engineering Report[3]). One of the large pump stations in the Binghamton system (Pennsylvania Avenue) will be upgraded. Backwater protection facilities will be install to minimize river water intrusion. New regulator sewers will be installed for two outfalls, and a new outfall pipeline will be installed for one CSO. In addition, a data management system and BMPs will be instituted. The current construction at the WWTP therefore addresses compliance with both the WWTP permit as well as the requirements for the CSOs in the systems of the two owners.

With these improvements and a 60-MGD primary treatment capacity at the WWTP, there will be 85 to 90% capture of wet weather flows. In a July 8, 1999 letter to the NYSDEC, the city of Binghamton committed to following through on a planned sewer separation project in the city's south side. This project would increase wet weather capture to 90 to 95%. These estimates are based on computer models. Calibration of the model shows that predicted flows are 3% higher than actual, meaning that the projected wet weather captures are conservatively low and that actual capture will be higher.

Loadings

For the four-year period ending February 2000, average annual flow to the WWTP was 23.2 MGD. The peak monthly flow was 38.4 MGD. The peak daily flow was 50 MGD, but would have been 60 MGD had the planned CSO control projects been implemented.

The April 2000 Engineering Report[3.7] estimated the following influent loadings to the WWTP for the purposes of designing the upgrade/expansion:

Average daily flow	25 MGD (yearly average)
Peak flow	60 MGD
Average daily BOD_5	31,400 ppd
Maximum monthly BOD_5	45,600 ppd
Average daily TSS	37,100 ppd
Maximum monthly TSS	54,100 ppd
Average daily total nitrogen	2,700 ppd
Maximum monthly total nitrogen	4,900 ppd

I and I results in a significant hydraulic load to the WWTP. Based on metered sewage flow for a few of the outlying communities (separate sewer systems) and metered water use for the remainder of the service area, Binghamton has calculated a base flow estimate of 10.3 MGD ("billable flows for year 2000). Thus, more than half of the annual loading to the WWTP is I and I.

Treatment Works

.

Collection System[3.8]

The City of Binghamton collection system consists of 200 miles of sewers. The original sewers were constructed in the late 1800's and many were constructed as brick conduits that discharged directed to the adjacent surface waters. The combined sewers drain 1,265.6 acres of the 7,150 acres in the City of Binghamton. This area represents a substantial reduction from March 1993, when the total was 2,121.0 acres, the improvement being attributed to efforts the city has taken over the years to separate the combined sewers where feasible. Wastewater from the city eventually flows through

several main transmission lines to the Binghamton Terminal Pump Station at the WWTP site. The lines adjacent to the river are reportedly subject to significant infiltration.

Johnson City has 45 miles of sewers whose construction began in the early 20th century. Combined sewers drain 289.3 acres in the village (total village area is 2,800 acres, of which 1,100 are developed and sewered). In 1993, combined sewers drained 336.9 acres. village representatives have indicated that there have been four separation projects in the last five years. These separations are often combined with road improvement projects. The Johnson City sewers drain through an interceptor beneath the Susquehanna River to the Johnson City Pump Station in the Town of Vestal.

The Town of Vestal is served by two WWTPs: Endicott and BJCJSB. Within the BJCJSB service area, there are approximately 44 miles of separate sanitary sewers, whose construction dates back to 1956. According to the April 2000 Engineering Report, the older sewers are in poor condition. Accordingly, they may be subject to infiltration, as reported for those lines that drain to the Endicott WWTP. There are several pump stations within the Vestal collection system. Both the Johnson City and Binghamton pump stations receive wastewater from Vestal. Although separate, the town sewers reportedly receive significant I and I. Information on steps being taken to correct the problem is not available.

The Town of Binghamton has an 11.8-mile separate sanitary sewer system for which construction began in the 1930s. Although the town is within the city service area, the town sewers reportedly drain directly to the WWTP, rather than to the terminal pump station.

The Town of Union is served by the Endicott WWTP and the Binghamton-Johnson City Joint Sewage Board WWTP. The 520-acre area in the unincorporated portion of town served by BJCJSB has 5.1 miles of separate sanitary sewers, which discharge via pump stations into the Johnson City system at three locations. The Westover area discharges into the western portion of the village, whereas the Reynolds Road and Choconut Center areas discharge to the north and northeast, respectively. As noted previously, the Union sewer map shows a small portion of Chenango being served by this system; no information on that service is available. Union flows are pumped into the Johnson City sewer system. Meters at the pump stations allow the measurement of the volume of flow.

In the unincorporated area of the Town of Dickinson, there are 13 miles of separate sanitary sewers that service a land area of 460 acres. Dickinson wastewater discharges to the Johnson City and Binghamton sewers at six different locations, one of which is via a pump station/force main. The portion of Dickinson east of the Chenango River drains to the Port Dickinson system, before entering the Binghamton sewers

The Village of Port Dickinson is fully sewered. There are 7.6 miles of separate sanitary sewers, with four small lift stations and one large pump station (Wayne Avenue Pump Station), which discharges all of the village's wastewater to the City of Binghamton sewer system. The Wayne Avenue Pump Station was upgraded with two new pumps in

1996 and a third one in 1997. Peak flow for each pump is 1200 cfm. Operating time per pump is 30 hours per month, or 90 hours total

The Hillcrest area of Fenton is served by separate sanitary sewers, which discharge via a pump station to the Port Dickinson sewer system.

The Town of Kirkwood has a separate sanitary sewer system, 11.2 miles in length servicing 1,075 acres. The sewers are relatively new (construction beginning in 1964). The system has two small lift stations in the Broome Industrial Park and one large pump station at Five Mile Point. The large station has four pumps ranging in capacity from 500 to 1600 gpm. The system is subject to I and I, which is currently under investigation by the town (television inspection).

The Town of Conklin has a separate sanitary sewer system that drains to the City of Binghamton sewer system on the south side of the Susquehanna River.

Wastewater Treatment Plant

The BJCJSB WWTP was initially constructed in 1958 to provide primary treatment of the wastewater generated by the City of Binghamton. In 1968, additional primary capacity was added when Johnson City connected, and in 1972, the WWTP was upgraded to secondary treatment with the addition of the current activated sludge process. Changes to the system during the 1982-1993 time period included. [3.3]

- The influent screens were replace and belt filter presses for sludge dewatering were installed to replace the old vacuum filtration system (1982-1983).
- Two additional secondary clarifiers were added to increase secondary treatment capacity (1988).
- Sludge thickener No. 2 was covered and a carbon-based odor control system was installed (1989).
- A 10 dry-ton/day in-vessel compost plant was installed (1991).
- The primary and secondary clarifiers and appurtenant channels were covered and a wet scrubber odor control system was installed (1993).

Beginning in 1998, a three-phase improvement plan was initiated. Phases I and II have been completed and Phase III construction is underway. The completed work has included:

- A Supervisory Control and Data Acquisition System (SCADA) was installed to monitor and control key processes. This system is still being refined.
- An odor control system was installed for the sludge thickeners, dewatering room, bar screen room and several areas in the compost facility.
- Some raw and primary sludge pumps were replaced.
- The longitudinal grit channels were replaced with vortex grit removal systems.

- An automated sluice gate, flow meters, and sampler were installed to monitor and regulate primary effluent that bypasses the secondary treatment system when flows are more than 35 MGD.
- The Terminal Pump Station comminutors were replaced.
- Sodium hypochlorite and sodium thiosulfate systems were installed to replace the old gaseous chlorination system and to provide dechlorination.

The following describes the current WWTP process (not including the Phase III construction). As noted previously, there are two Terminal Pump Stations - a remote one for the Johnson City service area, and one at the plant for Binghamton. The Johnson City pump station has three pumps with a combined capacity of 15 MGD. The Phase III replacement of the existing pumps and addition of a fourth will bring the capacity to 19 MGD, and provide a spare. The (Binghamton) pump station at the WWTP has four pumps dating back to 1958, with the largest replaced in Phase II. Bar screens are located in the gravity influent well and are rated for 60 MGD. However, the screens are corroded and will be replaced during Phase III.

There are two vortex type grit chambers, each rated for 30 MGD, installed during Phase II, and two original longitudinal grit channels, each rated for 15 MGD that are used as back-up with the flow splitting enhancements provided during Phase II.

There are 14 covered, rectangular primary clarifiers, 15 feet wide by 87 feet long, with a side water depth of 11 feet. These units are overloaded and additional primary clarification will be installed during Phase III. According to the April 2000 Engineering Report, the primary units now achieve BOD and TSS removals of only 5% and 18% respectively, whereas 30% and 50% are normally anticipated.

Activated sludge treatment is currently provided with six covered aeration tanks that are 30 feet wide by 100 feet long, with 18 feet of side water depth. Coarse bubblers are used. The aeration tanks discharge to seven covered settling tanks 33 feet wide by 138 feet long, with side water depths of 11.5 feet.

As noted above, sodium hypochlorite is now used to chlorinate the plant effluent. The required 15-minute detention time is apparently met for flows up to 30 MGD; however, the contact system will be expanded during Phase III when the plant primary flow increases to 60 MGD.

There are three outfalls from the WWTP. Outfall 001 discharges flows up to 30 MGD. Wet weather flows more than 30 MGD are bypassed through Outfall 002. Outfall 003 is an emergency bypass that is employed only during emergencies (power or pump failures, etc.) to avoid damage to the plant.

Solids generated at the plant are thickened, anaerobically digested, dewatered with a belt press, and then composted on-site in vessels.

Phase III will increase primary and secondary treatment capacities to 60 MGD and 35 MGD, respectively. As stated previously, these different capacities are set to achieve compliance with the Presumptive Approach for CSO control. The treatment process will consist of expanded, conventional primary treatment followed by carbonaceous secondary treatment, nitrification, and post-denitrification using modular biofiltration cells. The biofiltration cells are not in common use in the United States and they are provided as patented systems by different vendors. Phase III will also include replacement of the corroded bar screens, several influent pumps and related electrical equipment, and sludge digester equipment, as well as installation of additional pumps and a chlorine contact tanks. The estimated cost for Phase III is $23,000,000 (April 2000 Engineering Report).

Administrative and Financial Management

Administration

The Board consists of six members, three appointed by the mayors of each municipality. The terms of the Board members are staggered.

The Board is in possession of all of the property that is jointly owned and has the obligation and authority to operate and maintain these facilities. Among its more important obligations, it must set and collect fees for the use of the wastewater facilities and adopts rules for the operation and maintenance of the joint facilities. It retains its own employees, but those employees are subject to the rules of the Civil Service of Binghamton and the Binghamton Civil Service Commission.

As of January 1, 2001, BJCJSB employees totaled 30 employees including 4 administrative-management positions and 26 maintenance and laboratory employees; the latter are members of the Civil Service Employees Association unions

BJCJSB Budgets

The BJCJSB budget for the Board operations for the year 2000 totaled $4, 250, 586. This includes total personal services for 2000 of $1,141, 878 for salaried and hourly employees and an additional $103,904 for engineering, accounting, legal and professional service This includes personal and non-personal costs in operating the WWTP, outside professional services and direct compensation and associated costs of the Board itself.

Limited information made available by the various municipalities provides an overview of the budgets for running the sewers and WWTP. Table F-5 provides the final account balances for the Joint Board at the close of the 2000 fiscal year. Table F-6 provides debt service expenses for the City of Binghamton and the Village of Johnson City at the close of the 2000 fiscal year.

The total cost for WWTP O&M during that period was $4,288,945.21. The O&M cost to the communities is defrayed by a surcharge to Frito Lay, septage dumping fees, etc.,

which reduces the net O&M cost by $361,739.31. Each community is charged for their proportionate share of the electric cost for the two terminal pump stations (estimated by the Board at $76,880.15 for each station), which results in a net O&M cost of $3,638,445.60. With the completion of Phase III, the debt service, O&M, and pumping costs will increase; specific figures are not available.

Table F-5
Binghamton-Johnson City Joint Sewage Board
Final Account Balances at Close of 2000 Fiscal Year

City of Binghamton	$ 5,476.16
Binghamton University	$ 8,783.96
Town of Vestal	$ 64,840.44
Town of Binghamton	$ 3,388.92
Town of Dickinson	($38,490.64)
Village of Port Dickinson	$ 695.40
Town of Fenton	$ 4,092.32
Town of Kirkwood	$74,376.24
Town of Union	$29,780.36
Village of Johnson City	($64,770.36)
Town of Conklin	($ 4,770.36)
TOTAL	$84, 011,30

Table F-6
Binghamton-Johnson City Joint Sewage Board
Debt Service Expenses at Close of 2000 Fiscal Year

Binghamton	$198,341.80
Johnson City	$210,960.50
Total Debt Service	$409,302.30

The City of Binghamton cost for running the combined sewer system allocated to 2000 was $1,426,998.67 broken out as follows:

Table F-7
Binghamton-Johnson City Joint Sewage Board
2000 City of Binghamton Cost Allocation

Purpose	Amount
Administration	196,654.96
Sanitary Sewers	757,928.49
Employee Benefits	190,530.22
Debt Service	135,385.00
Transfer Capital (190,000 X 35%)	66,500.00
TOTAL	**1,426,998.67**

The Johnson City sewer cost totals $754,816.00, $688,694.00 of which is for the village's sanitary sewer account and the remaining is for employee benefits.

In determining the bills to the two owners and the outlying communities the above costs at the WWTP and sewers are allocated to the users (including the owners) based on a combination of metered water use and metered sewage flows. The following summarizes the available information on the method of metering:

City of Binghamton	Water Meters
Johnson City	Water Meters
Vestal	Water Meters
Town of Binghamton	Water Meters
Dickinson	Water Meters
Port Dickinson	Water Meters
Kirkwood	Sewage Meters
Fenton	Sewage Meters
Conklin	Water Meters
Union	Sewage Meter

The summation of the above meter readings is well below the plant flow, largely because of the I and I associated with owners' sewer system. The costs for debt service, plant O&M, terminal pump station electricity, and sewers, are divided by the total billable flows for each of the two service areas to derive unit billing rates ($ per CCF) for each of these cost items. A surcharge for the unit billing rates associated with debt service is made on the bills to the outlying communities, except for Vestal and SUNY-Binghamton, which do not pay the surcharge. The surcharge is 25% ($0.01965/CCF, which averages about $4.00 per year for a typical residence), except that Conklin paid an extra surcharge of $0.20 per CCF on debt service in 2000, the basis for which is not known. The annual bills to the owners are reduced by their actual outlay for sewer costs and WWTP debt service. Although the Town of Binghamton wastewater does not enter the terminal pump station, the bill includes a charge for that facility nonetheless.
The outlying communities contribute to the cost (including construction) of running the entire Binghamton and Johnson City collection system, not just the fractional portion of the truck lines that actually serves those municipalities. Approximately 32% of the bill to

the outlying communities in the Binghamton service area is for the cost of the Binghamton sewers; in the Johnson City service area, the fraction is about 39%. The fraction of the owners' sewer costs paid by the outlying communities is not insignificant: for Binghamton, 37% of the city's sewer costs are paid by these communities; for Johnson City, the contribution is higher (43%).

Outside Communities

To recoup the cost of paying the BJCJSB bills, each municipality (including Binghamton and Johnson City) in turn bills the individual properties in the service area based on metered water use. Typically, these bills are sent out by the water department.

Town of Binghamton: There is one consolidated sewer district served by the BJCJSB WWTP. The town maintains the system, debt service for which is apparently paid off. Information on budgets is not available.

Conklin: There is one district in the town, with several extensions. There is no debt on the main trunk line, although some of the extensions have remaining debt, still being financed with BANs, and paid through ad valorum taxes. The year 2001 tax rates for the extensions range from $197 to $367. Exclusive of the sewage treatment budget, the budgets for the districts are as follows:

Table F-8
Town of Conklin
2001 Budgets for Sewer Districts
(Exclusive Of The Sewage Treatment Budget)

	CONTRACTUAL	DEBT SERVICE	AMT. RAISED BY TAXES
District #1	25,000	0	0
Extension #2	1,000	6,726	7,726
Extension #3	1,000	29,516	30,516
Extension #4	1,000	14,346	15,346
Extension #5	1,000	25,402	26,402

Dickinson: The adopted 2001 budgets for debt service for the sewer districts are shown in Table F-9. For the purposes of O&M, the town manages the several districts as one consolidated district. Budgets for 2001 are shown in Table F-10.

Table F-9
Town of Dickinson
2001 Budgets for Sewer Districts

	Principal	**Interest**
District #2	3,000	932
District #2, Extension #3	6,000	1,863
District #2, Extension #4	17,900	7,143
District #2, Extension #5	2,100	761
District #5, Extension #2	5,000	2,044
District #6	12,000	3,795
	46,000	16,538

Table F-10
Town of Dickinson
2001 Consolidated Budget for Sewer Districts

Sewer Administration - Personal Services	41,015
Sewer Administration - Contractual	5,000
Sanitary Sewers - Contractual	20,000
Employee Benefits	16,100
Sewage Treatment and Disposal	225,000
	307,115

As indicated, even with debt service, most of the cost for the Dickinson sanitary sewer system is charges from the BJCJSB. Dickinson pays Port Dickinson for use of the village sewer system for the portion of the town west of the Chenango River. Village budgets indicate that this payment was $2,645 in 2001.

Fenton: The outstanding principal debt for Hillcrest Sewer District No. 1 is $60,000, payable at a 7.15% interest rate. The bonds will be retired on December 15, 2004. O&M on the system totaled $61,843.15 in 2000, and the 2001 cost is estimated at $74,451, an amount that includes the charges from the BJCJSB ($24,255 for year 2000 flows). O&M also includes payment to Port Dickinson for use of the village's sewer system. Rates charged by Port Dickinson range from $0.25/CCF to $0.28/CCF, depending on the total volume of flow discharged by Fenton. In 2000, Fenton discharged 19,633 CCF, which results in a cost to the town of $5,497. O&M is charged to individual users on the basis of a flat rate of $30 per quarter for the first 15 CCF of metered water use, plus $1.90 per CCF for use over that minimum.

Kirkwood: The 2001 Kirkwood budget identifies six sewer districts/extensions. Debt service remains only for District No. 2 ($2,004 of principal, and $2,276 of interest in 2001). The extension districts pay District No. 1 for the use of the District No. 1 trunk line. Outside District No. 2 debt service, the budgets for running the town sewers are summarized in Table F-11.

Table F-11
Town of Kirkwood
2001 Sewer Budget
(Except District No. 2 Debt Service)

Contingencies	25,000
Administration	15,198
Contractual	11,525
Transportation/Distribution (exc. BJCJSB)	82,854
Employee Benefits	15,235
BJCJSB	729,000
	878,812

These costs are passed onto sewer users based on units and metered water use. Kirkwood is presently conducting an extensive I and I investigation that is being paid through the current annual budget. The cost of improvements, if any, arising from the investigation will be bonded.

Port Dickinson: Sewers are operated through the village Department of Public Works. The year 2001 sewer budget includes engineering ($1,750), administration ($587), contractual expenses ($45,343), and sewage treatment ($47,994). The total for 2001 is $95,674. Charges to Fenton and Dickinson for the town use of the village's sewers amount to $8,142, which offsets a portion of the charges assessed to the village residents. User charges to the residents are based on water meter readings.

Union: Costs from the BJCJSB are passed onto to individual users based on metered water use. There is no remaining debt for the sanitary sewers in Union. The budget for sewer maintenance is not available, but town officials indicate that these costs are paid through the general fund, rather than a district assessment. The town provides non-sewered areas a free septic tank pump out about once every two years, also paid through the general fund.

Vestal: Information on the budgets for the Vestal sewer districts is not available.

Outstanding Indebtedness

City of Binghamton: As of February 14, 2000, the City of Binghamton indebtedness for wastewater management including BJCJSB included $ 6,371,140 in principal and $ 3,702,540 in interest for a total P+I of $10,073,680. The Total P+I adjusted for subsidy earnings and administrative fee amounted to $ 8,416,510.

Village of Johnson City: As of February 15, 2001, the Village of Johnson City indebtedness for wastewater management including included $2, 939,755 in principal and $1,497,888 in interest for a total P+I of $4,437,643.

Needs

As discussed previously, Phase III improvements will increase primary and secondary treatment capacities to 60 MGD and 35 MGD, respectively. Together with improvements in the collection systems of the two owners, this work will allow compliance by the WWTP and CSOs with the SPDES permits and related standards. Because of the current problems with the WWTP and CSOs, the owners have not approved expansions of the sewer districts in the outlying communities. The ability of the system to accommodate expansions of these districts after Phase III is completed has not been resolved. Available information concerning the ability of the WWTP to handle additional flow from the outlying communities is outlined below:

- A secondary treatment capacity of 35 MGD will be provided whereas average annual flows are projected to be 25 MGD.

- Without any further sewer separation, 85 to 90% capture of wet weather flows will occur, whereas only 85% is required. Assumptions in the computer model indicate that these estimates are conservatively low and that actual capture will be higher.

- Completion of Binghamton's south-side separation projects will increase capture to 90 to 95% for that service area.

- Projected population declines will reduce dry weather flow by approximately 0.54 MGD.

- Although much of Phase III is for control and treatment of the wet weather flows generated by the owners, the outlying communities will be paying about 40% of the cost of that work, based on the present billing practices.

Impediments (if any) to Changes in Ownership or Management

Possible Legal Problems With Transfer Of BJC To County

1. Agreement of all affected municipal parties needed.

Although the county can acquire existing wastewater facilities, it can only do so from public entities consentually (County Law §262).

The city and the village also have contractual rights to receive all the sewage from the outside municipalities. The outside municipalities all have the contractual right to have their sewage treated by the BJC plant. Although these contracts (generally the standard agreement) are silent, it is not at all clear that these contractual rights could be assigned without the consent of the other party. In short, if the assumption of wastewater responsibilities by the county is not an improvement over the status quo for all of these parties, it won't take place.

Obviously, the municipalities that currently enjoy preferential rates (the city, the village and the Town of Vestal) will need to find there is adequate consideration for the transfer. The relinquishment of control over the operation of the plant by the city and the village may also require consideration.

2. Agreement of outside parties may be needed.

Other outside parties to the transaction may also have to consent:

a. Bondholders. The right of the holders of the bonded indebtedness will need to be determined. It is unknown whether the county could assume the existing indebtedness or would have to refinance. If it needed to refinance, the prevailing terms might not be as favorable as the existing terms.

b. Funding Agencies. If the city or the village seeks compensation for the value of the improvements, governmental agencies that issued grants may seek repayment.

c. Regulatory Agencies.

DEC will have to approve the transfer of permits to the new county district or public authority. It is possible that DEC may use the permit transfer as an opportunity to modify the permit or otherwise impose additional conditions.

The fate of existing consent orders will need to be addressed. Issues that previously did not exist may arise if the WWTP and the combined sewers will be owned by different entities.

The EPA will need to approve the industrial pretreatment program that the county would now administer as New York State currently has no delegation agreement. Certain aspects of the pretreatment program are discretionary, such as which industrial users (other than those defined as significant industrial users in federal rules) will require permits. The county will have to reissue all industrial user permits and may have to modify the universe of permits issued depending the precise form in which it implements the pretreatment program.

3. Excess Capacity.

4. Differential Rates.

APPENDIX G
Legal Memorandum

TO: Bill Gibson, Broome County Attorney

FROM: Bob Feller, Feller & Ferrentino

SUBJECT: Operation of Wastewater Facilities as a County Function

DATE: October 26, 2001

In the last steering committee meeting, you raised the question of whether the handling of wastewater as a general county function should be included in the options to be considered by the Consultants. I indicated that my preliminary research showed that existing law might not permit this approach. I have now completed that research and have reached the same conclusion. My reasoning is set forth below.

The basic provision for county involvement in wastewater disposal is under County Law Article 5-A. That law contemplates county involvement exclusively through the establishment of districts. The only general county functions contemplated in Article 5-A are those involved in the formative stages of the district (See County Law §§ 251-254). Opinion No. 84-63 of the State Comptroller's Office (copy attached) concurs in this conclusion.

This approach is in contrast with the one adopted by County Law 226-b. Under that statute, the Legislature provided authority to handle the collection and disposal of solid waste as a general county function (See, Riley v. County of Monroe, 55 AD2d 91, 389 NYS2d 689, 4th Dept., 1976, copy attached, wherein the Court reviewed the legislative history of this provision in reaching this conclusion). Therefore, for purposes of solid waste management, a county has the option of acting through a district (under County Law Article 5-A) or directly as a general county function (under County Law §226-b). Unfortunately, there is no parallel provision to §226-b for wastewater disposal in the County Law and hence the only explicitly authorized approach is the district formation under Article 5-A.

The only other possible authority for the general county function approach would be under Municipal Home Rule Law. This statute broadly authorizes counties to adopt local laws that are not inconsistent with the provisions of the constitution or with any general law relating to its property, affairs or government (MHRL §10(1)(i)). County Law Article 5-A is such a general law as it applies to all counties outside of those wholly within a city. Since authorizing ownership or operation of sewage disposal facilities as a general county function would be inconsistent with Article 5-A, which only offers the district approach, the county could not adopt a local law to remedy this situation. This conclusion was explicitly reached in Op. State Comp. 68-1077 (copy attached) and is as well the implicit conclusion of the previously-cited Opinion 84-63.

In summary, I would recommend that the Consultants not pursue this alternative because of the legal issues detailed above.

APPENDIX H
Legal Memorandum

M E M O R A N D U M

P R I V I L E G E D A N D C O N F I D E N T I A L

DATE: January 29, 2002

TO: Bob Feller

FR: Jonathan Cohen

RE: **Broome County – County Law Placing Prerequisite on County Clerk's Acceptance of Deed for Filing**

Issue

This memo addresses the question whether a county may enact a law that would require a person filing a deed to furnish proof that the property is either connected to a public sewer system or has a properly functioning septic system and, in the absence of such proof, direct the county clerk to refuse to accept the deed for filing.[4] It concludes that while such a law would probably be valid, because of the complexity of this area of the law and the potential for liability, an opinion of the attorney general should be sought.

Background and Analysis

The County Charter Law (codified as Article 4, Part 1, of the Municipal Home Rule Law) implements Article IX(1)(h) of the New York State Constitution, which, among other things, authorizes counties to "prepare, adopt, amend or repeal alternative forms (of county government) of their own." Under Municipal Home Rule Law ("MHRL") § 33, a charter county may enact charter laws. A Charter Law is "A local law providing, amending or repealing a county charter, or transferring a function or a duty pursuant to [§ 33(a) of the County Charter Law]." MHRL §32(2). (A "local law," for purposes of the County Charter Law, is a "local law adopted by the board of supervisors of a county pursuant to [the MHRL] or other statute generally empowering the county to adopt local laws." MHRL § 32(5)). The County Charter Law is to be construed liberally. MHRL § 35(3).

Charter laws may be inconsistent with general laws provided they relate to "the

[4] In a consent order agreement between the DEC and the Village of Endicott, the Village was required to adopt a local law requiring that, upon resale or transfer of any commercial or industrial property with the Village boundaries, the seller provide proper certification to the purchaser and mortgager that there is no source of illegal inflow connected to a sanitary sewer from the property. This requirement is similar in many respect to the one being reviewed in this memo. The consultants have been unable to determine whether the Village adopted such a local law.

structure of the county government and the manner in which it is to function" (MHRL § 33(2) and the "details of administration of the county government" (MHRL § 33(4)(d)). Atty Gen'l. Formal Opinion No. 82-F15. This scope has been read broadly. As stated in another opinion of the Attorney General:

> Unlike local laws adopted by a local government, which must be consistent with general state laws (NY Const, Art IX, s 2 c ; Municipal Home Rule Law, s 10), neither the Constitution nor the County Charter Law require that charter laws be consistent with general state laws. The courts have recognized this in upholding the validity of charter laws, which were inconsistent with general state laws (Matter of Smithtown v Howell, 31 NY2d 365 1972 ; Matter of Heimbach v. Mills, 67 AD2d 731 2d Dept, 1979).

There are limits on the power. First, the power to enact charter provisions is "subject to restrictions in the constitution, in [article 4], or in any other applicable law. MHRL § 33(1).

Those restrictions appear primarily in MHRL § 34, which places limits on the power of counties to address certain issues in their charters or charter laws. A county charter law may not supersede any general or special law with respect to the following subjects: taxation of the state, exemptions from taxation, state assistance to local government, division of the county, compensation of judges, and courts. MHRL § 34(2). None of these prohibitions appear relevant to the proposed law.

Section 34 also provides that a charter law may not supersede any general or special law that: (1) relates to the proceeds of taxes or benefit assessments or to the educational system or school districts; (2) requires that specific government functions be performed by or financed by units of local government; (3) relates to a function, power or duty of the state or any officer or agency financed directly by the state; (4) related to actions against the county; or (5) related to a public benefit corporation. § 34(3)(a)-(f). See Heimbach v. Mills, 67 A.D.2d 731, 731 (2d Dept. 1979). Again, it does not appear that any of these prohibitions would apply in the case of the proposed law.

Finally, charter laws normally may not supersede 19 enumerated laws, such as the ECL, the Executive Law, and the Local Finance Law. MHRL § 34(3)(g). The Real Property Law is not among the enumerated laws.

Construing these provisions, the court, in Heimbach v. Mills, upheld a county charter provision that vested the power to fix county equalization rates in the elected county executive, rather than in the county legislature. 67 A.D.2d 731 (2d Dept. 1979). The measure was inconsistent with provisions of the Real Property Tax Law which provided that the county equalization agency shall be the board of supervisors or appointed commissioners of equalization.

The attorney general has concluded that a county may adopt a law that deals with the term established for the county health commissioner, which differs from the term established by the Public Health Law, as that law is not one of the laws enumerated in MHRL § 34. Op. Atty. Gen (Inf.) 84-45. (See MHRL § 33, annotations at n.6).

The Attorney General has also concluded that a county may regulate the sale and use of styrofoam within the county, provided the commerce clause of the U.S. Constitution is not violated, Op.Atty.Gen. (Inf.) 89-9; and that a county may adopt a local law prohibiting the sale of soft drinks and beer in nonreturnable containers in that part of the county outside of any city or incorporated town or village that is also regulating the sale of disposable containers. 1980, Op.Atty.Gen. (Inf.) 212. In this case, the law did not conflict with the Alcoholic Beverage and Control Law (not among the statutes enumerated in MHRL § 34, but nonetheless addressed in the opinion).

Analysis

It appears that the County acting under its Home Rule powers would not be barred from enacting a charter law that is inconsistent with the Real Property Law.

Real Property Law § 291 provides, in relevant part:

> A conveyance of real property, within the state, on being duly acknowledged by the person executing the same, … may be recorded in the office of the clerk of the county where such real property is situated, and such county clerk shall, upon the request of any party, on tender of the lawful fees therefore, record the same in his said office.

This statute appears to be a general law. As stated by the Attorney General:

> For purposes of the home rule provisions, a "general law" is defined as "[a] state statute which in terms and in effect applies alike to all counties, all counties other than those wholly included within a city, all cities, all towns or all villages." Municipal Home Rule Law s 2(5); see also, NY Const, Art IX, s 3(d)(1). Thus, it is clear under this definition that a State statute is not a general law in its application to counties unless it applies in terms and in effect alike to all counties or to all counties other than those wholly included within a city. (Informal Opinion 92-1.)

A related statute, Real Property Law § 333 provides:

> *A recording officer shall not record or accept for record any conveyance of real property affecting land in New York state unless accompanied by a transfer report form prescribed by the state board of real property services and a fee of twenty-five dollars pursuant to subdivision three of this section.*

It is probably worth noting the caption of this section reads "When conveyances of real property not to be recorded." In addition to the E&A requirement, Section 333 primarily requires that deeds include a proper address for the property being conveyed. Section 333 appears to be the only provision of state law other than section 291 that imposes a prerequisite on the county clerk's accepting a deed for filing. (Other sections of the Real Property Law do address the form of the deed, e.g., the forms for acknowledgements.)

The duty to record deeds imposed by § 291 has been held nondelegable. Baccari v. DeSanti, 70 A.D.2d 198 (2d Dept. 1979). It would also likely be classified as ministerial. County Law § 525(1) provides:

> ***The County clerk shall perform the duties prescribed by law as register…. He shall perform such additional and related duties as may be prescribed by law and directed by the board of supervisors.***

It thus appears that the Real Property Law seeks to establish a system for the recordation of deeds that is uniform statewide. It also seems clear that the statutes impose a duty on the county clerk to file a deed that is in proper form, subject only to payment of the requisite fee and presentation of the equalization and assessment form.

However, because the Real Property Law is not one of the statutes enumerated in MHRL § 34, a county acting pursuant to its Home Rule powers would probably not be barred from enacting a provision inconsistent with RPL § 291.

Nonetheless, given the existence of Real Property Law § 333 and County Law § 525, it seems that a provision directing the clerk not to record a deed under certain circumstances would be scrutinized carefully if challenged. It could be argued that such a provision is not related to "the structure of the county government and the manner in which it is to function" (MHRL § 33(2) and the "details of administration of the county government" (MHRL § 33(4)(d)). It could also be argued that those provisions (or perhaps another statute—additional research might be warranted to be sure no other provision could be deemed a restriction) constitute a "restriction" within the meaning of MHRL §33 (1). In addition, it is not difficult to imagine a scenario where a refusal to register a deed for failure to provide the required information could expose the County to at least an allegation of liability.

For all these reasons, I recommend seeking an opinion from the Attorney General with respect to the question. I also recommend investigating forms of the proposed law that do not direct the clerk to refuse to accept a deed for filing if the form is not submitted.

APPENDIX I
Issues Related to County Sewer District Formation

The Steering Committee requested that the Consultants examine the various ways the County could legally take on responsibility for wastewater management. One approach that was raised was to handle the matter as a general function of the County, i.e. without the establishment of a County District. The Consultants reviewed this approach and in a memo of law provided to the County Attorney concluded that this approach was not authorized (Appendix G). In other words, the only approach is through the establishment of a county sewer district.

The establishment of a County sewer district would involve the following steps and procedures: [1]

The County Legislature would appoint an agency which would be responsible for carrying out the provisions of County Law Article 5A in relation to establishing a district. The "agency" could be an officer board or body. The Legislature can determine the number, tenure, qualifications and compensation of the agency members.

The powers of the agency are set forth in County Law §§252 and 253. In short, it has the authority to undertake studies, either directly or through consultants, in relation to the sewer problems in the county.

Upon the presentation of a petition by either the involved municipalities or by 25 owners of taxable real property within a given municipality or upon its own motion, the Legislature can task the agency with preparing maps and plans for a proposed county district. Once prepared, a public hearing would then be held on the district formation.

The Legislature would then, by resolution, approve the formation of the district upon a finding that (1) all property and property owners in the proposed district are benefited; (2) that all property and property owners that benefit are in the proposed district; (3) that the formation of the district is in the public interest and (4) if there are zones of assessment, that the allocation of cost among zones represents as nearly as possible the proportionate amount of benefit derived by lots in each zone. The implications of making these specific findings are reviewed in greater detail below.

The resolution approving the district would not take effect immediately but would be subject to a permissive referendum. A permissive referendum is one that occurs on petition. In this case, 100 resident voters within the proposed district would be needed to compel a referendum. If no valid petition for a referendum were filed in 45 days after the resolution's adoption, it would become effective. If were one filed, a special election would be set up within 45 day. Only upon a successful vote would the resolution become effective.

Once the resolution is effective, application would then be made to the Comptroller for approval to establish the district. If approved, the Legislature would then adopt an order establishing the district.

After the district is established, the County Legislature would establish an officer, board or body as the administrative head of the district. The Legislature determines the number, method of selection, tenure, qualifications and compensation of the board or body. In short, the district would be an administrative unit of county government. Although the County Law makes the district directly responsible to the Legislature, a charter law could be adopted that provides for reporting to the County Executive (MHRL §33).

Once formed, the district could proceed to acquire existing capital facilities. It should be noted that County Law only permits the acquisition of existing public facilities with the consent of the owner (County Law §262). Assuming that the initial focus of the County district would be the acquisition of the BJC plant, prior initiating the district formation process, it is highly recommended that a firm agreement be concluded between the County, the municipal owners and the other municipalities served by the BJC plant.[5]

Assuming acquisition by debt financing (either assuming existing debt or issuing new debt), the district would then need to apply to the State Comptroller for the exclusion of the debt from its debt limits pursuant to Local Finance Law 124.10. This law is set to expire January 1, 2004 but prior expirations have been extended by the Legislature and there is no reason to believe that the aforementioned date would not be extended again.

Findings for District Formation

This section is provided to raise important issues related to the findings the County would need to make under Article 5A of the County Law. Wherever possible, advice on those issues is offered, however, in several cases, either there are no clear answers based on existing law or the answers would be too dependent on yet unknown facts.

> In order to form the district, the County Legislature would have to make the following findings:
>
> 1) that all the property and property owners within the proposed district are benefited;
>
> (2) that all property and property owners that benefited are included within the limits of the proposed district;

[1] In recent meetings with the steering committee a broader role for a county district, i.e. one that might include the Endicott plant and the Chenango plants has been suggested. In addition, the County could also consider establishing a district that would oversee the construction of a new plant. If a broader role for the County is pursued, it may not be necessary to conclude these agreements concerning the BJC plant acquisition prior to initiating the County district formation process.

(3) that it is in the public interest to establish the district; and

(4) if the maps and plans and report recommend zones of assessment and the allocation of costs of the facilities as between such zones, that the zones represent as nearly as may be the proportionate amount of benefit which the several lots and parcels of land situated in such zones will derive.

With respect to the municipalities now served by the BJC plant, these findings have a number of implications.

(1) All the property and property owners within the proposed district are benefited

It will be necessary to find that the properties in the City of Binghamton and the Village of Johnson City would actually benefit from the proposed district. Presumably, such findings will be based in large part upon the outcome of the negotiations between the County and the affected municipalities concerning the terms under which the transfer of the plant itself may occur.

(2) All property and property owners that are benefited included within the limits of the proposed district

The second finding would seem to suggest that the district would need to include all of the outlining areas that are now serviced by the plant. Whether an option that would establish a district including just the City of Binghamton and the Village of Johnson City with the outlying areas being served by contract is legally permissible is unclear. There is little in the way of case law or advisory opinions concerning the set of facts in Broome County.

On a separate question, even if the district includes all the areas now served by the BJC plant, it is not necessary that the County's acquisition include the sewers that are now under the ownership and administration of the municipalities (see Op St. Com. No. 88-72 wherein it was concluded that establishment of county sewer district would not necessarily affect an existing town sewer district). The town districts and other municipal entities could continue to function as the responsible parties for the sewers.

(3) It is in the public interest to establish the district

The third finding has no immediate implications for the formation process. However, if the County and the involved municipalities conclude that the transfer is in the public interest but still have difficulty making the other three statutory findings, there is an alternate approach that could be pursued (and one which has been pursued in other cases). The approach involves seeking state legislation to establish the county district following the submission of a Home Rule Bill.

Such an approach was successfully taken by the Town of Neversink in Sullivan County. In that instance, an existing area was served by a plant owned and operated by New York City. NYC offered a grant to extend the sewers to a previously unsewered area but required the Town to form a district including all areas served and to assume certain costs of administering the district. Since the already served areas received sewer services free of charge, the Town concluded it could not find that the property and resident of that area would be benefited by district formation (provisions requiring findings similar to those contained in County Law §256 are contained in Town Law §§194(1) and 209-e(1)).). Nonetheless, the Town Board concluded that the additional sewered area would be so substantial and the charges to the properties in the existing service so minor, that overall it would be in the public interest to accept the NYC offer, thus requiring the creation of a sewer district. Therefore it pursued a Home Rule Bill containing provisions that would permit the district formation notwithstanding.

(4) The maps and plans and report recommend zones of assessment and the allocation of costs of the facilities as between such zones, that the zones represent as nearly as may be the proportionate amount of benefit which the several lots and parcels of land situated in such zones will derive.

At the outset, it is worth noting that the county district could assess charges based on tax assessments (ad valorum), benefit, user fees or any combination of the above.[6] However, whichever method is chosen, similarly situated users would normally be charged on the same basis. For instance, if the basis for capital and users charges is flow, the same rate per unit of flow would be assessed to all one-family homes.

The fourth finding only applies if zones of assessment are established. The purpose of zones of assessment is to establish a differential rate structure based on the geographic location of the user (i.e. a rate structure where similarly situated users in different geographic locations would be treated differently).

Typically, this approach would be used where, for instance, a community of users might be a great distance from the treatment plant or where the topography made it particularly difficult to lay sewers. In such a case, a county district would be authorized to establish a rate structure including zones of assessment that would require similarly situated users (e.g. owners of one family homes) in the remote community to pay at a higher rate per gallon of water used for the capital component of the charge.

---

[2] Authority for the three methods of assessment are contained in County Law §§270, 271 and 266 respectively. Note too that, despite the language in County Law §§267 and 268, there is authority holding that different bases can be used for capital and O&M charges (YMCA v Rochester Pure Waters Dist., 44 A.D.2d 219).

[3]No conclusion is drawn as to whether establishing differential rates is advisable. However, it is recognized that some form of differential rates may emerge as part of the negotiation process between the county, the BJC owners and the other municipal users.

The issue for Broome County is whether the existing contractual arrangements represent a basis to establish differential rates.[3] This issue has been researched and reviewed with the Office of the State Comptroller but no definitive answer has emerged. If, as a product of negotiations between the county, the BJC owners and the other municipal users, such a rate structure is being considered, it is suggested that an opinion of the State Comptroller be sought based on the specific facts involved.

Other Issues

1. Administration of User Charges and Fees. The County district could charge individual users directly or could charge a bulk rate to the municipalities / districts served (Op State Comp 79-592). In the latter case, the county's recourse would be strictly against the municipality / district. The municipality / district would assess the charge to individual users and it would have to seek recourse against individual users for non-payment.

2. Capacity Issues. The County Law has provisions for County districts to authorize excess capacity and to pay for same. There is no definition in that law of excess capacity, nor has the term been interpreted judicially or in advisory opinions of the comptroller or attorney general. For purposes of a county acquisition on the BJC plant, it would appear to be quite supportable to conclude that there is no excess capacity provided for in the current system and hence not invoke any of the provisions of County Law §253-a.

However, the County should deal with the question of allocation of capacity in the existing system. Land use professionals have developed the concept of Adequate Public Facility Ordinances (APFOs). These laws are mostly focused on ensuring that there are adequate public facilities (roads, schools, water, sewer, etc.) prior to approving new develop that will further tax these resources. They encompass both an evaluation of the burden placed on public resources by incremental development (thus informing the provider about cumulative impacts) and often provide for financing mechanism where additional capacity is needed to support or plan for new development.

There are capacity entitlements in some of the existing contracts with outside users. These allocations and concerns about the allocation process for existing and excess capacity into the future suggests that capacity allocation should be addressed in the negotiation process concerning acquisition between the county, the BJC owners and the outside municipal users. The outcome of these negotiations could then be memorialized in an intermunicipal agreement, or an APFO or both.

3. Contractual Issues. The fate of existing contracts with BJCJSB, the BJC plant owners and the other municipalities served by the system needs to be addressed. The contracts between the outside users and the municipal owners should be considered as part of the negotiations with the County over plant acquisition. Similarly, existing agreements between industrial users and BJCJSB would have to be assigned or renegotiated with the County.

The County will also need to determine whether there are any other long-term contracts that BJCJSC has (e.g. with suppliers) and determine whether assignment or other options (e.g. termination, buyout or renegotiation) is possible.

New contracts between the County and the owners of the sewer systems will be necessary, minimally to address the quality of sewage admitted to the system (this would be part of an overall industrial pretreatment program) but might also address other issues such as bulk rates for wastewater disposal services.

4. Regulatory Issues. The County district will succeed to most of the regulatory obligations of BJCJSB and the BJC plant owners. In particular, the existing SPDES permit would have to be transferred to the County district. The City of Binghamton and the Village of Johnson City have permits for their storm sewers that they would presumably continue to hold.

As a related matter, obligations under the existing consent orders with DEC would need to be sorted out. Presently, there are consent orders that address the plant operation and separate ones concerning the combined storm sewers. From DEC's point of view, the management of these orders is simplified by the fact that the two municipal owners are ultimately responsible for all aspects of these orders. This unity of responsibility would not exist if the County were to acquire the BJC plant and but not the storm sewers.

Just as in the case of the permits, the County would need to succeed to the obligations of the BJCJSB and the municipal owners under the consent order for the plant. Whether, or to what extent, DEC would seek additional conditions (given the split responsibilities) is unknown at this time but is an area of concern.

The County would need to adopt its own sewer use ordinance that includes a pretreatment program for industrial users as required under the Federal Clean Water Act. The EPA will need to approve the County program as New York State currently has no delegation to administer for these requirements. Certain aspects of the pretreatment program are discretionary, such as which industrial users (other than those defined as significant industrial users in federal rules) will require permits. The County will have to reissue all industrial user permits and may have to modify the universe of permits issued depending the precise form in which it implements the pretreatment program.

5. Civil Service Issues. The consultants were informed that existing employees of the plant are in the County civil service system. Therefore, although the employees would become County civil servants, no change in job title or compensation would be necessitated by the change in status**.** In addition**,** 26 maintenance and laboratory employees are members of the Civil Service Employees Association union which would represent them for collective bargaining purposes.

APPENDIX J

ON-SITE WASTEWATER DISPOSAL DISTRICT

INTRODUCTION

The district would be formed as a unit of town or county government to assume responsibility for oversight of onsite wastewater management systems. It would provide for:

- Inspection and certification of existing systems
- Site evaluation, determination of system type, and system permitting for new and renovated systems
- Oversight and inspection of system installation
- Oversight of operation and maintenance procedures
- Training of homeowners re the operation of their onsite disposal system
- Sludge management, including oversight of pumping reports
- Program coordination with state, county and local governments

INSPECTION AND CERTIFICATION OF EXISTING SYSTEMS

The district would have responsibility for periodic inspection of all wastewater systems. An employee of the district may carry out the inspections, or duly qualified persons under contract to the district may execute them. The homeowner is responsible for obtaining a periodic inspection of the system by a qualified person and submitting the result of the inspection to the district.

The initial proposal for inspection frequencies is as shown in Figure 8.1 above. The district would, with the advice of the Broome County Health Department, may revise the above schedule for system inspections as experience dictates is prudent to assure that systems operate so as to preclude water quality and public health hazards.

A notice to the owner with the results of the inspection would, if repairs or replacement were needed, include a time limit within which the repair or replacement must be completed. Unless an imminent public health hazarded is being caused, an owner who is notified that a system upgrade is required would be given a period of time to comply. Failure to complete needed repairs or replacement within that time would result in the imposition of a daily fine on the owner until the work is complete.

Repairs and or replacement found to be required during these inspections would be the responsibility of the owner, who must make arrangements with duly licensed contractors to execute the work. The owner must notify the district when the repairs or replacement are started so that the instillation oversight detailed below can be scheduled. The owner could request the district to make, directly or via contract, repairs or replacement found to be required as a result of the inspection. The owner would be billed by the district for the cost of needed repairs or replacement.

SITE EVALUATION, SYSTEM TYPE AND PERMITTING

Whenever a person applies for a building permit for new construction, or whenever a person replaces or makes significant repairs to an existing wastewater system, a "Site and System" evaluation will be require. The owner would provide the district with site and soil evaluations made by an individual qualified to make such evaluations. The owner would be responsible for the cost for those services, which would vary with the circumstances of each site. Upon request the district will make a site and system evaluation. The owner will reimburse the district for the cost of the site and system evaluation. The evaluation would determine the type of system to be installed on the property in question. Based on the site and system evaluation, the owner would be responsible for developing plans for the system and submitting them to the district for approval.

Current state and county design standards would be used in the design of new or replacement systems.

INSTALLATION OVERSIGHT

The district will have responsibility for oversight and inspection of new or replacement system construction. Installation of all new and replacement systems shall be the responsibility of the homeowner. All new and replacement systems must be installed by a qualified contractor. The district shall inspect the system during instillation to assure that it is constructed in accordance with the approved plans. The district will provide for the installation of all new and replacement systems.

OPERATION AND MAINTENANCE PROCEDURES

The basic operation of all wastewater systems in the disposal district will be the responsibility of the system owner. To assure that system owners are equipped to handle this responsibility, the district will conduct programs and prepare written materials to educate users about the proper operation and maintenance of their particular system. A specific schedule of operations needed for each system will be developed and provided to the owner.

Septic tanks must be pumped at 3-year intervals or sooner if inspection showed it to be necessary. The owner would be responsible for making arrangements to have the septic tank pumped. The district will be responsible for pumping of septic tanks.

For seasonal systems the owner is responsible for notifying the district when the period of occupancy would start or end. For seasonal systems with pumps or other mechanical features, a visit prior to arrival of occupants may be required to assure that the electricity has been turned on and the system activated. The homeowner would be responsible for

shutdown procedures to assure that all pipes are drained and other shutdown procedures are properly executed to prevent winter damage to the idle system.

FINANCING OF THE DISTRICT

User fees, including permit fees, inspection fees, sludge management fees, special assessments, and fines would fund operation of the district. The district will develop a Schedule of Fees based on the cost of the district to perform the service.

The district will apply for available Federal and State grant funds.

A "Site and System" permit would cost $____*. This would apply to both new and replacement systems. As noted previously, the owner would also be assessed the actual cost of site and soil investigations made by the certified soil tester under contract with the district.

Inspection fees would vary with system type. The annual fee for a conventional year-round system would be $____*, and for a conventional seasonal use system it would be $____*. For other then conventional systems, the proposed fees are based upon the estimates of inspection effort required.

If inspection reveals any malfunctions requiring further investigation, the costs of those efforts would be another special assessment to the owner.

If repairs ordered by the district inspector were not completed within the specified time period, fines would be imposed upon the owner for each day of delay. These fines would go into the district budget to defray the costs of enforcing the execution of system repairs.

*Amounts to be determined from estimated cost of setting up and operating the District.

CLUSTER SYSTEMS

When the site and system evaluation shows that an individual on site wastewater disposable system is not feasible, the district should consider the establishment of a Cluster System to serve a small cluster of homes. In a Cluster System the effluent of the septic tank from individual homes is collected and delivered to a common site for disposal. The cost of design, land, building and operating the Cluster System shall be accessed to the owners served.

OTHER

The district will coordinate with the town and county planning departments to assure that development of the wastewater system coincides with the town and county’s growth management plans. This may include efforts to "broker" deals for collective wastewater systems when that appears to promote cost efficiency and general welfare. To assure

coordination among users of a collective system, the district may manage these systems more actively than the individual user systems.

The district will maintain a close working relationship with the Broome County Health Department, with contractors working on wastewater systems in the town, and with appropriate state agencies.

APPENDIX K
Septic Districts

As part of the report's recommendations, a more intense role is recommended for the county in non-sewered areas. One of the management recommendations involves the formation of districts in selected areas. The steering committee rejected the notion that such districts would be formed by the County. Rather, it was contemplated that these districts would be formed at the town level and that the County would provide some form of assistance or incentives in the formation or operation of these districts.

Authority already exists under Articles 12, 12-A and 12-C of the Town Law to form wastewater districts that can take responsibility for on-site systems. Although these districts have not been frequently formed, there is increasing interest in them in the Catskill watershed of New York City. Under an agreement signed in 1997 between New York City and the upstate communities in its watershed, funding is being provided to form such districts and to make related capital improvements in up to fifteen communities.[7]

The Catskill Watershed Corporation (CWC), a not-for-profit organization, is the lead agency in organizing and managing the funding for this effort. The CWC is in the process of adopting rules for these districts and adopting standard documents that could be used by communities desiring to use this approach. A similar type of role would be appropriate for Broome County. Although the rules adopted might not be binding on the towns, they would at least provide examples of the various available options.

The CWC is currently engaged in developing a model project in Bovina Center in the Town of Bovina, Delaware County.[8] Bovina Center contains approximately 70 residential lots in a hamlet-type setting.[9] Currently all of the lots are using on-site septic systems. The Consultants conducted interviews with CWC and Town officials.[10] These interviews, together with a review of the documents compiled by the CWC, form the basis for the balance of this section.

Options

The CWC identifies the following basic elements for the establishment and management of a wastewater district:

- Planning
- Performance requirements

---

[7] Although there was insufficient funding to support this effort to date, it is anticipated that as part of the renewal of the 2002 renewal of the Filtration Avoidance Determination for New York City, this program will be refunded.

[8] Much of the work of the CWC is based on information from the USEPA Small Flows Clearinghouse.

[9] Although the CWC is involved in this project, it is supported entirely by non-NYC grants. The principal grant was received from the US Army Corps of Engineers.

[10] Interviews were conducted with Mimi McGiver, CWC. and Tom Hilson, Town of Bovina.

- Site evaluation
- Design
- Construction
- Operation and maintenance
- Residuals management
- Certification/Licensing
- Education/Training
- Inspections/Monitoring
- Corrective actions
- Record keeping and reporting
- Financial assistance

Regardless of which approach is selected, all of these basic elements need to be addressed.

In broadest terms, public-sector management of on-site septic systems falls into two categories – management of the tanks in place or the siting of new community facilities that will replace the existing tanks. There is no bright line between these categories as there are many intermediate options.

Whenever existing septic systems are poorly sited, a community system needs to be considered. In such instances, fixing or replacing systems is often not an option. The community system is also an option where sufficient land is available in close proximity and/or where managing a single larger system is viewed as preferable to the management of numerous smaller systems.

As a variation of this approach, a community could also adopt a system that included a small number of cluster systems. These systems would be not as large as a community system and would be sited in the immediate vicinity of a grouping of houses. Alternatively, well-sited and well-performing septics could be left in place and a community or series of community systems be employed to address the others.

The institutional approaches to manage on-site septic systems can also take many forms. The CWC has identified five basic types of approaches. They are as follows:

1. System Inventory and Awareness of Maintenance Needs. This district involves providing a mechanism for information gathering and education of tank owners. A more extensive role for the district may follow depending on the results of the information gathering.

2. Management through Maintenance Contracts. This approach goes beyond the first approach and involves the district in contracting for the maintenance, repair and replacement of systems by the district.

3. Management through Operating Permits. Using this approach, each owner remains responsible for maintenance of the septic system but is regulated by

the district through a permit system. The permit system provides a mechanism to maintain up-to-date information about the system and can be used to impose penalties if the system is not properly maintained.

4. Utility Operation and Maintenance. This approach establishes the provision of service as a utility function. The utility is franchised to provide service in the service area and is regulated under an operating permit. Ownership of the equipment remains with the property owner.

5. Utility Ownership and Management. The final option is identical to the previous one except that the utility owns the septic system and components.

In summary, there are many combinations of ways to structure the physical and institutional approaches to public management of septic systems.

Bovina Center Experiences

Bovina Center has tentatively decided to construct a community septic system. All septic systems would be abandoned and closed once the community system is operational. At present, the two principal outstanding issues are that of land acquisition and the financing of operation and maintenance expenses.

Town officials advise that one of the key decisions early in the process is the selection of the engineer. It is critical that a community understand any predisposition the engineer may have regarding small systems. Many firms are inclined to recommend capital-intensive solutions because they are oriented toward systems subject to a more central control. In addition, capital projects will inevitably involve design fees for the engineer as well.

Because of the many different approaches outlined above, the engineer should exhibit a flexibility and openness to find the best combination for the community. It would also prove useful if the engineer should have grant writing capabilities. The project is a non-traditional one and it will be important to be creative in exploring funding opportunities.

Land acquisition also proved to be a major issue for Bovina Center. Available land that has acceptable soils must be located sufficiently close to the community to make the project economically feasible. The community should be open to considering multiple sites if a single site proves difficult to locate.

As a related question, it is also important to precisely define those areas that will be publicly maintained and/or owned and those that will remain the responsibility of the homeowner. The need for easements or the outright transfer of property rights may be necessary to accomplish these goals.

The community has a number of options for financing capital and operation and maintenance (O&M) expenses. To the extent that grants are not available, the Town law permits the financing of capital costs through assessments on real property in just proportion to the amount of benefit which the improvement confers on the property ("benefit assessments") (Town Law §§202(2) and 202-a(2)).[11] O&M expenses may be financed in the same way or can be funded through sewer rents pursuant to Section 452 of the General Municipal Law. Although subsidies are possible for O&M costs for Bovina Center through negotiations with New York City, it is very unlikely that any subsidies will be available for Broome County communities.

Many residents are not accustomed to spending an adequate amount to properly maintain their septic systems. The out-of-sight-out-of-mind mentality prevails. In order to make the costs of public management more acceptable, an education campaign is advisable. The campaign should also emphasize benefits such as the opening up of additional space for residential uses wherever a community system is substituted for on-site systems. If the campaign is accompanied by an increased level of enforcement by the Health Department, more residents may see the public management as a reasonable alternative.

[11] If the wastewater district is formed pursuant to Town Law Article 12-C, charges can be levied against the entire area of the Town outside of any village, either as the sole charge or in combination with a charge against the benefited properties (Town Law §209-q(8)).

Appendix L
Public / Private Partnership in Wastewater System Management
National Firms Providing Contract Wastewater Services to Municipal Government *

American Water Works
1025 Laurel Oak Road
P.O. Box 1770
Vorhees, NJ 08043
Contact: Mr. Mark Strand
VP-Government Programs

OMI
6060 South Willow Drive
Suite 200
Greenwood Village, CO 80111
Contact: Ms. Susan Mays
Corporate Communications Mgr

US Filter
2348 Post Road, Suite 7
Warwick, RI 02886
Contact: Sandra C. Sullivan
VP of Municipal Development

United Water
1819 Pennsylvania Avenue, NW
Suite 660
Washington, D.C. 20006
Contact: Michael Deane
VP, Strategic Development

Thames Water
555 12th Street NW, Suite 630
Washington, D.C. 20004
Contact: Tom Medaglia
RWE North America Government Relations

Consultants Offering Public / Private Contract Design and Negotiating Assistance to Municipal Government for Wastewater Management Services *

Eric Petersen
Managing Partner
Hawkins Delafield & Wood
67 Wall Street
New York, New York

Stuart Broom
Williams, Mullins, Clark & Dobbins
1666 K Street, NW
Suite 1200
Washington, D.C. 20006

Ted Fischer
Membership Coordinator
MWMA / SWAC / CYFD
1620 Eye Street NW, Suite 600
Washington, D.C. 20006

---

* Source: Urban Water Council, United States Conference of Mayors
1620 Eye Street NW, Washington, D.C. 20006