Shared Public Water Services Feasibility Study

Inc. Village of Farmingdale
Nassau County, New York

H2M Project No. FARM 09-02

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1.0 INTRODUCTION

This Feasibility Study on Shared Public Water Services was undertaken by the Incorporated Village of Farmingdale (Village) with the consent of the South Farmingdale Water District (District). Holzmacher, McLendon & Murrell, P.C. (H2M) has been retained to perform this study. The study serves to identify and evaluate a broad range of restructuring options for the Village in an effort to improve the efficiency of their water supply operations. In recent times, the need to improve operational efficiency and reduce costs, while still maintaining a high level of water service, has become apparent to many water suppliers. The current economic conditions and high costs of operations have initiated a movement within the water supply industry to improve efficiencies for the betterment of the communities they serve. This translates into the ultimate goal of providing the highest level of service at the lowest possible cost. The necessity to optimize operational methods and performance of public water suppliers is also evident in the mutual challenges they currently face. Throughout the country, staffing issues, workforce experience, and regulatory compliance have become increasing concerns among water suppliers. The Village and the District understand the current difficulties in operating a reliable and cost effective water supply system and have committed to sustaining the high quality water service they have been providing for many years, as evidenced in their authorization of this feasibility study.

As public water suppliers, the Village and the District have concluded that they have an obligation to explore opportunities to maintain and expand their technical, managerial, and financial capabilities to enable them to consistently provide a safe and adequate drinking supply. This responsibility is the basis of this study and the incentive in analyzing restructuring options. The Incorporated Village of Farmingdale has taken a lead role in this investigation due to their present operational and managerial deficiencies. The South Farmingdale Water District is a logical partner in the shared services investigation as it is a full-time neighboring water supplier. The analysis focuses on combining Village and District services and administration. Through funding from a General Efficiency Planning Grant under the NY State Department of State,

Local Government Efficiency Grant Program, the following Feasibility Study on Shared Public Water Services for the Incorporated Village of Farmingdale has been conducted.

2.0 SCOPE & OBJECTIVES

The purpose of this study is to evaluate and recommend shared public water service alternatives for the Village. In doing so, the functions and needs of the Village and the District as it relates to public water supply will be assessed. The study aims to identify areas of water supply system operation and management that can be integrated to increase efficiency and achieve cost savings. A wide range of cooperative measures will be discussed and the feasibility of each examined at varying levels of cooperation. In order to fully evaluate the feasibility of a shared services agreement between the Village and the District, a review of current facility operation and financial status will be provided in this study. In addition, funding mechanisms for the implementation of recommended shared services alternatives will be presented.

3.0 DESCRIPTION AND ASSESSMENT OF WATER SYSTEMS AND OPERATIONS

The Incorporated Village of Farmingdale and the South Farmingdale Water District are located within the Town of Oyster Bay in the eastern portion of Nassau County. The Village of Farmingdale functions as a full governing organization in charge of all operations and facilities within its juridical region. The Village maintains a Water Department that provides public water supply to its residents. The South Farmingdale Water District is a special local district that provides potable water supply service. Geographically, the Village and the District maintain adjacent service areas, as portrayed in Figure 3-1. The water supply systems and governance of the Village and District will further be discussed in the following subsections.

In addition, this section of the study will assess each water system as it relates to regulatory compliance, capacity and current and projected needs. Although not directly enforceable, the operational Standards of the American Water Works Association (AWWA) are regarded to represent best practices within the water supply industry. Accordingly, AWWA Standards G-I 00 and G200 (*current editions*) have been used to determine and assess best practices, respectively, in Water Treatment Plant Operation and Management and in Distribution Systems Operation and Management. Major assessment categories consist of regulatory compliance requirements, operational management practices, plant / facility management and maintenance, water quality management and distribution system management programs.

3.1- VILLAGE OF FARMINGDALE WATER DEPARTMENT

3.1.1– GOVERNANCE AND STAFFING

Administration of the Village is directed by a Mayor and Board of Trustees (Board). The Board of Trustees is the legislative body responsible for establishing policy and sanctioning expenditures. In addition to the Mayor, the Board is comprised of four members, each elected to staggered four-year terms. The Mayor serves as the chief executive officer of the Village. A

Clerk-Treasurer is appointed by the Board to administrate fiscal duties. The Village also employs a Superintendent of Public Works to oversee facility operation.

All water operations within the Village are carried out by the Water Department which functions under the supervision of the Public Works Department. A Grade IB New York State Health Department (NYSDOH) certified Water Treatment Plant Operator is required to operate the Village Water System. This Grade level is predicated on the population that is served by the water system. Historically, the Water Department has been directly operated under the management of a full-time Water Plant Supervisor, however this position has been vacant since the retirement of its last holder in 2008. Since that time, the Village has retained a part-time consulting operator certified at the 1B Grade Level for Water Treatment Operators pursuant to the NY State Sanitary Code. The consulting operator has been designated as the Water Operator in Responsible Charge for the Village of Farmingdale Water Department and is responsible for making water facility operation decisions that require the 1B Grade Level certification under State code. Additional staff within the Water Department includes two water servicers who perform daily system operations and report to the Water Operator in Responsible Charge. Both water servicers hold a NYSDOH Grade IIB Water Plant Operator certification.

Administration functions are also performed by the Village Superintendent of Public Works, Village Clerk and administrative staff on a prorated based. Based on this proration of Water Department support, the operations and administrative staffing is presently equivalent to 3.8 full time positions.

3.1.2 – EXISTING WATER SUPPLY SYSTEM

The Incorporated Village of Farmingdale supplies potable water to an estimated population of 9,091 in an area of about 1.1 square miles. During 2008, the population of the Village was reported to be 8,400 however a review of current data during 2009 computed the population to be 9,091. The Village's water supply service area is essentially comprised of the entire Incorporated Village of Farmingdale bordered on the west and south by the South Farmingdale Water District, to the north by the Bethpage State Park, and on the east by the Nassau/Suffolk County-line and a small section located outside of the Village boundary within

the Town of Oyster Bay. This section is identified as the Northeast Farmingdale extension. Currently, the Village distributes water to approximately 2,135 services through the use of 30.9 miles of water main.

The Village obtains its entire water supply from groundwater sources by means of three (3) deep wells drilled into the Magothy Aquifer. The supply wells are located on two separate plant sites within the Village boundaries. Well No. 1-3 is located at Plant No. 1 on Eastern Parkway and Well Nos. 2-2 and 2-3 are located at Plant No. 2 on Ridge Road. The total approved capacity of the wells is 5.4 million gallons per day (MGD). The Village employs water treatment consisting of hypochlorite for disinfection and sodium hydroxide for pH adjustment at each of the well sites. Both well facilities are operated primarily by electric power and are equipped with auxiliary diesel power diesel engines for emergency use. A summary of existing supply wells is tabulated in Table 3-1.

The distribution system consists of two (2) storage tanks with a combined volume of 0.9 million gallons (MG). A 500,000 gallon elevated storage tank is located at Plant No. 1. The elevated storage tank is utilized to maintain the distribution system's pressure, resulting in a single pressure zone. The second storage tank is a 400,000 gallon ground storage tank located at Plant No. 2. The Village's storage facilities are summarized in Table 3-2.

The Village maintains five (5) emergency interconnections with its neighboring public water suppliers. These include one (1) interconnection with the Bethpage Water District, two (2) interconnections with the South Farmingdale Water District, and two (2) interconnections with the East Farmingdale Water District. Currently, four (4) of the five (5) interconnections are operational. The interconnection with the South Farmingdale Water District on Hempstead Turnpike (NYS Route 24) is inoperable at this time. The Village's interconnections and locations are outlined in Table 3-3. Based on recent calculations, the Village has more than ample interconnection capacity with four (4) operational interconnections.

The repair to the Hempstead Turnpike (State Route 24) interconnection is on hold at this time due to cost and traffic concerns. The cost to excavate and restore the state roadway is

prohibitive at this time. Furthermore this state road is a vital major thoroughfare for the area. Repair and restoration would severely impact traffic conditions. Based on the fact that the Village has more than adequate interconnection capacity, the cost and impact to traffic does not justify repair at this time. The valves on both side of the cracked section of interconnecting pipe are in the closed position. Therefore there is no leakage of water under the roadway.

The Village is presently performing a significant upgrade of the water meter reading system. This upgrade when completed during January 2010, resulted in the replacement of all meters with radio read technology. The installation of new meters resulted in the reliable and accurate recording of water usage which will result in increased water sales revenue. It is recommended that residential water meters be replaced at ten to fifteen year intervals since these devices will lose accuracy and under record consumption. The radio read technology that is presently used by the Village improves efficiency related to meter reading and billing. A fixed net system is used by the Village which uses an antenna / receiver installed on the Eastern Parkway elevated tank to acquire meter readings. This receiver has the ability to read meters throughout the entire Village and several miles beyond its boundaries.

Up until November 2008, the Village Water Department provided service to residents within the entire Village and to a small section located outside of the Inc. Village boundary within the Town of Oyster Bay. This section was referred to as the "Northeast Farmingdale extension" and was identified as a separate area since residents did not pay property taxes to the Village. The extension contained approximately 300 residential connections with all customers billed directly by the Village. There was no reselling of water on a wholesale basis. Furthermore the extension area distribution system is fully hydraulically integrated with the Village water system. Isolation of the extension cannot be performed without an adverse impact to water supply operations since the Village and Northeast extension operate as a single system. The Nassau County Health Department had recommended that the extension be assigned the same Federal Public Water Supply Identification (PWS ID) number as the Village as a means to coordinate and consolidate water quality sampling and other water supply regulatory activities.

Upon review of the request by the Responsible Operator In Charge of the Village system it was conclusively determined that the assigning of a single PWS ID number will provide economic benefit to both the Village and county health department through the consolidation and coordination of distribution water sampling schedules and related regulatory compliance programs. The consolidation was implemented and notification was provided to the Town of Oyster Bay and Nassau County Department of Health.

3.1.3 – REGULATORY COMPLIANCE

The quality of the water supplied by the Village complies with the stringent requirement of Part 5 of the New York State sanitary code. At present only basic treatment for pH adjustment and disinfection is performed. No comprehensive wellhead treatment is performed at this time.

As a public water supplier, the Village is committed to maintaining a high level of regulatory compliance to ensure a safe and adequate drinking supply. The water department operates under the regulation of Federal, State, and local water supply law. Although not directly enforceable, the operational Standards of the American Water Works Association (AWWA) are regarded to represent best practices within the water supply industry. The Village has historically demonstrated conformity with the guidelines established in the AWWA standards.

Pursuant to the State Sanitary code, comprehensive sanitary surveys are required to be conducted at a minimum 3 year interval for community water systems. The most recent sanitary survey of the Village's water supply system was conducted by the Nassau County Department of Health in August of 2009. The survey consisted of a complete system inspection and review of regulatory records to determine compliance with the requirements of Part 5 of the New York State Sanitary Code (NYSSC) and Article VI of the Nassau County Public Health Ordinance

(NCPHO). As part of the survey, a field inspection was performed on all three of the Village supply wells and both storage tanks. Overall, the results of the sanitary survey indicate a high level of regulatory compliance with the exception of the following violations:

- The Village maintains an extensive Cross Connection Control Program as required by Subpart 5-1.31(a)(3) of the NYSSC and the Nassau County Department of Health (NCDOH). The Sanitary Code requires that all backflow prevention devices be tested at least annually. A review of the Village's Cross Connection Control Program Reports submitted to the County Health Department revealed incomplete reporting for the year 2007 as well as less than 100% compliance in years 2006 and 2008. In response to these findings, the Village Water Department has submitted the complete 2007 Cross Connection Control Report. In order to ensure 100% annual testing compliance, the Water Department has modified their existing customer notification process to begin during the month of June. In the past, the process began with a reminder letter issued in the month of August with a second warning notice issued during the month of September should compliance not be met. If testing compliance was not achieved by the end of October, a Notice of Violation was issued. Failure to comply with the Notice of Violation resulted in the issuance of a court appearance ticket. Although the actual process of notification has remained the same, the earlier initiation of notification will help achieve full testing compliance by the end of the calendar year.

- As previously stated, the Village maintains five (5) interconnections with its neighboring water suppliers. Article VI, Section 14 (e) of the NCPHO requires interconnections between water supply systems to be tested on at least an annual basis. The sanitary survey indicates the Village's failure to comply with this regulation. As presented in the Village of Farmingdale Water Department's Monthly Operating Reports, only two of the five interconnections were tested in 2008. In order to correct this violation, the Village had committed to completing a full interconnection test by December 31, 2009.

- Physical inspection of the water supply system exposed violations of Subpart 5-1.71(b) of NYSSC which calls for "due care and diligence in the operation and maintenance of these

facilities [water treatment plants] and their appurtenances to ensure continued compliance with the provisions of this Subpart [5-1 Public Water Systems]." Theses violations were related to minor maintenance repairs and the need for additional security measures at the Village's plant sites. All violations have been addressed by the Village and corrective actions have or will be made.

- Lastly, the sanitary survey presented recommended upgrades/modifications to the Village's water storage tanks and supply wells, pursuant to AWWA standards. The upgrades included tank painting and minor well rehabilitation measures. The Village has reviewed the recommendations and has exhibited its intent to comply with these upgrades within the near future.

The Village has successfully responded to all violations disclosed in the 2009 sanitary survey and continues to meet its regulatory obligations.

3.1.4 – CURRENT AND PROJECTED NEEDS

The Village Water Department is currently facing a capacity deficiency. As defined by the U.S. Environmental Protection Agency (EPA), water system capacity is "*the ability to plan for, achieve, and maintain compliance with applicable drinking water standards. Capacity has three components: technical, managerial, and financial.*" Many of the capacity issues within the Water Department relate to the fact that the Village does not specialize in water supply and must function to serve all aspects of the community. Although the water department operates a relatively small water supply system, the same level of attention and specialization is necessary to provide safe drinking water to all of its costumers as is with larger water suppliers.

The most significant challenge the Village is currently facing is related to the daily management of the water system by a NYSDOH qualified operator. As previously discussed, the Water Plant Supervisor position is currently vacant and the Village must rely upon a temporary consulting operator. The Village Superintendent of Public Works has also taken on the responsibilities associated with the administration of water supply operations. The need for a

full-time water department supervisor is apparent. The Village must obtain a water treatment plant operator certified at the Grade 1B level as reliance on the consulting operator in responsible charge shall not be prolonged for an extended period of time. The Water Department also lacks management and service personnel. The Village employs only two water servicemen to perform daily facility operations. Staff from the public works highway department is utilized on an as-needed basis for assistance in certain operational duties, such as water main repairs. In order to effectively operate the water supply system, additional staff trained in water supply operations must be retained.

To determine the current and future supply and storage capacity needs of a water system, average day, maximum day, peak hour and maximum day plus fire flow statistics are reviewed and analyzed. Average daily demand represents the total yearly pumpage uniformly distributed or averaged over the entire calendar year. This statistic provides a basis of forecasting estimated revenues budgetary purposes and is utilized in long-range water resources planning with respect to safe yield. Average day demand as it relates to system capacity assessment is used to establish the base need for minimum standby power pumping capacity during short-term regional electrical power outages.

Maximum day pumpage statistics are reviewed to evaluate available supply well capacity while peak hour and maximum day plus fire flow demand is used to analyze combined supply well and storage facility capacity requirements. Supply sources must be designed and maintained to satisfy average and maximum day demand. Storage facilities and excess well capacity must be capable of providing an adequate supply of potable water to satisfy peak hour and fire flow demands on the maximum day. Inadequate supply well and / or storage capacity under maximum day, peak hour and maximum day plus fire flow demand conditions can result in system pressures that are far below normal operating requirements.

Based on a review of Village Water Department pumpage statistics and capacity data, the system has adequate capacity to satisfy average day, maximum day and peak hour / maximum day plus fire flow demand conditions. This determination is summarized as follows:

Village of Farmingdale Water Department System Capacity Summary*			
Demand Category	**Actual System Capacity (MGD)**	**Peak Demand Recorded (MGD)**	**Surplus/ (Deficit) (MGD)**
Average Day	3.6	1.6	2.0
Max. Day	5.4	3.2	2.2
Peak Hr.	6.8	5.5	1.3
Max Day + Fire Flow	6.8	4.5	2.3

* Based on data from 2007 Emergency Plan

The current daily capacity of the system sufficiently meets historic maximum day demands however it may prove to be inadequate during emergency situations. AWWA Standards recommend maintaining a total source capacity equaling or exceeding the design maximum day demand with the largest producing supply well out of service. In this case the Village Ridge Road Plant (Plant 2) provides 3.72 MGD of supply well capacity and 0.4 million gallons of storage. Should this Plant site be removed from service, the system would not be capable of meeting maximum day demands, and be unable to provide adequate fire flow. The Village has been aware of this concern and pursued obtaining land for a potential well site but has not obtained a suitable location at this time.

The Village system has a strong track record of regulatory compliance based on the commitment of the Village government and diligence of the Public Works staff. Since the Village has the responsibility to provide other services and maintain non-water supply infrastructure, funds to invest into the water supply infrastructure to provide continuous upgrades are not always available. Village governments are presently under significant pressure to keep property taxes as low as possible. The Mayor and Board of Trustees have taken progressive and proactive steps to fund Water Department operations and maintenance by recently increasing water rates to appropriate levels.

The water supply facilities, while regulatory compliant, range in age from 20 to 40 years and are approaching the time that significant rehabilitation is required in order to ensure reliable

operation and efficiency. Controls and instrumentation are antiquated and have resulted in more frequent and expensive repair. Rehabilitation of the Eastern Parkway elevated storage tank is required in the next two years and the same is recommended for the Ridge Road ground storage facility within the next three years.

Recently the Village became aware of three (3) known Superfund sites that are located upgradient of the Village's public water supply wellfield known as Plant No. 1 (Eastern Parkway). Each site is being investigated/remediated by a separate potentially responsible party (PRP). In addition, the Village has been informed by NYSDEC that the State is conducting an area-wide study to locate other potential groundwater contamination sources in the area that have the potential of impacting the Village water supply wells. NYSDEC has stated that there could be several additional hazardous waste spills upgradient of the Village water system. Therefore wellhead treatment for VOC removal at Plant 1 may be required in the future. Unless a responsible party that has the financial resources is identified, the Village will have to incur the significant cost of wellhead treatment. If the Village does not properly plan for future wellhead treatment, it will be requires to remove 33 percent of its capacity from service due to water quality issues.

3.2 – SOUTH FARMINGDALE WATER DISTRICT

3.2.1– GOVERNANCE AND STAFFING

The South Farmingdale Water District is administered by an elected Board of Water Commissioners. The Board is comprised of three members who set policy and approve expenditures. Positions on the Board include Chairman, Secretary and Treasurer. The Water District also employs a Superintendent who oversees day-to-day operations, supervises a General Foreman and seven (7) water operators, and who reports to the Board of Commissioners. The District's Business Manager is responsible for day-to-day management of five administrative staff.

3.2.2 – EXISTING WATER SUPPLY SYSTEM

The South Farmingdale Water District presently supplies potable water to an estimated population of 44,700 through 12,675 metered service connections. Geographically, the District water supply service area covers an approximate 5.5 square mile area. Adjacent water purveyors to the District include the Massapequa Water District and New York Water Service Corp. to the south; New York Water Service Corp. to the west; East Farmingdale Water District to the east; and the Incorporated Village of Farmingdale and Bethpage Water District to the north.

The District currently obtains its entire potable water supply from the Magothy formation through eleven (11) wells at six (6) individual plant sites throughout its service area. All eleven (11) supply facilities provide a combined available capacity of 20.74 million gallons per day (MGD). A summary of each supply well is presented in Table 3-4.

Water treatment methods employed by the District include pH adjustment for corrosion control, iron sequestering, and disinfection for all active wells. Sodium hydroxide is currently used for pH adjustment while sodium hypochlorite is employed for disinfection. A long chained phosphate (Aqua Mag) is utilized by the District for iron sequestering purposes at all eleven well sites. Iron removal systems are in place to remove the naturally occurring iron from the raw water at Well Nos. 2-2, 2-3, 5-1, and 6-2. A granular activated carbon (GAC) plant is in place at Well No. 5-1 for the removal of a volatile organic compound (VOC), 1,1-Dichloroethane. VOC treatment at Plant No. 1 has been authorized and construction is scheduled to commence during 2010.

The District currently maintains four (4) storage tanks with a total volume of 3.2 million gallons (MG) at four (4) locations in the system. A 1.0 MG elevated storage tank is located at Plant No. 1. This elevated storage facility is used primarily to maintain and regulate static pressures throughout the service area. The remaining tanks are ground storage tanks ranging in individual capacity from 0.6 to 1.0 MG and located at plant sites throughout the service area. A summary of each storage tank is provided in Table 3-5.

The Water District maintains seventeen (17) emergency interconnections with five (5) other adjacent water suppliers. As previously discussed the Hempstead Turnpike (State Route 24) interconnection with the Village is not operational at this time. Therefore the District maintains sixteen (16) operational interconnections. All of the operational interconnections are for emergency use in either direction by agreement with the adjoining water suppliers. The interconnection locations, sizes and adjacent suppliers are listed in Table 3-6.

3.2.3 – REGULATORY COMPLIANCE

Similar to the Village Water Department, the Water District also provides high quality potable water that meets the rigorous requirements of the New York State Sanitary code. As described in the prior section, the Water District has successfully faced water quality challenges that required the significant capital investment for wellhead treatment for VOC and iron removal at many facilities.

As a large community water supplier, the South Farmingdale Water District is fully aware of its obligation to comply with all applicable Federal, State, and local regulations. Historically, the District has exhibited a high level of regulatory compliance. The most recent sanitary survey of the District's facilities and operations was conducted in 2005. The survey included a field inspection of the District's supply wells and storage facilities as well as a review of office records in order to determine the level of compliance with Part 5 of the NYSSC and Article VI of the NCPHO. The results indicate the District's water system to be in high regulatory conformance with minimal violations.

A review of the District's semi-annual cross connection reports reveal a violation of Section 5-1.31(a)(3) of the NYSSC which requires all backflow prevention devices be tested at least annually. Cross connection reports submitted for 2002, 2003, and 2004 indicate less than full compliance with this sanitary code requirement.

The District was also found to be in violation of the requirements of Article VI, Section 14e of the NCPHO which regulates interconnection testing. Pursuant to this section of the

NCPHO, all interconnections must be exercised and inspected to ensure they are operational on at least an annual basis. The District's annual interconnection valve tests were determined to be unsatisfactory as valves were not fully opened during time of inspection. The District has expressed its intent to upgrade all interconnections to facilitate full testing in order to achieve full compliance of Article VI.

The remaining results of the sanitary survey consisted of recommended actions to be taken by the District pursuant to AWWA standards. These actions included minor infrastructure upgrades and additional plant site security measures to be taken. As evidenced in this sanitary survey, the District remains in high regulatory compliance and continues to exhibit its commitment to providing a high level of water supply service.

3.2.2 – CURRENT AND PROJECTED NEEDS

The Water District system has adequate capacity to satisfy average day, maximum day and peak hour / maximum day plus fire flow demand conditions based on the review of recent pumpage and capacity data as summarized on the following table:

South Farmingdale WD Capacity Summary*			
Demand Category	**System Capacity (MGD)**	**Demand Recorded (MGD)**	**Surplus/ (Deficit) (MGD)**
Average Day	13.1	4.9	8.2
Max. Day	20.5	13.4	7.1
Peak Hr.	23.7	21.4	2.3
Max Day + F.F.	23.7	18.4	5.3

* Based on data from 2007 Emergency Plan

An assessment of the Water District with the largest plant out of service revealed that the system has ample capacity. This is based on the removal of the Langdon Road Plant (Plant 1)

from service. This plant is the location of three supply wells (combined capacity of 5.5 MGD) and a 1.0 MG elevated storage tank.

The Water District has a practice of performing a "present and future needs" study of its system on a 5 to 10 year basis. It is considered good management practice to perform such planning studies at least every 10 years to assess critical water system parameters such as capacity, quality and infrastructure condition. Such plans must proactively address the various aspects of operations, including water supply and treatment, storage, transmission / distribution and building facilities. Recent studies were completed during 1996 and 2004 which resulted in the formulation and implementation of many capital improvement projects that improved the reliability and performance of the water supply, storage and distribution system.

The most recent 2004 study recommend water system improvements that included the following projects which have been implemented or are under current design / construction:

- Plant 1 - Shop building renovations and fire sprinkler
- Plant 1 - New diesel powered engine / generator
- Plant 1 - Well 1-2 replacement
- Plant 2 - Replace filter vessels
- Plant 3 - New primary service & interior renovations
- Plant 5 – New primary service & interior renovations
- Distribution System - Replacement of asbestos water main
- Distribution System - Replacement of water main on Crestwood Ave.

Other recommended projects which include Plant 6 – Security lighting, meter replacement & interior renovations; Plant 6 - New engine /generator; and water meter upgrades to radio read have financing in place but have not been authorized by the Water District at this time.

The 2004 study was used as the basis and justification to obtain authorization for long term financing in the amount of $8,550,000 through the Town of Oyster Bay. Significant water and tax rate increases have been avoided through the use of reserve funds, proper planning and

appropriately timed investments in order for the district to continue to maintain a reliable infrastructure.

Several Water District facilities have been or are projected to be impacted by volatile organic compound (VOC) contamination. Plant 5 is currently impacted by VOC contamination which resulted in the recent installation of a granular activated carbon filtration system at the facility. Wellhead treatment for Plant 1 has been designed and will be constructed during 2010. The responsible party for the contamination impacting Plant 1 has been identified and will be reimbursing the Water District for the capital and operation and maintenance cost of wellhead treatment at Plant 1.

4.0 FINANCIAL REVIEW AND EVALUATION

The water system functions of both the Village and Water District have many common elements as it relates to regulatory compliance and meeting the potable and fire protection needs of the communities both entities serve. The governance, size and scope of services provided by each entity will impact revenue sources, expense, level of service and amount of infrastructure investment that is related to water system operations. In addition to water supply, the Village maintains other infrastructure such as roads, street lighting, parks, public parking lots, etc. Whereas the Water District is strictly required to focus on providing services related to water supply and distribution. Both models of governing and providing services in a focused or widespread manner provide opportunities to leverage the strengths of each entity.

Table 4-1 provides a side by side summary comparison of the attributes of each water system. Because of the difference in service area size, water demand, population and number of service connections, a straight comparison of expenses and revenues cannot be assessed. This information will be used to normalize the financial data in order to provide a better comparison of expenses and revenues. The goal of this analysis will be used to determine target areas for improving efficiencies and reducing operating costs. It should be noted that the fiscal year for the Water District is consistent with a calendar year (January 1 through December 31st) while the Village fiscal year spans over two calendar years from June 1st and to May 31st. The financial review of each entity will take the differences in fiscal accounting periods into consideration.

4.1 EXPENSES AND REVENUES

Based on most recent (2008-2009) audited financial data (refer to Table 4-2), total revenue collected by the Village Water Department was documented to be $1,039,507. The Village Water Department is sustained primarily through metered water sales. This accounts for 90 percent of the revenue derived for the Department. The remaining 10 % is obtained through

unmetered sales, penalties, interest and miscellaneous charges. It should be noted that the Village collected over $ 3.4 million in property taxes during the fiscal year but did not make any allocation to Water Department operations through this specific revenue stream. During fiscal year 2008 - 2009, the Village received $159,743 from cell antenna leases revenue (*installed on the elevated storage tank*) but did not allocate any of the revenue to the Water Department. Commencing in the current 2009-2010 fiscal year, the Village advises that $45,000 of new cell antenna revenue will be allocated to the Water Department.

As summarized in Table 4-3, the Water District recorded $4,157,731 in total revenue during the most recent 2009 audit period. 45 % of the revenue was derived through metered water sales, 41 % from property taxes and the remaining 14 % was obtained from unmetered sales, penalties, rental of real property (*cell antenna leases*), interest and miscellaneous charges.

During the most recent audit financial period, the Village Water Department incurred $809,546 in total expenses resulting in a surplus of $229,961 when compared to total revenues collected. Total Water District expenses for the 2009 audit period were documented to be $5,124,147. When compared to total revenues, this yields a $966,416 deficit. The total expenses reflect interfund transfers amounting to $864,075 for the Water District while interfund transfers for the Village Water Department were $0. Therefore the Water District experienced an operating deficit of $102,341. It should be noted that the $864,075 Water District interfund transfer was applied to an unexpected need to provide wellhead treatment at a facility that suddenly experienced contamination. According to Water District management, the 2009 fiscal and calendar year was a low water pumpage and sales year that can be attributed to cool weather and higher than normal precipitation experienced during the summer / warm weather months. The Village may realize a reduction in water sales revenue upon completion of the audit of the 2009-2010 fiscal year. This data will reflect the weather conditions that were experienced by all regional water purveyors last summer.

Surpluses are generally transferred to capital and repair reserve funds. Conversely funds are transferred from reserves for major planned and emergency capital projects. Such reserve funds are important to stabilize water and tax rates in order to perform major infrastructure

rehabilitation projects. For example, the rehabilitation of a 500,000 gallon elevated water storage tank is generally required every 10 to 15 years at an estimated cost of $1.5 to $1.8 million. Therefore, the availability of reserve funds will offset the need to obtain additional debt service and / or require a dramatic increase in rates. At present both entities are capable of generating sufficient revenue to sustain operations. This observation is supported when average operating expenses are compared to average revenues over five fiscal years. The Village has experienced a five year average operating surplus of $117,829 while the Water District has a documented average operating surplus of $303,335. Presently the Water District maintains capital reserve accounts that accumulate positive balances through the appropriation of operating surplus funds. Currently the Village does not allocate reserve funds for future major Water Department capital and rehabilitation projects. Therefore, the Village may want to consider allocating Water Department surplus funds to a capital reserve account for future system and infrastructure improvements. Furthermore such funds are vital should unexpected wellhead treatment needs arise.

Table 4-4 was developed to assess expense categories over a five year fiscal reporting period to compare common categories between both systems. The areas that indicate large differences will be examined in greater detail to determine if a shared services function could achieve potential savings. Based the financial data reviewed, 34.6% of Village Water Department expenses are associated with Transmission and Distribution functions, while 16.1 % are associated with the identical function for the Water District. We question what expenses are grouped into the Transmission and Distribution function and anticipate that the two entities define the line item differently. The "Source of Supply, Power and Pumping" and "Administration" areas for the Water District are the largest expense categories while the same areas for the Village Water Department range from 23.3 to 21.3 %. Most other categories, with the exception of debt service, are within close proximity to each other on a percentage basis.

At present the Administration costs for the Village Water District are lower since the Water Department Supervisor position has not been replaced with a Grade IB water plant operator. With benefits the cost to hire a Grade IB operator is approximately $145,000 per year. Presently, the Village has retained a part-time consulting operator at an annual cost of $30,000.

The local health department is permitting this arrangement to exist until the Village assesses its options. However, the health department has indicated that the Village will be required to hire a full time operator in the future. Therefore, annual Administration expenses could increase by approximately $115,000. The Village may want to explore contracting out a Grade IB supervision arrangement with the Water District since they have more than one IB operator.

4.2 WATER RATE STRUCUTRE

As summarized on Table 4-5, both the Water District and Village utilize increasing block rate schedules. Utilizing an increasing block schedule promotes water conservation by charging a high rate as usage increases. Furthermore it is a fair method of allocating the cost of operations and infrastructure associated with meeting the water demands for large water users. Presently the Water District reads meters and bills consumers on a quarterly basis. The Village Water Department performs the same function on an annual basis. With the full implementation of radio read meters scheduled to be completed by the end of 2010, the Village may want to consider reading meters and invoicing accounts on a quarterly or semi-annual basis as a means to improve cash flow related to Water Department operations.

The Village assesses property taxes to residents within the incorporated areas however; the revenue is not applied to Water Department operations. As previously discussed, the Water District collects the majority of its revenues through both water rates and property taxes. The following section (Section 4.3) will review water related revenues and expenses on a normalized basis to assess and compare customer water supply costs.

Based on 2009 data, the Village Water Department billed 75.3 % of the water pumped while the Water District billed 90%. During 2008 the accounted for water rate for the Village was 92.5 % while the Water District rate was computed to be once again at 90 %. This data attribute is important to determine the effectiveness of conveying water to the consumer with minimal losses in the transmission and distribution system. Simply computed, "unaccounted for water" is the difference between the volume of water metered at the source discharge (wellhead)

and the volume billed to all customers. In essence, unaccounted for water is water that is not metered. Therefore the non-metered water can be primarily attributed to leaks within the transmission and distribution system, authorized hydrant use (water main flushing, fire department activity, etc) and unauthorized hydrant usage. The American Water Works Association (AWWA) Leak Detection and Accountability Committee in 1996 recommended less than 10 percent as a benchmark for "unaccounted for" water.

Based on present data, the unaccounted for water rate for the Village is 24.7 % which is well above the desired 10 % benchmark. Recently, the Village replaced a defective check valve at Well 1-3 which mitigated an estimated daily water loss that ranged from 28,000 to 57,000 gallons. At the high water loss range this only translates into an approximate 5% unaccounted for water rate. The "unaccounted for" water rate for the District is at the 10 % threshold, therefore both entities may want to consider the joint implementation of a leak detection program.

4.3 SERVICE DELIVERY COST

To account for the differences related to size and scale of water service operations, data must be normalized to facilitate an objective comparison and perform a rational assessment. As summarized on Table 4-6, audited financial data (averaged over the past five years) was normalized based on a "per thousand gallons pumped". This is standard practice when comparing water systems and a common financial parameter used within the industry. This analysis provides a reasonable method for assessing data while being mindful of system attributes that could result in significantly higher and lower revenue and expense values.

Total expenses for the Village Water Department were calculated to be $1.81 per thousand pumped while a value of $2.30 for the same parameter was computed for the Water District. Extracting debt service from the calculation to assess operating expenses yields a $1.60 value for the Village and $1.99 per thousand pumped for the Water District.

Chemical and electricity cost were reviewed in greater detail to determine if significant differences between the water systems exist. As summarize on Table 4-6, the electricity cost on a per thousand pumped basis were virtually identical. A joint energy efficiency study may yield recommendations for reducing energy costs, however, both systems are equal in terms of energy costs to produce and pump potable water. This means that neither system is operating with better energy efficiency than the other. Chemical and testing costs varied from $0.19 per thousand pumped for the Village to $0.24 for the Water District, where sequestering agents are used at well sites with elevated iron levels. Based on differences in water quality and water system size, the Water District as expected performs more testing and uses more chemicals (based on volume and diversity) than the Village system. Noting the level of the iron concentrations in the raw water of the District, we would expect the chemical costs to be higher for the District. Both systems can derive a mutual savings benefit by jointly bidding and purchasing water treatment chemicals and equipment that are common to both systems, as discussed later in this study.

The differences in normalized expenses can be attributed to the capital investment made in infrastructure and operating expenses associated with wellhead treatment. In the case of the Water District three plant sites are equipped with wellhead treatment for iron removal, one plant has been retrofitted with a GAC filtration system for VOC removal and a large scale VOC and iron removal system is planned for another plant site. All water plant facilities have also been upgraded to improve reliability and employ the latest technology for water system control and emergency back-up power. At this time, the Water District has made significant improvements to its system and has no short term plans (*outside of the planned VOC / Iron removal wellhead treatment system that will be funded by a responsible party*) to perform significant upgrades. It should also be noted that wellhead treatment will also increase system operating costs due to increased energy use (pumpage), water quality testing, chemicals and equipment maintenance.

The Village has been fortunate to have exceptional good raw water quality that only requires basic pH adjustment and disinfection treatment. Therefore investment and extensive O&M for costly wellhead treatment has not been required. As discussed in Section 3 of this study, upgradient water quality conditions indicate that wellhead treatment for VOC removal at the Eastern Parkway Plant may be required in the next 5 to 10 years. Presently, the NYSDEC is

investigating upgradient groundwater conditions and may be able to formulate a more accurate assessment on the timing for future wellhead treatment. Depending upon the nature and magnitude of the VOC contamination, the capital cost for wellhead treatment can range from $800,000 to $1,600,000 per well with operating costs ranging from $20,000 to $70,000 per year.

Based on the assessment of the Village Water Department, the last significant investment and upgrade of water plant infrastructure was over 20 years ago. Much of the major mechanical and electrical equipment and system are approximately 20 to 40 years old and approaching the end of its useful life. Therefore the Village is required to make a significant investment into its water system infrastructure to be on equal physical condition to the South Farmingdale Water District as it relates to reliability, technology and useful life. As summarized on Table 4-7, the Village is anticipated to expend an estimated $1,408,000 for capital improvements to upgrade buildings, mechanical, standby power, electrical and instrumentation and control systems. This estimate excludes any future wellhead treatment.

The Village will also be required to rehabilitate the Eastern Parkway Elevated Storage Tank during 2010 / 2011 based on the results of recent tank inspections. Estimated cost to rehabilitate the storage structure is projected to be $1,750,000. The ground storage tank is recommended for rehabilitation during 2012. Rehabilitation of this structure is estimated to be $500,000 at this time. Presently the Village does not have reserve funds in place and will be required to seek financing in order to implement the recommended rehabilitation projects related to Water Plant and Storage facilities. This would significantly increase Water Department debt service. Therefore it is predicted that Village Water Department expenses will increase over the next 5 years.

The Water District has incurred significant debt service expenses to upgrade its infrastructure. Similar to the Village the Water District is required to expend significant funds to rehabilitate water storage facilities at recommended 10 year intervals. Long term financing for such projects is minimized since the Water District places surplus funds and revenues from cell antenna leases into a repair reserve fund. As previously discussed, the Water District will be

constructing a new VOC / Iron removal treatment system at Plant no. 1. Because the VOC contamination plume was associated with a responsible party that has adequate financial resources, the capital and operating costs associated with the new wellhead treatment system will not be borne by the Water District. Based on the present condition of the Water District infrastructure and availability of reserve funds, water system costs are projected to remain relatively stable over the next 5 years.

Table 4-8 provides a normalized customer cost comparison based on cost per 1,000 gallons billed, per service connection and per population. The calculated costs are based on 2009 data. On a per thousand gallon billed basis, the Village resident cost was calculated to be $2.65 while the Water District customer cost was computed to be $2.69. The current disparity in costs can be attributed to the infrastructure, operations and administration topics previously discussed in detail. When the data is assessed on an annual per service connection basis, the Village cost is computed to be $440 while the Water District cost is calculated at $301. This assessment skews the disparity between both systems since it does not account for the zoning and building use differences between both communities. The Village provides water to far more multiple dwellings than the Water District which is zoned primarily for single family dwelling. Therefore the density of the Village is greater than the Water District which would result in increase water consumption and cost per connection. Therefore a comparison on a per population basis provides a better representation which yields a per population cost for the Village of $103 and $85 for the Water District.

The Village faces financial challenges in the short term as it relates to its water system infrastructure upgrades and rehabilitation needs. This study was initiated by the Village in recognition of this need and to explore options for reducing water system costs that would be of mutual benefit to them and the adjoining Water District. Customer costs for the residents served by the Village Water Department are projected to escalate as improvements to the system are implemented. The following section will formulate recommendations to facilitate potential cost saving to the residents of both communities.

5.0 REVIEW OF REGIONAL SHARED SERVICES STUDIES

Reviewing existing studies and related reports are useful for benchmarking and formulating recommendations that relate to the water supply functions and needs of the Village and Water District. The following subsections details the studies and reports reviewed and summarizes the findings and recommendations that pertain to this study.

5.1 – GENERAL REPORTS AND STUDIES

5.1.1 - COMMISSION ON LOCAL GOVERNMENT EFFICIENCY AND COMPETITIVENESS

During April 2007 the Commission on Local Government Efficiency and Competitiveness (http://nyslocalgov.org) was established under Executive Order no. 11 by the Governor. The commission was charged to examine ways to strengthen and streamline local government, reduce costs and improve effectiveness, maximize informed participation in local elections, and facilitate shared services, consolidation and regional governance. A report was subsequently issued during April 2008 entitled, "21st Century Local Government: Report of the New York State Commission on Local Government Efficiency and Competitiveness". The recommendations formulated as it relates to this study included the following:

Regional Services

- Expand local governments' ability to share services
- Allow renegotiation of collective bargaining agreements when consolidations occur

Aid & Incentives

- Local Government Efficiency Grants and 21st Century Demonstration Projects
- Encourage regional solutions, cooperative services and consolidation

The genesis of the funding for this study and state support of share service and efficiency initiatives are a product of the Commission's report/

5.1.2 - NEW YORK STATE OFFICE OF THE STATE COMPTROLLER

The New York State office of the State Comptroller through the Division of Local Government and School Accountability provided guidance and research documents to assist local governments with improving efficiencies and promoting share services. A November 2009 research brief was issued entitled "Shared Services among New York's Local Governments" (http://www.osc.state.ny.us/localgov/pubs/research/sharedservices.pdf). The brief reported that 181 joint government activity arrangements were reported throughout the state. Nine percent involved water related activities.

Under the public works section of the research document the following "water" related activities / cooperative agreements were noted and summarized:

- The Town of Cape Vincent and the Village of Cape Vincent were both in need of new water tanks and combined their efforts to purchase a single 500,000 gallon tank to serve both municipalities. The joint effort has produced $1 million in savings by eliminating the need for tanks in both the Village and Town water districts. It also reduced the average cost per household in the water districts by approximately $200 per year. The cost per user to build two tanks was estimated at approximately $1,000 for town residents. Under the joint purchase, the costs were cut to $600 per resident. Village residents originally were opposed to the plan because they did not want to pay for Town residential use. However, it was explained to Village residents that the costs for them would be less, and they would have a long-term solution instead of temporarily repairing the old water tank. Also, the new tank was larger, which provided better residential water pressure and better fire protection. This project was recognized by the Central New York Branch of the American Public Works Association as an environmental "project of the year."

- The Town of Eden along with five other municipalities in southwest Erie County originally partnered with the Erie County Water Authority to develop a study that would

find a regional solution to inadequate water supply in the municipalities. Eden secured a $4.2 million grant from the U.S. Department of Agriculture Rural Development to extend an existing pipeline from the Authority to the Town. Although the other municipalities eventually chose not to participate at this time, they have the ability to do so in the future. The bidding process for the construction phase of the project is underway and is expected to be completed by the end of August 2009, with actual construction estimated to be complete by early 2011.

5.1.3 - NASSAU COUNTY OFFICE OF THE COMPTROLLER

During December 2006 the Nassau County Comptroller issued a report entitled "Cost-Saving Ideas for Special Districts in Nassau County". The report developed several cost saving initiatives that are of mutual interest to the Village and Water District (http://www.nassaucountyny.gov/agencies/Comptroller/Docs/PDF/Cost_Saving_Initiatives121306.pdf). Recommendations included entering Into Municipal Cooperation Agreements to obtain goods and services in order gain leverage by offering providers bulk purchases in exchange for lower prices. The county comptrollers' report noted that each of the three Towns in Nassau County has a department that performs certain services such as tree pruning, snow plowing, road paving, and sign making. It was also noted that New York State General Municipal Law authorizes municipalities to provide services to other governments. The study also recommended shared administrative services such as payroll functions as another means to reduce costs.

5.1.4 - ENVIROMENTAL PROTECTION AGENCY

The EPA issued a summary targeting small systems (*serving populations under 3,300*) entitled "Gaining Operational and Managerial Efficiencies through Water System Partnerships Case Studies" during October 2009 (**http://www.epa.gov/ogwdw/smallsystems/pdfs/casestudies_smallsystems_gainingoperational.pdf**). A total of ten partnership case studies were presented as a means to demonstrate the benefits of strategic partnerships. Partnership examples included the following major categories with example provided for each:

- Informal Cooperation
  - Sharing equipment
  - Sharing bulk supply purchases
  - Mutual aid agreements
- Contractual Assistance
  - Operation and maintenance
  - Engineering
  - Purchasing water
- Joint Powers Agency
  - Shared system management
  - Shared operators
  - Shared source water
- Ownership Transfer
  - Acquisition and physical interconnection
  - Acquisition and satellite management
  - Transfer of privately owned system to new or existing public entity.

Case studies were summarized to illustrate the examples of successful partnerships for each category presented.

5.2 – REGIONAL SHARED SERVICE STUDIES

The joint Village and Water District study is a unique undertaking. Our review of recent regional shared services studies found all to be between mutual villages and towns and villages. Five studies were reviewed and the elements related to water supply functions are summarized below.

5.2.1 – VILLAGES OF CARTHAGE AND WEST CARTHAGE

Title: Summary of Municipal Service Alternatives Villages of Carthage and West Carthage, New York

Study performed by: DMG-MAXIMUS of Framingham, Massachusetts

Date: July 14, 1999

Full report reference: http://www.dos.state.ny.us/lgss/pdfs/carthage.pdf

Scope and Summary:

The Villages of Carthage and West Carthage determined that it was appropriate to consider the options available to the two villages for improving (through sharing and / or consolidation) the effectiveness and efficiency of service delivery to their communities. These goals are summarized in the group's mission statement: *To analyze, study, and remove, if necessary, organizational and administrative barriers to economic growth and fiscal stability that might exist in and between the villages of Carthage and West Carthage. And, to identify opportunities for cooperation which could enhance the quality of life and improve service delivery in our communities.*

The study included a community survey, review of existing municipal services, recommendations for alternatives and reorganization and strategies for implementation.

Observations and Recommendations Related to Water Supply Functions:

The study notes that the water and wastewater "facilities" are jointly owned, operated and maintained by the Villages, which stated that it was an excellent example of consolidation between the Villages. It was notes that the Village's water distribution systems are not jointly owned, operated, or maintained, except in a very limited means as described an amendment to an existing Inter-Municipal Agreement.

Since a portion of the water supply operations were consolidated and a limited inter-municipal agreement existed between the Villages only the following suggestion was formulated: *One avenue that could be pursued would be the Joint Operations and Maintenance of both the water and sewer distribution systems. This would require further*

coordination between the two DPW's of each Village, and could be pursued if the political leadership of both communities desire. Possibly, the Village's DPW's could be consolidated, and there may be manpower and equipment savings if this did occur. The Authority made no attempt to evaluate consolidation of the DPW's and/or the distribution systems

5.2.2 – VILLAGE AND TOWN OF COBLESKILL

Title: A Study of Shared Service Opportunities for the Village and Town of Cobleskill, NY

Study performed by: Center for Governmental Research (CRG), Rochester, New York

Date: July 2008

Full report reference:
http://www.schohariecountyny.gov/CountyWebSite/villcob/ConsolidatedCobleskillFinalReport.pdf

Scope and Summary:

The combination of local development, land use and control, perceived high property taxes in the Village, and water and sewer service sharing conflicts have put pressure on Town and Village leaders to identify solutions. In 2007 the Village of Cobleskill applied for a Shared Municipal Services Incentive (SMSI) grant made available through the NYS Local Government Accountability Office. The Village reached out to the Town of Cobleskill to submit the application and the two municipalities received a grant to study opportunities for sharing services.

The study evaluated the profile of each community, evaluated existing services, reviewed shared service opportunities and explored full consolidation by becoming a city.

Observations and Recommendations Related to Water Supply Functions:

CGR identified several options that would lead to increased efficiency and/or cost savings. As it relates to water supply the study noted that the Village has the opportunity to act like a regional water authority for several communities due to its location and its water source and capacity. The study stated that these facts represent a significant source of revenue and with proper rate setting and planning, this system could be self-sustaining for many years to come. It was notes that the additional revenue does have the possibility to lower Village water rates (by expanding the user base) thus helping to alleviate another burden on Village taxpayers. CGR recommended a Regional Water and Sewer Committee comprised of Village and Town residents (similar to an existing Highway Committee) be established. It was recommended that the committee could deal with equity issues, including how to compensate the Village for development that could occur in the Town-outside-Village due to expansion of water and/or sewer services.

5.2.3 – VILLAGE AND TOWN OF ALLEGANY

Title: Opportunities for Shared Services for the Village and Town of Allegany

Study performed by: Center for Governmental Research (CRG), Rochester, New York

Date: April 2008

Full report reference: **http://www.allegany.org/images/upload/cgr_final_report_-_village__town_of_allegany.pdf**

Scope and Summary:
The study for the Village of Allegany and the Town of Allegany was conducted to identify opportunities for the two municipalities to improve services and reduce costs through shared municipal services strategies. The report provided detailed information about each of the Village and Town operations where the potential exists for shared services, including administrative, court, police, water, sewer, code enforcement and street/highway operations. The options to improve operations and reduce costs ranged from making changes within existing departments, to creating single shared departments, to creating a single consolidated government to manage all local services.

Observations and Recommendations Related to Water Supply Functions:
The study revealed an inequity in the water rate structure with water users outside the Village paying a significantly higher cost for water service. It was also documented that 60% of the Village water system capacity is going unused (excess capacity). CGR noted duplication related to water billings and in maintenance since both governments are involved in both. Recommendations included:

- Have the Town become responsible for the water function.
- Create a Shared Services Cooperative Board for Water & Sewer
- Dissolve the Village were as the former village is "central" district and former village water staff remained intact, with billing for all districts (Town and former Village) from the central district.

5.2.4 – VILLAGE OF LAKE PLACID AND TOWN OF NORTH ELBA

Title: Village of Lake Placid/Town of North Elba Shared Services Study - DRAFT

Study performed by: Center for Governmental Research (CRG), Rochester, New York

Date: October 2008

Full report reference: http://www.cgr.org/docs/FinalReportDRAFT10-27.pdf

Scope and Summary:

The study was initiated to identify opportunities for joint cost sharing between the village and town, and to develop a template for cooperative agreements that could form the basis for cost sharing arrangements. In particular the study specifically addressed the following:

- Opportunities within parks, highways and public works;
- Options for equalizing water and sewer rates within the broader context of joint cost sharing; and
- The feasibility of aligning the village and town fiscal years to facilitate joint budget planning.

Observations and Recommendations Related to Water Supply Functions:

The study recommended that a Water and Sewer Shared Services Board be established between the Village and Town. In addition it was recommended that an Agreement be implemented to revise rates to share costs equitably across rate payers and shares assessed value benefits across all rate payers.

5.2.5 – TOWN OF PORTLAND AND VILLAGE OF BROCTON

Title: Analyzing Service Delivery Options Town of Portland and Village of Brocton, New York

Study performed by: Center for Governmental Research (CRG), Rochester, New York and SUNY Fredonia Center for Rural Regional Development and Governance

Date: February 1999

Full report reference: **http://www.fredonia.edu/CRRDG/portland_brocton.asp**

Scope and Summary:

The February 1999 study was a follow-up to an initial 1992 study completed by the State University of New York College at Fredonia. The study identified a series of strategies designed to lessen the cost burden on the municipalities while maintaining the effectiveness of their services. Among the areas the 1992 study identified were:

- shared facilities and services by highway and streets departments;
- mutual municipal facilities and consolidated administrative services;
- consolidation to a single zoning code enforcement system;
- a task force charged with facilitating a community dialogue;
- The tourism potential of Lake Erie State Park.

The updated study conducted by CGR assessed the feasibility of inter-municipal cooperation between Portland and Brocton on a department-by-department basis. A survey was also conducted to obtain feedback from Village and Town residents related to quality of service, support for shared services and consolidation concerns.

Observations and Recommendations Related to Water Supply Functions:

The consultant formulated the following specific recommendation related to water utility functions:

> ➢ *While a consolidation of public works departments at the Town level can be accomplished with highway and streets departments, the Village generates revenues from water. CGR therefore recommends establishing a utilities department at the Village level, which would be responsible for all administration, billing, and service related to the provision of water services in the community. In light of CGR's recommendation that the VDPW superintendent assume a deputy role in a consolidated town wide department, a senior utility employee (e.g. the sewer plant operator, the head filter plant operator, or the line man) should be appointed to oversee utility administration at the Village level with a nominal increase in salary. This employee would supervise all water provision within the Village and the two Town water districts, as well as sewer and electric services within the Village*

> ➢ *Recommended that all responsibilities related to the provision of water be handled by the Village of Brocton. Considering that the Village owns and operates the related infrastructure and has several water employees at its disposal for administration, repair, and service, the Village is best equipped to be the vehicle for this service within the community. Such a structural modification would bring all billing and water-related service under a single administrative roof, eliminating the division of tasks between Town and Village offices. It would also enable the current Town water employee to join the Highway Department, where he already spends much of his time. The Town would continue to contract with the Village for water provision in districts 1 and 3. The Village would also assume control of contracting for Town water districts 2 and 4, and would reserve the right to provide its own water to those districts if it was willing to provide for the necessary infrastructure.*

The above recommendations were further summarized as follows:

- Establish Village utilities office to handle all billing, administration, and service of water provision in Village and two Town water districts
- Select a senior utility employee (e.g. sewer plant operator, head filter plant operator, or line man) to oversee utility administration at the Village level with nominal salary increase

The survey results related to consolidation concerns ranged from over 80 % of the responding residents concerned with an increase in taxes to over 20 % concerned with the loss of community identity.

6.0 SHARED SERVICES AND RESTRUCTURING ALTERNATIVES

After evaluation of the Village's and District's water supply systems, current needs, and financial status, a broad range of restructuring options has been considered. These alternatives aim to integrate various aspects of the Village's and District's water supply operations in an attempt to maximize efficiency of providing water supply services. The intent of a shared services agreement between the two entities lies in their mutual commitment to improve operational efficiency and achieve cost savings. Each shared service option discussed herein aims to expand water system capacity while ensuring the distribution of a safe drinking water supply and fire protection.

6.1- SHARED MANAGEMENT AND STAFFING

As previously discussed, the Village of Farmingdale's Water Department is currently operating with a limited workforce. Since May of 2008, the Water Plant Supervisor position has been occupied by a temporary consulting Grade 1B level operator. This arrangement will not be permitted to continue on a long term basis by the state and county health departments. The IB Grade level certification is the highest level of qualification that can be normally attained by a groundwater public water supply facility operator and is a requirement for the Water Plant Supervisor as per the NYSSC. The Water Department also lacks personnel for daily operation and management of the water system. At this time, only two water servicemen with IIB Grade level certification are employed by the Village and are responsible for all day to day system operations. Additional staff from the Village public works / highway department is utilized on an as-needed basis for assistance.

As part of the shared services agreement, workforces of the Village and District can be joined and duties properly allocated to effectively operate both water systems jointly. The District currently employs seven water operators, as well as additional staff to manage

administrative tasks and day to day functions. Certified personnel include one 1A, one 2A, and seven (7) 2B water system operators. Of the District's water operators, eight (8) maintain grade D certifications which satisfies the requirements of subpart 5.4.2 of the NYSSC. In a joint arrangement, the District could provide additional qualified staff to operate the Village's water system, including the necessary certified Water Plant Supervisor.

Cooperative management of the Village's Water Department and the Water District will increase the managerial capacity of both entities. The Village would particularly benefit from this arrangement as it currently lacks a full staff solely devoted to water supply. A higher level of operational awareness of the Village's water system will be achieved as it is more closely managed. This shared service would require the District to take on additional management duties, however it will facilitate the establishment of additional joint undertakings.

The Village and Water District can assess the need from a short and long term basis. The Village has an immediate need for an IB Water Plant Operator. This need can be fulfilled by having the Water District provide an IB operator on a part time basis assist the current full time IIB operators and serve as the designated "Responsible Operator In-Charge". Periodic visitation and inspection of the Village water system would be required along with the availability to address urgent and emergency situations that require IB operator supervision. The IB operator would also be required to complete and submit regulatory agency operating and pumpage reports on a monthly basis. Interface with the Village Public Works Superintendent would also be required. Such an arrangement could be viable since the Water District has more than one IB operator. This arrangement could generate revenue for the District and could be cost effective for the Village if payment would be moderately less than hiring a fulltime IB operator.

Based on current market conditions and the size of the Village system, the estimated cost for a full time IB operator inclusive of salary and fringe benefits would be in the range of $110,000 to $120,000 per year. Therefore a part time IB operator (20 hours per week) could yield an annual savings of $50,000 to $60,000 per year. The actual cost would be subject to negotiations between the Village and Water District.

From a long term perspective, the Village may want to consider having the District take over management of the existing Village IIB operators and provide qualified personnel to operate and manage the Village Water Department on a full time basis. This would entail full time and complete operation and management of the Village water system without a consolidation of governing functions.

6.2 – SYSTEM CAPACITY IMPROVEMENTS

As discussed in Section 3.1.2, analysis of a water supply system's capacity and historical pumpage data provides insight on its ability to meet supply demands during peak and emergency conditions. In order to fully assess the capacity of a water supply system, average day, maximum day, peak hour, and maximum day plus fire flow demands spanning a representative time period are analyzed. A review of the Village's supply system capacity, as provided in the aforementioned section, reveals the system to be historically adequate in meeting these demands. However, this review also indicates a potential capacity deficit during certain emergency conditions. Pursuant to Subpart 5-1, Appendix 5-A of the NYSSC, water supply systems should be designed to maintain a total source capacity equaling or exceeding the design maximum day with the largest supply well out of service. Furthermore, the NCDOH requires the same design criteria be maintained with the largest plant site out of service. It is in regard to this design requirement that the Village's supply capacity has been determined insufficient.

For this analysis, an emergency situation resulting in the Village's largest plant site (Plant No. 2) being removed from service was considered. Plant No. 2, located on Yoakum Street, is the site of Wells 2-2 and 2-3 (combined capacity of 3.72 MGD) as well as a 0.4 million gallon ground storage tank. Plant No. 2 provides the Village with 4.1 MGD of combined well and storage capacity. In the event Plant No. 2 was removed from service, the Village would have a remaining combined supply well and storage capacity of 2.2 MGD. An evaluation of the Village's pumpage statistics over the last ten years indicates this capacity to be inadequate in meeting maximum day and peak demands during both normal and fire flow conditions. Over this time period, peak demands recorded for maximum day, peak hour, and maximum day plus

fire flow were documented to be 3.2, 5.5, and 4.5 MGD, respectively. It is evident in these statistics that the Village's supply system on its own is incapable of meeting peak supply demands with Plant No. 2 out of operation. During such a condition, the Village's interconnections with neighboring water suppliers would need to be utilized.

The Village currently maintains two (2) interconnections with the South Farmingdale Water District, as portrayed in Table 3-3. The combined interconnection capacity at 20 psi differential is approximately 3.6 MGD. However as previously discussed, the interconnection valve located on Hempstead Turnpike (State Route 24) is currently inoperable due to a cracked section of interconnecting pipe. The repair of this valve is on hold due to prohibiting cost and traffic concerns. Theses interconnections are a potentially viable source of additional supply capacity for the Village should emergency conditions warrant their use.

As part of the shared services agreement, actions to facilitate the transfer of water from the District to the Village should be considered in an attempt to mitigate the Village's capacity deficit. In order to establish a dependable interconnection capacity and obtain the necessary flow rate to meet the Village's peak demands, repairs to the interconnection on Hempstead Turnpike must be completed. As indicated in the Village of Farmingdale's 2009 sanitary survey, a complete interconnection inspection has not recently been conducted. An inspection of the interconnections is required to assess their operational capabilities and determine any need for rehabilitation. In addition, it has been determined that a booster pumping facility is needed to supply water between the District and the Village due to differences in hydraulic gradient A comparison of the Village's and District's High Water Levels (HWL) of their respective elevated storage tanks indicates varying operating pressures (*the Village operates at a slightly higher pressure*). The difference of hydraulic head between systems was calculated to be 15 feet which equates to a pressure differential of 6.5 psi. On the basis of this preliminary hydraulic analysis, a booster pump station is required to overcome pressure differences between the two systems. In order to fully understand the hydraulics of the interconnecting systems, a computerized hydraulic model should be developed. The hydraulic model would provide a simulation of flow conditions and operating pressures, and ultimately serve as the basis for interconnection capacity design improvements.

To address the capacity deficit the Village is required to obtain land for a new well site and construct a new supply well and related infrastructure. Based on recent revisions to the New York State Sanitary Code, the supply well must have adequate clearances from potential sources of contamination. More specifically, provisions for the protection of the wellhead will include: a minimum of a 100 foot setback of the new well from the well site property line; and a 200 foot protective radius wherein no sanitary sewers and direct drainage that could contain roadway run off will be permitted. Therefore a one to two acre parcel of land would be required. Obtaining a large parcel of land within the Village could be both difficult and expensive. The estimated capital cost for a new supply well, excluding wellhead treatment, would be approximately $2,500,000.

A potentially cost effective option for the Village to consider is to utilize the surplus capacity from the Water District to address the deficit. This would be on a standby basis since the Village system has ample capacity under most demand conditions. To facilitate the transfer of potable water from the District an investment for infrastructure and detailed evaluation is required. This would involve hydraulic modeling of both systems and assessment of the current interconnections. As previously discussed, the hydraulic gradient of the Village system is slightly higher that the Water District. Therefore a booster pumping facility would be required in order to provide water to the Village at an adequate pressure. The cost for hydraulic modeling would be approximately $30,000. The findings of the modeling would be used to determine the scope of water distribution and interconnection upgrades. At a minimum the installation of a booster pumping facility would be required. The land requirements for the facility would be significantly less than the requirements for a supply well. Although not as desirable, a booster facility could be installed in an underground structure. The estimated capital cost to address the deficit under this option is approximately $400,0000 or 16 percent of the cost for a new supply well.

This option also has the potential to address the low pressure conditions within the vicinity of Ridge Road located in the Village. Street pressure in the higher elevations of the Village range from 40 to 45 psi. While the pressures within the system conform to regulatory requirements and recommended operating practice, customer complaints related to low pressure

are periodically received by the Village. The elevation of the Village elevated tank limits the ability to increase pressure within the higher elevations. Therefore increasing the discharge pressure from the existing well and booster pumps is not a viable option. Isolation of the low pressure area and directing water from a proposed booster pump facility (*thereby creating a new pressure zone*) would be an effective means to increase pressure to a more desired range of 60 to 70 psi and improve fire flow protection. Should the Village and Water District determine that conveying surplus water to address capacity concerns is a viable alternative, then further consideration to address the low pressure concern should also be evaluated in greater detail.

The benefit to the Village is a significant reduction in capital expenditures while the District will benefit through increased water sales.

6. 3 - JOINT PURCHASING AND BIDDING

Financial review of the Village Water Department and District has helped recognize areas of operation that may be optimized to achieve mutual cost savings. A comparison of revenues and expenses was utilized to identify common monetary functions to be considered for consolidation. As public water suppliers, the Village and the District have common expenditures typical of the industry. Water supply system operation requires the procurement of supplies, such as service equipment, replacement materials/parts, and water treatment chemicals. The Village and District may benefit from the establishment of purchasing agreements with one another. Joint purchasing has the potential to reduce costs and ultimately decrease tax impacts on residents.

In a shared purchasing arrangement, cost savings are achieved through higher quantity purchases and delivery coordination. Joint management as it relates to buying will lead to larger purchases being made at a time at lower unit prices. Deliveries from vendors will be consolidated as supplies for the Village and District are bought collectively. Geographic proximity plays a major role in cost savings as it allows for sellers to incorporate deliveries in a single trip. The processes associated with common expenditures shall be modified for

cooperative execution. Administration duties related to purchasing could potentially be combined to improve efficiency. These duties may include inventory management, placement of orders, and delivery scheduling. An overall improvement in fiscal management can be achieved as purchasing protocols are restructured for mutual savings.

Joint purchasing can be implemented in various areas of water supply operation. Water system infrastructure requires routine maintenance and replacement. Water suppliers must maintain an inventory of spare parts, materials, and equipment for efficient repair or replacement. Although infrastructure age varies between the two systems, an agreement for joint purchasing of various equipment and materials will ensure both water suppliers are prepared for system maintenance and repair while distributing the cost between both entities. The Village Water Department and District can also benefit from joint purchasing of fuel. Fuel for the operation of equipment and vehicles could be jointly purchased to consolidate associated administrative duties and reduce overall expense. In addition, the joint purchasing of water treatment chemicals should be considered. As discussed in Section 4, chemical costs for the Village and the District vary due to differences in water quality and system size. However, The Village and District both utilize sodium hydroxide for pH adjustment. Jointly bidding and purchasing these chemicals will achieve the cost savings and improved efficiencies related to this type of agreement, as previously discussed. Furthermore, joint contracting may also prove to be a viable means of consolidating duties and decreasing expense for both systems. Often, outside contractors are retained to perform specialized work on the supply system such as well pump and mechanical repairs. The establishment of joint contracts with specialized contractors will minimize the bidding process and eliminate related costs. Restructuring the operation of both supply systems to incorporate shared purchasing agreements will reduce administrative cost and result in lower pricing based on the collective increase in purchasing volume. Further evaluation would be required however the consolidation of the procurement function that could reduce labor by a realistic 4 man hours per week would translate into a savings of several thousand dollars per year to each respective entity.

6.4 – GENERAL MUTUAL AID

A shared services agreement between the Village Water Department and the District will facilitate a cooperative relationship between both water suppliers and allow for mutual aid to be exchanged. The Village and the District together have the personnel, equipment, and experience to effectively operate their systems jointly. As a full time public water supplier, the District can offer a high level of knowledge and expertise that is specifically focused to water system operations. Likewise, the Village has experience in a wide range of services that may be beneficial to the District. The Village provides many services that go beyond water supply. In a broad sense, mutual aid between the Village and District will occur as part of each restructuring alternative. This section aims in identifying specific areas of operation that will particularly be enhanced through a shared services agreement

6.4.1 – EQUIPMENT USE AND SKILLED WORKFORCE ASSISTANCE

The Village and the District maintain equipment for use in daily operations, infrastructure repair, and emergency conditions. The sharing of equipment is a viable joint arrangement with potential for cost savings and improved operational methods. In particular, the Village Water Department has access to heavy equipment through its public works department, including dump trucks, backhoes, and front end loaders. The Village utilizes its own workforce and equipment for tasks involving tree removal and road maintenance and repair. Road restoration associated with water main repairs is also performed by the Village. In addition, the Village maintains its own roadways during inclement weather. Operations such as snow removal and road salting and sanding are carried out by Village staff. The District does not have the capabilities of performing all of these tasks on its own and as a result could benefit from a shared equipment arrangement. Furthermore, joint financing options can be considered for the purchase of new equipment.

The Water District has a skilled labor force that has expertise in water system maintenance. Furthermore the District may have specialized water system equipment that the Village does not maintain. In addition the District maintains a stock of repair parts and materials. Therefore the District can render cooperative assistance as it relates to water supply system maintenance and repair tasks.

6.4.2 – METER READING AND BILLING

As discussed in Section 4, revenue sources for the Village Water Department and District consist primarily of metered water sales. The reliability and accuracy of a water supplier's meter reading system is critical to financial efficiency. As recommended by AWWA, residential water meters shall be replaced at ten to fifteen year intervals to ensure water usage is accurately recorded. The Village is currently performing a water meter reading system upgrade to be completed in January 2010. The system upgrade involves the replacement of the existing radio read meter system with a fixed-net system. Fixed network water metering technology consists of automatic wireless meter transmitters. Water meters are equipped with transmitters which broadcast water usage to a primary receiver and ultimately to a data recording system. The Village utilizes a primary antenna installed on the Eastern Parkway (Plant No. 1) elevated storage tank which transmits water usage statistics to the Village's data collector. The Water District is currently operating a touch-read water meter reading system. This requires a meter reader to physically walk the water system and touch a wall or meter cover mounted reading pad with a handheld device. While the process handles meter reading data electronically, the process is labor intensive since employees are required to visit each water service location to obtain a meter reading. A fixed net radio read system would provide a significant savings in labor by eliminating the need to visit water service locations on a quarterly basis. The Water District has budgeted over $1,500,000 for the installation of radio read meters but has not authorized implementation at this time.

Meter Reading is a viable area of operation to be implemented in a shared services agreement. The District is in need of a more enhanced radio read system and should consider the utilization of the Village's fixed network capabilities. A combined meter reading system would require the District to replace or retrofit its current meters in order for them to be compatible with a fixed-net system. It may also require the installation of additional antenna receivers to transmit data to the central data collector. Although this would require an initial investment, the upgraded system would provide the District with more accurate water usage records. The fixed network system offers a better understanding of water consumption as meter readings are collected on a frequent basis. An increase in water usage data allows for consumption to be more closely monitored and may help to identify supply system leaks. The proposed meter upgrades are expected to increase water sale revenue for the District as a result of increased recording precision. As part of a combined meter reading system, the Village and District could incorporate joint billing. The consolidation of customer billing and its associated administrative tasks will allow the Village and District to more effectively serve the community.

The consolidation of the meter reading / customer reading function would at the very least allow for the reduction of one billing clerk position. Based on current local salaries (*including fringe benefits*) for a billing clerk, an estimated annual savings in the range of $40,000 to $60,000 could be achieved.

6.4.3 – CROSS CONNECTION CONTROL PROGRAM AND WATER SERVICE INSPECTION -MANAGEMENT

A review of the Village's Water Department and the District's regulatory compliance indicated violations associated with their respective cross connection control programs, as presented in Section 3. Both the Village and the District maintain extensive cross connection programs as required by the NYSSC and NCPHO. As previously discussed, regulations require that all backflow prevention devices be tested at least annually. Management of the cross connection programs is labor intensive and requires close attention. Achieving 100% backflow prevention device testing compliance from water users is often a difficult task. A water customer's failure to comply with testing regulations requires the water supplier to proceed with

a notification process and a potential inspection. In addition, water suppliers must evaluate the degree of hazard posed by water users who have not installed an approved backflow prevention device. As stated in Article VI, Section 15 of the NCPHO, evaluation shall include inspection of all premises served. Such water service inspections are required to be conducted at an interval of one year for non-residential services and five years for residential services.

The most recent sanitary surveys conducted for the Village Water Department and District indicated failure to either completely submit cross connection testing reports or obtain full testing compliance from their customers. Therefore, it is suggested that the management of cross connection programs be incorporated in a shared services agreement. The Village and District will benefit from a joint approach in accomplishing regulatory compliance as it relates to cross connection control. The District may provide the personnel required to conduct water service inspections. Administrative tasks such as the customer notification process can be combined in an attempt to consolidate services.

6.4.4 – EMERGENCY MANAGEMENT AND RESPONSE

A vital area that requires coordinated and periodic review and planning is water system emergency planning. Localized emergencies can require the assistance of a neighboring water supplier. Joint emergency drills can reduce training costs while providing the added benefit of improved emergency communication and coordination. Such drills are strongly recommended to be conducted on an annual basis. As previously discussed the strengths of the Village (wide range of services and equipment) and Water District (specialized focus on water utility operations) can be used in a synergistic manner under emergency conditions to provide rapid and effective response. Examples can include tree removal services during hurricanes / windstorms / ice storms to facilitate access to plant sites and system (Village) and pooled labor resources related to pandemic planning (Joint Village / Water District).

6.4.5- JOINT LEAK DETECTION PROGRAM

As discussed in Section 4.0, the unaccounted for water rate for the Village increased significantly from 7.5 to 24.7 percent within a one year period. The 2009 value is far above the AWWA 10 percent benchmark for "unaccounted for" water. The Water District rate has remained at the 10 percent threshold for the past two years. The Village and Water District should consider the joint implementation of a leak detection program as a proactive means to reduce unaccounted for water rates.

Presently the Village maintains approximately 31 miles of water main while the Water District maintains 124 miles. Based on recent bids for leak detection services, the cost per mile to perform leak detection will range from $115 to $148. A lower unit cost is generally obtained for larger systems based on the nature of the work and mobilization requirements. For example a local larger Water District with 181 miles of water main was able to obtain a unit cost of $115 per mile of main. Smaller systems will generally pay in the $150 per mile range. Therefore a leak detection survey of the Village and Water District system would provide a combined 155 miles of main. This could achieve an estimated 10 to 15 percent savings.

6.5 – CONSOLIDATION OF FUNCTIONS

The complete merger of both the Village and Water District systems is another option for consideration. Such a merger will create a larger entity that would consolidate all water system functions. This would include the complete merger of all governance, management, operations and finance functions. In theory a larger entity maybe able to offer the potential to reduce the cost of service based on "economies of scale" and the ability to streamline administrative functions and improve efficiency. A thorough study must be conducted to assess the short and long term financial impact, engineering issues related to water system integration (*customer service, hydraulic, controls, instrumentation, etc.*) , address legal issues, labor / collective bargaining matters and evaluate community /public relations concerns. Consolidation can be challenging based on changes to local control, political concerns and impact to community identity. The following provides concepts to consider as it relates to the full consolidation options:

6.5.1 – Village as the Governing and Fiscal Agent

Under this option, the Water District would be dissolved and the Village would act as the governing and fiscal agent of both systems. The elimination of jobs would only take place through attrition therefore any reduced savings through labor force reduction would be realized over the long term. Immediate short term savings would be through the elimination of the Water District governing board. The Village Board of Trustees would be responsible to set policy, establish budgets, collect revenues and approve expenditures. Management and operation of the merged systems would be through the Village Department of Public Works.

A thorough study is recommended in order to determine the short and long term financial impact / benefits to the residents of the Village and Water District. Furthermore, the physical integration of the water systems must be assessed. As identified in this study, the hydraulic and control systems for each entity are not completely compatible. In addition a management and transition plan would be required to facilitate the merger and identify and eliminate duplicate functions. Employees of the Water District would be assimilated into the Village. The assessment of water rates and eventual equalization of the same would be required. Presently, the Water District utilizes a combination of water sales and property tax charges to derive revenue while the Village relies primarily on water sales.

A survey of residents within the Village and Water District would be highly recommended to assess community concerns (*identity, local control, etc.*) and to realistically communicate the short and longer term financial savings / impact associated with potential consolidation under this option.

6.5.2– Water District as the Governing and Fiscal Agent

This option would extend the service area boundaries of the Water District to serve all residents within the Incorporated and unincorporated areas of the present Village system. Only the water supply functions of the Village would be merged with the Water District. Therefore there would be not adverse impact to community identity for either entity. Village Water Department employees would be transferred to the Water District. The elimination of jobs would only occur through attrition and work force reduction cost savings would become a long term savings. A present, the Village is required to hire a full time IB water plant operator. The take over of the Village system by the Water District would eliminate this need and cost thus providing an immediate short term savings.

As discussed in the previous subsection, a detailed study must be undertaken to assess the short and long term financial viability of consolidation. This would also include the development of a system integration and management transition plan. Furthermore the equalization of water rates must also be reviewed and determined. Surveying the residents of each community would also be recommended.

7.0 RECOMMENDATIONS

Based on the analysis performed, it is evident that the Village is facing many challenges related to its water system infrastructure. A shared services arrangement and /or consolidation of operations can provide mutual benefit to the Village through reduced administrative and capital expenses and to the Water District by increased water sales revenues, revenues through management services and reduced expenses through cooperative administration functions. As a result of this study, H2M has identified the strengths of each entity and has determined areas that will provide common benefit. These recommended specific areas will require further detailed financial, operational and legal assessment and include the following:

- Joint water system management and staffing – short term IB plant operations management / supervision with the long term potential for full operation and management of the Village system.

- Joint purchasing and bidding – split or consolidate administrative functions relative to procurement and bidding. Joint purchasing will increase buying power which in turn will lead to better pricing.

- Capacity improvements – utilize surplus Water District capacity to address Village system deficits with the goal to reduce Village capital expenses, improve pressure in the higher elevations of the Village and increase Water District water sales revenue.

- General Mutual aid – the following areas fall under the category of general inter-municipal cooperative assistance.

    - Equipment use – cooperative exchange of equipment and skilled workforce to provide services and assistance that one of the adjoining entities may lack.

- Meter reading and billing – this area would become viable if and when the District implements a radio read meter system. Presently meter readings are collected in a digital format. Therefore there is a potential to coordinate and share billing functions.

- Cross connection control program and water service inspection management – this area can be shared and consolidated from an administrative perspective as it relates to tracking compliance and issuing notification letters. Presently the county health department is making testing and inspection compliance a priority. Therefore both entities will be under added pressure to implement measures for regulatory agency compliance.

- Emergency management and response – proactive training and coordination will provide effective coordinated response should emergency situations arise.

- Leak Detection – A joint program to perform leak detection to reduce unaccounted for water rates will reduce short and long term production (power, treatment, etc.) related expenses. Proactive leak detection will also allow for plan repairs rather than performing work on a potential overtime basis. A shared leak detection program expands the study area and could yield a moderate savings to each entity.

- Full Consolidation of Functions – A full merger will create a larger entity that would consolidate all water system functions. This would include the complete merger of all governance, management, operations and finance functions. On the surface a larger entity may offer the potential to reduce the cost of service based on "economies of scale" and the ability to streamline administrative functions and improve efficiency. A thorough study must be conducted to assess the short and long term financial impact, engineering issues related to water system integration (*customer service, hydraulic, controls, instrumentation, etc.*) , address legal issues, labor / collective

bargaining matters and evaluate community /public relations concerns. Consolidation can be challenging based on changes to local control, political concerns and impact to community identity.

For any of the recommended shared services / consolidated function areas to be successful it must be of mutual financial benefit to the residents of each entity. Therefore we recommend that the Village and Water District commence discussions to determine if there is at least common interest to move on to the next vital step to evaluate the recommended areas in further detail.

8.0 FUNDING AND IMPLEMENTATION OF RECOMMENDATIONS

Detailed evaluation and further study of the recommendations provided in this study will require additional funding. As a first and critical step, we strongly recommend that the appropriate parties from the Village and Water District meet and discuss the shared services and restructuring alternatives presented in this study to determine if there is a strong mutual interest to explore the areas recommended in this study. Should there be any interest to study and assess any or all of the recommendations, the Village and Water District will be required to further define scope and budgets for detailed evaluation. Any future studies can be funded through potential grants, cooperative Village and Water District funding or a combination of both.

New York State is actively promoting shared services and consolidation of government activities as a progressive means to reduce property taxes and government service related costs. Therefore viable state grants are currently available for detailed studies and to facilitate the implementation of shared services and consolidation initiatives. Therefore we highly recommend that the Village and Water District meet as soon as possible so that both entities can take advantage of potential grant opportunities should a decision be made for further study and / or implementation of any of the recommendations.

9.0 SUMMARY AND CONCLUSIONS

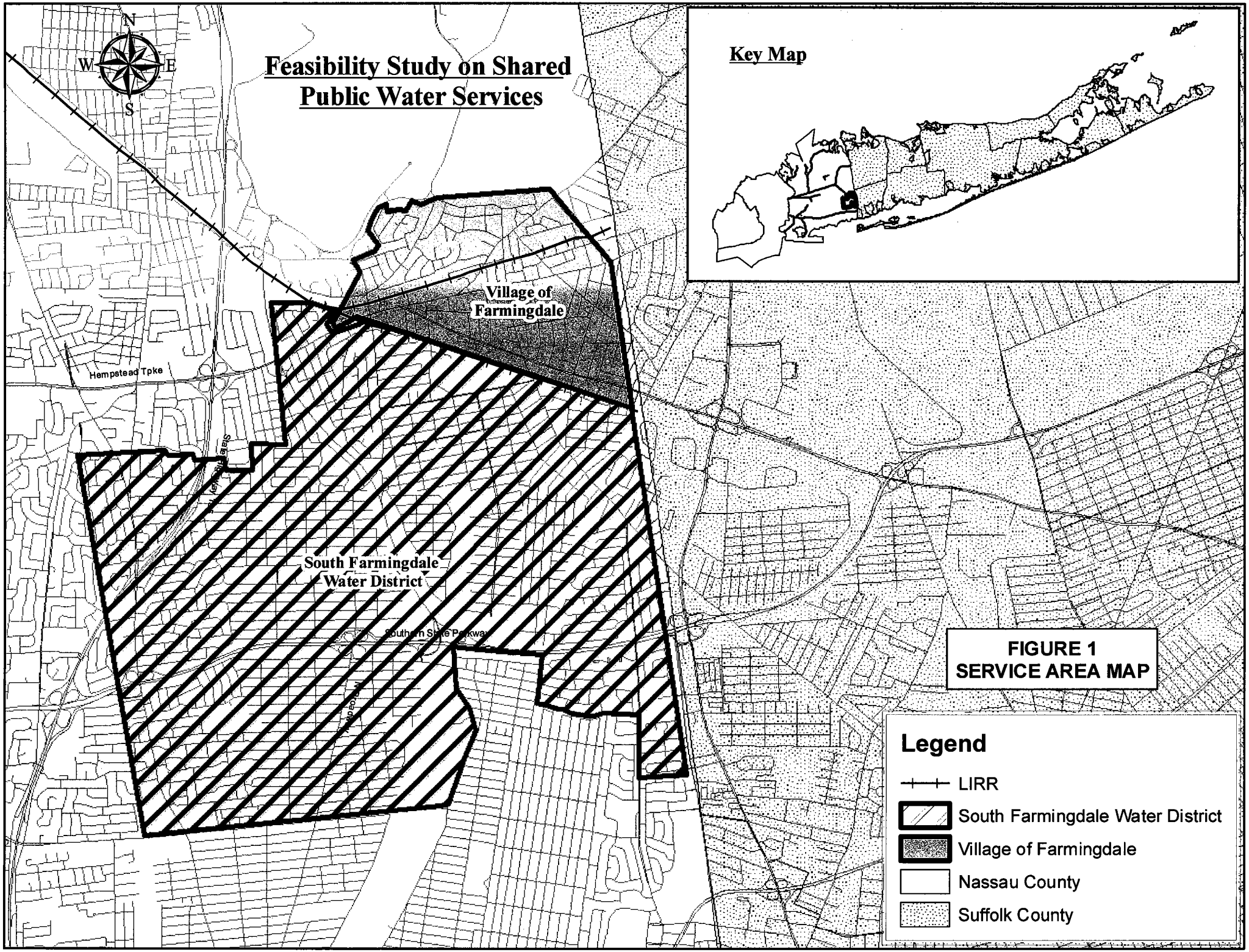
This study has identified and evaluated a broad range of shared services and restructuring options for both the Village and the District in an effort to improve the efficiency of their water supply operations. The strengths of each entity were identified and were used to determine areas that will provide common benefit. Accordingly the specific areas for pursing shared services and restructuring include:

- Joint water system management and staffing.
- Joint purchasing and bidding.
- Capacity improvements.
- General Mutual aid:
    - Equipment use.
    - Meter reading and billing.
    - Cross connection control program and water service inspection management.
    - Emergency management and response
    - Joint leak detection.
- Full consolidation

The above recommendation will require further detailed financial, operational and legal assessment should the Village and Water District determine there is a strong mutual interest to move forward on all or any of the initiatives presented in this study. Both the Village and District are providing water service at a low cost. Shared services may have limited cost savings potential but could address the operation issues facing the Village Water Department.

Representative from the Village and Water District should meet as soon as possible to review and discuss recommendations since viable grant opportunities may be available to fund detailed studies and implementation of shared services / restructuring plans. Such grants are time sensitive and future fund availability is not guaranteed. Therefore both entities should expeditiously review this study and schedule a joint meeting to move the process forward.

FIGURES


Feasibility Study on Shared
Public Water Services
N
W
E
S
Key Map
Village of
Farmingdale
Hempstead Tpke
South Farmingdale
Water District
Southern State Parkway
FIGURE 1
SERVICE AREA MAP
Legend
LIRR
South Farmingdale Water District
Village of Farmingdale
Nassau County
Suffolk County

TABLES

H2M

TABLE 3-1

INC. VILLAGE OF FARMINGDALE
WATER DEPARTMENT

WELL FACILITIES

WELL NO.	NYSDEC NO.	LOCATION	APPROVED CAPACITY (GPM)	POWER
1-3	N-7852	Eastern Parkway	1200	E/D
2-2	N-6644	Ridge Road	1200	E/D
2-3	N-11004	Ridge Road	1380	E/D
TOTAL			**3780 (5.4 MGD)**	

LEGEND:

E - ELECTRIC
D - DIESEL

H2M

TABLE 3-2

INC. VILLAGE OF FARMINGDALE
WATER DEPARTMENT

STORAGE FACILITIES

LOCATION	TYPE OF FACILITY	STORAGE CAPACITY (GALLONS)
Plant No. 1 (Eastern Parkway)	Elevated Storage Tank	500,000
Plant No. 2 (Ridge Road)	Ground Storage Tank	400,000
TOTAL DESIGN CAPACITY		**900,000 (0.9 MG)**

H2M

TABLE 3-3

INC. VILLAGE OF FARMINGDALE
WATER DEPARTMENT

INTERCONNECTIONS

WATER SUPPLIER	LOCATION	SIZE
Bethpage Water District	Hampshire Drive	6"
South Farmingdale Water District	NYS Route 24 *	8"
	Staples Street	8"
East Farmingdale Water District	Secatogue Avenue	6"
	Melville Road	6"

* Interconnection is not operational at this time.

H2M

TABLE 3-4

SOUTH FARMINGDALE WATER DISTRICT

EXISTING SUPPLY WELLS

WELL NO.	NYSDEC NO.	LOCATION	APPROVED CAPACITY (GPM)	POWER
1-2	N-4043	Langdon Road	1,200	E
1-3	N-5148	Langdon Road	1,200	E/NG
1-4	N-7377	Langdon Road	1,400	E/NG
2-2	N-6149	Lourae Drive	1,200	E/NG
2-3	N-13367	Lourae Drive	1,200	E/NG
3-1	N-6150	Route 107	1,400	E/NG
4-1	N-6148	Linden Street	1,200	E
5-1	N-7515	Heisser Lane	1,400	E/NG
5-2	N-7516	Heisser Lane	1,400	E/NG
6-1	N-8664	Route 107 (North of S. S. Pkwy)	1,400	E
6-2	N-8665	Route 107 (North of S. S. Pkwy)	1,400	E
TOTAL			**20.7 MGD**	

LEGEND:
E - ELECTRICAL
D - DIESEL
NG - NATURAL GAS

H2M

TABLE 3-5

SOUTH FARMINGDALE WATER DISTRICT

EXISTING STORAGE FACILITIES

PLANT NO.	LOCATION	TYPE OF FACILITY	DESIGN CAPACITY (GALLONS)
1	Langdon Road	Elevated Steel	1,000,000
2	Lourae Drive	Ground Concrete	1,000,000
3	Route 107	Ground Concrete	600,000
4	Linden Street	Ground Concrete	600,000
TOTAL			**3,200,000**

H2M

TABLE 3-6

SOUTH FARMINGDALE WATER DISTRICT

INTERCONNECTIONS

WATER SUPPLIER	LOCATION	SIZE (Inches)
Village of Farmingdale	Hempstead Tpke. (NYS Rt 24) *	8 x 8
	Staple & James Streets	8 x 8
Bethpage Water District	Stewart & N. Boundary Aves.	6 x 6
	Plainedge Drive & Dennis Lane	6 x 6
	Shelly Lane	6 x 6
	Frey Road	6 x 6
	Bernard & High Streets	6 x 6
New York Water Service	Alken Ave.	6 x 6
	Wicks Ave.	6 x 6
	Emily Street	6 x 8
Massapequa Water District	Jerusalem Ave. & Route 107	6 x 6
	Jerusalem Ave. & Hicksville Road	10 x 10
	Jerusalem Ave. & Broadway	10 x 8
	Pacific Street & Violet Ave.	6 x 6
East Farmingdale Water District	Saxon Road & Barbara Drive	6 x 6
	Mill Road & Mill Lane	8 x 8
	Main Street & Spruce Court	6 x 6

* Interconnection is not operational at this time.

H2M

Table 4-1

COMPARISON OF WATER SYSTEM PARAMETERS				
System Parameter *	**Units**	**Village**	**Water District**	**Notes and Comments**
Pumpage	Million Gallons	422.0	1,577.0	
Percent Billed	%	75.3	90.0	
Population	Number	9,091	44,700	
Services	Number	2,135	12,675	
Area	Square Miles	1.1	5.5	
Supply Wells	Number	3	11	
Design Well Capacity	MGD	5.40	20.74	
Storage Tanks	Number	2	4	
Storage Tank Capacity	Million Gallons	0.9	3.2	
Water mains	Miles	30.9	124	
Hydrants	Number	222	1,250	
Employees	Number	3.8	15	Based on full time equivalent positions

Notes:
* based on 2009 data

Table 4-2

Village of Farmingdale Water Department Fiscal Year (June 1 to May 31)							
Revenues	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**	**% of Total**
Real Property Taxes*	0	0	0	0	0	0	0.0%
Metered Sales of Water	1,122,498	954,889	903,204	869,215	939,580	957,877	94.7%
Unmetered sales, charges & Penalties	51,764	30,435	26,917	28,748	40,717	35,716	3.5%
Rental of Real Property and Interest	0	0	0	0	0	0	0.0%
Sales of Property & Comp. for losses	4,355	13,770	4,068	0	23,240	9,087	0.9%
Other Misc. Receipts and interest	1,449	845	3,108	4,001	35,970	9,075	0.9%
Total Revenues	1,180,066	999,939	937,297	901,964	1,039,507	1,011,755	100%
Expenses							
Administration	131,742	144,794	152,120	149,928	155,597	146,836	14.0%
Source of Supply, Power and Pumping	131,102	119,303	114,518	104,893	110,555	116,074	11.0%
Purification (Chemicals & Testing)	54,917	62,778	133,109	94,756	113,490	91,810	8.7%
Transmission & Distribution	242,921	285,366	394,176	376,507	247,951	309,384	29.4%
Employee Benefits	133,251	127,886	132,936	131,495	109,691	127,052	12.1%
Debt Service	120,501	126,115	128,607	66,360	72,262	102,769	9.8%
Transfers out / Transfer to capital	228,711	305,860	159,783	95,163	0	157,903	15.0%
Total Expenses	1,043,145	1,172,102	1,215,249	1,019,102	809,546	1,051,829	100.0%
Excess (deficit) of Rev / Exp	136,921	(172,163)	(277,952)	(117,138)	229,961	(40,074)	
Pumpage Statistics							
Fiscal Year Pumpage (1,000 gal)	521.8	576.0	470.4	456.3	444.1	493.7	
Calendar Year Pumpage (1,000 gal)	574.2	486.8	480.5	445.8	422.0	481.9	

* Village collects property taxes but does not allocate to Water Department

Table 4-3

South Farmingdale Water Department Fiscal Year (January 1 to December 31)							
Revenues	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**	**% of Total**
Real Property Taxes*	1,395,599	1,618,635	1,618,669	1,711,612	1,782,915	1,625,486	38.2%
Metered Sales of Water	2,410,575	2,117,979	2,377,397	2,184,593	1,873,114	2,192,732	51.6%
Unmetered sales, charges & Penalties	96,619	129,813	158,767	164,279	154,433	140,782	3.3%
Rental of Real Property and Interest	215,920	215,606	214,719	292,873	258,921	239,608	5.6%
Sales of Property & Comp. for losses	5,068	22,280	24,059	22,819	77,768	30,399	0.7%
Other Misc. Receipts and interest	24,334	7,323	37,555	16,831	10,580	19,325	0.5%
Total Revenues	4,150,120	4,113,642	4,433,173	4,395,015	4,157,731	4,249,936	100%
Expenses							
Administration	914,444	871,371	956,467	899,444	956,829	919,711	19.9%
Source of Supply, Power and Pumping	1,067,899	795,327	716,238	905,456	715,471	840,078	18.2%
Purification (Chemicals & Testing)	402,528	381,766	346,862	367,758	560,380	411,859	8.9%
Transmission & Distribution	614,565	713,630	587,734	607,526	660,712	636,833	13.8%
Employee Benefits	596,200	536,744	756,315	563,741	606,158	611,832	13.3%
Debt Service	347,247	410,985	554,560	550,103	760,522	524,683	11.4%
Interfund Transfers out / Capital Projects	325,000	228,014	676,438	1,242,577	864,075	667,221	14.5%
Total Expenses	4,267,883	3,937,837	4,594,614	5,136,605	5,124,147	4,612,217	100.0%
Excess (deficit) of Rev / Exp	(117,763)	175,805	(161,441)	(741,590)	(966,416)	(362,281)	
Pumpage Statistics							
Fiscal Year Pumpage (1,000 gal)	1,900.0	1,650.0	1,767.0	1,692.0	1,577.0	1,717.2	
Calendar Year Pumpage (1,000 gal)	1,900.0	1,650.0	1,767.0	1,692.0	1,577.0	1,717.2	

Table 4-4
Summary of Average Financial Data from 2005 to 2009

	Village of Farmingdale Water Department		South Farmingdale Water District	
Revenues	**Average[1]**	**% of Total**	**Average[2]**	**% of Total**
Real Property Taxes*	0	0.0%	1,625,486	38.3%
Metered Sales of Water	957,877	94.7%	2,192,732	51.6%
Unmetered sales, charges & Penalties	35,716	3.5%	140,782	3.3%
Rental of Real Property and Interest	0	0.0%	239,608	5.6%
Sales of Property & Comp. for losses	9,087	0.9%	30,399	0.7%
Other Misc. Receipts and interest	9,075	0.9%	19,325	0.5%
Total Revenues	1,011,755	100.0%	4,248,331	100.0%
Expenses				
Administration	146,836	16.4%	919,711	23.3%
Source of Supply, Power and Pumping	116,074	13.0%	452,299	11.5%
Electricity	**	**	387,780	9.8%
Purification (Chemicals & Testing)	91,810	10.3%	411,859	10.4%
Transmission & Distribution	309,384	34.6%	636,833	16.1%
Employee Benefits	127,052	14.2%	611,832	15.5%
Debt Service	102,769	11.5%	524,683	13.3%
Total Expenses	893,925	100.0%	3,944,996	100.0%
Excess (deficit) of Rev / Exp	117,829	-	303,335	-
Pumpage Statistics				
Fiscal Year Pumpage (1,000 gal)	493.7	-	1717.2	-
Calendar Year Pumpage (1,000 gal)	481.9	-	1717.2	-

* Village collects property taxes but does not allocate to Water Dept.
** Electricity is the total expense provided under "Source of Supply, Power and Pumping".
1 - Village fiscal year is from June 1st to May 31st. 2005 to 2009 audited data provided
2 - Water District fiscal year is from January 1st to December 31st. 2005 to 2009 audited data provided

Table 4-5

Water Rate Schedules

South Farmingdale Water District

The Water District utilizes the following daily step billing schedule for residential and commercial accounts:

DAILY WATER RATES

Daily Usage	Cost Per Gallon
First 66.6666	$0.00075 (min. charge)
Next 155.5555	$0.00120
Next 111.1111	$0.00145
Next 111.1111	$0.00170
Remaining	$0.00210

Village of Farmingdale

The Village utilizes the following annual step billing schedule for residential and commercial accounts:

STEP SCHEDULE OF WATER RATES

(Annually)

Consumption (gallons)	Charges
0 to 20,000	$50.00 (min.)
20,001 to 45,000	$2.50/thousand gallons
45,001 – 75,000	$2.55/thousand gallons
75,001 – 100,000	$2.85/thousand gallons
Over 100,000	$3.40/thousand gallons

H2M

Table 4-6

Normalized Financial Comparison per 1,000 gallons pumped

Financial Parameter*	Village Water Dept.	Water District	Difference	
Revenues				
Metered water sales & property taxes **	$1.94	$2.22	($0.50)	per thousand pumped
Total revenues	$2.05	$2.47	($0.72)	per thousand pumped
Expenses				
Adminstration	$0.30	$0.54	($0.22)	per thousand pumped
Source of Supply, Power and Pumping	$0.24	$0.26	($0.25)	per thousand pumped
Purification (Chemicals & Testing)	$0.19	$0.24	($0.09)	per thousand pumped
Transmission & Distribution	$0.63	$0.37	$0.26	per thousand pumped
Employee Benefits	$0.26	$0.36	($0.10)	per thousand pumped
Debt Service	$0.21	$0.31	($0.10)	per thousand pumped
Total Expenses	$1.81	$2.30	($0.49)	per thousand pumped
Total Expenses Less Debt Service	$1.60	$1.99	($0.20)	per thousand pumped
Electricity	$0.24	$0.23	$0.01	per thousand pumped

Notes:

* based on audited data -2005 thru 2009.

** Property tax revenue is not allocated to the Village Water Department.

H2M

Table 4-7

Village of Farmingdale Recommended Capital Improvements For Water Department Infrastructure Upgrades	
Well 2-2 Upgrades	**Estimated Cost**
Booster pump	30,000
Well and well pump	70,000
Large piping and valves	30,000
Motor Control Center	100,000
Building	25,000
Generator	200,000
Well 2-2 Subtotal:	$455,000
Well 2-3 Upgrades	
Motor Control Center	100,000
Well and well pump	70,000
Building	25,000
Caustic tank alarms / upgrades	20,000
Small piping and chemical treatment	15,000
Well 2-3 Subtotal:	$230,000
Well 1-3 Upgrades	
Well and well pump	70,000
Motor Control Center	100,000
Large piping and valves	25,000
Building	20,000
Generator	40,000
Well 1-3 Subtotal:	$255,000
System-wide Improvements	
SCADA (Control system upgrade)	150,000
System-wide Subtotal:	$150,000
Total Upgrade and Improvement Construction Cost:	$1,090,000
Design, Construction Administration, Inspection, Permits:	163,500
Legal	32,700
Contingencies	109,000
Grand Total:	**$1,395,200**

H2M

Table 4-8

Normalized Customer Cost Comparision

Metered Water Sales and Property Taxes	Village Water Dept.	Water District
Cost per 1,000 billed	$2.65	$2.69
Cost per Service Connection	$440.08	$301.24
Cost per Population	$103.35	$85.42
All other Revenue	**Village Water Dept.**	**Water District**
Cost per 1,000 billed	$0.28	$0.30
Cost per Service Connection	$46.80	$33.93
Cost per Population	$10.99	$9.62
Total Revenue	**Village Water Dept.**	**Water District**
Cost per 1,000 billed	$2.94	$2.99
Cost per Service Connection	$486.89	$335.17
Cost per Population	$114.34	$95.04

Notes:

- Property tax revenue is not allocated to the Village Water Department.
- Based on 2008- 2009 audited financial data for Farmingdale and 2009 audited financial data for South Farmingdale