CURRAN-GARDNER TOWNSHIPS PUBLIC WATER DISTRICT

PRELIMINARY ENGINEERING REPORT

FOR

WATER TREATMENT PLANT EXPANSION

INTRODUCTION

The Curran-Gardner Townships PWD (CGTPWD) has recognized the need for improvements to the existing water treatment facility. The CGTPWD Board of Directors has authorized this Preliminary Engineering Report to address the components of the facility which will either be upgraded or replaced. CGTPWD has become a vital source of potable water for its customers located in this rural area not known for wells with good quality potable water.

A Board of Directors governs the Water District and is responsible for the planning, management, and coordinating the financing of projects for the Water District. The Water District employs a general manager whose responsibilities include oversight of the day-to-day operations of the Water District. The Board of Directors are not paid for their positions, but have donated their time and efforts to ensure this rural area has a safe and reliable source of potable water.

All design work, as recommended by this Preliminary Engineering Report, is to be performed in accordance with the regulations of the Illinois Environmental Protection agency, the governing regulatory agency for the construction of potable water facility in the State of Illinois.

PROJECT PLANNING

The area under consideration is CGTPWD's Water Treatment Facility that is in need of expansion and upgrading due to deteriorated equipment. Installation of underground conduit to the well site is also planned with an emergency generator to be installed at the Water Treatment Plant, since the well field is located in the floodplain. SCADA system upgrades will also be included to incorporate the proposed modifications. The contributing component for the need for this project is that the assets have exceeded their design life.

Location:

The Water Treatment Plant is located at 3382 Hazlett Road in Sangamon County directly west of Springfield, Illinois. CGTPWD well field is located North of the Sangamon River ***(Refer to Exhibit 1 for the Water Treatment Facility and Well Field for the Project Planning Area).***

Environmental Resources Present:

Environmental clearances will need to be addressed for the installation of the conduit under the Sangamon River to the Well Site for the purpose of emergency power backup and data collection. ***(Refer to Exhibit 2 for the Well Field and associated Floodplain).***

Historical Water Customers and Usage:

In a previous Preliminary Engineering Report (PER) using 2005-2006 data for the expansion improvements to the Water District's infrastructure, an additional well, two additional elevated water storage tanks, a genset at the Water Treatment Facility and a new office building, there were 1,995 metered connections at that time.

To align with the Water District's latest yearly audit, the same twelve (12) month period from April 29, 2012 to April 30, 2013 was reviewed for water usage and customers. The Water District had an average of 2,270 metered connections for the same time period between April 29, 2012 and April 30, 2013. There has been in increase of 275 meter customers in seven (7) years from the last major improvements to the overall system or a 1.86% yearly growth percentage. As of August, 2014 there are currently 2,444 metered connections which is an increase of 174 new customers in a one (1) year. This is due to major additions being added recently.

Historical water records and customers have been provided by the Water District. Historical records are provided up to April, 2013 to align with the District's most recent audit. The highest volume of water pumped from the plant was in July of 2012. The plant produced 20,676,000 gallons or 666,968 gpd. Refer to ***APPENDIX A*** for documentation.

Community Engagement:

As stated previously, a Board of Directors governs the Water District and is responsible for the planning, management, and coordinating the financing of projects for the Water District. Residents that wish to sign on with the Water District are generally considered through additional expansion phases and/or water line extension as feasibility allows for the District. There have been planning meetings open to the public and discussions at the regular board meetings located at the Water District office. The Water District office is located at 3384 Hazlett Road. There has been no opposition to this project and the Board of Directors are conscious of the current rates and any necessary increases to meet the improvements needed. The planning meetings have also discussed the option of 100% water purchase from City Water Light and Power and removal of the existing well source and treatment plant.

EXISTING FACILITY

Location Map:

The Water Treatment Plant is located at 3382 (Water Treatment Plant) / 3384 (Office Building) Hazlett Road in Sangamon County directly west of Springfield, Illinois. CGTPWD services rural areas in small sections in the City of Springfield, Curran Township, Gardner Township, Springfield Township, Island Grove Township and Cartwright Township with a potable water source through the interconnecting water mains and the elevated storage towers ***(Refer to Exhibit 3 for the Water Treatment Facility, Office, Water Towers, Well Field and District Service Area).***

History:

The major components of the Water District have been in place for 40+ years. However, expansion has transpired throughout the history of the Water District to continue to serve the area. Currently, there are no component failures, but this PER is designed to address the most current needs based on priority ranking and needs assessment from the Water District.

There are no applicable violations or regulatory requirements associated with the improvements being addressed. But improvements are vital for continuing future treatment and protection of the well field with emergency power source. The Water District is being proactive before significant problem could occur resulting in violation of

their treatment process and threat to the water quality as well as power loss to their well field in emergency conditions.

Conditions of Existing Facility:

Conditions of the existing facilities are serviceable and functioning. However, the most urgent items have been listed below with associated pictures found in ***Appendix B.***

1. Corrosion damaged clarifier.
2. Clarifier sidewall corrosion.
3. Clarifier sidewall pitting.
4. Claricone corrosion damage.
5. Claricone corrosion on weir and sideshell.
6. Phase 1 filter corrosion damage.
7. Phase 2 filter corrosion damage.
8. Corrosion damaged rigid building frame over the Claricone.
9. Corrosion damaged wall girts on the west wall of the facility.
10. Corrosion damaged wall girts on the northeast corner of the facility.
11. Corrosion damage to the electric control panels.
12. Lime feed process piping blockage.
13. Berm erosion in both sludge lagoons.
14. Need for emergency standby power for the well field.

Note: The Claricone cannot keep up with the peak flow because it will only treat 288.4 gpm.

<u>Water Supply</u>

The CGTPWD currently produces 100% of its water from five (5) alluvial wells (details listed below) located in the Sangamon River alluvium. The total production capacity of the Water District is estimated to be 945 gpm. It should be noted that the well production capacity listed below is with the largest capacity well, Well #6, out of service. From the wells, the water is transported to the Water District's water treatment plant through a 10" cast iron and PVC raw water transmission main.

Well #1	Type	Installed	Modifications	Capacity	Pumping Test
1	Vertical Turbine	1968	2003	250 gpm	250 gpm
2	Vertical Turbine	1968	2003	250 gpm	215 gpm *
3	TAKEN OUT OF SERVICE				
4	Vertical Turbine	1989	2011	210 gpm	210 gpm *
5	Vertical Turbine	2002	2009	300 gpm	270 gpm *
6	Vertical Turbine	2010		300 gpm	300 gpm

*Brotcke Well & Pump testing from 2013 found in Appendix A

Accessibility to the wells is limited by constraints from the landowner. The Water District leases the land for the well sites. The wells are located in the floodplain on the north side of the Sangamon River. Each well presently utilizes a vertical turbine pump coupled to a submersible motor.

Presently, none of the wells have auxiliary power available. Electricity is provided to the well sites by Menard Electric (territory boundary between Menard and Ameren is the Sangamon River). Standby generators are not provided at any of the wells but are being addressed currently in the Water District's capital improvement plan.

Water Treatment

The water treatment plant (WTP) consists of a lime softening process, which utilizes hydrated lime, alum, sulfuric acid, chlorine, fluoride and gravity sand filtration. Two ground storage tanks at the treatment site provide 400,000 gallons of finished water storage.

The WTP is divided into two plants, each consisting of a clarifier with lime introduction and gravity filters operating in parallel. Plant One has an up flow clarifier (accelator) and two lateral multi-media filters. Plant Two has a ClariCone clarifier followed by two decelerating filters. Both of the treatment plant's capacities are restricted by the allowable flow through the filter[1]. Plant One can operate at 403.2 gpm, while Plant Two operates at 288.4 gpm, giving the treatment plant the ability to treat 691.6 gpm if both plants are operating. The combined capacity of each plant train

[1] IEPA Title 35, Section 653.116 Filtration Rates – "The nominal filter rate for a single and multi media rapid rate gravity filters shall bee 2 gal/min/sq. ft"

results in a total maximum daily plant output of 995,900 gpd or .996 MGD.

Improvements made to the Water District's system included the installation of a new telemetry system that links the elevated water storage tank and the five active wells to a new Master Terminal Unit (MTU) located at the water treatment plant. This system provides Supervisory Control and Data Acquisition (SCADA) capabilities for the Water District's operations personnel to accurately monitor and control the systems functions. Improvements to this control system include provisions to pace chemical feed and plant train functions through the SCADA system. A backup power supply to facilitate operation of the water plant during power outages was completed recently to ensure continuing operation.

Distribution System

From the two ground storage tanks, three vertical turbine pumps (#1 at 800 gpm, #2 at 300 gpm and #3 at 400 gpm) located in the east side of the water treatment plant pump the treated water into the distribution system. These pumps alternate with the maximum of two pumps operating simultaneously.

The water is then transported throughout the Water District's distribution system through a network of cast iron, transite and PVC water mains that range from 6" to 12" in diameter. The age of these mains vary from 40 years old to new.

For years, residents within the Water District's boundaries that presently do not have water service have expressed a strong desire to have water service extended to them.

Elevated Storage

In addition to the two (2) ground storage tanks (one 150,000 gallons and one 250,000 gallons) at the Water Treatment Plant which provides 400,000 gallons of finished water, there are also three (3) additional elevated water storage tanks located within the District.

The Water District currently owns and operates a 200,000 gallon double ellipsoidal elevated storage tank with an overflow elevation of 729.11' USGS. Universal Tank and Iron Works Inc. of Indianapolis, Indiana constructed the elevated tank in 1969. The elevated tank has an operating head range of 28' 3". This existing elevated tank is located at the southwest corner of Old Jacksonville Road and Farmingdale Road.

In 2011, two (2) additional elevated tanks were constructed by Caldwell Tanks to

provide the additional needed storage for the entire system. Both elevated water tanks are 750,000 gallon composite style tanks with an overflow elevation of 729.11' USGS to match the existing elevated tank overflow at Old Jacksonville and Farmingdale Road. The first 750,000 gallon composite tank is located in the Village of Curran next to the Curran Township Hall. The second 750,000 composite tank is located directly east of Old Covered Bridge Road and south of Illinois Route 97. The total elevated storage is 1,700,000 gallons.

Financial Status of Existing Facility:

Financial Status – The below information was taken from April 30, 2013 audit (last audit completed) In Appendix C is budget information from 2014.

	2012-2013
Operating Revenue	
Water Revenue	$1,364,484.00
Tapping Fees	$70,048.00
Penaltiies	$15,974.00
Bulk Hydrant	$29,026.00
Misc Income	$11,225.00
Main Extensions	$58,069.00
	$1,548,826.00
Operation and Maintenance	
Salaries	$353,277.00
Payroll Taxes	$38,869.00
Insurance	$75,320.00
Pension Contributions	$31,949.00
Office Expense	$35,118.00
Amortization Expense	$2,176.00
Utilities and Telephone	$66,227.00
Travel	$2,801.00
Chemicals/Lab	$84,020.00
Legal and Accounting	$37,642.00
Repairs	$3,353.00
Misc Costs	$14,372.00
Plant Expense	$134,080.00
Freight-in	$7,894.00
Engineering	$6,791.00
Advertising	$1,768.00
Vehicle Expense	$11,668.00

	$907,325.00
Existing Debit Service	
Principal Payment	$118,184.00
Interest Payment	$245,053.00
	$363,237.00
Short Lived Assets Account	
From Previous WSI Project	$59,000.00
Total Operating Revenue	**$1,548,826.00**
Total Expenses (Debt, O& M and SLA)	**$1,329,562.00**
	$219,264.00

Note: Water Sales cover the Total Expenses

On April 30, 2013 the Water District had 2,294 customers and the average monthly invoice would have been $49.57

Audit:

The audit for the year ending April 30, 2013 has been supplied for reference in ***Appendix D.***

Need for a Project

The sole reason for this report is to address the multitude of deteriorating conditions that need to be either repaired or replaced to ensure that the plant is operating at optimum efficiency and providing safe potable water to the CGTPWD customer base. It is also that the assets have exceeded their design life. Upgrades are needed and will be addressed in two (2) phases. This PER is specifically for Plant Expansion Phase I. Plant Expansion Phase II / Improvements will be submitted in the future to address the remaining balance of infrastructure needs.

Health, Sanitation and Security:

Improvements to the Water Treatment Plant will replace deteriorating conditions and needed repair / replacement for ongoing water quality. Emergency backup power for the well field will ensure that power is always available for pumping operations and that the necessary raw water is available to be treated for distribution.

Aging Infrastructure:

The Water District has developed a water infrastructure assessment and priority ranking of improvements. The most current needs are being addressed within this PER as a Phase I upgrade. The Water Treatment Plant is over 40 years old. There is a need for overall planning for the future with Phase I improvements. These improvements will use the existing Water Treatment building with expansion to incorporate the needed space for new equipment, reclaiming of volume / bank stability of the existing lagoons and supply of emergency backup power located at the Water Treatment Plant for the Well Field.

The existing raw watermain crossing underneath the Sangamon River is a 10" main. Consideration of a possible 12" new raw watermain as well as conduit to address power and fiber optics to the well site are addressed. This would integrate a backup power supply from Water District's existing generator at the Water Treatment Plant as well as SCADA upgrades across the Sangamon River.

Phase II upgrades to the Water Treatment Plant is projected to include a new/backup raw water transmission main, repainting of Farmingdale Road water tower, distribution upgrades and an office building additions for the future.

Reasonable Growth:

Using the last projection of 1.86% growth from 2006 to 2013 (1,995 customers to 2,270 customers), a chart was generated to extend that growth rate an additional 30 years to project a possible future growth in this area. In 2043, a total of 3,945 customers are possible for this Water District. (***Refer to the growth chart in Appendix E.)***

Alternates Considered

The following are the only alternates that can be considered.

1. Water Treatment Plant Expansion Phase I to address the needed requirements for a deteriorating plant, emergency power source for well site and SCADA upgrades.

2. Buy treated water from another water entity. The most feasible option available would be to buy all potable water from City Water Light and Power

in Springfield. Currently, there is an intergovernmental agreement in place for emergency water purchase.

3. Build a new Water Treatment Plant and convert treatment technology to ION Exchange process. Consideration of a conversion using the ION Exchange Process was considered with a Plant Expansion. This process was deemed non-feasible due to no discharge option for the high chloride waste by-product. Because it is not technically feasible, this option was not given further consideration due to no waste disposal access.

4. Doing nothing would result in a complete deterioration of the Water Treatment Plant through time and is not being considered in this PER.

From the above four (4) Alternates, only two (2) are viable for consideration. The two Alternates are as follows with Alternate #1 addressing upgrades for Treatment and Alternate #2 addressing purchasing of potable water.

Alternate #1: Water Treatment Plant Expansion Phase I to address the needed requirements for a deteriorating plant, emergency power source for well site, a new raw waterline across the Sangamon River and SCADA upgrades.

Alternate #2A or #2B: Plant Closure and purchase 100% of the potable water needed for the Water District from City Water Light and Power. This Alternate will require infrastructure upgrades to connect the two systems. There are two options which can be considered to connect with City Water Light and Power. (Alternate #2A reflects the Booster Station at Old Salem and Bradfordton Road. Alternate #2B reflects the Booster Station at International Parkway and U.S. 54.)

For simplicity, life cycle cost analysis and non-monetary factors will be discussed with each Alternate as opposed to having a separate section as outlined by USDA-RD's Preliminary Engineering Report format.

Alternate #1 (Water Treatment Plant Expansion Phase I)

This Alternate maintains complete ownership and operation within the Water District to serve their rural customers. Any costs associated with upgrades and modifications are reflected in their water rate structure.

Description:

As stated previously, the WTP is divided into two plants, each consisting of a clarifier with lime introduction and gravity filters operating in parallel. Plant One has an up flow clarifier (accelator) and two lateral multi-media filters. Plant Two has a ClariCone clarifier followed by two decelerating filters. Both of the treatment plant's capacities are restricted by the allowable flow through the filter[2]. Plant One can operate at 403.2 gpm, while Plant Two operates at 288.4 gpm, giving the treatment plant the ability to treat 691.6 gpm if both plants are operating. The combined capacity of each plant train results in a total maximum daily plant output of 995,900 gpd or .996 MGD.

Plant #2 is being replaced in the Phase I Expansion. The existing claricone will be replaced with an 1,000 gpm upflow clarifier which is located in the building addition. The associated filters with Plant #2 (which consist of three (3) new 500 gpm filters) will also be in the building addition. The building additions will house a blower room with new equipment and an electrical room. The electrical service currently operating all the equipment in the Water Treatment Plant will be replaced. A new motor control center will be installed into the electrical room under climate controlled environment. The second floor of the addition will contain an overhead walkway / equipment access. This access will also be used to feed the clarifier with lime slurry and chemical feed.

The structure of the building will be a pre-engineered metal building with zinc coated metal frame members. The new addition will also have dehumidification and ventilation with infrared heating overhead. The blower room and electrical room will have both heating and air conditioning (HVAC) for climate control.

In the existing Water Treatment Plant, the current Plant #2 will be disassembled. The demolition of Plant #2 will provide an open space which will later be part of Phase II for Plant #1 replacement. In the northeast corner of the existing Water Treatment Plant, the old office will be converted to contain the new lime slurry mixing equipment.

[2] IEPA Title 35, Section 653.116 Filtration Rates – "The nominal filter rate for a single and multi media rapid rate gravity filters shall bee 2 gal/min/sq. ft"

There will be a minor amount of site work and fencing associated with the building addition.

Modifications of the sludge lagoons located directly north of the Water Treatment Plant will also be a part of Phase I. The proposed plan will use steel sheet piling to re-establish the perimeter of both lagoons and reclaim the design volume. Steel pilings are used on the south side of each lagoon. The north perimeter of the two (2) lagoons, has through time, silted in this area resulting in the loss of volume. Re-establishing the stability of the banks is planned.

A new genset and concrete pad is part of Phase I to provide a back-up power source for the well site. The genset and pad will be located next to the existing genset for the Water District. Two (2) conduits shall be buried extending north between the lagoons, down the hill, and underneath the Sangamon River to the existing well field on the north side of the River. One conduit will be used for power and the other conduit will be used for data collection for Wells 1, 2, 4, 5 and 6. A proposed 3" conduit has been determined to be the appropriate diameter for future power and a 1 ½" conduit the appropriate diameter for fiber optics.

The existing raw watermain crossing underneath the Sangamon River is a 10" main. A proposed 12" new raw watermain is incorporated into the scope of this project to address future needs.

The existing SCADA system is currently located in the maintenance / office building directly west of the Water Treatment Facility. The SCADA system will be integrated to incorporate the new clarifier, filters, automatic transfer switch for the new genset and data collection from the underground conduit serving the well field. This integration will also be part of the Phase I to incorporate all the upgrades.

The existing Plant #1 within the Water Treatment Plant will continue in operation until service life is beyond repair. It is predicted that in approximately five (5) years Plant #1 will be part of the Phase II expansion to complete the expansion for future growth.

With Plant #2 completed and on-line (1,000 gpm) and the use of the existing Plant #1 (403.2 gpm), there will be the ability to treat 1,403 gpm if both plants are operating. The combined capacity of each plant train results in a maximum daily plant output of 2,020,320 gpd or 2.02 mgd.

Design Criteria:

Based on past records obtained by the Water District and for the latest records

that accompany their current audit, the data reflects July, 2012 as the peak month. This equates to an approximately 667,000 gpd for a peak day and a peak hour demand (4x) of approximately 2,668,000 gpd or 1,853 gpm.

Results from these calculations reveal the following rounded to the nearest thousand gallons per day:

Present Average Daily Demand: 482,000 gpd

Peak Daily Demand: 667,000 gpd

Peak Hour Demand: 2,668,000 gpd or 2.66 MGD

or 1,853 gpm based on 1,440 minutes per day

Refer to Appendix A for documentation.

Map:

Outline of the above Expansion – Phase 1 is depicted in the enclosed Exhibits. ***(See Exhibits 1 of 4, 2 of 4, 3 of 4, and 4 of 4 for Water Treatment Plant Expansion – Phase 1)***

Environmental Impacts:

Environmental clearance will need to be obtained for the boring of a conduit(s) and new raw watermain under the Sangamon River for the Water Treatment Plant Expansion – Phase I.

Land Requirements:

No additional land acquisition is needed for this Project. The Water District owns all of the required land and has easement rights where conduit installation is proposed.

Potential Construction Problems:

There are no foreseeable construction problems with expansion of the building and retrofitting. There are no foreseeable construction problems with modifying the lagoons. There are no foreseeable construction problems with running conduit to the well site to service the well field, however a floodplain permit will be required.

Sustainability Considerations:

The sustainability characteristic of this project allows the resiliency of a known 30+ years familiarity with a current treatment process and an operational simplicity of the

current water treatment. Operational simplicity is also established with the integration of the improvements into the existing SCADA system.

Cost Estimate:

Alternate #1

The estimated construction cost for the Water District to complete the expansion project is approximately $3,077,000.00. The estimated total project cost is $4,040,000.00. The total construction cost accounts for the construction of the expansion, as well as, other associated costs, such as engineering, inspection, and contingencies. A detailed breakdown of the estimated construction costs and the total estimated project cost as well as associated documentation can be found in ***Appendix F*** for Alternate #1.

Life Cycle Analysis:

The life cycle cost analysis is used to determine the best alternative based on the net present value of all cost associated with the project over it's life. This analysis is also used to compare alternatives. The life cycle cost analysis at the 10^{th} year depicts Alternate #1 as a total annual cost of the net present value of $1,807,008 (refer to ***Appendix G*** which also shows the annual cost for the first year of $1,526,104).

Non-Monetary Factors:

The non-monetary factor is being able to maintain operation control for all aspects of their system with minimal risk of plant problems and potable water to customers.

Preliminary Project Design:

In order to address the worsening conditions of the existing WTP, a 3,750 ft^2 pre-engineered addition will be erected to expand the capacity of the treatment plant. Included in this addition will be a new 1000 gpm upflow clarifier, 3 new 500 gpm filters, and electric room and a blower room, as well as, all process piping. The rigid frame and wall girts at the interface of the expansion will be reinforced and given a new coating to address stability concerns. The plant expansion will also address the bank conditions in the existing sludge lagoons by installation of sheet piling to create the footprint for the lagoon reclamation. The installation of conduit to the well site with the emergency power

source located at the Water Treatment Plant to ensure continued water supply. The SCADA will also be upgraded to incorporate the clarifiers, filters, automatic transfer switch for the new genset and data collection at the well field.

Project Schedule:

A tentative schedule is provided below. Available funding and the process to ensure a loan could be the governing factor if the project schedule would need revised. Below is the projection of the Water Treatment Plant Expansion – Phase I Project.

Approval of PER	March 2015
Environmental Review Complete	June 2015
Letter of Conditions from Lending Source	July 2015
Preparation of Plans, Contract Documents, Specifications, Permits and Approvals	December 2015
Bid Letting of Project	March 2016
Completion of Project	March 2017

Permit Requirements:

An Illinois Environmental Protection Agency permit will be required for the construction of this project. All environmental clearances and permits will be required for installation of conduit under the Sangamon River and through the floodplain to the well site location.

Total Project Cost Estimate:

Alternate #1 – Construction Costs: $3,077,000.00

Total Project Costs: $4,040,000.00

Annual Operating Budget:

The proposed improvements would not result in a noticeable increase to the operating and maintenance budget, but would require an increase in the water rates to the customer base as a result of a new debt service, a reserve fund and a short lived asset account.

Proposed Operating Budget and Projections:

Proposed Annual Operating Budget for Water Teatment Plant Improvements - Phase I (Alternate #1)

Existing Debit Service	**2014 Budget**	**2015 Budget**	**2016 Projected**	**2017 Projected**
Waterworks Rev. Bond Series 2007	$182,135.50	$178,746.00	$181,368.00	$179,772.00
Waterworks Rev. Bond Series 2009	$141,190.00	$140,035.00	$138,880.00	$137,725.00
Ditch Witch	$13,828.00	$10,370.00	$13,000.00	$13,000.00
Excavator	$16,953.00	$16,656.00	$17,000.00	$17,000.00
Loader	$7,416.00	$7,414.00	$7,415.00	$18,794.00
	$361,522.50	$353,221.00	$357,663.00	$366,291.00
Proposed Debit Service				
Loan for Project (4.0% interest)				$210,821.76
Reserve Fund (10%)				$21,082.18
				$231,903.94
Total Debt Service	**$361,522.50**	**$353,221.00**	**$357,663.00**	**$598,194.94**

Expenses	**2014 Budget**	**2015 Budget**	**2016 Projected**	**2017 Projected**
Refunds	$3,000.00	$3,000.00	$3,000.00	$3,000.00
Salaries	$370,000.00	$355,000.00	$370,000.00	$390,000.00
District FICA	$28,188.00	$26,625.00	$28,500.00	$29,500.00
Unemployment Comp	$2,500.00	$2,500.00	$2,500.00	$2,500.00
IMRF Pensions	$34,685.00	$32,000.00	$34,700.00	$35,500.00
District Insurance	$40,000.00	$40,000.00	$40,000.00	$40,000.00
Employee Health Plan	$33,000.00	$33,000.00	$35,000.00	$37,000.00
Office Supplies	$14,000.00	$15,000.00	$15,000.00	$15,000.00
Office Equipment	$4,000.00	$7,000.00	$5,000.00	$5,000.00
Office Support	$15,000.00	$10,000.00	$10,000.00	$10,000.00
Propane	$3,000.00	$3,500.00	$4,000.00	$4,500.00
Electric	$55,000.00	$55,000.00	$56,000.00	$57,000.00
Telephone	$7,500.00	$7,000.00	$7,000.00	$7,000.00
Travel Expenses	$3,500.00	$3,000.00	$3,000.00	$3,000.00
Chemicals/Lab	$85,000.00	$90,000.00	$90,000.00	$90,000.00
Lab	$10,000.00	$5,000.00	$5,000.00	$5,000.00
Freight-in	$10,000.00	$10,000.00	$10,000.00	$10,000.00
Advertising / Public Rel.	$4,000.00	$3,500.00	$3,500.00	$3,500.00
Attorney	$25,000.00	$25,000.00	$25,000.00	$25,000.00
Auditing	$10,000.00	$12,500.00	$12,500.00	$12,500.00

Engineering	$35,000.00	$35,000.00	$35,000.00	$35,000.00
Repairs	$30,000.00	$20,000.00	$20,000.00	$20,000.00
Plant/System/not cap	$50,000.00	$55,000.00	$50,000.00	$50,000.00
Lagoon Cleanout	$20,500.00	$23,000.00	$30,000.00	$30,000.00
JULIE	$5,200.00	$5,200.00	$5,200.00	$5,200.00
Misc Costs	$5,000.00	$7,016.00	$5,000.00	$5,000.00
Water Purchased	$15,000.00	$16,000.00	$17,000.00	$18,000.00
Other Construction-CAP	$2,000.00	$2,000.00	$2,000.00	$2,000.00
Tools/Equip over $300	$111,715.00	$105,000.00	$100,000.00	$100,000.00
District Vehicles Fuel	$20,000.00	$20,000.00	$20,000.00	$20,000.00
District Vehicles-non cap	$5,000.00	$5,000.00	$5,000.00	$5,000.00
District Vehicles Purchase	$35,000.00	$25,000.00	$30,000.00	$30,000.00
Equipment Repair	$5,000.00	$5,000.00	$5,000.00	$5,000.00
Well Field-Cap	$25,000.00	$30,000.00	$30,000.00	$30,000.00
Well Field-Non Cap	$5,000.00	$15,000.00	$15,000.00	$15,000.00
Distribution System - Cap	$60,000.00	$70,000.00	$95,000.00	$80,000.00
Distribution System - Non Cap	$0.00	$0.00	$0.00	$0.00
Paint Tower	$0.00	$0.00	$37,500.00	$37,500.00
Meter - Cap	$15,000.00	$10,000.00	$10,000.00	$10,000.00
Total O & M Costs	**$1,201,788.00**	**$1,186,841.00**	**$1,271,400.00**	**$1,282,700.00**
Short Lived Assets Account				
From Previous WSI Project	$59,000.00	$59,000.00	$59,000.00	$59,000.00
Incorporated with New Project	$0.00	$0.00	$0.00	$11,500.00
Total	**$59,000.00**	**$59,000.00**	**$59,000.00**	**$70,500.00**
Debit Service with Project				
(based on 2312 customers)	$13.03			
(based on current 2444 customers)		$12.04	$12.20	$20.40
O & M of Water District				
(based on 2312 customers)	$43.32			
(based on current 2444 customers)		$40.47	$43.35	$43.74
Short Lived Assets				
(based on 2312 customers)	$2.13			
(based on current 2444 customers)		$2.01	$2.01	$2.40
Total	$58.47	$54.52	$57.56	$66.54
Total Debit, O&M, Short Lived	**$1,622,310.50**	**$1,599,062.00**	**$1,688,063.00**	**$1,951,394.94**

Assets				
(need to reflect in Water Revenue)				
(based on 2312 customers)	$58.47			
(based on current 2444 customers)		$54.52	$57.56	$66.54

Operating Revenue	**2014 Budget**	**2015 Budget**	**2016 Projected**	**2017 Projected**
Water Revenue	$1,350,500.00	$1,380,000.00	$1,400,000.00	$1,420,000.00
Water Revenue Other	$18,000.00	$20,000.00	$22,000.00	$24,000.00
Tapping Fees	$75,000.00	$50,000.00	$50,000.00	$50,000.00
Penaltiies	$12,000.00	$13,000.00	$14,000.00	$15,000.00
Bulk Hydrant	$24,000.00	$15,000.00	$15,000.00	$15,000.00
Other Income	$5,000.00	$5,000.00	$5,000.00	$5,000.00
Fire District	$600.00	$600.00	$600.00	$600.00
Rental Deposit	$2,000.00	$2,000.00	$2,000.00	$2,000.00
	$1,487,100.00	$1,485,600.00	$1,508,600.00	$1,531,600.00
Average Water Invoice	$53.93	$53.93	$53.93	$53.93
(based on average of 5,500 gal av.)				
Increase needed to per customer			$3.63	$12.61

Projected Short-Lived Assets

Below is a breakdown of the projected short-lived assets for the proposed project that have been incorporated into the previous annual operating budget.

	#	Per Unit	Cost	Life	Cost/Year
Blowers	2	$25,000.00	$50,000.00	20	$2,500.00
Filters	3	$20,000.00	$60,000.00	10	$6,000.00
Chemical Feed Repair	3	$5,000.00	$15,000.00	10	$1,500.00
Clarifier Drive Assembly	1	$30,000.00	$30,000.00	20	$1,500.00
				Total/Year	$11,500.00
				Total/Mo.	$958.33
Cost per Customer per Year		$4.71			
Cost per Customer per Month		$0.39			

Alternate #2A or #2B (100% Water Purchase from City Water Light and Power)

This Alternate will relinquish the control of the Water District in dealing with their operation and maintenance of their wells and treatment facility. This Alternate is considered as the possibility of removing this portion and purchasing their water source from City Water Light and Power. Modifications for connection purposes as well as a selected booster pump station site location will be required and the construction costs for these upgrades will result in an additional debt to be covered by the Water District. The additional costs of the modifications as well as the cost of purchased water would need to be reflected in the water rate structure and the cost passed onto the customers. Two separate sites for the booster pump station have been evaluated but discussed together under this Alternate.

Description:

Removing the water supply and water treatment from the Water District's system will eliminate the upgrades necessary for daily operation and maintenance costs associated with water production and treatment. However, the Water District would still own and operate their internal infrastructure such as their distribution system and their water storage facilities. Water purchase would be made through interconnection and master meter with the Water District continuing to process their invoices based upon purchased water rates, adjusted O & M costs, debit services and capital improvements.

Purchase Demand Criteria:

Using the demand as outlined from Alternate #1 will also be used for the purpose of the demand needed from City Water Light and Power to meet the customers currently being serviced.

Present Average Daily Demand: 482,000 gpd
Peak Daily Demand: 667,000 gpd
Peak Hour Demand: 2,668,000 gpd or 2.66 MGD
or 1,853 gpm based on 1,440 minutes per day

Modifications and improvements will be required in order to provide the above demand and to fill the District's storage facilities. Below is a list of the necessary improvements associated with the removal of the District's water source and water

treatment.

1. Construction of Interconnection
2. Booster Pumping Station
3. Demolition of Water Treatment Plant
4. Existing Water Wells to be Abandoned
5. Lagoon Closure/ Cleanup / Relocation of Genset

Map:

An overall exhibit specifically shows the location of the two (2) booster pumping sites and interconnections required for 100% water purchase. ***(See Exhibit 5)***

Environmental Impacts:

There are no foreseeable environmental impacts as a result of pursuing 100% water purchase.

Land Requirements:

Additional land acquisition or easements will be required for the booster pump stations.

Potential Construction Problems:

There are no foreseeable construction problems to interconnect the Water District's system.

Sustainability Considerations:

Operational simplicity will remain using only a portion of the existing SCADA system.

Cost Estimate For Alternate #2A and #2B:

Alternate #2A

The estimated construction cost for the Water District to complete the necessary improvements for construction purposes is approximately $1,190,000.00. The estimated total project cost is $1,681,000.00. This cost estimate does not include additional fees associated with connection fees to City Water Light and Power. A detailed breakdown of

the estimated construction costs and the total estimated project cost and associated documentation can be found in ***Appendix F*** under Alternate #2A***.***

Alternate #2B

The estimated construction cost for the Water District to complete the necessary improvements for construction purposes is approximately $1,213,750.00. The estimated total project cost is $1,720,000.00. This cost estimate does not include additional fees associated with connection fees to City Water Light and Power. A detailed breakdown of the estimated construction costs and the total estimated project cost and associated documentation can be found in ***Appendix F*** under Alternate #2B***.***

Life Cycle Analysis:

The life cycle cost analysis is used to determine the best alternative based on the net present value of all cost associated with the project over it's life. This analysis is also used to compare alternatives. The life cycle cost analysis at the 10 year depicts Alternate #2A as $2,113,210 and Alternate #2B as $2,119,553 for a total annual cost of the net present value (refer to ***Appendix G*** which also shows the annual cost for the first year of $1,942,201 for Alternate #2A and $1,948,544 for Alternate #2B). Note: The referenced variable is a substitute rate increase for future CWLP improvements, so therefore, at this time we are unaware if the additional fee for the first five years will increase from the variable used.

Non-Monetary Factors:

There is a loss of procedural control of the Water District.

Preliminary Project Design:

Preliminary project design has entailed two different locations for a proposed booster pumping station to be constructed with the capacity of pumping 1,000 gpm. Alternate #2A is a site located at Old Salem Road and Bradfordton Road with minimal distribution improvements, however the pump and the genset are larger and more expensive (60 hp pump and 200 KW – 400 ATS genset). Alternate #2B is a site located at International Parkway and US 54 that will require approximately 5,100 feet of new 12" waterline for connection. The pump and genset at this location is smaller and not quite as expensive as Alternate #2A (15 hp pump and 50 KW – 200 ATS genset).

Both sites, either Alternate #2A or #2B were both designed to address 100% water demand, the demolition of the existing Water Treatment Plant, abandonment of the existing wells, lagoon closure and cleanup and the relocation of the existing genset at the current Water Treatment Plant.

Project Schedule:

A tentative schedule for Alternate #1 would be the same for either Alternate #2A or #2B and is provided below. Available funding and the process to ensure a loan could be the governing factor if the project schedule would need revised. Below is the projection of the modifications required for the Water District to transition their system for 100% water purchase with City Water Light and Power.

Approval of PER	March 2015
Environmental Review Complete	June 2015
Letter of Conditions from Lending Source	July 2015
Preparation of Plans, Contract Documents, Specifications, Permits and Approvals	December 2015
Bid Letting of Project	March 2016
Completion of Project	March 2017

Permit Requirements:

An Illinois Environmental Protection Agency permit will be required for the construction of the interconnections and improvements of this project as well as abandonment and demolition.

Total Project Cost Estimate for Two Options:

<u>Alternate #2A</u>

Construction Cost: $1,190,000.00

Total Project Cost: $1,681,000.00

<u>Alternate #2B</u>

Construction Cost: $1,213,750.00

Total Project Cost: $1,720,000.

(These cost estimates do not include additional fees associated with City Water Light and Power.)

Described below are the additional fees as well as the proposed operating budget and projections reflecting the necessary increases that will be required for 100% water purchase.

Annual Operating Budget:

In comparison with Alternate #1, Alternate #2A or #2B would reflect a decrease in additional debt, a decrease in operational and maintenance, but an increase in water rates to the customer based on water purchase. It is anticipated that City Water Light and Power will charge the Water District approximately $4.87 per 1,000 gallons. Based upon the highest usage of 20,676,000 from July of 2012, and a present daily demand of 482,000 gpd, the projected yearly water purchase of $856,780 is anticipated. For the purpose of reviewing and operating budget, $1,000,000 in yearly water purchase was evaluated. There is a connection fee that is currently in place with City Water Light and Power in the sum of $15,000 per connection to cover the cost of the installation of the metering equipment. There is also a separate connection fee of $150,000 for the initial 100,000 gallons of capacity provided and payable over five (5) years that will reflect on the monthly billing statements in addition to water usage charges. For each additional 100,000 gallons of capacity provided, there will be an additional $150,000 incorporated into the Water District's statement. This PER will evaluate the demand of approximately 600,000 gpd which would result is a fee of $900,000 or $180,000 per year for the first five (5) years. If the Water District's usage goes over the 600,000 gpd, then an additional $150,000 will be added, but is not included in this report.

Proposed Operating Budget and Projections:

Proposed Annual Operating Budget for Plant Closure and 100% Water Purchase-Option #2A

Existing Debit Service	**2014 Budget**	**2015 Budget**	**2016 Projected**	**2017 Projected**
Waterworks Rev. Bond Series 2007	$182,135.50	$178,746.00	$181,368.00	$179,772.00
Waterworks Rev. Bond Series 2009	$141,190.00	$140,035.00	$138,880.00	$137,725.00
Ditch Witch	$13,828.00	$10,370.00	$13,000.00	$13,000.00
Excavator	$16,953.00	$16,656.00	$17,000.00	$17,000.00
Loader	$7,416.00	$7,414.00	$7,415.00	$18,794.00
	$361,522.50	$353,221.00	$357,663.00	$366,291.00

Proposed Debit Service

Loan for Project (4.0% interest)	$87,720.64
Reserve Fund (10%)	$8,772.06
	$96,492.70

Total Debt Service	**$361,522.50**	**$353,221.00**	**$357,663.00**	**$462,783.70**

Expenses	**2014 Budget**	**2015 Budget**	**2016 Projected**	**2017 Projected**
Refunds	$3,000.00	$3,000.00	$3,000.00	$3,000.00
Salaries	$370,000.00	$355,000.00	$370,000.00	$270,000.00
District FICA	$28,188.00	$26,625.00	$28,500.00	$22,000.00
Unemployment Comp	$2,500.00	$2,500.00	$2,500.00	$2,500.00
IMRF Pensions	$34,685.00	$32,000.00	$34,700.00	$27,000.00
District Insurance	$40,000.00	$40,000.00	$40,000.00	$10,000.00
Employee Health Plan	$33,000.00	$33,000.00	$35,000.00	$27,000.00
Office Supplies	$14,000.00	$15,000.00	$15,000.00	$15,000.00
Office Equipment	$4,000.00	$7,000.00	$5,000.00	$5,000.00
Office Support	$15,000.00	$10,000.00	$10,000.00	$10,000.00
Propane	$3,000.00	$3,500.00	$4,000.00	$4,500.00
Electric	$55,000.00	$55,000.00	$56,000.00	$10,000.00
Telephone	$7,500.00	$7,000.00	$7,000.00	$7,000.00
Travel Expenses	$3,500.00	$3,000.00	$3,000.00	$3,000.00
Chemicals/Lab	$85,000.00	$90,000.00	$90,000.00	$0.00
Lab	$10,000.00	$5,000.00	$5,000.00	$1,000.00
Freight-in	$10,000.00	$10,000.00	$10,000.00	$2,000.00
Advertising / Public Rel.	$4,000.00	$3,500.00	$3,500.00	$3,500.00
Attorney	$25,000.00	$25,000.00	$25,000.00	$25,000.00
Auditing	$10,000.00	$12,500.00	$12,500.00	$12,500.00
Engineering	$35,000.00	$35,000.00	$35,000.00	$35,000.00
Repairs	$30,000.00	$20,000.00	$20,000.00	$20,000.00
Plant/System/not cap	$50,000.00	$55,000.00	$50,000.00	$0.00
Lagoon Cleanout	$20,500.00	$23,000.00	$30,000.00	$0.00
JULIE	$5,200.00	$5,200.00	$5,200.00	$5,200.00
Misc Costs	$5,000.00	$7,016.00	$5,000.00	$5,000.00
Water Purchased	$15,000.00	$16,000.00	$17,000.00	$0.00
Other Construction-CAP	$2,000.00	$2,000.00	$2,000.00	$2,000.00
Tools/Equip over $300	$111,715.00	$105,000.00	$100,000.00	$80,000.00
District Vehicles Fuel	$20,000.00	$20,000.00	$20,000.00	$20,000.00
District Vehicles-non cap	$5,000.00	$5,000.00	$5,000.00	$5,000.00
District Vehicles Purchase	$35,000.00	$25,000.00	$30,000.00	$30,000.00
Equipment Repair	$5,000.00	$5,000.00	$5,000.00	$5,000.00

Well Field-Cap	$25,000.00	$30,000.00	$30,000.00	$0.00
Well Field-Non Cap	$5,000.00	$15,000.00	$15,000.00	$0.00
Distribution System - Cap	$60,000.00	$70,000.00	$95,000.00	$80,000.00
Distribution System - Non Cap	$0.00	$0.00	$0.00	$0.00
Paint Tower	$0.00	$0.00	$37,500.00	$37,500.00
Meter - Cap	$15,000.00	$10,000.00	$10,000.00	$10,000.00
Total O & M Costs	**$1,201,788.00**	**$1,186,841.00**	**$1,271,400.00**	**$794,700.00**
Additional Fees to CWLP				
One time $15,000 per connection				$15,000.00
Separate Fee of $180,000 per year				$180,000.00
for five years				**$195,000.00**
Total Additional Fees				
Short Lived Assets Account				
From Previous WSI Project	$59,000.00	$59,000.00	$59,000.00	$59,000.00
Incorporated with New Project	$0.00	$0.00	$0.00	$8,000.00
Total	**$59,000.00**	**$59,000.00**	**$59,000.00**	**$67,000.00**
Wholesale Water Purchase	$0.00	$0.00	$0.00	$856,780.00
Total	**$0.00**	**$0.00**	**$0.00**	**$856,780.00**
Debit Service with Project				
(based on 2312 customers)	$13.03			
(based on current 2444 customers)		$12.04	$12.20	$15.78
O & M of Water District				
(based on 2312 customers)	$43.32			
(based on current 2444 customers)		$40.47	$43.35	$27.10
Additional CWLP Fees				
(based on 2312 customers)	$0.00			
(based on current 2444 customers)		$0.00	$0.00	$6.65
Short Lived Assets				
(based on 2312 customers)	$2.13			
(based on current 2444 customers)		$2.01	$2.01	$2.28
Wholesale Water Purchase				
(based on 2312 customers)	$0.00			
(based on current 2444 customers)		$0.00	$0.00	$29.21
Total	$58.47	$54.52	$57.56	$81.02

Total Debit, O&M, Short Lived Assets	**$1,622,310.50**	**$1,599,062.00**	**$1,688,063.00**	**$2,376,263.70**
(need to reflect in Water Revenue)				
(based on 2312 customers)	$58.47			
(based on current 2444 customers)		$54.52	$57.56	$81.02

Operating Revenue	**2014 Budget**	**2015 Budget**	**2016 Projected**	**2017 Projected**
Water Revenue	$1,350,500.00	$1,380,000.00	$1,400,000.00	$1,420,000.00
Water Revenue Other	$18,000.00	$20,000.00	$22,000.00	$24,000.00
Tapping Fees	$75,000.00	$50,000.00	$50,000.00	$50,000.00
Penalties	$12,000.00	$13,000.00	$14,000.00	$15,000.00
Bulk Hydrant	$24,000.00	$15,000.00	$15,000.00	$15,000.00
Other Income	$5,000.00	$5,000.00	$5,000.00	$5,000.00
Fire District	$600.00	$600.00	$600.00	$600.00
Rental Deposit	$2,000.00	$2,000.00	$2,000.00	$2,000.00
	$1,487,100.00	$1,485,600.00	$1,508,600.00	$1,531,600.00
Average Water Invoice	$53.93	$53.93	$53.93	$53.93
(based on average of 5,500 gal av.)				
Increase needed to per customer			$3.63	$27.09

Proposed Annual Operating Budget for Plant Closure and 100% Water Purchase-Option #2B

Existing Debit Service	**2014 Budget**	**2015 Budget**	**2016 Projected**	**2017 Projected**
Waterworks Rev. Bond Series 2007	$182,135.50	$178,746.00	$181,368.00	$179,772.00
Waterworks Rev. Bond Series 2009	$141,190.00	$140,035.00	$138,880.00	$137,725.00
Ditch Witch	$13,828.00	$10,370.00	$13,000.00	$13,000.00
Excavator	$16,953.00	$16,656.00	$17,000.00	$17,000.00
Loader	$7,416.00	$7,414.00	$7,415.00	$18,794.00
	$361,522.50	$353,221.00	$357,663.00	$366,291.00
Proposed Debit Service				
Loan for Project (4.0% interest)				$89,755.80
Reserve Fund (10%)				$8,975.58
				$98,731.38
Total Debt Service	**$361,522.50**	**$353,221.00**	**$357,663.00**	**$465,022.38**

Expenses	2014 Budget	2015 Budget	2016 Projected	2017 Projected
Refunds	$3,000.00	$3,000.00	$3,000.00	$3,000.00
Salaries	$370,000.00	$355,000.00	$370,000.00	$270,000.00
District FICA	$28,188.00	$26,625.00	$28,500.00	$22,000.00
Unemployment Comp	$2,500.00	$2,500.00	$2,500.00	$2,500.00
IMRF Pensions	$34,685.00	$32,000.00	$34,700.00	$27,000.00
District Insurance	$40,000.00	$40,000.00	$40,000.00	$10,000.00
Employee Health Plan	$33,000.00	$33,000.00	$35,000.00	$27,000.00
Office Supplies	$14,000.00	$15,000.00	$15,000.00	$15,000.00
Office Equipment	$4,000.00	$7,000.00	$5,000.00	$5,000.00
Office Support	$15,000.00	$10,000.00	$10,000.00	$10,000.00
Propane	$3,000.00	$3,500.00	$4,000.00	$4,500.00
Electric	$55,000.00	$55,000.00	$56,000.00	$10,000.00
Telephone	$7,500.00	$7,000.00	$7,000.00	$7,000.00
Travel Expenses	$3,500.00	$3,000.00	$3,000.00	$3,000.00
Chemicals/Lab	$85,000.00	$90,000.00	$90,000.00	$0.00
Lab	$10,000.00	$5,000.00	$5,000.00	$1,000.00
Freight-in	$10,000.00	$10,000.00	$10,000.00	$2,000.00
Advertising / Public Rel.	$4,000.00	$3,500.00	$3,500.00	$3,500.00
Attorney	$25,000.00	$25,000.00	$25,000.00	$25,000.00
Auditing	$10,000.00	$12,500.00	$12,500.00	$12,500.00
Engineering	$35,000.00	$35,000.00	$35,000.00	$35,000.00
Repairs	$30,000.00	$20,000.00	$20,000.00	$20,000.00
Plant/System/not cap	$50,000.00	$55,000.00	$50,000.00	$0.00
Lagoon Cleanout	$20,500.00	$23,000.00	$30,000.00	$0.00
JULIE	$5,200.00	$5,200.00	$5,200.00	$5,200.00
Misc Costs	$5,000.00	$7,016.00	$5,000.00	$5,000.00
Water Purchased	$15,000.00	$16,000.00	$17,000.00	$0.00
Other Construction-CAP	$2,000.00	$2,000.00	$2,000.00	$2,000.00
Tools/Equip over $300	$111,715.00	$105,000.00	$100,000.00	$80,000.00
District Vehicles Fuel	$20,000.00	$20,000.00	$20,000.00	$20,000.00
District Vehicles-non cap	$5,000.00	$5,000.00	$5,000.00	$5,000.00
District Vehicles Purchase	$35,000.00	$25,000.00	$30,000.00	$30,000.00
Equipment Repair	$5,000.00	$5,000.00	$5,000.00	$5,000.00
Well Field-Cap	$25,000.00	$30,000.00	$30,000.00	$0.00
Well Field-Non Cap	$5,000.00	$15,000.00	$15,000.00	$0.00
Distribution System - Cap	$60,000.00	$70,000.00	$95,000.00	$80,000.00
Distribution System - Non Cap	$0.00	$0.00	$0.00	$0.00
Paint Tower	$0.00	$0.00	$37,500.00	$37,500.00
Meter - Cap	$15,000.00	$10,000.00	$10,000.00	$10,000.00
Total O & M Costs	**$1,201,788.00**	**$1,186,841.00**	**$1,271,400.00**	**$794,700.00**

Additional Fees to CWLP				
One time $15,000 per connection				$15,000.00
Separate Fee of $180,000 per year				$180,000.00
for five years				**$195,000.00**
Total Additional Fees				
Short Lived Assets Account				
From Previous WSI Project	$59,000.00	$59,000.00	$59,000.00	$59,000.00
Incorporated with New Project	$0.00	$0.00	$0.00	$3,333.00
Total	**$59,000.00**	**$59,000.00**	**$59,000.00**	**$62,333.00**
Wholesale Water Purchase	$0.00	$0.00	$0.00	$856,780.00
Total	**$0.00**	**$0.00**	**$0.00**	**$856,780.00**
Debit Service with Project				
(based on 2312 customers)	$13.03			
(based on current 2444 customers)		$12.04	$12.20	$15.86
O & M of Water District				
(based on 2312 customers)	$43.32			
(based on current 2444 customers)		$40.47	$43.35	$27.10
Additional CWLP Fees				
(based on 2312 customers)	$0.00			
(based on current 2444 customers)		$0.00	$0.00	$6.65
Short Lived Assets				
(based on 2312 customers)	$2.13			
(based on current 2444 customers)		$2.01	$2.01	$2.13
Wholesale Water Purchase				
(based on 2312 customers)	$0.00			
(based on current 2444 customers)		$0.00	$0.00	$29.21
Total	$58.47	$54.52	$57.56	$80.94
Total Debit, O&M, Short Lived Assets	**$1,622,310.50**	**$1,599,062.00**	**$1,688,063.00**	**$2,373,835.38**
(need to reflect in Water Revenue)				
(based on 2312 customers)	$58.47			
(based on current 2444 customers)		$54.52	$57.56	$80.94

Operating Revenue	2014 Budget	2015 Budget	2016 Projected	2017 Projected
Water Revenue	$1,350,500.00	$1,380,000.00	$1,400,000.00	$1,420,000.00
Water Revenue Other	$18,000.00	$20,000.00	$22,000.00	$24,000.00
Tapping Fees	$75,000.00	$50,000.00	$50,000.00	$50,000.00
Penalties	$12,000.00	$13,000.00	$14,000.00	$15,000.00
Bulk Hydrant	$24,000.00	$15,000.00	$15,000.00	$15,000.00
Other Income	$5,000.00	$5,000.00	$5,000.00	$5,000.00
Fire District	$600.00	$600.00	$600.00	$600.00
Rental Deposit	$2,000.00	$2,000.00	$2,000.00	$2,000.00
	$1,487,100.00	$1,485,600.00	$1,508,600.00	$1,531,600.00
Average Water Invoice (based on average of 5,500 gal av.)	$53.93	$53.93	$53.93	$53.93
Increase needed to per customer			$3.63	$27.01

Projected Short-Lived Assets

Below is a breakdown of the projected short-lived assets for the proposed project that have been incorporated into the previous annual operating budget.

	#	Per Unit	Cost	Life	Cost/Year
Pump/Motors - Site #2A	2	$60,000.00	$120,000.00	15	$8,000.00
				Total/Year	$8,000.00
				Total/Mo.	$666.67
Cost per Customer per Year		$3.27			
Cost per Customer per Month		$0.27			

	#	Per Unit	Cost	Life	Cost/Year
Pump/Motors - Site #2B	2	$25,000.00	$50,000.00	15	$3,333.33
				Total/Year	$3,333.33
				Total/Mo.	$277.78
Cost per Customer per Year		$1.36			
Cost per Customer per Month		$0.11			

Project (Recommended Alternate #1 – Water Treatment Plant Expansion Phase I)

The Water Treatment Plant Expansion Phase I would not only keep the Water District with their own water supply and treatment, but would also keep control of the increase in water rates for the future. Based upon the above analysis, it would be projected that water rates in 2017 would increase $12.61 per month per customer (based on an average of 5,500 gpm) as opposed to $27.09 per month with Alternate #2A or $27.01 per month with Alternate #2B. The reason for the increase in cost would be the total water purchase coming on-line. Even though the total project cost for Alternate #2A is less than that of Alternate #2B, the direct increase to the customer reflects the difference in the short-lived asset account that would be required to cover pump/motor replacement.

With the possibility of the Water Treatment Plant Expansion Phase II on the horizon, it is projected that the increase in cost per customer would still be lower than a conversion of 100% purchase of water sales and a new Water Treatment Plant would service the area for an additional 40 years. Actual water purchase agreements are only binding for a period of time and are guaranteed to be higher 40 years from now.

Even though the construction costs are lower in both Alternate #2A and #2B than Alternate #1, the difference in the purchased water for the future would result in an approximate increase of either $14.48 (Alternate #2A) or $14.40 (Alternate #2B) for the current 2,444 customers from that of Alternate #1. Another factor of reducing and removing O&M costs from Alternate #1 do not offset the additional fees that will be imposed on the Water District over the first five (5) years and no binding agreement of higher water costs for the future.

It is the recommendation of this report that the Water District pursue the Water Treatment Plant Expansion improvements and continue to supply and treat water for their District.

Funding Options

Several funding options exist to assist in the construction of this project. They are listed below for further consideration:

1. United States Department of Agriculture – Rural Development (RD): USDA-RD grants and loans are established for public and not-for-profit organizations

serving areas with populations fewer than 10,000 or other rural areas when conventional funding is not affordable, who demonstrate a need for the project. A full PER is required along with the application and must be submitted to USDA-RD for review to ensure that it meets feasibility and reasonable cost standards. A focus is placed on maintaining user rates at an affordable level and comparable to recent projects of a similar scope. Should the median household income be below 80% of the state's non-metropolitan income, up to 75% of the project cost could be awarded by grant, and up to 45% if that initial condition does not apply. Grant matching is not required; however, it does increase the funding priority. USDA-RD loans are issued with a maximum repayment period of forty (40) years and have a 4.00% interest rate. CGTPW falls under the market rate currently of 4.00% and they will not meet the grant requirement, nor would they qualify for CDAP money.

2. Illinois Environmental Protection Agency – State Revolving Funds - This type of funding is mainly for units of local government and some non-governmental community water supplies. Unlike USDA-RD, these funds do not cover the planning, administration, or land acquisition phases of the project. A complete PER is not required to accompany the application, but an "Intended Use Plan," (essentially a smaller scale PER) is. Construction permits and specifications are reviewed at the state level by the IEPA. A focus is placed on maintaining rates at an affordable level. The rate on the loans awarded is established each July 1 as one half of the average market rate for the previous year. For the past eleven (11) years this rate has been below 3%. The maximum term for this loan is 20 years.
3. Illinois Financing Authority – Direct Loan: This program was established for public, private, and not-for-profit organizations to benefit the general profit organizations. Applications may be submitted year round and are awarded based on the applicant's ability to repay debt. Loan rates are set as double tax-exempt revenue bonds, backed by the moral obligation of the state, and currently trade as "A" rated with positive outlook. The loan has a maximum term of 40 years, but may not exceed the useful life of the facility being financed.

Conclusions and Recommendations

The following final recommendations are hereby submitted to the Curran Gardner Public Water Supply District for their review and consideration:

1. Approval of this preliminary engineering report should be given and the report submitted for funding purposes.
2. It is recommended that Alternate #1 for the Water Treatment Plant Expansion 1 be considered for approval. The following are the basis of the finding for recommendation of Alternate #1 as opposed to either Alternate #2A or #2B.
    a. The Water District will maintain their entire service area.
    b. The costs of Alternate #2(A or B) for the interconnections and required improvements in conjunction with the demolition of the Water Treatment Plant, abandonment of the wells, lagoon closure, genset relocation and all associated project costs could be used to move forward with the Water District's own upgrades to their well supply and water treatment.
    c. As well as the above mentioned, this additional debt coupled with total water purchase and offsetting O&M costs would reflect a greater increase in water rates for the district customers than to move forward with the Water Treatment Plant Expansion 1.
    d. It is anticipated that even with the proposed Expansion 2, the water rates could be close to the anticipated water costs to the customer to transfer the water supply and water treatment to City Water Light and Power even once the initial fees are all paid.
    e. A updated Water Treatment Plant will service the area for the next 40 years.
    f. The Water District will not be held to increased water rates imposed by 100% water purchase agreements.
    g. Water Rates from City Water Light and Power have the possibility to increase drastically due to other CWLP improvements that may be needed in other areas that do not benefit Curran-Gardner's District area.
    h. The talk of Hunter Lake has been an ongoing project and the actual timeframe of its fruition is unknown as well as the total costs for the completion of Hunter Lake or an alternate water supply and associated improvements. This project will increase user rates to all City Water Light

and Power customers.

i. The water supply from the City Water Light and Power is surface water which is the most highly regulated and cost intensive source of water regulated by IEPA.

j. There is a higher variation in water quality and quantity in surface water vs. ground water. Curran-Gardner presently has sufficient production and water quality from their existing five (5) wells.

3. The design and construction of the expansion should be attempted as soon as possible. The rising cost of construction and other inflationary factors will only result in more difficulty financing the project at a later date.

It is recommended that Water District pursue Alternate #1 and that the Water District moves forward to continue with pumping, treating and distributing potable water to their District's service area.