



Proposed Construction of Public Water Supply
System for the Village of East Williston
Presented by Paul J. Granger, P.E.

Introduction

- H2M architects + engineers (H2M) was retained to prepare a report to evaluate the option for the Village to develop its own source of supply



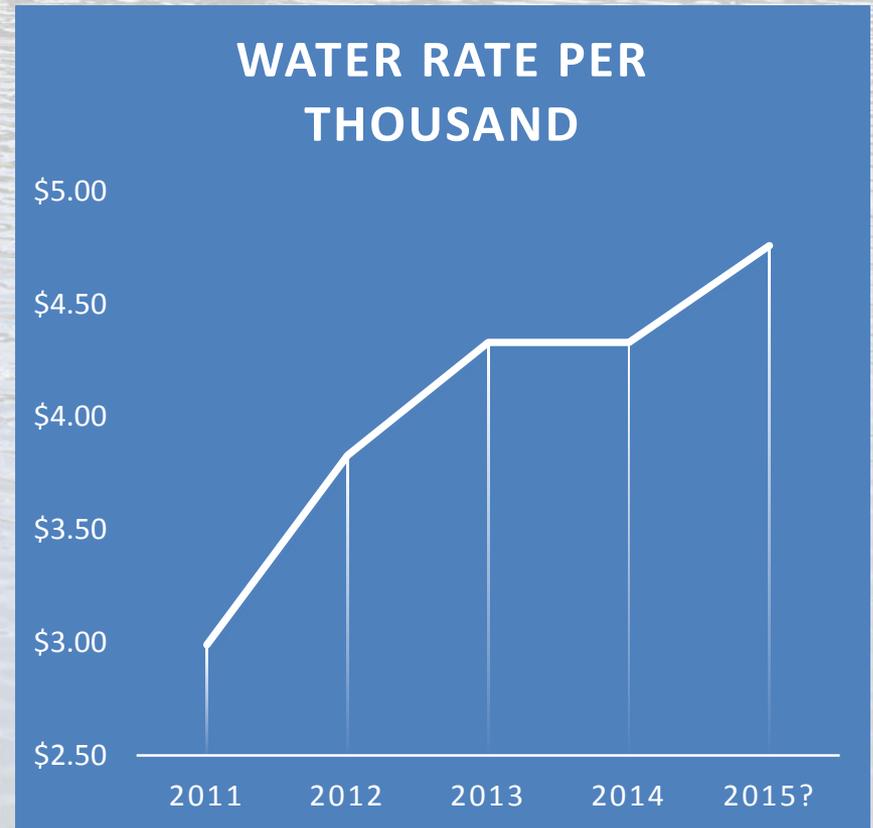
Need to Evaluate New Supply System

- Recent and substantial water rate increases implemented by Williston Park has compelled the Village to evaluate the option to develop its own source of supply.
- From 2011 to 2012 wholesale water rates increased by 45%



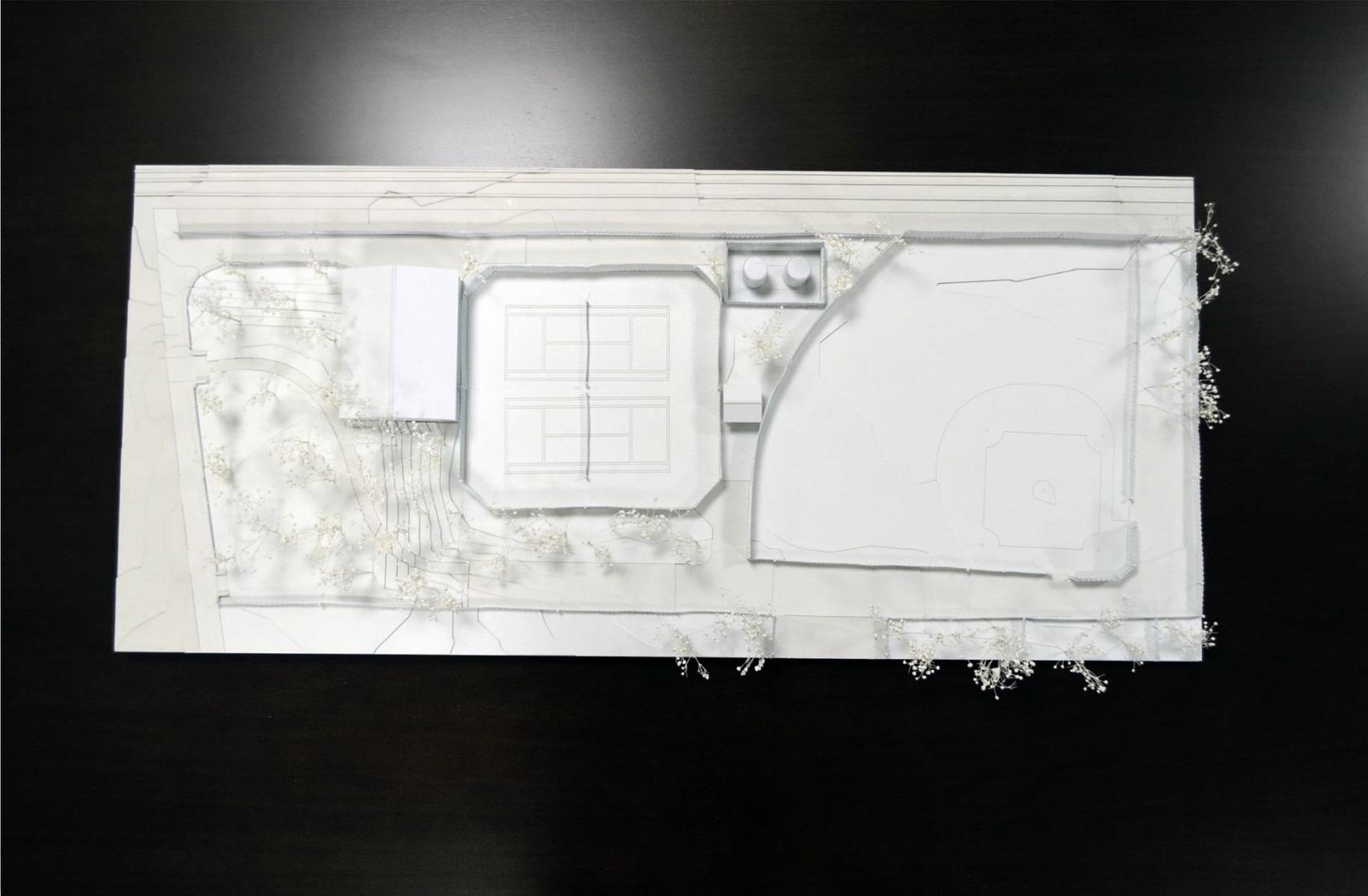
Water Rate History

- Current Rate - \$4.33 per thousand
- Rate as of August 2012 - \$3.83 per thousand
- Rate as of April 2011 - 2.99 per thousand



Proposed Design

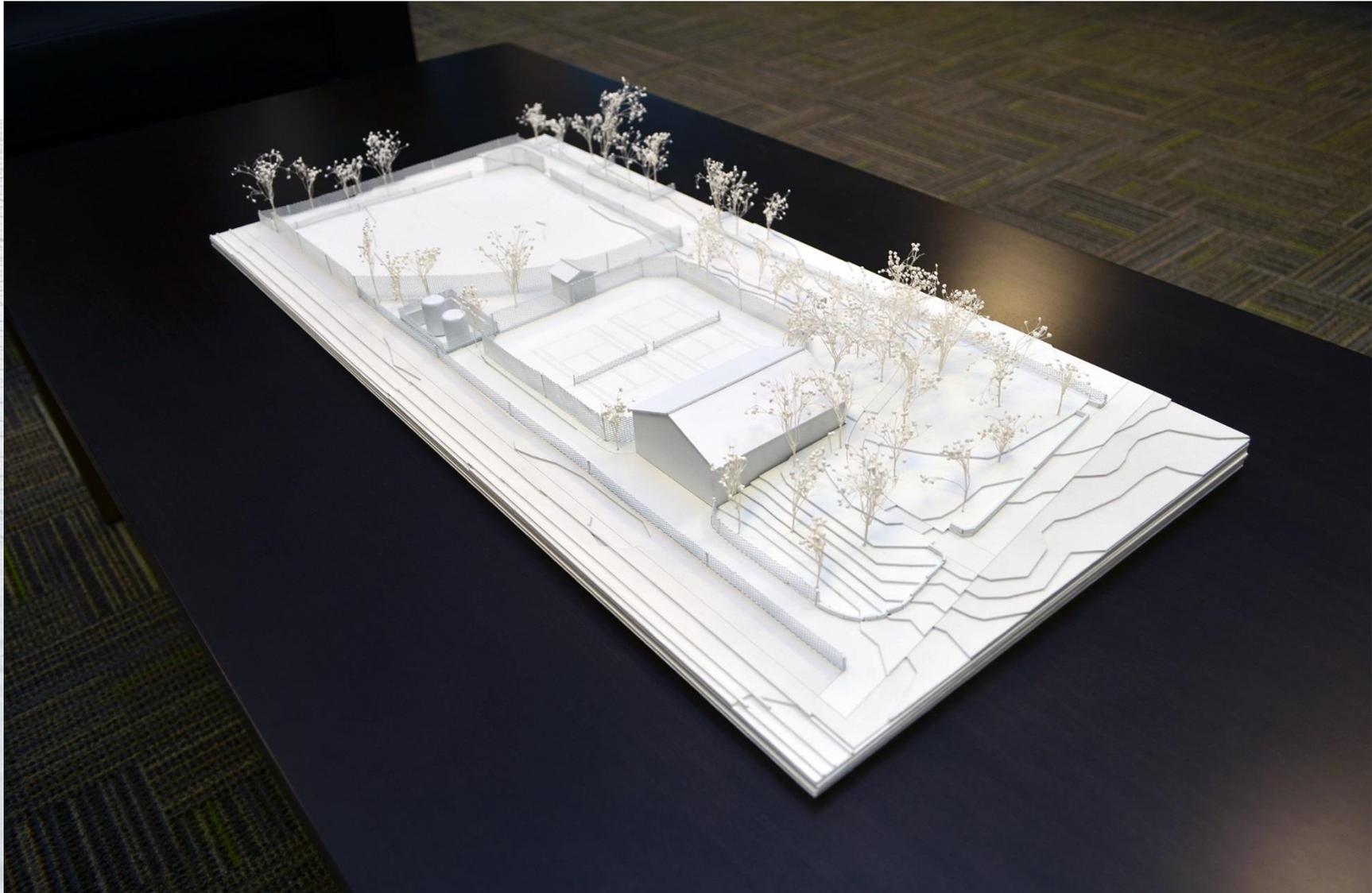
- Supply wells to be equipped with variable speed drives pump through GAC Filtration System to a ground storage and distribution system.
- Variable speed booster pumps will be used to draw water from the storage tank.
- To further reduce capital costs a prefabricated treatment building will be utilized. The building will be positioned on site to minimize disturbance to the existing tennis courts



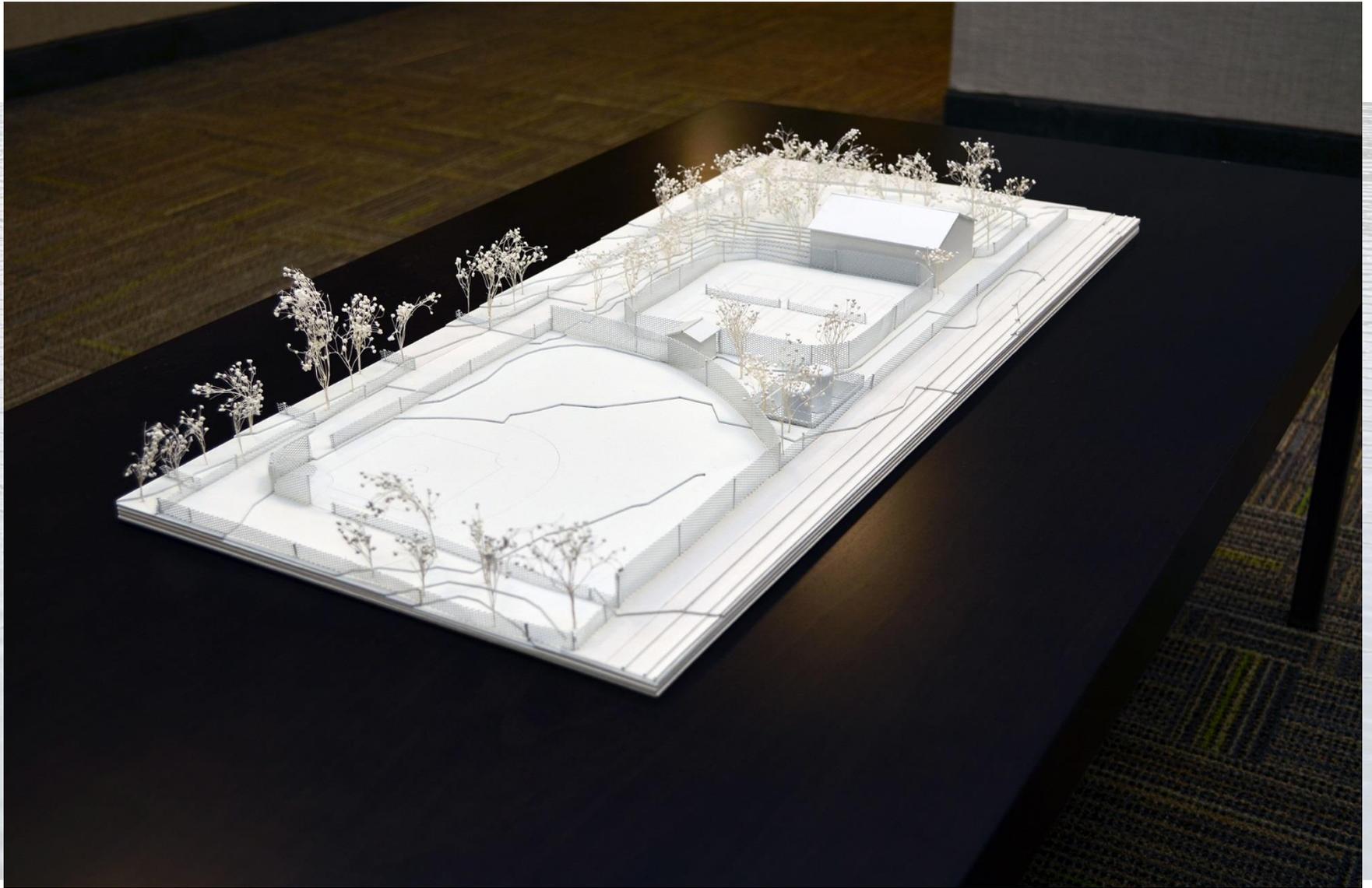
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water



Water System

- Two 1,400 gpm supply wells and a 100,000 gallon ground storage tank will be required.
- This will provide the Village with 4.13 MGD in total capacity.
- A single 1,400 gpm (2.0 MGD) supply well along with 100,000 gallons of storage will be able to satisfy all projected demand conditions.
- Each well will be screened within the magothy formation but at different interval



Water System Operations

- Requires a Water Plant Operator with a IB certification.
- Facility must be inspected at least once a day.
- Computer monitoring for automatic operation and remote monitoring
- Monthly water treatment chemical deliveries.
- Weekly testing of the emergency back-up generator.

Capital Cost

	DESCRIPTION	Cost
1	Bonds and insurances	\$267,190
2	General conditions*	\$485,800
3	Clearing, excavation, subgrade preparation, grading, restoration	\$125,000
3a	Tennis court reconstruction	\$200,000
4	Drainage piping / blow-off system	\$50,000
5	Paving, sidewalks, aprons and curbs	\$50,000
6	Site watermain (pipe, valves, fittings)**	\$50,000
7	Concrete storage (100,000 gallon)	\$500,000
8	Prefabricated well and treatment building (2,400 sqft.)	\$528,000
9	Construction of test well, two permanent well, two 1,400 gpm well pump and motor	\$700,000
10	GAC Filters (4 Vessels) - one indoor pair and one exterior pair	\$700,000
11	Chemical transfer containment pad	\$30,000
13	Transfer and Booster pump systems	\$250,000
14	Large piping, valves and appurtenances	\$200,000
15	Small piping, valves, and appurtenances	\$50,000
16	Chemical treatment systems	\$125,000
17	Electric power distribution	\$250,000
18	Electrical controls and instrumentation	\$300,000
19	Electrical site work including Generator	\$750,000
	CONSTRUCTION TOTAL	\$5,610,990
	Engineering, Design & Construction Administration (10%)	\$561,000
	New Public Supply Well Engineering Report and Permit Application	\$25,000
	Wellhead Treatment System Engineering Report	\$20,000
	Nassau County Health Department Review Fees	\$10,000
	Construction Observation (2.5%)	\$140,000
	Legal (3%)	\$168,000
	Contingencies (7.5%)	\$421,000
	PROJECT TOTAL	\$6,955,990

*General Conditions includes specific and non-specific costs including survey, clerical tasks, mobilization, demobilization, project management and supervision etc.

** Water main work will include installation of pipe, valves and fittings to connect new water treatment plant to existing 8" diameter water main located on NYS Rt 25A

Annual Operating Costs

A. Summary of New Water Supply and Wellhead Treatment System Electrical Equipment:

Electric Utility Provider	LIPA
Projected Electrical Rate Code	285 (>145 KW in any two Peak Season Months)
New Water Supply Plant Electrical Equipment Descriptions	2- 75 HP (55KW) 1,400 GPM Well Pumps 4 - 5 KW Heaters - Off Peak Season Only 5 KW Miscellaneous Equipment
New Water Supply Plant Electrical Demand Totals	70 KW Off Peak Season (One Well) 95 KW Peak Season
New Wellhead Treatment Electrical Equipment Descriptions	2 - 25 HP (19 KW) 500 GPM Off Peak Season Booster Pumps 2 - 60 HP (45 KW) 1,400 GPM Peak Season Booster Pumps
New Wellhead Treatment System Electrical Demand	38 KW Off Peak Season 90 KW Peak Season

B. Annual Electric Usage and Demand Costs of New Water Supply Facilities:

Off Peak Season			Peak Season		
Demand	70	KW	Demand	95	KW
Monthly Demand Charge	\$ 5.26	Per KW	Monthly Demand Charge	\$ 27.35	Per KW
Season Duration	8	Months	Season Duration	4	Months
Total Demand Cost	\$ 2,946		Total Demand Cost	\$ 10,393	
Monthly Operating Hours (Water Supply and Misc.) ¹	225	Hrs	Monthly Operating Hours (Water Supply and Misc.) ⁴	300	Hrs
Monthly Operating Hours (Heating Only) ²	120	Hrs	Monthly Operating Hours (Heating Only)	0	Hrs
Monthly Usage	13650	KWH	Monthly Usage	28500	KWH
Usage Charge ³	\$ 0.0108	Per KWH	Usage Charge ⁵	\$ 0.113	Per KWH
Total Usage Cost	\$ 1,179		Total Usage Cost	\$ 12,882	
Total Electric Cost	\$ 5,971		Total Electric Cost	\$ 23,275	
Total Annual Electric Cost of New Water Supply Facilities:			\$ 29,246		

C. Annual Electric Usage and Demand Costs of New Wellhead Treatment Facilities:

Total Cost

Option:	2B	2B	2B
Annual Demand:	Average	Peak	Minimum
Number of Wells:	Two	Two	Two
Storage:	Ground Tank	Ground Tank	Ground Tank
Treatment:	GAC	GAC	GAC
Building:	Pre-fab Steel	Pre-fab Steel	Pre-fab Steel
Tennis Courts:	Reconstructed	Reconstructed	Reconstructed
Volume water billed (MG):	124.2	161.1	111.6
Total Capital Cost:	\$6,955,990	\$6,955,990	\$6,955,990
Debt Service 1st Year - 30 YR Bond ⁽¹⁾ :	\$394,173	\$394,173	\$394,173
Annual Operating ⁽²⁾	\$171,773	\$191,000	\$163,500
Treatment Chemicals	\$15,300	\$15,300	\$15,300
Total Annual Operating:	\$187,073	\$206,300	\$178,800
Total First Year Costs - 30 YR Bond ⁽³⁾ :	\$581,246	\$600,473	\$572,973
Cost per thousand billed:	\$4.68	\$3.73	\$5.13
Net cost per thousand after taxes:	\$3.73	\$2.99	\$4.07
Notes:			
(1) - Based on 3% interest rate.			
(2) - Includes lab analysis and labor			
(3) - First year debt service (based on 30 years) and operating costs			
- Projections based on 2004 to 2014 water usage that factors in 10% unaccounted for water.			
- Unaccounted for water is water that is not billed that is attributed to hydrant use and leaks.			
MG - Million Gallons			

Cost per Thousand

	Cost per Thousand Matrix for Option 2B			
Demand Category	Annual Demand (Gallons)	First Year Cost	Cost per Thousand Billed	Net Cost per Thousand After Taxes
Maximum	161,100,000	\$600,473	\$ 3.73	\$ 2.99
Average	124,400,000	\$ 581,246	\$ 4.68	\$ 3.73
Minimum	111,600,000	\$ 572,973	\$ 5.13	\$ 4.07

Note: The net cost per gallon is expected to be lower due to the levying of the capital cost

Next Steps

- SEQRA
- NYSDEC Well Permits
- Legal -partial conversion of a public park and recreation area for water supply use.
- Obtain Financing
- Detailed Design
- Obtain final Health Department Approval to Construct



Approval Obtained

- The New York State and Nassau County Health Departments have approved the “Basis of Design” report.



Construction of New Public Water Supply Well and Wellhead Treatment System

Month	Task	Task Duration
1	Notice to Proceed issued for Permit and Design Phase	
	Prepare Engineering Report and Permit Applications for Public Water Supply Well include SEQRA	8 weeks
	Prepare Engineering Report for Villlage Water Department system	8 weeks
2	Prepare plans and specifications for construction of test and permanent wells	6 weeks
3	Submit Engineering Report and Permit Applications for Public Water Supply Well To NYSDEC for review and approval	8 weeks
	Submit Engineering Report for Water System Extension to Nassau County Health Department for review and approval	8 weeks
4	Submit plans and specifications for construction of test and permanent wells to Nassau County Health Department for review	8 weeks
5	Advertise and bid contract for construction of test and permanent wells	
6	Start construction of test well	6 weeks
7	Obtain water quality samples from test well	
	Start construction of permanent well	8 weeks
8	Based on water quality, prepare engineering report for well head treatment	6 weeks
	Prepare plans and specifications for construction of well head treatment facility.	12 weeks
10	Permanent Well construction complete	
	Submit plans and specifications for construction of wellhead treatment facility to Nassau County Health Department for review	8 weeks
12	Advertise and bid contract for construction of wellhead treatment facility.	4 weeks
13	Start Construction of wellhead treatment facility	18 months
30	Plant operational and accepted for service by Nassau County Health Department	



H₂O water

Thank you!