

WHITE PAPER

PROSPECT HEIGHTS WATER STUDY COMMITTEE SUMMARY REPORT

The
Prospect Heights Water Study Committee
was
Commissioned
by the
Prospect Heights City Council
August 2, 1999

This Summary Report
was
Completed
August 4, 2000

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PROSPECT HEIGHTS WATER STUDY COMMITTEE SUMMARY REPORT

PREAMBLE

A White Paper is defined as an informational report prepared and issued by an organization. On August 2, 1999, the City Council authorized this study and White Paper Report in order to provide a current, reliable point of information and reference for water matters relating to the city's future. A conscious effort has been made to present facts only. At the end of this report there is a brief list of conclusions based upon the facts. This list of conclusions is not all-inclusive. The reader may draw other conclusions or disagree with those listed. There are no recommendations made in this paper.

The future of water service within the City has three major areas of concern. The first is the felt responsibility of the Prospect Heights City Council to study the feasibility of bringing Lake Michigan water into the City to meet the present and future water demands. The second is the need to explore and review the pros and cons of maintaining the status quo with regard to water sources. The third is the consideration of the need to provide a source of water to residential and business locations that will supply ample water for daily use and fire protection.

The Prospect Heights Water Committee consisted of 21 citizens selected by a process approved by the City Council. The senior Alderperson from each of the five wards was requested to submit the names of two residents in the Alderperson's ward to serve on the committee. The senior Alderperson from each ward was also included as a member of the committee.

The Council wishes to thank the citizens who served on the Water Study Committee for the many hours they contributed to the project. A special thanks to James Wylie and Sally Lockwood for sorting through the large amount of material submitted by the various sub-committees, selecting the information most relevant to this report, condensing it to readable form and preparing this White Paper for the City Council and the populace of the City of Prospect Heights. It is our opinion that this report is creditable, fair and impartial.

Alderman Tom O'Donoghue
Alderman Tom Shirley
Co-Chairmen Water Study Committee
May 25, 2000

INTRODUCTION

Over the years, city officials have kept a watchful eye on the issue of water from the perspective of supply, quality, service, public health, public safety and economics. Since the City was incorporated in 1976, three separate studies have been commissioned by the City to study the issue of water - especially the possibility of bringing Lake Michigan water to the private well areas of the City. The initial study, done by Alvord, Burdick & Howson (1989) was authorized to study the feasibility of developing a municipal water system to serve those residents with private wells. Two of the studies were done by Camp, Dresser and McKee in 1996 & 1998. The 1996 CDM study was an update of the AB&H study done in 1989. The 1998 study was an in depth study of the transmission line that would provide Lake Michigan water from Glenview. The current administration and City Council have jointly sponsored this study and White Paper Report to update the facts about cost, review how water issues impact the quality of life for residents now, and the investment impact for business and property owners now and in the future.

At the present time the city operates the Prospect Heights Water System which supplies water to Rob Roy, Fairway Estates, Marriott's Brighton Gardens, Concord Villas, and River Trails Park District. In addition, residents and businesses on the East side of the city are provided water by the American Water Works Company. Through a special arrangement with Mt. Prospect, water is being provided to Walgreens, the Fire District Headquarters, the Police Center, City Hall and the Social Security Building on Euclid Avenue. All single family residences and businesses not serviced by the Prospect Heights Water System draw water from a well at each site. Some 7,000 residents and business establishments have water provided from about 2,000 wells.

As indicated above and in the body of this report, there have been several public discussions and studies commissioned about water service from time to time since the City was incorporated in 1976. There is considerable interest on the part of a group of property owners who are not now served by the present Prospect Heights Water System who feel the time has come for the municipality to provide Lake water to all sections of the City not now on Lake water. There is also considerable interest on the part of a group of property owners who are not now served by the present Prospect Heights Water System who feel that the status quo should be maintained and wells

should be retained as the main source of water for those homes and businesses presently served by wells.

Many citizens feel that it is the responsibility of the city to address fire safety by providing water through a fire hydrant system. A reliable water system is a business and public health and safety issue for the City. Property values have increased considerably in recent years, and there is a feeling that property owners are more sensitive to the need to protect their property from the ravages of fire. Optimum fire protection is a goal. The present deep wells, servicing the Prospect Heights Water System, are not capable of providing an adequate water supply for the entire city. The City needs an alternate source of water to replace its current deep well sources that have contamination problems, and that are incapable of providing water to that portion of the City now on wells. It is suggested that a different "public mind" exists today regarding the need to protect the value of property.

Figures associated with various costs mentioned in this report are approximate, but realistic, based upon Task Group efforts to be as accurate as possible. In some instances, especially in the report rendered by Task Group 2, it would have been necessary to obtain bids from reliable companies regarding the installation of the infrastructure and cost associated therewith to be precise. At this stage of development of a possible project, companies will not take the necessary time and incur any cost to propose and submit numbers for the project. Costs are reliably close, but not precisely accurate. They are close estimates obtained through the best efforts of the Council, consultant assistance and staff.

The City is studying and pursuing an alternate source of water to address some of the problems mentioned in this report. This report will address the concern that the city runs the risk of possibly losing its present allocation of Lake Michigan water if it is not used soon. Once lost, it will take considerable time to reapply and, only possibly, be granted a new allocation.

The amount of Lake Michigan water is diminishing as it is drawn on to supply water to an ever-increasing number of communities. The total amount available is ultimately limited by a water treaty between the United States and Canada. Throughout the nation and the world, water has been inventoried as a finite resource. It is limited in quantity. The four main reasons for concern regarding the cost benefits of Lake Michigan water in Prospect Heights are

1. Public health and safety issues
2. Economic development issues
3. Property value issues

water as a diminishing resource

This Prospect Heights Water Study Summary Report is the result of citizens' effort to provide an overview of the present situation with an eye to the city's needs for water in the future .or domestic. business and fire protection uses.

This report will not make recommendations. It will be presented to the City Council for its analysis. information. and consideration. The Council will then consider when and how the City should proceed regarding the matter of water. It will be shared with the general public in the following ways:

- A. This Summary Report will be available to any interested party.
- B. Information from the report will be presented in one or more issues of the city's official newsletter.
- C. All of the materials each Task Group used in developing their reports will be kept on file at City Hall for review by interested citizens.
- D. Summary information will be available on the City Web site at <http://www.ci.prospectheights.il.us/orgtphkhome>.

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Costs of Wells and Conditions of Well Water in the City

Task Group 1

Carole Dujmovic, Chairman. Corrine Kelly, Hart Kargeniau. and Richard Kellerman were assigned to report on the costs and conditions associated with well water. A complete report is available at City Hall.

The City of Prospect Heights has approximately 1500 single family homes and business sites. the majority of which have an individual shallow (75' - 50') well as the main source of water. Since 1976. up to July. 2000. 196 well permits for drilling have been issued by the City. Many of the permits were for new wells for new homes, but most were for new wells drilled to replace old wells. In December. 1994. a contamination of the aquifer running through the Drake Subdivision became evident. Cherry Creek Subdivision reported a problem at the same time. Dr. Dennis Brown. City Health Officer, advised all well owners in the area how to test and treat their water. The problem was quickly resolved. In the immediate past. a huge gasoline spill occurred. At their own cost. Ameritech. Com Ed and NIGAS sunk three wells to check on any hazards. No trace of hazardous waste was identified. In 1989. there were five private home wells drilled to 700 feet. Four local well contractors were contacted to determine the benefits and problems associated with well maintenance in Prospect Heights. The Task Group wants to thank these contractors for taking time to furnish the necessary information which follows. The complete report from the well contractor is part of the Task Group 1 final and complete report on file at City Hall.

A. What are the average costs for infrastructure of wells?

1. Lowering a pump:

It is possible that a well that is no longer producing adequate volume can be returned to useful service by lowering the level of the pump in the casing.

Price Range: \$500.00-51-000-00

Average Cost: 5675.00

Replacing a pump:

Well pumps are generally V_ h.p. - 1-1/2 h.p. On the average, pumps have to be replaced every ten years. although some last for 20 years or longer.

Price Range: 5900.00 - 51.800.00 Average Cost: 51,350.00

3. Deepening a well:

An existing well can be deepened. Provided it has a 5" or larger casing. (If the well has a 4" casing, according to Cook County Code. a new well will have to be drilled with a 5" or larger casing.) Price is determined by the depth needed and the possible need for a new pump.

Price Range: 52.000.00 - 54.000.00 Average Cost: 53.000.00

4. Drilling a new well:

Figures include well drilling, casing, pump, tank. pitless adapter. trenching, water and electric lines. grout. permits and water testing. Pricing is influenced by many variables with the most significant being the depth of the well and the size of the pump. The useful life is assumed to be 40 years.

Price range: \$5.72_0.00 - 57.350.00 Average Cost: \$6.525.00

B. What is the average cost for water from a well?

I Equipment and labor costs

The cost of water per month i based upon daily usage of 100 gallons per person for 2.5 people) including the cost of the pump prorated over 15 years. electricity to pump the water. water softener. regeneration and salt is 522.61. If you had to drill a new well today. the cost of drilling a new well. abandoning an old well. purchasing a pump at 51.:13 and installing a tank at 51.000 replaced over the next 40 years plus damage. depreciation to tile. fixtures. appliances and washables. electricity and softening would give a total monthly average cost of 536.12. Some residents reported that they incur an average monthly cost of maintaining a well of about 5120+.

MONTHLY OPERATING COSTS OF AN INDIVIDUAL WELL - WATER ONLY

Cost of pump replacement pro-rated over 15 years	56.74
Cost of tank replacement pro-rated over 15 years	5.55
Cost of electricity for pumping the water	<u>1.33</u>
Total Monthly Water Cost	513.62

MONTHLY OPERATING COSTS FOR WATER SOFTENING	IN
Cost of water softener pro-rated over 20 years	X4.15
Cost of salt (based on 4.67 regenerations per month)	<u>-1.84</u>
Total Monthly Softener Cost	\$8.99

Monthly Sub-Total \$22.61

Monthly cost of drilling a new well and abandoning the old

WELL at \$6.487.00 pro-rated over 40 years - \$13.51

Monthly Total (no additional treatment costs) \$36.12

PUMP AND TANK REPLACEMENT OVER 10 YEARS RATHER THAN 15
MONTHLY OPERATING COSTS OF AN INDIVIDUAL WELL - WATER ONLY

Cost of pump replacement pro-rated over 10 years	\$11.23
Cost of tank replacement pro-rated over 10 years	9.25
Cost of electricity for pumping the water	1.33
Total Monthly Water Cost	\$21.81

MONTHLY OPERATING COSTS FOR WATER SOFTENING

Cost of water softener pro-rated over 20 years	54.15
Cost of salt (based on 4.67 regenerations)	<u>4.84</u>
Total Monthly Softener Costs	\$8.99

Monthly Sub-Total \$30.80

MONTHLY COST OF DRILLING A NEW WELL AND ABANDONING THE OLD

WELL at \$6 525.00 PRO-RATED OVER 40 YEARS \$13.59

Monthly Total (no additional treatment costs) 54439

Note: Since treatment costs vary depending on quality of water and required systems for change, we must allow each homeowner to recalculate their individual costs to be more precise. Softener ownership and salt are the only treatment additions calculated here.

Figures are based on the Camp, Dresser and McKee City of Prospect Heights: Update of Municipal Water System Study, October, 1966. adjusted to include a 3% inflation rate.

It is necessary to comment that some residents do absolutely nothing to their water. They have no need to even soften it or own a softener. On the other hand, there are other residents who have spent thousands of dollars improving their potable water both inside and outside their homes. It is possible to obtain the quality of water each homeowner prefers. The difference is found in the amount of money each homeowner will be required to pay in order to obtain that water and to what extent those homeowners are willing to spend any money on well water improvement. When we purchase our homes in Prospect Heights our well water comes with them. Some will not like well water. Individual preference is the key to enjoying whatever water is available.

Water Treatment (based on 100 gallons per person per day with 2.5 persons per family) The need for treatment of water varies depending on the quality of the water coming from the well and the level of preferable treatment.

a. softening (optional)

Salt per month: \$4.84

b. Removal of rust (optional)

Rustraz: \$1.00 - \$ 10.00 per month

Iron/Rust Removal system (optional) 550.00 - 5275.00 per unit

c. Filters for drinking water (I optional)

Sediment filters: partridges: 53.50 per month

Reverse Osmosis: 5150.00 - \$ 1,500.00 per installed unit

d. Bottled Water i optional

Delivered: : gallon bottle at \$7.00 each x 6 bottles equals

542.00 per month

Purchases: gallon bottle at \$ 1. 15 each x 30 bottles equals

534.50 per month

e. Water testing: i encouraged) test kits available at City Hall

Standard test: Bacteria (coliform group) \$25.00

Complete analysis: 3300.00 - \$ 1,000.00 or more

f. Other costs: i optional) These would include costs one resident may have and

another may not have. 50 - \$ 1,000.00 per year or more

Generally, the deeper your well, the harder you'll find the water. This hard water may leave:

deposits which could shorten the life of any appliances this water comes in contact with. but like any appliance. things break and must be repaired and replaced. Also. there are products available to remove these hard water deposits.

Some deeper wells may contain more iron and possibly a sulfur dioxide odor. Time spent on making well water more acceptable should also be a cost consideration.

Owning your own water as well as its source has its advantages and disadvantages. A community living with individual wells must remember that water is a most precious resource, and we must respect its importance to the health and well being of our families and our entire community.

C. What are considerations for water from wells?

No water - Everyone has water. A new pump, a new well or the lowering of the present well by drilling deeper will solve the problem.

- Low water yield - This occurs. not because of an inadequate supply of ground water, but because the well location impedes ground water flow. A well contractor may be able to increase ground water flow by drilling a new well.

Low water pressure - Pressure pumps and boosters are available to help in this area. This can be checked by your well contractor. You can also do this yourself.

- + Radon and other contaminants - Radon is usually only a problem in deep wells. It is present in the 1,000 foot deep well currently serving the Prospect Heights Water System. With the exception of 5 wells at 700 feet. all others are 75 - 150 feet deep.

- E. coli - Bacteria such as e. coli is not a common problem. Testing materials for e. coli are available from City Hall for \$325.

Abandonment of a well - An unused or inadequate well source must be abandoned. There is a proper procedure to accomplish this, and there are rules. The cost of this service by your well contractor is approximately \$ 1000. Proper documentation from several agencies is necessary.

Hard Water Deposits - These are deposits of clay colored rock-like corrosion. restricting water flow and coating water pipes causing reduced water pressure. Heated water forms rock- like scale faster. Showers and boiling pots may show evidence of this problem. A

properly maintained water softener can help this problem. Remember that all water, no matter the source, leaves time deposits unless it is distilled or de-ionized. The well water in Prospect Heights has a hardness level of about 30 gpg.

Water Softener - Based on the principle of ion exchange, with sodium and potassium substituting for calcium and magnesium ions, a silky feel to your water can be obtained. Take out the calcium and magnesium and hard water can be improved. Softened water is not recommended for drinking, but can save on soap and may improve problems in other areas.

- Filtering - Filters remove impurities and some can recover solids in your water to be removed by other means. Activated charcoal filters come in a variety of models. There are countertop units, faucet attached units, as well as connecting units tilting between Water pipes. Filters help to remove odor and taste causing elements, and must be changed regularly. Further filtering is accomplished through reverse osmosis.
- Reverse Osmosis - The ultimate filtering is reverse osmosis. Reverse osmosis refines all water connected to the unit which is usually located under the sink. The resulting water is appropriate for low sodium diets, more flavorful foods and beverages. It improves taste because dissolved mineral salts, bacteria, chlorine, and foreign material which contribute to bad taste and odor are removed. There are additional piping costs for the waste product.
- Fixture and laundry stains - This is due to a high pH (acid-alkaline, manganese, soluble iron) in the water. Such water can be treated with a water softener that is working properly and the addition of an iron/rust removal unit where necessary.
- Dirt and rust - Sand, silt, and the occurrence of problems with your plumbing system occur when a sediment filter system is not used or is not replaced often enough.
- Odor - Possible overuse of chlorine (from tablets) or hydrogen sulfide deposits yielding a rotten egg smell are the cause of bad smelling water. By using a better quality carbon filtration system and reverse osmosis you can produce better smelling water.

Bad taste - This problem is due to decaying organic materials and possible heavy iron and other mineral deposits. The same carbon system recommended for odor problems can help in this area. Also, a reverse osmosis system will help.

Bottled water - Available delivered or in grocery stores. It's an easier choice than many of the others, with less work, but water in bottles delivered to your door may cost upwards of \$40.00 per month for a family of 4 based on \$7.00 per 5 gallon bottle. This cost is regularly adjusted by the water distributor.

D. Other Findings

- There are people who prefer well water to Lake water.
- There are people who enjoy owning their own water and maintaining their own well.
- Fluoride in our well water is new PERFECT according to Dr. Densii Brown. City Health Officer.
- Most problems with well water can be corrected at a cost - sometimes at considerable cost.
- Wells are individual and so are the problems associated with owning and maintaining a well.
- Well water is not free.

E. Questionnaire Responses

Included in the full report of Task Group i are approximately 150 responses to a questionnaire circulated by the Group requesting resident testimonials focusing on individual "water stones." This questionnaire survey did not attempt to gather statements from schools, churches, private agencies and business organizations. An analysis of this survey can be found in the main report. The questionnaires revealed personal feelings on the part of the respondents ranging from highly satisfied with wells. to highly desirable to obtain Lake Michigan water for a variety of reasons. More than half of the respondents were willing to pay 55,000 - 530,000 if Lake water is obtained. but few were willing to pay the full pro-rated amount required for a Prospect Heights Municipal Water System. Some indicated that they could not afford anything toward the cost of obtaining Lake water and for that reason were not interested. Most who favor Lake water would insist on keeping their wells for outside use.

Comments from public health authorities from the Township, County or State. were not sought. Comments from Fire Chief Gould and the Prospect Heights Health Official Dr. Densil Brown were sought.

The City Health Officer. Dr. Densii Brown. tiled a report which is included as follows:

"I have been requested to address the quality of well water in Prospect Heights.

The wells vary in depth in this area from approximately 100 feet deep on the shallow side to about 250 feet at its deepest. These water supplies are in addition to the commercial wells which start at a depth of approximately 1,000 feet. The residential

veils (100' - 50') are further divided by water sources. i.e., Lake Michigan and Lake Superior underground streams below the limestone barrier. Breaks in the barrier account for the more shallow private wells.

Most of the residential wells contain a rich concentration of minerals and elements. i.e., fluoride, iron, phosphates, calcium, etc., naturally occurring. Some wells also possess sulfur, giving an unpleasant odor similar to rotten eggs.

Radon has been suggested as a possible contaminate to our water source; however, radon is normally a gas and creates a far more serious threat as a gas occurring in basements and crawl spaces. Radon is a by-product of decaying radium which is rarely found in any quantity in shallow wells. However, radium is practically always found in wells below 1,000 feet in quantities exceeding federal standards of 5 PIC.

Of much more concern to homeowners is the bacterial contamination that occurs when well seals are not periodically checked and replaced, new wells are drilled in the neighborhood and proper safety measures are not taken, or wells are not properly connected or sit dormant for prolonged segments of time. Testing for the bacteria i coiofirm group - 8 different bacteria) in water is relatively inexpensive i approximately \$25.00). Instructions and containers for collection are available in the City Hall.

Much of the elemental testing is also available at State approved testing laboratories in the northern part of the State. The cost, however, can become very expensive depending on the tests ordered. Organic solvents can be tested for their presence if you suspect a contamination has occurred. These tests may become very, very expensive."

Costs of Obtaining Lake Michigan Water

Task Group 2

Task Group 2 was chaired by Mayor Ed Rotchford, and included Warren Sunde, Richard Tibbits, William Jackson, and Nick Teramani. This task group was charged with gathering information about our status regarding the obtaining of Lake Michigan water and the approximate costs associated with movement to a municipal water system for that portion of the City currently using wells as their main source of water. The East side of the City is currently served by American Water Works. This area is not included in the study by Task Group F2. It must be pointed out that there are two costs associated with getting Lake Michigan water into Prospect Heights. 1) Cost of installing a transmission line from some source to the City, and 2) Cost of installing the Infrastructure distribution network throughout the area currently served by wells. It must also be understood that obtaining water from various sources involves political as well as economic considerations. It was a difficult task to determine exact costs associated with various materials for a water distribution system.

- A. What is the last date for obtaining Lake Michigan Water without jeopardizing the city's allocation?

Periodically the Illinois Department of Natural Resources (IDNRI reviews and can change or revoke water allocations depending on use or non-use. In December, 1980, IDOT allocated Lake water for the City but did not specify an amount. In 1989, 580,000 gailday was allocated. The allocation has been increased from time to time to the present allocation of 1.56 million gal/day for the City. The years 2000, 2005, 2010 and 2020 are years for review by IDNR. The City of Prospect Heights could lose its allocation at any time because of non-use. Our allotted allocation would stand a better chance of being protected if we obtained and started to draw Lake Michigan water for the existing City Water System.

- B. What are the main water transmission infrastructure costs?

There are three piping options when considering a water system infrastructure for Prospect Heights. They are:

- DIP - Ductile Iron Pipe
- PVC - C990 - a restrained joint version of PVC plastic pipe
- HDPE - High Density Polyethylene - This piping system is similar to C990 except that the fastening method is fusion.

DIP

DIP is a traditional water transmission piping material which is generally more expensive for initial construction. The alternatives of PVC and HDPE can be used in an attempt to lower initial construction costs. DIP, when installed properly with adequate corrosion control, routinely lasts in excess of 75 years. DIP is readily available in the marketplace and is able to withstand impact from construction equipment. DIP is considered by Camp, Dresser and McKee in a report dated June 2, 2000, to be the best material for long term reliability. Some installations are still servicing communities after 100 years of use. DIP has been the industry standard for decades. DIP has to be bedded and a trench has to be dug in which to lay the pipe. It cannot be installed by directional drilling which accounts for a higher cost of installation because of the labor costs associated with installation. An estimated cost for a DIP system in Prospect Heights is listed in the chart which follows this section. DIP installations are not guaranteed.

PVC

Several municipalities utilize PVC pipe for small diameter distribution piping - 8" or less. PVC, when properly installed, has an estimated useful life of at least 25 years. This material is difficult to yield locate and tends to get brittle with age. PVC piping is more susceptible to damage. Life expectancy is not known because there are no installations with a service life beyond 25 years. PVC is a viable product which is used extensively, especially in recent years. The benefits of PVC pipe are that it can be directionally bored into the ground, is lighter weight and less expensive than DIP, mixes well and matches all standard DIP fittings and meets the standards of the American Water Works Association (AWWA) and the National Sanitation Foundation (NSF) for potable water service. PVC solvent welding joints are more brittle - especially in cold weather. Municipalities using PVC are Mundelein, Westmont; Lake County, Illinois: LaGrange; Carbondale; BeUville;

Kenosha. Wisconsin: and Pleasant Prairie. Wisconsin. Cost of a PVC installation for Prospect Heights is listed in the chart which follows this section.

HDP

HDPE, has only been in use for water systems for the last ten years. There are no installations with service life as a water supply material beyond this period of time. HDPE is growing in use. It is guaranteed from the manufacturer by a performance bond for a period of 50 years. HDPE does not corrode. Use of HDPE has been slow in the United States due to memories of the problems first encountered with PVC. HDPE is used extensively in Great Britain. One of the advantages of HDPE is the strength of the joints. Fusion welding leaves virtually no joint. HDPE is used extensively for trenchless installations. It is installed just as the trenchless fiber optic cables recently installed in our City. Directional drilling of initial installations and river crossings is increasing the use of HDPE.

Other features of this pipe include:

- availability in different sizes
 - can be repaired with existing tools and equipment
 - can be mechanically jointed and is hydraulically smooth
- impact resistant - a burst is isolated and does not travel
- flexible and easy to handle - no need to bed the pipe
- needs less manpower to install
- stronger when it gets colder (good to -180 degrees F)
 - repair is simple - squeeze off damaged section (can be cut with chain saw or hack saw) and a new piece can be electro-fused in

municipalities that have used HDPE pipe are Matteson: Olympia Fields: Peoria: Libertyville: Gurnee: Bellville: Naperville: Northbrook: Lake Forest: and the City of Indianapolis. Indiana.

The Task Group called the Water Director. Milton Keyes. in Indianapolis. Indiana and was informed that the City had to replace 50 miles of DIP, that had only been in for 10 years,

with HDPE. There is a concern in the industry that DIP urea today is weaker and does not last as long as older DIP.

The total infrastructure piping system for Prospect Heights. if the City should acquire Lake Michigan water. would require 271.756 feet of piping - 75.075 feet of 12". 8.824 feet of 10". and 187.857 feet of 8". --", total of 164 fire hydrants would be required spaced 500 feet apart. Approximately 2,500 buffalo boxes would be required - one in front of each home or business. A 1,000,000 gallon water storage tower would be required. giving the Prospect Heights Water System 1-1/2 days of supply. Two tanks at Rob Roy would be retained; each holding 250,000 gallons. The City could derive 536,000/year from antenna rentals on top of the storage tower. Income from the antennas would come to the City and possibly be credited to the Prospect Heights Water System to maintain the water tower. A mix of underground trenching and open trenching would be used for an HDPE installation.

The following table of estimated costs for a Prospect Heights Water System infrastructure was prepared by Camp, Dresser and McKee in June, 2000. it shows the latest estimates obtained from a reputable company that has worked with the City for many years. To be noted is a cost for DIP lower than previously obtained from Camp, Dresser and McKee. This is possibly due to lower cost for pipe and improved methods of installation.

TABLE OF CITY-WIDE WATER SYSTEM INFRASTRUCTURE COSTS

<u>Material</u>	<u>Construction Costs</u>	<u>Remarks</u>
DIP	541.3 million	Includes buffalo boxes & fire hydrants
PVC	\$39.9 million	Includes buffalo boxes & fire hydrants
HDPE	\$39.2 million	Includes buffalo boxes & fire hydrants

NICOR currently employs the Mueller Company to install trenchless fiber optic piping in our City. This company has had extensive experience installing HDPE for national gas and other distribution systems. Task Group representatives met with a project engineer for Mueller Pipeliners. Inc. and discussed the feasibility of installing a water distribution system using HDPE. Through these discussions, it was learned that it would be possible to

install HDPE for our entire water distribution system in one year at an estimated cost of 535,000,000. At this time, the Mueller Company has offered to provide a more precise preliminary cost estimate of time and materials based on our current engineering data, to help us all make a decision about this project.

Infrastructure Cost with HDPE	532,200,000
Hydrants - 164 (500 feet apart)	246,000
Cost for storage tower	<u>1,500,000</u>
Total cost estimate from the Mueller Company	
Approximate rounded cost	<u>\$35,000,000</u>

This "quote" differs from the CDM estimate for an HDPE installation by approximately \$5 million. By averaging, it would appear that an approximate cost for an HDPE infrastructure installation would be somewhere between \$35,000,000 and 536,000,000.

it would appear that one way to save money is to use HDPE piping.

C. Would our fire insurance rates drop?

If the City had a citywide water system with hydrants, the ISO rating for insurance from most companies would drop down a point from 4 to 3, but this would have minimal impact on rates from most companies. The fire rating system utilizes a scale of 10 to I with I being the best rating. The rating is determined by analyzing a variety of factors with water availability accounting for 40% of the rating. If we attained a rating of 3, following the installation of fire hydrants, with all factors considered, our fire department would only be 8 points from a rating of 2. A 2 rating would result in a change in rate from most insurance companies. According to Fire Chief Gould, while fire insurance rates would not necessarily drop, the ability to fight a fire and save a building would be greatly enhanced because of the availability of water from a fire hydrant. At the present time, the Prospect Heights Fire Protection District can only "contain" a fire in most cases in the area served by wells and in instances when a large house is concerned, does not have sufficient water to totally eliminate the fire. (Water must be transported to the fire in a 3,000 gallon tanker truck.)

D. What sources could supply Lake Michigan water and how much would the cost of water per thousand gallons be from each?

1) Glenview - The cost would be \$2.60 per thousand (wholesale cost), which might be slightly negotiable. The cost of bringing water to the City from Glenview is presented later in this section of the report. The City of Prospect Heights and the Village of Glenview currently have a draft water agreement. Prospect Heights would have to reimburse Glenview \$1.4 million for the upgrades they installed in order to service our City. Glenview gets its water from the City of Wilmette.

2) Evanston - The first hurdle would be to get an agreement from Evanston and then see if they have the capacity to provide what we need. The cost could possibly be .34 cents per thousand gallons plus an additional fee for ferrying the water which has not been determined). We might also have to share in the cost of upgrading the Evanston system up to the percentage of water that we would use. The Northwest Municipal Water Commission could possibly not deny this option if Evanston gave their permission. The water would be "ferried" from Evanston using the NWC transmission line. It might be necessary to pay NWC a fee for using their line.

3) Mount Prospect - Mt. Prospect would be stretching their system to give us any water. and the cost to us would be double what their other customers are being charged - roughly 54.40 per thousand. Neither would Mount Prospect be able to supply the entire City. Mount Prospect draws water from Joint Action Water Agency (JAWA) - Chicago.

4) Northbrook - The transmission line cost would be twice as much as the cost from Glenview because of the need to run a longer transmission line from Northbrook to Prospect Heights. The distance from Northbrook is 16.630 feet as opposed to the distance of 7.130 feet from Glenview. The cost of purchasing water from Northbrook would be approximately \$3.00/thousand gallons.

5) Northwest Water Commission (NWC) - This Commission was created in 1978 for the purpose of bringing Lake water from Evanston to the municipalities of Arlington Heights. Buffalo Grove. Palatine and Wheeling. As time moved along, Prospect

Heights was invited to participate. but on more than one occasion. the City Council opted to not participate. When it came time to install the transmission line from Evanston to the four municipalities listed, it was determined that the best route would be through the Commonwealth Edison right-of-way in Prospect Heights. The transmission line was installed accordingly. Again. Prospect Heights was given a last chance to join the group. It declined to do so.

When the NWC was approached recently by the City of Prospect Heights to possibly tap into the main transmission line for our allocation, the NWC Board refused to accommodate the request. Legal action could be taken, and is currently being considered. to "force the hand" of the Commission and get the allocation that rightfully belongs to the City of Prospect Heights. If water could be obtained from this source, it would be possible to cut the cost of a transmission line considerably.

E. What would be the cost of bringing Lake Michigan water to the City of Prospect Heights?

The cost of bringing Lake Michigan water to the City will hopefully be covered by grant money. (Note: The City Council authorized and directed the Mayor to secure Lake Michigan water as a replacement source for the present City Water System because of radium levels in the current City well source.)

The least expensive cost of bringing water to the City would be to obtain water from the closest source. The closest source would be to obtain Lake water from the NWC transmission line running through our City. As mentioned earlier, there are inherent problems in getting water from this source at the present time. For expediency, we must turn our attention to the second best source - Glenview. It has been determined to be the most cost-effective route and supplier of water. Cost determinations. which follow. will be based on obtaining Lake water from Glenview. The transmission line would run from a metered vault at a location on the East side of the Des Plaines River at Euclid/Lake Street. to the present well water pump house on Camp McDonald road by Rob Roy.

The memo from CDM dated June 2, 2000, offers the following table of costs to transmit water from Glenview using the three different kinds of pipe. A 12" water transmission line would be installed.

<u>Material</u>	<u>Construction Cost</u>
DIP	\$1.82 million
PVC	\$ 1.79 million
HDPE	\$ 1.77 million

NICOR estimated construction costs of a transmission system using HDPE at \$1,087,000. There is a notable disparity in the cost for HDPE. The CDM estimate of June, 2000 was \$ 1,320,000 using DIP or \$1,770,000 using HDPE.

The City, through the efforts of Mayor Ratchford, has been promised \$ 1,000,000 from the State toward construction of a transmission line. The use of this grant money is time sensitive. If not used soon, it will be reallocated by the State for other purposes. This grant money will be used strictly for bringing water to the city's water system distribution point, the pump house located by Rob Roy. Some money could be obtained by the State of Illinois through the Illinois Environmental Protection Agency because of the radium content in the deep well. It would also be possible to include some of the cost of installing a main transmission line in the cost to be financed for the cost of an infrastructure, or to amortize any remaining unfunded amount in the water bill sent each month to current users.

Breakdown of expenditures for HDPE, as prepared by staff, is as follows:

\$ 100,000 Upgrade to the pump house

\$1,400,000 Payment to Glenview for infrastructure work already done.

This amount is negotiable and may be amortized over time on the water bill.

\$ 100,000 Engineering costs

\$1,087,000 actual construction costs by NICOR

\$2,587,000 = Cost to bring water to the pump house of the existing Water System.

This cost is an estimate from the Study Group. An official estimate is pending. (This is a staff estimate.)

supply. A storage tank costs approximately \$ 1,500,000 for a million gallon tank. Either of the two methods mentioned for treating the water would be costly. It must also be understood that a 1,000 ft. well drilled anywhere in our area will most likely have radium contamination. It would be far less costly to solve the problem of contamination once and for all by bringing Lake water to the existing City Water System.

F. What would be the cost of bringing water from the street into the home?

Average cost of a water hook-up from the street to each home is estimated to be between \$ 1,000 and \$3,000 depending on the actual distance of the pipe, the material specified, and the number of obstacles and amount of landscape restoration needed to complete the job. It would be possible for the city to contract on behalf of the homeowners wishing to hook up at the time of water main installation to achieve flat prices per foot that would be lower than the individual pricing and would include the cost of the plumbing inspection permit. In addition, if the homeowner wishes to maintain his or her existing well for outside (lawn, garden, car washing, etc.) water service, a backflow control device will be required to insure contamination of the city water system; cost for installation would be approximately \$200 - \$300, including the backflow device. An annual inspection fee may be required to insure that no changes were made to the piping system within the house. If the HDPE piping installation is selected, the same company could, in most installations, use trenchless installation from the buffalo box to the house. The cost would be less to the homeowner because no trench would have to be dug and landscaping would be disturbed less.

The costs of hook-up from the street and costs for the backflow device would be paid by each homeowner at the time of connection.

G. How much would the estimated monthly water bill be for Lake Michigan water?

The monthly cost of water would be determined by three elements: the wholesale cost per gallon, the cost of transmission, and the cost of system maintenance. These costs are spread over the number of gallons used per household. Typically, that would be 100 gallons per person per day. The water bill would include the cost of water purchased, maintenance and storage costs, and other costs regarding the distribution of water within the City. A typical

Prospect Heights City Water Bill might look like the following and be based on an assumed rate of 55.60/thousand gallons of water x 100 gallons/day/person with this bill based on an average household of 2.5 people [$100 \times 2.5 \times 30 = 7.500$ rounded to billing unit of 8.000]. In this sample water bill, 5.000 gallons of water was used. The breakdown is 52.60 for water, \$2.00 for operations and maintenance costs and \$1.00 to repay the \$1.4 million due Glenview over a long period of time. Total bill is \$44.80. [Please see the sample water bill included in this report.]

WHAT'S LE WATER BILL MI HT' LOOK LI

CITY OF PROSPECT HEIGHTS
WATER T T
LCK DEPARTMEN
PROSPECT HEIGHTS IL 60070-0823
847.459.0588

Statement Date April. 15, 2000

Customer Number: 1234
Service Address: 567 Anywhere

Amount Due: \$44.80

Amount enclosed: S

Payment Due Date: May 15, 20012

PLEASE RETURN THIS PORTION FOR CREDIT ON YOUR ACCOUNT

METER READINGS ARE SHOWN IN 1000'S OF GALLONS

METER READINGS: PRIOR CURRENT USAGE

-0 28 8

Balance (previous bill)	\$50.00
04/01/2000 Water	\$44.80
Payment - Thank vou	-\$50.00
TOTAL AMOUNT DUE	\$44.80

REMIT PAYMENT TO: CITY OF PROSPECT HEIGHTS
P O LOCK BOX 823
PROSPECT HEIGHTS IL 60070-0823

PAYMENTS MAILED TO P O LOCK BOX 823 ARE CREDITED TO YOUR ACCOUNT IMMEDIATELY. PAYMENTS MADE IN PERSON AT CITY HALL RISK A DFLAY IN BEING CREDITED TO YOUR ACCOUNT AS PAYMENTS MUST BE FORWARDED TO THE PUBLIC WORKS FACILITY FOR PROCESSING.

Payments are due 25 days after the billing date. A 10% penalty will be added to late payments. A 1/2% monthly interest will be added to unpaid accounts past the due date. Payments received after the statement will appear on next month's statement.

MESSAGE: SERVICE DATES: 03/01 - 04/01/2009. Payments received after statement
Please remember to have a licensed plumber perform the annual inspection

appear on x
or RPnetZ sinnvf

K. Methods of Payment for the Infrastructure Work

There are two methods of paying for the installation cost of the infrastructure:

1. Include the system cost in the water rate. and retire bonds over a period of time..
2. Establish a special service area to generate a property tax that would appear on a resident tax bill each year for 20 or 30 years.

Because the City is non Home Rule, even if a referendum should be presented in November, and is favorable. the City would be unable to fund the project. This stems from several causes:

The City cannot issue enough debt. through a General Obligation Issue, even with referendum approval. State statute imposes a debt limit of \$24 million on the City, and the City must pledge its full faith and credit for this debt. Task Group FF2 estimates the total project cost at \$35 million.

- Special Service Area (SSA) financing remains the sole source for funding for a project of this magnitude. If the electorate gave referendum approval for municipal water, SSA debt will require another approval. The purpose of a referendum will meet political, not financial objectives. A "back door referendum" would accomplish the financial objectives under SSA statutes.

Furthermore. SSA financing will avoid the City's pledge of its full faith and credit. In effect. the SSA stands alone. without jeopardizing individual homeowners that remain current on their property taxes. SSA legislation will fix the tax rate and establish. in advance. the taxes necessary to meet the needs of the bondholders.

- Grant funding has fixed requirements as to timing and amount of City expense for the project. Delays or cancellations of the project could cause inefficient allocation of these funds. In its current form. the referendum scenario could not produce property taxes earlier than Fall 2002. The timing follows:

1. Referendum in November 2000 - would give permission for the City to proceed
2. SSA ordinances before the Council during 2001
SSA levy deadline of December 2001
4. Tax dollars received Fall 2002

The referendum alone cannot generate revenue without the support of an SSA. If the City entertains an SSA ordinance in the next three months, tax dollars would be available as early as the Fall of 2001.

Those opposed to the water system have the ability to oppose the SSA through a petition process. Furthermore, this White Paper could serve as an impartial medium for consistent public information. In any scenario, the City Council must endorse the method of financing, once finalized. Some provision would have to be made for residents who are unable to pay their fair share. Perhaps a cumulative lien on property would work as a means of deferring payment for infrastructure. The legality of this method of deferring payment would have to be explored. The State of Illinois sponsors this program.

If Municipal Bonds were sold to pay for the water project, the tax bill of each property would be increased by a percentage of the Equalized Assessed Valuation (EAV). The percentage factor is yet to be determined.

The City also has the option of applying for an EPA loan through the Public Water Supply Loan Program, at an interest rate of 3%. The State of Illinois sponsors this program.

The cost of the transmission line will be paid for by funds from grants (\$1,087,000). A means will have to be derived to spread the cost of the infrastructure (\$35,000,000) equally over approximately 2,500 residential business units. If the \$35,000,000 were financed and paid for through the unit tax bill, the cost would double over 20 years because of interest being applied. If \$70,000,000, therefore, were spread over 2,500 units, each unit would have an increased tax bill of about \$1,400/year. This is an approximate amount because in actuality, the exact amount per unit would be a percentage factor of the Equalized Assessed Valuation (EAV).

1. Will there be a change in home valuation if Lake Michigan is the water source?

Regardless of what any qualified professional may think or what any average citizen may assume about this question, the only actual determining factor will be what a buyer will pay for this amenity. Jim Galvin, Director of Land Valuation of Cook County, has stated that

the county will not arbitrarily change property values in an area based on the installation of a Lake Michigan water supply. However, property values will change based on future sales prices, which are determined by perceived value on the part of each new property buyer. In random surveys, there is a consensus of opinion that a Lake water system does add value to a property. This value will be different depending on the quality of water delivered by each individual well, the comparative value of the property to other properties, excluding the water supply, and the sophistication of the buyer. In Prospect Heights, the condition of water varies considerably from well to well, and section by section, depending on well depth and water aquifer. For these reasons, the water system value to present owners may be negligible or may be great, but the only monetary value increase will be determined from home sales prices.

For example, properties located along Olive Street, which crosses the boundary between Prospect Heights and Arlington Heights are very similar, but the land value is very different. In Prospect Heights the land value is .37 cents per square foot and in Arlington Heights it is .50 cents per square foot. In comparing other properties, the deviation is .35 cents to .55 cents per square foot. This seems to be consistent with reports from home appraisers who related that a 1/4 acre of vacant land in Mount Prospect sells for roughly the same price of 1/2 acre of vacant land in Prospect Heights when zoned for residential use. Part of the reason for this may be that only one house may be built per land parcel regardless of size. Therefore, the value between different size land parcels is not linear. However, school and fire protection districts plus the amenities offered by locating in different communities, including the availability of a city water supply, will also affect the value placed on properties by prospective buyers.

J. What are the Advantages of Financing a Water System with Municipal Bonds rather than Special Assessment?

The primary advantage of financing with Municipal Bonds is that the cost of the system can be spread over 20 to 30 years rather than a one time immediate expense of the full cost. There is the further possibility of savings of income tax expenses if the monthly payments are structured to qualify for tax exemption. If the infrastructure cost payback was added to

the water bills over a long period of time. the payments would probably not be tax deductible.

K. Will residents be able to retain their private wells for outside use?

It is anticipated, and in fact encouraged, that residents will retain their private wells for outside use (lawns- garden- car washing, etc.) only. The Illinois Department of Transportation recommends that each city adopt a Water Conservation Ordinance, which Prospect Heights already has, that can include a provision for the maintenance of private wells in an effort to conserve Lake Michigan water. Plumbing work and the cost of a backflow device would have to be paid by each property owner to insure separation of the two types of water.

L. Could residents opt out from hooking up to a City Water System if they so chose?

Yes, it is anticipated that residents could exercise an option to not hook up to the City Water System. Residents who desire to use their well as their sole water source should be permitted to do so. It will be expected, however, that if Lake Michigan water is obtained, every property owner will be required to pay for the infrastructure. Including a buffalo box in front of the residence.

Prospect Heights Water System and Development History

Task Group 3

Tom O'Donoehue, Chairman Tom Ochai, and Robert Rauboit were charged with explaining the current City Water System and providing a history of the development of the system. The City is committed to providing water to the majority of Ward 2 residents and other constituents presently included in the City Water System.

A. What is the history of the current Prospect Heights Water System (aka the Rob Roy Water System)?

Two city wells were constructed in 1981 to supply the new Rob Roy development. Well #1 was dug 252 feet into a shallow bedrock aquifer. Well #2 was dug to a depth of 1318 feet into a deep bedrock aquifer. Well #1 is capable of delivering water at 170 gallons per minute (gpm) and Well #2 at 700 gpm. The system consisted of three high service pumps, two hydro-pneumatic tanks, 3.85 miles of water main and 57 hydrants.

In 1986, Fairway Estates Subdivision was added which included 0.92 miles of water main and 11 hydrants.

In 1990, during the construction of Brighton Gardens, the city installed an interconnect to Citizens Utilities to help in emergencies.

In 1995, the city's well house was upgraded in order to supply adequate fire flow demand for the Brighton Gardens development. This upgrade consisted of 2,170 linear feet of water main, 3 fire hydrants, a 250,000-gallon reservoir, and two high service emergency pumps.

In 1996, Concord Villas was added to the system, including 1,999 linear feet of water main and 10 hydrants.

The existing system currently consists of two wells, 4 high service pumps (2 constant speed pumps and two emergency pumps), two 7.500 gallons hydro-pnctimauc tanks. 550.000 gallons of storage.:. 7 miles of water main and 81 hydrants. The current city water system provides water to 933 customers including

Rob Roy Country Club Homeowner's Association. Fairway Estates Subdivision.
Marriott Brighton Gardens Assisted Living Facility, Concord Villas Subdivision. and
River Trails Park District.

The existing customer base has an average day demand of 0.14 MGD (millions of gallons per day) and 0.28 MGD for a maximum day demand.

A chronological Prospect Heights legislative history of the current City Water System follows:

- 03/02/81 The City Council approves the Rob Roy Annex Agreement, which contains language requiring the City to provide water to the development.

- 04/06/81 The City Council approves R-8 1-10 authorizing the City to commit to serving the Rob Roy development with water pursuant to the Annex agreement.

-)6/10/81 Rob Roy well plans to construct a water system were presented to the City Council. The system plans ensured water was available at the time the first units were ready for occupancy.

- 06/15/81 The City Council authorizes contract for mechanical and architectural work on water system by Lon Houver.

- o7/06/81 The City Council authorized the engineering for a shallow well to serve the Rob Roy system to be on line in June of 1982. This shallow well would serve as backup to the deep well.

- 08/03/81 Staff was authorized by the City Council to negotiate terms to finance Rob Roy Water System.
- 08/17/81 Statement and Official Bid Forms for 1981 General Obligation Bond passed.
- 09/21/81 Public hearing held for \$400k GO Bond.
- 09/21/81 Council approves plan for the installation of a water supply system and connection to a distribution system at Rob Roy at an estimated construction cost of \$50K.
- 1 1/16/81 Layne Western was awarded the bid to drill wells for Rob Roy.
- 01/18/82 R-82-01 passed providing reimbursement to homeowners required to obtain professional opinions.
- 02/01/82 Bidding for the Rob Roy water system was authorized.
- 03/01/82 Master plan developed by PRC ConSoer Townsend, Inc. was authorized.
- 04/06/82 Bids accepted for the Rob Roy pump house.
- 02/05/83 Dedication of Well House and Water System.

The cost of installing the Rob Roy water System and the subsequent additions to the system are indicated in the Water Fund financial history which follows.

W A I E R F U N D F I N A N C I A L H I S T O R Y
(P R O S P E C T H E I G H T S W A T E R S Y S T E M)

Year	Adv. From Gen. Fund	Paid to Gen.Fund	Balance Owed	Bal. Of Bonds Payable	Capital Contrib.	Notes
1982	\$25,108	\$0	\$25,708	\$400,000 (\$44,000	Bonds to consln.uct system-obligation of water customers. Advance to cover cash needs. Contrib From RR developer (land)
1983	\$314,018	\$0	\$339,726	\$400,000	\$0	Coll sliucliu used bond proceeds and advance from GF
1984	\$88,485	\$0	\$428,211	\$635,000	\$176,610	Notes issued to land construction; principal payment on bonds Contrib. From RR developer in cash, land, and equipment
1985	\$48,429	\$0	\$476,640	\$515,000	\$0	60K bond payment; construction required GF advance
1986	\$106,283	\$0	\$582,923	\$465,000	\$0	110K bond payment and net loss required GF advance
1987	\$236,170	\$0	\$819,093	\$200,000	\$0	265K bond payment - GF made advance to pay
1988	\$250,534	\$0	\$1,069,627	\$100,000	\$0	110K bond payment and net loss required GF advance
1989	\$96,153	\$0	\$1,165,780	\$0	\$0	100K bond payment - GF made advance to pay; earnings positive
1990	\$116,102	\$75,000	\$1,206,882	\$0	\$0	GF advance for equipment purchase; earnings positive
1991	\$0	\$269,482	\$937,400	\$0	\$0	Large cash balances paid to OF, 170K remained in cash @ YE

WAIHEH FUND FINANCIAL HISTORY
(PROSPECT HEIGHTS WATER SYSTEM)

Year	Adv. From Gen. Fund	Paid to Gen.Fund	Balance Owed	Bal. Of Bonds Payable	Capital Contrib.	Notes
1992	\$31,1113	\$150,000	\$825,103	\$0	\$0	GF a(fvalice lo kind equipment. 188K in YE cash
1993	\$0	\$112,500	\$112,523	\$0	\$0	
1994	\$0	\$131,231	\$515,200	\$1)	\$U	
1995	\$U	\$14,500	\$500,186	\$u	\$300,000	Brigl► luii (jaldens conlrib(iliur►
1996	\$ 169,020	\$/B.616	\$581.190	y0	\$89,421	villas n Kul) IZUy C01itil)U11uli, system ii► iprovernenls @349K
1997	\$0	\$137,038	\$444,152	\$0	\$99,360	Villas (N Hub Roy contubution
1998	\$0	\$145,552	\$298,600	\$0	\$27,728	Villas @ Hub Roy contribution
1999	\$0	\$139,406	\$159,194	\$0	\$0	
2000 est	\$0	\$140,000	\$19,194	\$t)	\$0	
2001 esl	\$0	\$19,194	\$0	\$0	\$0	

C. What are the Current Rates for City Water in the Rob Roy Development?

Rates:

Prior to i 11 11/ 1983	\$ 10.71 ; month	plus \$2.08 11.000 gal. consumed
Nov. 11. 1983	\$ 11.00 / month	plus \$2.17 /1,000 gal. consumed
May 16. 1988	\$15.00 / month	plus 53.00 /1.000 gal. consumed
May 15. 1989	\$ 18.00 / month	plus \$3.25 /1,000 gal. consumed
Present rate:	\$20.00 /month for 1st 3.000 gal. plus \$3.50 / 1.000 gal. consumed	

D. What are potential sources for Lake Michigan Water?

1 Village of Mt. Prospect - insufficient water allocation to share with Prospect Heights

∴ Village of Glenview - Currently being negotiated.

- Transmission and contingent costs to bring Lake Michigan water from Glenview were originally estimated to be 51,867.000. New materials (HDPE) have towered this estimate to 51.087,000.
- The City has received 51,000.000 of grant money and additional money could possibly become available from our State representatives.
- Tap-on fee of 5 1.4 million t to be negotiated)

∴ Joint Action Water Agency - Too far for piping

- Evanston via the Northwest Water Commission - willing but might be unable due to politics to aillocate water for Prospect Heights

American Water Works - formerly Citizens Utility - Prices too high.

6. Northbrook - to far to pipe and the per 1.000 gallon cost would be higher than Glenview.

E. What must be the requirements of the Prospect Heights Water System?

The water main from a Lake Michigan source

1. Needs to have a capacity of 1.56 million gallons per day (MGPD) to serve the City of Prospect Heights.
2. For emergency responses. the system must be able to provide a fire flow demand of 1,500 gallons per minute for residences and 3.000 gallons per minute for commercial customs

F. Why is it necessary to consider switching from wells to Lake Michigan Water?

Radium has been measured in the Deep Well, which exceeds the EPA levels.

The shallow well has iron and water hardness contamination that is on the increase. ∴

The shallow aquifer is a stressed ecosystem.

4. We presently mix deep and shallow output to meet Environmental Protection Agency limits of 5 Pico curies per liter. Ratio of the two wells is 1:1.

If continued use of well water is required, an ionization plant will need to be installed with an estimated initial cost of 51,000,000. The users would probably have to share this cost via an increase in their water bills.

6. Connecting a Lake Michigan water source to the city water system will provide a point of distribution for the rest of Prospect Heights.

G. What would be the cost to treat the well water and remain on wells?

In a memo dated June 29, 1999, from Camp, Dresser and McKee, Inc., John Schaefer offered an update on the AB&H report regarding water treatment rendered in 1989. The 1989 costs were escalated and corrected for cost of living increases. This system improvement would require the drilling of two new wells. The estimated costs, as indicated, would be 52,559,000. This cost stands against the City staff estimate of approximately 51,000,000 to install an ionization plant to treat the water.

East Side Water System

Task Group 4

Martin McDonagh and Nick Teratnani were charged with the responsibility of explaining past and the present status of the East Side Water System, which is served by American Water Works.

A. What is the history of water service in the multi-family area east of Wolf Road?

The water supplied to the east of Wolf Road in the multi-family area is Lake Michigan water, supplied by American Water Works, formerly Citizens Utilities. This water is supplied by the Village of Glenview. The connection was a mandate and was not an option to people in this area because it was served by Citizen Utilities. Water rates have tripled and are now the largest single expense in the associations' budgets, with the exception of Quincy Park whose residents are billed individually, but their cost has doubled.

B. What is the City's responsibility?

The City could try to encourage American Water Works to sell the system to the City or allow the condos to purchase it by forming a co-op. They could then turn the system over to the City or sell it to them. The system could then be connected to the City's existing system.

C. What should be considered if we attempted to purchase the system operated by American Water Works?

Should the system now operated by American Water Works become available for purchase, it would need to be inspected and all its deficiencies addressed (i.e., condition of the pipe and ability to handle peak demand, etc.). The City must know if a merger of the City's existing system with the system now supplying residents east of Wolf Road would be economically beneficial. The present system also services a part of Mount Prospect. Every water line from Mount Prospect would have to be eliminated with the exception of a few that could remain as emergency interconnects. The project is probably not feasible unless both Cities buy the American Water Works System.

D. What could be gained by purchasing the portion of American Water Works that services Prospect Heights residents?

The consolidation of the two systems with a larger user base could lower the water rates and help stabilize the rates in the future. Cost sharing for the maintenance of this larger system would be beneficial for all the users and the City. This would allow all the associations the extra money they need for upgrades in the common areas.

Considerations if Lake Michigan Water is Approved

Task Group :5

This task group was composed of Mike Lesser. Chairman; Mark Culley and Jeff Manson. Task Group 5 was given the charge of reporting on the pros and cons of leaving wells in service but separate from city water if Lake Michigan water were available and to report on the history of water studies and efforts in Prospect Heights. The task group was also requested to develop thoughts of what would be a proper referendum question and who would vote on the question.

A. What are the pros and cons of leaving wells in service but separate from City water?

The 1433ggs of leaving wells in service but separate from a city water system would include:

- The ability of those homeowners to save money by not having to use and pay for city water for outside use.
- The use of well water wouldn't affect the city's allocation of Lake Michigan water.
- The ability to stay on well water for all uses and save money by not having to use and pay for City water.
Would not have to pay the connection fee.

The disadvantages of leaving wells in service but separate from city water would include:

- An annual inspection cost
- Costs for maintainance and monitoring
- Plumbing work required for backflow device or separate systems
- Would be unable to use Lake Michigan water for household use - water which would be as close as the street to their house.
A smaller base of support to pay for water used resulting in a higher cost for water used.

It should be noted that Arlington Heights permits an owner to use a well for all purposes and not to connect to City water if so chosen. Arlington Heights also permits City water to be used for

internal household use and well water to be used for outside use, as long as a backflow device is installed and licensed.

B. What is the history of water studies and efforts in Prospect Heights?

A memorandum from Steven C. Vinezeano, City Administrator Pro Tem, to the Water Study Committee gives a concise history of activity regarding a municipal water system. City records show that the City has had several opportunities to consider a water system served by Lake Michigan water. Shortly after incorporation in 1976 the City provided a letter of interest, without financial commitment, to Share - 3, an organization studying the possibilities and cost of furnishing Lake Michigan water to five Northwest Suburban Municipalities. In 1979 the City was invited to join the Northwest Suburban Water System for the purchase of water from Venture and Damp. In 1980 the City was awarded an allocation of Lake Michigan water from [DOT that would begin in 1984 and run through 2020. In August 1988, a survey indicated that many residents served by private wells favored installing alternative sources of water. The results of this survey resulted in a resolution (R-88-57) to hold a referendum on the question of whether to design a municipal water system. The resolution failed at a special session of the City Council on August 29, 1988.

On Aug. 21, 1989 the City Council authorized Alvord, Burdick and Howson to study the feasibility of the construction of a municipal water system for the portion of the City served by wells. The AB&H Study indicated a cost of \$11.0/1,000 gallons of water if the entire cost was paid through the water bill (1989 figures apply). Two years after the first referendum attempt failed to be authorized by the City Council, Fred Olds was instrumental in conducting a public forum on August 21, 1990 on water. A City Council workshop session was held to discuss municipal water and consider placing a question on the November ballot. The resolution to place it on the ballot failed. Acting Mayor Meyer stated "the City is not ready to ask the question and the public is not aware of what options are available". Between 1990-1995 significant efforts were made to obtain state and federal funding for a municipal water system. In 1995 the City Council had Camp, Dresser and McKee conduct an update of the AB&H study at a cost not to exceed \$62,600. Their report recommended a plan that consisted of a phased program for the installation of water mains with initial reliance on the City's well system as a public water source.

Through the efforts of Mayor Rotenford, the City has secured grants specifically earmarked for bringing Lake Michigan water to Prospect Heights. Currently the water from the City's deep well is being mixed with water from the shallow well at the city's pumping station so that it meets health standards. Because the water in the city's deep well has an excessive amount of radium and requires more treatment the city is facing costs to improve the water from the current municipal system which serves the Rob Roy area and areas close around.

C. Review of Council Activity on Lake Water Since 1976

August 16, 1976

Mayor attended IDOT water allocation meeting
- 191 municipalities draw from Lake Michigan
200 wish to draw from it

Allocation for total Lake Michigan water draw is 3200 cubic feet per second

Share -3 group developed in Northwest Suburbs to try to obtain Lake Water

September 8, 1976

Share -3 Group

If Prospect Heights wishes to join, the Mayor must write a letter of interest in obtaining Lake Water.

Membership costs 55,000.00

Cost for City infrastructure estimated to be \$30 - 50K

No Action Taken - No letter was written.

May 5, 1980

City Council asked to consider Joint Venture (JAWA) study to obtain Lake Michigan water.

- Council voted not to make financial commitment, but was interested in the program.

No Action Taken

May 19, 1980

VENTURE membership extended to August, 1980 by VENTURE Chairman.

August 15, 1980

Joint Venture (JAWA) water agency asked City to become member. Council voted unanimously that they could not commit.

No Action Taken

December 15, 1980

[DOT allocated Lake Water for the City.
580,000 gal/day in 1984 increasing to 1.6 million gal/day in 2020. (Now the allocation is 1.542 million gal/day.)

March 1, 1982

Unanimous vote to employ PRC Consoer Townsend for water system master plan
cost to exceed \$1,512,000.00.

\$1,512,000.00 Expended

January 3, 1983

Water System (Northwest Water Commission) putting pipes through Country
Gardens. No formal action taken to participate. Felt referendum necessary to
participate in Lake Water. Council refused to put referendum on a ballot.

No Action Taken

January 1, 1986

Council authorized \$750.00 expenditure for engineering assistance in developing an
emergency water system interconnect.

Rob Roy Only - \$750 expended

August 1, 1988

Voted to employ Alvord, Burdick and Howson and approved \$55,000.00. The purpose
of this study was to define cost of a water system for Prospect Heights.

\$55,000.00 Expenditure

August 29, 1988

Voted on a resolution in a special session on whether to design a municipal water system.
Resolution failed.

August 21. 1989

Voted to expend \$36,000.00 for feasibility study for City Water System. Alvord, Burdick and Howson was employed.

536,000.00 Expenditure

January 2. 1990

Council gave approval to the Mayor to continue discussion with Glenview concerning Lake Michigan water supply for Rob Roy and adjacent areas.

August 6. 1990

Authorized engineering services to design transmission line from Glenview, not to exceed \$7,500.00.

57,500.00 Expenditure

September 4, 1990

- Resolution R-90-92 to submit a referendum question on Lake water
Voice vote of 5-4 was indecisive.

- Second motion to reiect Resolution R-90-92 was passed by 8-0 vote.

Mayor stated "City was not ready to ask question of the public."

No Action taken.

November 5. 1990

City authorized a consultant (Bowman Consulting) to seek State grants for funding water systems. Vote 7-0

56,000.00 Expenditure

November 18. 1991

Transfer 536,000 from General Fund to cover study of water system feasibility authorized 8/21, '89.

January 9, 1992

Resolution R-92-05 to have referendum to purchase Citizens Utilities for east side water system.

Referendum failed.

1995

The City Council employed Camp, Dresser and McKee to conduct an update of the AB&H study. Update was completed in 1996.

Contract approved with a not to exceed figure of 562,600.

1996

The City Council employed CDM to conduct an update of the Municipal Water System Study done in 1995.

Project required total expenditure of 562.582. spread over two fiscal years.

January 20, 1998

Council approved Camp Dresser and McKee Engineering in the amount of 523,000.00 for primary design of transmission main from Glenview.

523,600.00 Expenditure

The results of the AB&H report were presented on November 30, 1989. This report identified two alternative systems to onvate wells - Lake Michigan water at an estimated cost of 524,160,000. and a Municipal Well System at a cost of \$24,750,000.

In August of 1998, a survey was sent to 1,705 homeowners. This survey appears to have been sent to only those homeowners who are currently on individual wells. Of those, the City received almost a 60% response rate (997 responses). Of those who responded, about half wished to switch over to a municipal system: the other half wished to retain wells.

D. Could we purchase and expand upon the current American Water Works System?

One of the options is for the City to purchase American Water Works, formerly Citizen's Utilities. However, *we have* not had good experiences with Citizen's Utilities, and water main breaks have gone uncorrected for days in the winter. They have also indicated that they do not

wish to sell at this time. information has not been released regarding the purchase cost by American Water Works.

E. How should the ballot question be framed for a ballot, and who should vote on this ballot question'?

The Task Group spent considerable time considering a possible referendum ballot question regarding water. The matter was finally resolved that the City Council should make the following decisions:

1. Should a referendum (binding or advisory) question be placed on the November, 2000 ballot?
if so, what should be the stated question that would insure that all aspects of the question are included for the votes?

With regard to the question of who should vote on a referendum question, if placed on the ballot in November, no resolution was reached by this Group. The City Council will have to consider the question as to who should vote on any referendum.

This matter will be considered at a special meeting in August, 2000. Consideration later than August would not allow sufficient time to get the matter on the November ballot if the decision is made to proceed in that direction. There are many legal issues that will have to be considered before advancing a referendum to the voters.

F. Potential Problems and Disadvantages of Lake Water

These are important considerations, as the solutions to some of these problems can be extremely costly. Among these considerations are the following:

- 1) Due to the hardness level of Lake water (8-12 apg), people often continue with use of softening equipment. However, the presence of chlorine and by-products break down the resin in the water softener, necessitating costly and continual re-beading of the resin tank. Many who have Lake Michigan water never soften the water.

=} Stripping agents are added to Lake Michigan water in order to keep the lines "clean".
Water heaters, and boilers which have a buildup of minerals from well water can be effected as some minerals are stripped.

The potential health effects of drinking Lake water due to the presence of chlorine and other chemicals used to treat and purify Lake water is a factor that must be considered by some.

NOTE: Our City Health Officer Dr. Denisil Brown reviewed the concerns experienced above. His appraisal is that "there is very little health risk concerning Lake Michigan water that has been proven." He did express the view that chlorine will break down into a salt which could be a slight risk factor for residents with heart problems - those that must control salt intake.

GENERAL CONCLUSIONS

Several conclusions drawn from the processes and work used to produce this report are noted as follows:

1. Water is a diminishing natural resource.
2. There is a high level of interest across the city regarding the issue of water.
3. There are many residents who have severe problems with their wells.
4. There are many residents who have minimal or no problems with their wells.
5. There is a need for water service to be extended across the City to optimize fire protection.
6. There is a need to secure a new source of water, with an approved EPA rating, for the existing Prospect Heights Water System.
7. There is a need to protect the city's allocation of Lake Michigan water.
8. There is a need to meet health and quality standards.
9. There is concern about industrial pollution potential for both well water and Lake Michigan water.
10. There is a belief that the water issue could help the City further define itself and become more focused on community need rather than individual preference.
11. It is suggested that the City assume responsibility to provide a water service to all residential/business units in the City.
12. Residents are eager to receive factual information regarding the costs of maintaining a well and the costs of obtaining Lake Michigan water.
13. The City of Prospect Heights has thus far expended over \$145,500 studying the water situation in the City since the City was established with no action taken to date.
14. A properly maintained well, with softener only costs included, would cost the average resident about \$30.80/month.
15. The estimated cost of bringing Lake Michigan water to the City from Glenview would be \$1,087,000 using HDPE piping.
16. The estimated cost of installing an HDPE infrastructure piping system would be about \$25,000,000 and can be installed in one year.

17. The monthly water use cost of a municipal water system, using Lake Michigan water, would be approximately \$45/month.

18. If a municipal water system were installed using Lake Michigan water at a cost of \$25,000,000, the cost/resident or unit would be a percentage of the EAV of each property.

NOTE: Some readers of this Summary Report may draw other conclusions than those listed above. Others may disagree with the conclusions listed. They do serve as points of discussion.