

Weatherby Lake

5 Year Water Plan

Issued by the Board of Aldermen

February 2, 2010

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Introduction

The Water Plan is designed to provide an objective and sound long range approach to maintain the water system in good condition. The format of this plan has three elements 1) an objective assessment of the condition of the system and 2) a management approach to select what will be done to the system and the associated costs and 3) the planned work by year listing the specific water system refurbishments.

Technical Assessment

The water system consists of the water tower with associated piping, the distribution system and an emergency connection as a backup supply. The water tower and associated piping was installed and became operational in October 2004. The purpose of the water tower was to provide sufficient water supply and pressure through out the City and assure adequate fire hydrant supply. The tower has at least a one day capacity to supply the city in the event of a failure of the Kansas City supply system. The tower is under a contract to be inspected every two years and repairs made as needed. The last inspection was October 2008.

The distribution system consists of pipe lines that vary in size from 2" to 8" in diameter made of polyvinylchloride (PVC) and cast iron (CI) that supply individual residences. All connections to the distribution lines include water meters. The lines from the water meters to the residences are the responsibility of the home owner. The details of the size and material as well as leakage are provided as Attachment 1. A map of the City showing the distribution system and size of pipe is provided as Attachment 2. Only a few houses in the City have reported marginal pressure as follows: one house on North Miami, two houses on Barry Road (same line) and the end of 77th Street on the east of Eastside Drive.

PVC is an excellent material as it is not susceptible to corrosion in buried applications. These lines should last many decades; some people claim over 100 years. Of course, ground shifts can break these pipes. Cast iron is resistant to corrosion but over time electrolytic corrosion will eventually destroy the line. This is a function of the electrical conductivity of soil and although there are means to prevent such corrosion, they are not feasible on our system. Fortunately, since most of these lines were installed prior to 1965 it is apparent the soil is not very corrosive. 50 years of service is considered typical life for cast iron pipe. When the pipe is dug up to repair a leak it is examined for deterioration. Evidence of electrolytic corrosion is not common and most pipes are still in good condition. Most leaks are caused by ground shifts breaking the pipe or by connection problems. The number of leaks by year is provided as Attachment 3. There is a slight trend upward in the number of leaks over time. As the cast iron continues to age this will increase.

A backup emergency connection does not exist today. There was a connection to Water District #6 (their water tower is across from City Hall). Years ago this was the primary

supply connection. It was disconnected when Kansas City installed a supply line at Barry Road. However, the pipe remains and the connection could be reestablished. Water District #6 obtains its water from Missouri American and a significant portion of their water is supplied by Kansas City. The City will inquire about establishing the capability for emergency water through this connection with Water District #6.

Fire hydrants are flushed on an annual basis and were last tested in 2008. There are a total of 47 hydrants on the East side, 61 on the West side and 7 that are outside the city limits. An overview of the test results is provided as Attachment 4. A map of the location of fire hydrants is shown as Attachment 5. The addition of the water tower significantly improved the hydrant flow rates.

The water supply from Kansas City is high quality water with sufficient pressure. With the installation of the water tower an ample supply can be maintained to the City for at least one full day if there should be an interruption of the supply. Furthermore, a phone survey of other possible suppliers in 2008 indicated that this is the most economical source. Kansas City has also said that rates for water (and sewer) will continue to rise. Although the amounts remain uncertain it is likely to be around 10% per year. The current water supply contract with Kansas City is provided as Attachment 6.

In 2009 the City commenced performing a monthly water balance (or shrinkage) analysis. The purpose of such analysis is to determine the leakage rate from the system. Since the method to do this relies on reading the water meters, an instantaneous reading is not available. As a result these analysis need to be run over a long period of time (12 month rolling average is used) to obtain a reasonably accurate number. Currently, the system has a very low leakage rate; less than 2% of the total volume. According to the Missouri Department of Natural Resources, this is a system that is in excellent condition. A loss of 10% is considered acceptable and even that is better than the average across the state. The loss is primarily due to unmetered usage (i.e. flushing the fire hydrants), inaccurate meters, and non-detected leaks. This water balance program should continue as such measurements can indicate significant leakage even though there is no obvious indication on the ground surface and as a check on the system billing metering accuracy.

Management Approach

Goal

The goal of this plan is to continue to provide a highly reliable water system for the long term benefit of the City. Repairs will continue to be made as necessary. When repairs of a line become frequent and are caused by corrosion it will be important to replace the line. Although it is also important that all residents have sufficient water pressure, the primary water supply concern is an adequate flow rate from fire hydrants.

Funding

The City for a long time has maintained a policy that the water system must be paid from fees collected based on water usage. This is considered to be a sound policy and the intent is to continue that policy. However, in 2003 a 20 year general obligation bond was passed by the voters to build the water tower and replace some of the larger lines. These bonds are paid out of the tax levied on residential real estate. The only current source of funding is through the collection of fees for water usage. At present this water income provides approximately \$50,000 per year for replacement of lines and the repair of approximately 6-8 leaks per year. The revenue and expense history summary is provided as Attachment 7 and the forecast is provided at Attachment 8. It is important to realize that funds must be accumulated to address lengthy lines which may require replacement in the future.

Priority

For planning purposes the following priority approach will be applied.

1. Maintenance and achieving adequate flow to fire hydrants.
2. Repairs to maintain the distribution system.
3. Replacement of lines known to be significantly impacted by electrolytic corrosion i.e. frequent leaks. Replacement lines will be 8" PVC to best support fire hydrants unless unusual circumstances warrant something else.
4. Assuring continued adequate water pressure to residences.

It should be noted that the West Ridge developer installed appropriately sized PVC lines consistent with the above.

Current Projects

Barry Road Project

The expansion of Barry Road that included the replacement of the bridge at North Cove provided an opportunity to upgrade the line that connects the water tower to the east side of the City. A 12inch PVC line was installed in 2009 to replace the 8 inch and 6 inch lines from Potomac to the bridge at North Cove.

77th Street Project

Bids were solicited and a contract awarded to replace the line on 77th street. The frequency of leaks in this line was increasing and it was apparent when repairing the line that it was in poor condition. The bid price was approximately \$60,000 or approximately \$115 per foot. The 4" CI line is being replaced with an 8" PVC line. This should also correct a problem with water pressure at the end of the existing line. The work is expected to be completed in January of 2010.

Cost Options

The plan only includes water fees for funding. Any costs listed are in 2010 dollars. For this plan it is assumed that the cost for replacement of a line is \$145.00 per foot.

The Plan

The following planned work is based on the technical assessment, the management approach, and available funds. It should be noted that the water line on 72 Street was replaced with an 8" PVC line and three fire hydrants installed in 2009 just prior to the road resurfacing. The Davis Court line was replaced with a 6" PVC line and one fire hydrant was installed in 2009 just prior to the road resurfacing.

In 2010 the line on 77th street will be replaced due to corrosion as described above under Projects, 77th Street Project. This will utilize 2009 funds since the contract was awarded in 2009.

In 2010 replacement is planned for the 2" supply line on South Miami with an 8" PVC line and will include the installation of a fire hydrant. The line has had 4 of the 5 recorded leaks in the last 4 years and repairs indicate the line is in poor condition. This line will require relocation to the other side of the street because of the current proximity to the sewer line. Cost is expected to be similar to that of the 77th Street project.

In 2010 correction is planned concerning the 2" CI line that supplies the three houses that are experiencing low pressure, one on North Miami and two on Barry Road. Access to this line is difficult if it should leak because it runs through the back yards and not along the road. The plan is disconnect and cap this line; supply the two house on Barry directly from the Barry Road line and supply the house on North Miami from the North Miami line. This will be handled with the home owner similar to a new house hook up, funding is considered minimal.

In 2011 no line replacements are planned. In reviewing lines that may need replacement, Eastside Drive has the most leaks; it is also the longest street in the City. The number of leaks is not considered to be a concern at this time. However, it is the intent to accumulate funds in the event that a major length of line needs to be replaced.

The installation of a back up supply line from Water District #1 will be considered in late in the planning cycle as it is considered low priority.

The hydrant flow rates in the City are quite good and there is no indication that line replacement is currently required for any of the hydrants.

**Attachment 1
Distribution System**

Street	Length	Size	Mat'l	Leaks since 1992	Comments
East side of lake					
Barry Road bridge to Forest		8	PVC		
Barry Road Forest to Eastside		6	PVC	1	Note the 8" line on Forest and Rocky Point to Eastside forms a loop
Barr Lane	667	4	CI	2	
Davis Court	631	6	PVC	5	South leg is 2" PVC; 2" CI line replaced with 6" PVC in 2008 all leaks prior to line replacement
Eastside Drive	8932	6	CI	7	
Forest Drive	1555	8	PVC	2	
McDonald		8	PVC		The 8" line from Kerns crosses the dam and supplies 72 nd Terrace and 72 nd Street. Length included in 72 nd Street
Quincy Court		6	PVC		
Rocky Point Drive	1275	8	PVC		
Scenic Drive	1592	4	CI		
Whipple Lane	515	4	CI		
72 Street (including McDonald)	1139	8	PVC	5	Replaced 2" CI line with an 8" PVC line in 2009; all leaks were prior to replacement
72 Terrace	2073	8	PVC	2	Connects to the 8" line from 73 rd Terrace and 6" line on Eastside Drive
73 Street	670	6	CI	2	
73 Terrace	2015	6	CI	1	Length includes the dam. This line connects to the 8" PVC line at Kerns
74 Street	1862	4	CI		
75 Street	1240	4	CI	1	
75 Terrace	1346	4	CI	3	A 2" CI line circles the park and supplies the corresponding houses
76 Terrace	773	6	PVC		
77 Street	521	4	CI	6	Being replaced with a 8" PVC line in January 2010
77 Terrace	1447	4	PVC		
78 Street	1661	8	PVC		
79 Street	750	4	CI		

80 Street	775	8	PVC	2	
80 Terrace	1036	4	CI		
81 Steet		6	PVC		New street

Total CI pipe is approximately

West side of lake					
Barry Road bridge to Potomac		12	PVC		Installed in 2009 as part of the Barry Road Project
Barry Road Potomac to Westside		6	PVC		
Blakewood		6	PVC		
High Point	946	6	CI		
Hillside Drive	2210	6	CI	4	
Kerns	1445	6	CI	1	
Lynns Lane	737	6	PVC	3	There is a 6" PVC cross connect between Lynns Lane (7803) and Westside Drive (7802)
Miami north	742	4/2	CI/CI		2" from 82 nd Street and the cul-de-sac
Miami south	590	2	CI	5	This line is planned for replacement in 2010
Pleasant Ford	2210	4	CI	1	
Potomac Road	3725	8/4	PVC/CI	4 (CI)	4" from 82 nd Street to Venita
Roberts Road, 8106 and north	1465	8	PVC	2	
Roberts Road, north cul-de-sac	75	6	PVC		There is a 2" PVC loop in the cul-de-sac
Roberts Road, south cul-de-sac	147	6	PVC		There is a 2" PVC loop in the cul-de-sac
Roberts Road, 7807 to 8106		8	PVC		
Roberts Road, 7804 and south	1600	6	CI		
Venita Drive 8013 and north	1100 total	8	PVC		There is a 8" PVC cross connect between Venita (8014) and Pleasant Ford (8009)
Venita Drive 8011 and south		8	PVC		
Wayland Drive	743				There is no water line in this street.
Wayland Circle	883	4	CI	2	This line connects to the Hillside (see map)
Weatherby Drive	930	6	PVC		

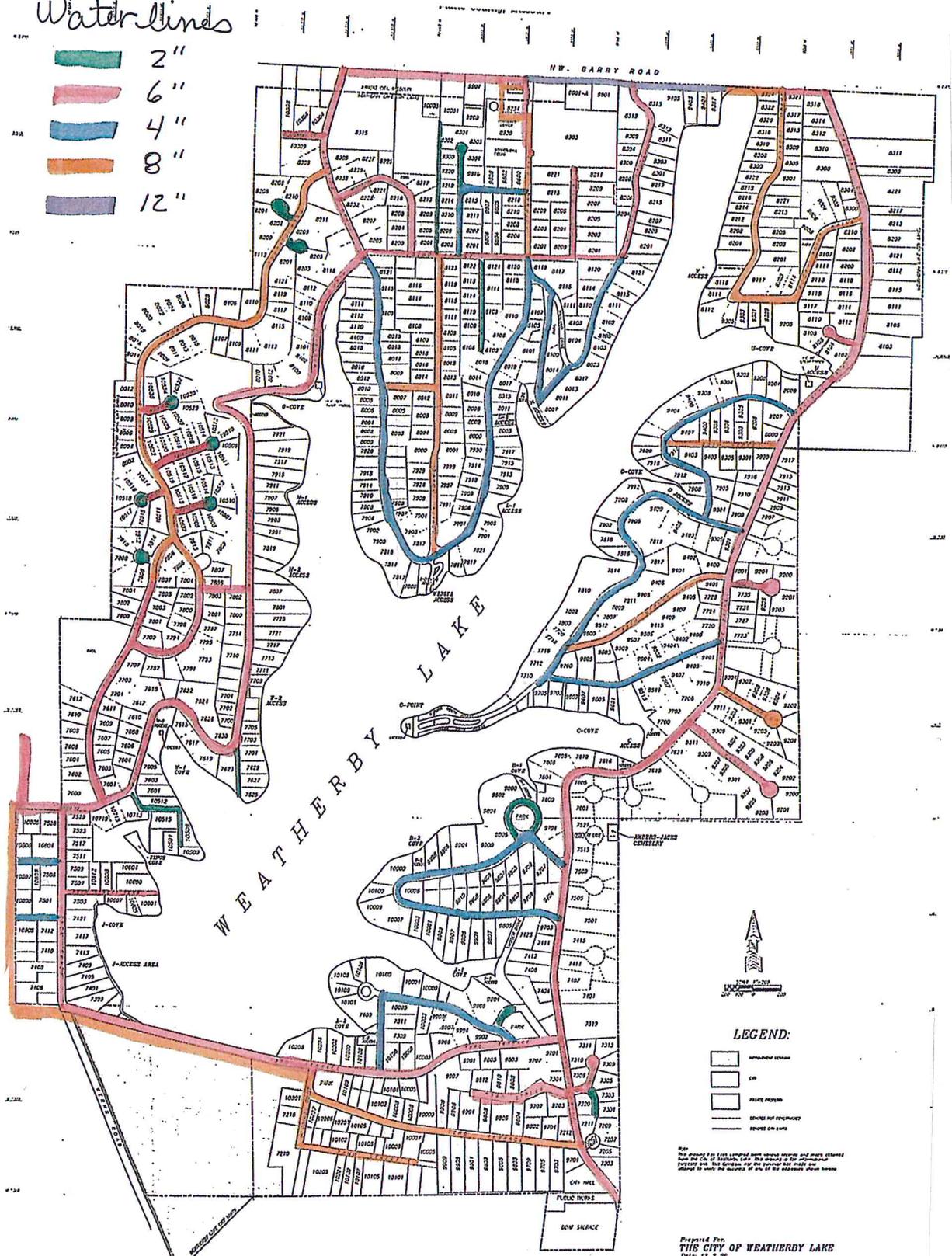
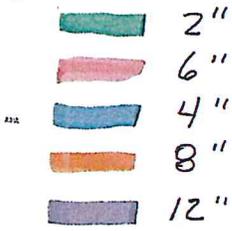
Westside Drive	6900	6/2	CI/CI	4	From Barry Road to Blakewood is 6" PVC. 2" extension from curve to residence (7626)
75 Street	295	4	CI		Connects to the "loop" (see below) at the west end
75 Terrace, west of Kerns	320	4	CI		Connects to the "loop" (see below) at the west end
75 Terrace, east of Kerns	500	6	CI		
76 Street	1383	6/2	CI/CI	2	2" from Westside east to end of street
82 Street	890	6	CI		
82 Terrace	488	4	CI	4	
Loop		8	PVC		The loop runs from the west end of 76 th Street south then east across the dam to McDonald. Connects to the 6" line from 73 Terrace at Kerns

Outside the City Distribution					
Shelter Estates					
Valley Rd	350	6	PVC		This line serves the fire hydrant and the house in lot 10 only. All the other houses each receive their water directly from the line on S Roberts Rd; meters are at Roberts Rd.
Weatherby Highlands					
77 th Street	1520	6	PVC		From John Anders west to the exit of the development. Add approximately 150 feet for the connector to S Roberts Rd at Chrishaven Park and 7800 Roberts Rd.
77 th Street	392 754	4 3	PVC PVC		The 3" line extends to the back boundary of the houses on Childress
Mastern Ave	854	2	PVC		
John Anders	810 430 1112	4 2 2	PVC PVC PVC	3*	From 77 th going North From 77 th going South Separate supply for lots 18 and 19
77 th Terrace	1047	3	PVC		Includes extension to the to the N-S line on the east boundary of the houses on Childress
Cardwell Ave	1515	3	PVC		Includes extension to 77 th Street between lots 20 and 21
Childress houses East boundary	2466 870	3 4	PVC PVC		Includes the connection to Cardwell This is for both fire hydrants located at Childress.

* The leaks all occurred in a short length on line bordering lot 25; these are old leaks and may have been an installation problem.

Attachment 2 Distribution System Map

Waterlines



LEGEND:

- IMPROVED SERVICE
- LRV
- FUTURE PLANNING
- SERVICE NOT ENCOURAGED
- POWER ON LANE

Prepared For:
THE CITY OF WEATHERBY LAKE
Date: 12 2 06
Revised: 03 28 07
Revised: 11 20 07

Attachment 3

Water leaks by year

Year	Number of leaks
1992	6
1993	1
1994	0
1995	1
1996	7
1997	4
1998	4
1999	5
2000	5
2001	9
2002	3
2003	2
2004	5
2005	2
2006	7
2007	6
2008	6
2009	5

Attachment 4

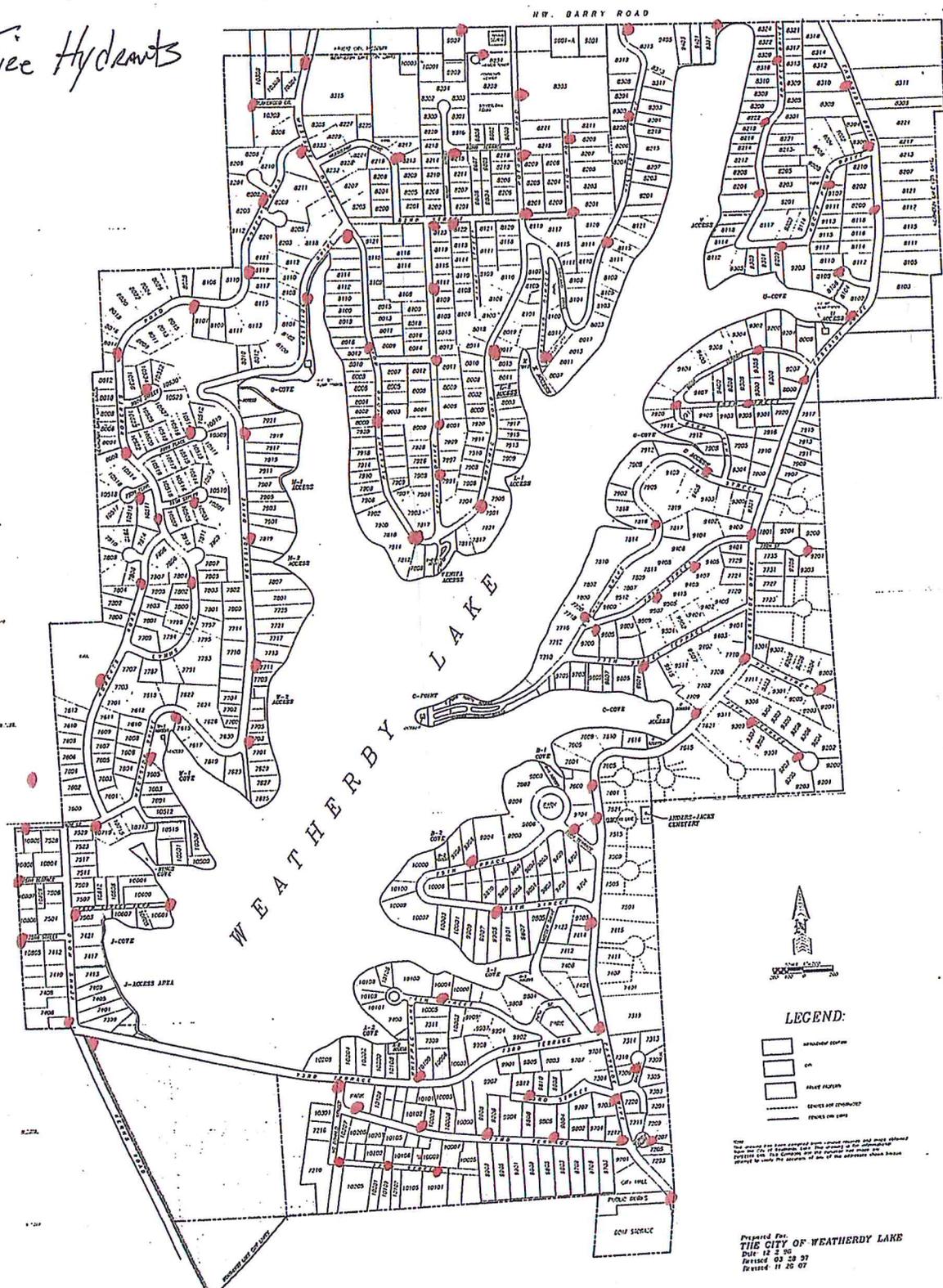
Fire hydrant flow tests

Area	Total number	>1000	900-999	800-899	700-799	600-699	<600	Comments
East side	47	14	5	9	4	6	3	6 not done in '08
West side	61	29	14	9	3	0	1	3 not done in '08
Outside	7	0	0	1	1	0	4	1 not done in '08

Attachment 5

Fire Hydrant Location Map

Fire Hydrants



LEGEND:

- Water hydrant
- Fire hydrant
- Hydrants not constructed
- Hydrants not shown

This map was prepared from records and maps on file in the City of Weatherby Lake. The City of Weatherby Lake is not responsible for any errors or omissions on this map. The City of Weatherby Lake is not responsible for any errors or omissions on this map.

Prepared For:
THE CITY OF WEATHERBY LAKE
Date: 12 2 05
Revised: 03 28 07
Revised: 11 20 07

Attachment 6
Water Supply Contract With Kansas City

CONTRACT # _____
ORDINANCE # _____
EFFECTIVE DATE _____

WATER PURCHASE AGREEMENT

THIS AGREEMENT, made and entered into this 5th day of August, 2008 by and between the CITY OF WEATHERBY LAKE, MISSOURI, a municipal corporation of the State of Missouri, hereinafter referred to as "BUYER", and KANSAS CITY, MISSOURI, a municipal corporation of the State of Missouri, hereinafter referred to as "CITY",

WITNESSETH:

WHEREAS, a 20-year Water Purchase Agreement was executed by the BUYER and CITY on June 5, 1986 for the purpose of delivering and selling water to BUYER by CITY; and

WHEREAS, the 1986 Water Purchase Agreement has expired and BUYER desires to enter into a new Water Purchase Agreement to purchase water; and

WHEREAS, BUYER desires to contract for a maximum quantity of 0.6 million gallons per day (MGD); and

WHEREAS, CITY is willing to deliver and sell water to BUYER in accordance with the terms and conditions set forth herein;

NOW THEREFORE:

For and consideration of the mutual covenants, agreements, and conditions contained herein, it is agreed by and between BUYER and CITY as follows:

ARTICLE I GENERAL CONDITIONS

1. **Applicable Law:** This is a cooperative Agreement authorized by Missouri Revised Statutes Section 70.210 et seq (1994).
2. **Points of Service and Metering/Regulating Facilities:** BUYER will purchase water from CITY at the following metering stations:
 - a) 8399 N. Forest Avenue
 - b) 8234 NW. Potomac Avenue

3. **Construction Records:** BUYER agrees to furnish to CITY one (1) set of BUYER'S maps of its existing distribution system within thirty (30) days following the effective date of this Agreement. BUYER agrees to furnish to CITY one (1) set of updated maps of its distribution system whenever there is major modifications made to the system or CITY request maps.
4. **Term of Contract:** This Water Purchase Agreement shall continue in full force and effect, except as otherwise provided herein, for a period of Twenty (20) years from and after its effective date.
5. **Contract Binding:** This Agreement shall be binding upon the parties hereto, their successors and assigns, whether the result of legal process, assignment, or otherwise, when finally executed and fully approved.
6. **Director Defined:** References herein to CITY'S Director of Water Services ("Director") and to CITY'S Water Services Department ("WSD") shall be construed to mean that person and department and/or any successor CITY title holder and CITY department name.
7. **Assignment:** Neither CITY nor BUYER shall sell, assign, transfer, or otherwise convey any of their rights under this Agreement without the prior and expressed written consent of the other party. Each party may, in its sole discretion, refuse to consent to any proposed sale, assignment, transfer, or other conveyance.

ARTICLE II POINTS OF SERVICE

1. **Locations:** BUYER will purchase water from CITY, in accordance with the provisions of this agreement, at the following metering facilities:
 - a. 8399 North Forest Avenue
 - b. 8234 NW Potomac Avenue
 - c. Other locations as may be mutually agreed upon by BUYER and CITY.
2. **Repurchase Locations:** CITY and BUYER agree that CITY may repurchase water from BUYER at locations as may be mutually agreed upon by CITY and BUYER. Any water repurchased by the CITY from the BUYER shall be excluded from the maximum quantity of 0.6 million gallons of water per day (MGD) which the CITY agrees to sell the BUYER.
3. **Emergency Connections:** BUYER may purchase water from other sources during an emergency or planned outage of CITY source. An emergency is defined as a short- or

long-term service interruption or curtailment in available supply. Emergency connections are with the following:

- a. None

BUYER agrees to provide notice to CITY of future emergency connections within thirty (30) days of establishing such connections.

ARTICLE III SERVICE CONDITIONS

1. **Water Delivery:** CITY agrees, subject to the following conditions, to deliver water to BUYER in such quantities as necessary to satisfy the provisions of this contract:
 - a. **Water Quantity Purchased:** BUYER and CITY understand and agree that the amount of water delivery and purchase referred to herein shall be based on the combined total of water delivered through each of the metering facilities at the locations defined in Article II herein. CITY agrees to deliver water at a maximum quantity on any day of 0.6 MGD, subject to the conditions in this Article.
 - b. **Delivery Obligation:** The extent of CITY'S obligation to deliver water to BUYER shall not exceed the capacity of the facilities of CITY at any point of service or the provisions of this Article. The total quantity of water delivered to BUYER shall be limited to meet these criteria by regulatory devices at or near the points of service to BUYER. The settings of said regulatory devices shall be determined by the Director in a manner consistent with this Article.
 - c. **Curtailment:** During any shortage of water, CITY may apportion the sale of water among its customers and for this purpose may adjust accordingly the aforesaid regulatory devices at or near the points of service.
 - d. **Control System:** BUYER agrees to install a control system which varies the flow rate in incremental steps, to maintain sufficient equalizing storage, and to minimize large changes in flow rate which are detrimental to the efficient operations of CITY'S water system and may adversely affect its customers as well as BUYER'S customers. The control system must be able to reduce the flow rate to zero during specific hours of the day coincident with peak demand on the CITY system. If, at the discretion of the CITY, the flow rate is reduced to zero, subsequent rates of delivery shall be increased to allow for delivery of the maximum quantity per day to the fullest practical extent. The CITY agrees that the BUYER has met this requirement with existing facilities.

- e. Operating Records:** BUYER agrees to provide, upon written request from CITY, any operations records needed to establish that said system is being operated to minimize flow rate fluctuations. Such information shall be submitted to CITY within 5 days of its written request.
2. **Quantity Exceedance:** BUYER and CITY agree that, in the event that BUYER'S needs exceed the contracted quantity of water defined by paragraph 1 of this article, BUYER and CITY will negotiate with the intent of entering into a new Water Purchase Agreement. Such negotiations shall be accompanied by BUYER'S best efforts to reduce and maintain its water demands to conform with the provisions of this article to the fullest practical extent.
3. **Meter Readings:** The frequency of meter readings for each of the metering facilities shall be determined by the CITY. The billing periods for each metering facility shall be monthly. CITY shall submit a separate monthly bill to BUYER for water purchased through each of the aforesaid metering facilities.
4. **Payment Delinquency:** BUYER agrees to be bound by all the ordinances of the CITY pertaining to the purchase and use of water and, in particular, authorizes CITY to shut off the supply of water to BUYER for any delinquency of more than sixty (60) days in the payment of any bill for water furnished to BUYER.
5. **Sole Source:** BUYER and CITY agree that CITY shall be the sole source of water for the BUYER. BUYER may use other sources of supply during an emergency or any planned outage of the CITY source
6. **Storage:** BUYER agrees that during normal and peak operating periods, storage facilities shall be available and used to the fullest extent for the purpose of offsetting peak demands.
- a. **Emergency Storage:** BUYER understands and agrees that BUYER is responsible for constructing and maintaining emergency storage equal to an average day's consumption during the term of this contract. An average day's consumption is defined as the total consumption for the previous calendar year divided by the number of days in that year. CITY agrees that the BUYER has met this requirement with existing facilities.
- b. **Existing Storage:** BUYER has existing, effective storage of 300,000 gallons. If such storage is maintained, BUYER will qualify for the Suburban Meter Rate/Wholesale Customer/Unrestricted schedule, subject to paragraph 7 of this Article.
- i. 300,000 gallon elevated tank at 8234 NW. Potomac Avenue.
The tank overflow is 1,140 feet USGS.

- c. **Equalizing Storage**: BUYER acknowledges that in addition to meeting the requirements of this paragraph, an additional amount of storage equal to a minimum of one-half (1/2) of average day consumption (*i.e.*, “equalizing storage”) is required to qualify sole source customers for the Suburban Meter Rate/Wholesale Customer/Restricted schedule, subject to paragraph 7 of this Article.
7. **Water Rate**: It is understood that water rates are established by Chapter 78 of the Code of Ordinance of CITY and may be amended from time to time by the Council of the CITY. CITY shall provide BUYER prior written notice of such increase or decrease, along with CITY’S cost of service study. The cost of service methodology shall be in accordance with the current American Water Works Association’s M-1 Manual of Water Supply Practice, *Principles of Water Rates, Fees, and Charges*. BUYER agrees to recognize the validity of these charges and agrees to pay the amended rate.
8. **Water Usage**: BUYER agrees that the water purchased under the terms of this Agreement shall be used solely within the boundaries now served by BUYER, or as they may be extended in the future, or as provided in paragraph 10 herein.
9. **Water Usage Resale**: Any resale of water from CITY to any new customers outside BUYER’S boundaries shall require the prior written notification to the Director, except that BUYER may sell such water to those individual residences which are situated in such a manner that they are contiguous to BUYER’S boundaries and provided they are outside the corporate limits of the CITY. BUYER may sell such water to those individual residences situated within the corporate limits of CITY which are situated in such a manner that they are also contiguous to BUYER’S boundaries, subject to the prior written approval of the Director.
10. **Contract Termination – CITY**: BUYER understands and agrees that if it becomes delinquent with a payment, and BUYER has not cured such violation within thirty (30) days of written notification of such violation, CITY may terminate this Agreement upon sixty (60) days written notification to BUYER, unless CITY has been paid all amounts within that period.
11. **Contract Termination – BUYER**: BUYER and CITY agree that BUYER may cease its purchase of water through any, but not all, of the points of service provided for in Article II herein after one (1) year written notification to the Director without contract termination. BUYER may terminate this agreement after one (1) year written notification to the Director.
12. **Water Quality Requirements – CITY**: CITY agrees that the water delivered to BUYER at the aforesaid metering facilities shall meet or exceed the minimum water quality standards of the Missouri Department of Natural Resources. BUYER agrees to hold CITY harmless to the extent permitted by the laws of the State of Missouri from any and all claims which may arise due to the physical, chemical, or biological quality of

water in BUYER'S system and further agrees to hold CITY harmless for damages or injuries sustained arising out of any operation connected with its water system.

13. **Access to Water Quality Analyses:** CITY agrees to provide BUYER with the results of any water quality analyses required by applicable Federal or Missouri state statutes or regulations.
14. **Water Quality Requirements – BUYER:** BUYER agrees and understands that BUYER is solely responsible for performing all water quality testing and related testing within BUYER'S system as presently required by regulatory authorities or as required anytime in the future. BUYER understands that CITY will have no obligation whatsoever regarding the above testing and agrees to hold CITY harmless to the extent permitted by the laws of the State of Missouri from any and all claims which may arise due to said testing unless it can be proved that such is due to the negligence or fault of CITY.
15. **Repurchase:** CITY shall have the right during the term of this Agreement to purchase water from BUYER at points of service as set forth in Article II herein. CITY agrees to pay for water purchased under this Agreement in accordance with that part of BUYER'S rules and regulations governing the sale of water. It is understood that the cost of water and related charges may be amended from time to time by BUYER and that CITY recognizes the validity of these changes. In the event BUYER has no rules or regulations governing the sale of water, CITY agrees to pay the amount CITY then charges BUYER for the purchase of water, less Supplementary Storage Charges.
16. **Repurchase – Water Quality:** BUYER agrees that water delivered to CITY at the aforesaid points of service shall be of the same quality as that which is furnished to BUYER'S individual customers.
17. **Repurchase – Access to Water Quality Analyses:** If BUYER sells water to CITY, BUYER agrees to provide CITY with the results of any water quality analyses required by applicable Federal or Missouri state statutes or regulations, if requested by CITY.
18. **Water Quality Testing:** CITY is solely responsible for performing all water quality testing and related testing within CITY'S system as presently required by regulatory authorities or as required anytime in the future.
19. **Antenna Placement:** BUYER agrees to allow placement of CITY antennas to be used solely for the purpose of operating CITY'S water system on BUYER'S elevated tank(s) to accommodate present and future needs, as may be required. Mounting methods, hardware and antennae placement by CITY are subject to prior approval by BUYER. This provision shall not preclude BUYER from installing antennas on BUYER'S elevated tank(s); however said antennas shall not impede CITY operation of maintenance functions. Nor shall CITY'S antennas impede BUYER'S operation or maintenance functions or any prior agreements BUYER has made with other antenna owners. The CITY shall be responsible for all costs of the installation and maintenance of said antennas and shall hold harmless and indemnify (including reasonable attorney's fees) BUYER against any

liability whatsoever including but not limited to property damage, claims relating to electronic interference and/or personal injury caused by said antennas and/or the installation, maintenance and/or use of said antennas.

ARTICLE V METERING & REGULATING FACILITIES

1. **Specifications**: BUYER agrees to have Metering Facilities at the point of service identified in Article II designed and constructed in complete accordance with WSD's "Specifications for Water Main Extensions and Relocations" dated November, 2001 and "Regulations of the Water Services Department" dated March, 2000, including any supplements to or revisions thereof, and any other requirements of the WSD. The drawings and specifications for these Metering Facilities shall be submitted by BUYER to CITY for review and approval in writing by the Director prior to the start of any construction. Except for the meter and regulators as provided in Paragraph 5 below, BUYER shall maintain existing Metering Facilities in accordance with WSD's Specifications and Regulations, including any supplements or revisions thereto, and any other requirements of the WSD.
2. **Easements, Rights-of-Way or Leases**: BUYER agrees to be solely responsible for the acquisition of the easements or land necessary to accommodate these Metering Facilities, including provisions for CITY's permanent access to them. Said easements or land, and maintenance of such, shall reside with BUYER.
3. **Ownership, Repair, Adjustments**: BUYER agrees that any meters and regulators to be installed in any Metering Facility shall be of a size and type to be determined by Director. BUYER understands and agrees that, upon acceptance by CITY, the meters and regulators in these Metering Facilities shall become, and shall remain the property of CITY, and CITY shall have the right to remove, inspect, test, repair, or replace any meter or regulator at any time. When such inspection indicates that any meter or regulator is measuring inaccurately and when this discrepancy can be corrected by repair, then CITY shall repair the defective meter or regulator and shall bear the cost thereof. In the event that accuracy cannot be restored by repair, then CITY shall replace the meter or regulator at its expense. BUYER shall also have the right to request removal and testing of any meter or regulator by an independent expert, at the expense of BUYER, in order to determine the accuracy of the meter or regulator. If a meter test shows that the meter is measuring with an accuracy of $\pm 1.5\%$, no billing adjustment shall be made. If the meter accuracy is determined to be less accurate than $\pm 1.5\%$, any credits or debits to previous bills shall be estimated based upon the facts of the situation. In no case shall such billing adjustments be made to bills prior to six months before the inaccuracy was discovered.
4. **Facility Maintenance**: BUYER understands and agrees that BUYER shall be solely responsible for the maintenance of said Metering Facility, including the site, access to the site, power supply, and all other appurtenances thereto, with the exception that CITY shall be solely responsible for the maintenance of the aforesaid meters and regulators.

5. **Facility Access:** BUYER agrees to provide CITY access at all times, to the Metering Facility described herein, for the maintenance of CITY's meters, regulators, and associated equipment.

6. **Telemetry / Regulating Systems:** It is understood BUYER shall be solely responsible for the installation costs and maintenance of all telemetry/regulating equipment necessary at each connection point for control and monitoring systems, pressure and flow regulating devices, unauthorized-intrusion alarms, and data transmission systems such as radio or leased telephone lines. BUYER agrees to provide separate equipment and systems necessary for CITY's monitoring of pressures, flow, consumption, control valve position, and unauthorized-intrusion at each Metering Facility, including PLC with I/O interface modules, above-grade KCMO control panel with data transmission systems, radio, tower, antenna, and backup power supply. BUYER shall provide electric power at each Metering Facility for all telemetry/regulating equipment necessary for BUYER's operation and CITY's monitoring. The CITY agrees that the BUYER'S existing facilities and equipment meet this monitoring requirement.

Attachment 7
Water Department Revenue and Expenses History
(Dollar)

Year	Actual			Budget
	2007	2008	2009	2010
Revenue				
Water Sold	323,000	291,000	274,000	320,000
New Hookups	32,000	24,000	16,000	3,000
Other Revenue	17,000	19,000	13,000	8,000
TOTAL	372,000	334,000	303,000	331,000
Expenses				
Payroll	34,000	51,000	42,000	57,000
Benefits	9,000	12,000	12,000	15,000
Engineering	14,000	47,000	11,000	5,000
Leak Repair	66,000	14,000	33,000	40,000
Water Purchase	151,000	136,000	140,000	171,000
Other Expense	68,000	37,000	32,000	33,000
TOTAL	342,000	297,000	270,000	321,000
Surplus				
TOTAL	30,000	37,000	33,000	10,000

Attachment 8
Water Department Revenue and Expenses Forecast

	Budget	Forecast			
Year	2010	2011	2012	2013	2014
Revenue					
Water Sold	320,000	400,000	411,000	456,000	476,000
New Hookups	3,000	10,000	10,000	10,000	10,000
Other Revenue	8,000	8,000	8,000	8,000	8,000
TOTAL	331,000	418,000	429,000	474,000	494,000
Expenses					
Payroll	57,000	59,000	60,000	62,000	64,000
Benefits	15,000	16,000	18,000	19,000	20,000
Engineering	5,000	10,000	8,000	7,000	10,000
Leak Repair	40,000	50,000	40,000	50,000	40,000
Water Purchase	171,000	188,000	207,000	228,000	250,000
Other Expense	33,000	35,000	36,000	38,000	40,000
TOTAL	321,000	358,000	369,000	404,000	424,000
Surplus					
TOTAL	10,000	60,000	60,000	70,000	70,000