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OCT 29 2007
PUBLIC SERVICE COMMISSION

October 29, 2007

VIA HAND DELIVERY
Hon. Beth O'Donnell
Executive Director
Public Service Commission
211 Sower Blvd.
P. O. Box 615
Frankfort, KY 40601

Re: Open Records Request Received July 18, 2007

Dear Ms. O'Donnell:

In its Open Records Response dated July 30, 2007, LWC advised you it would supplement its response should there be any other documents responsive to the Public Service Commission's Open Records Request. Louisville Water Company submits the following supplemental response:

2. All documents (including studies, analyses, and reports) that have been prepared or commissioned since January 1, 1994 and that address the cost, whether known or estimated, to LWC of providing water or water-related services to KAWC.

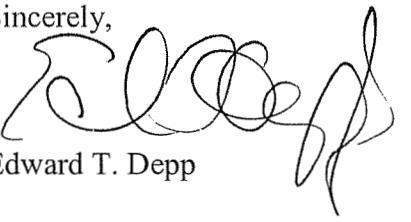
Response: *In addition to the documents produced in LWC's July 30, 2007 and September 18, 2007 responses, please find the following document:*

- *Comparison of the Louisville Pipeline and Pool 3 Options to Serve Central Kentucky Water Customers, Final Report, September 2007 (Revised October 2007)*

This revised report is attached in both electronic and hard-copy, with the underlying spreadsheets (formulae intact) attached electronically. LWC further directs the Commission's attention to the October 22, 2007 letter (which, despite its date, was not received until today) contained at the beginning of this revised report, whereby R. W. Beck explains the basis of its revisions and notes that the revisions do not impact the basic conclusions of the report.

LWC agrees to further supplement this response should other responsive documents come to its attention. Please contact us or counsel to LWC (at 502/569-0808) if you have questions regarding this response.

Sincerely,



Edward T. Depp

ETD/lb

cc: All parties of record (Case No. 2007-00134) (w/encl.)
Barbara K. Dickens, Esq. (w/encl.)

Final Report

Comparison of the Louisville Pipeline and Pool 3 Options to Serve Central Kentucky Water Customers

Louisville Water Company

September 2007
(Revised October 2007)

Final Report

Comparison of the Louisville Pipeline and Pool 3 Options to Serve Central Kentucky Water Customers

Louisville Water Company

September 2007
(Revised October 2007)

R·W·BECK

October 22, 2007

R·W·BECK

Mr. Jim Smith
Manager, Infrastructure Planning
Louisville Water Company
550 South Third Street
Louisville, KY 40202

Subject: **Revised Final Report**

Dear Jim:

Enclosed is a revised Final Report providing a financial comparison between the Pool 3 option and a pipeline from Louisville to deliver future water supply needs to Central Kentucky. We recently discovered an error in one of the input variables to the model that alters the life-cycle present worth costs and the unit cost results for both options. The previous document (dated September 2007) was reporting on modeling results that used a 12.4% municipal bond interest rate instead of the intended 4.7% specified in the document.

The revised report properly reflects the correct interest rate, with a net effect of reducing the municipal debt service component of all options and modeling scenarios. Although all of the numerical results and graphical presentations change, the basic conclusions of the study are not impacted by the new output results.

This revised report modifies 12 pages and the Appendices from the original document. The impacted pages are 3-5 to 3-9, 4-4 and 4-5, 5-3 and 5-4, and 6-2 and 6-3, as well as page 4-1, where the first sentence of the last paragraph should reference the date 2050 instead of 2030 (this is the only modification not related to the interest rate change).

We sincerely apologize for the error and the need to re-file this report with the Public Service Commission. Please do not hesitate to contact me with any questions.

Very truly yours,

R. W. BECK, INC.

Edward D. Wetzel, Ph.D., P.E.
Executive Vice President

400 Professional Park Drive, Suite 100 Goodlettsville, TN 37072-2100 Phone (615) 859-3900 Fax (615) 851-6066

Comparison of the Louisville Pipeline and Pool 3 Options to Serve Central Kentucky Water Customers

Louisville Water Company

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Section 1
PROJECT INTRODUCTION

Section 1
PROJECT INTRODUCTION

1.1 Background

A number of communities in the Lexington area are facing a long-term water supply shortage resulting from safe yield limitations of the Kentucky River. The major water purveyor in the area, Kentucky American Water Company (KAW), currently receives all of its' raw water from Pool 9 of the Kentucky River. Beginning in the early 1990's, KAW began looking for alternative supplies for future system growth. After evaluation of 50 alternatives, KAW selected an alternative that involved the purchase of treated water from the Louisville Water Company (LWC) and transmission of the water some 75 miles across central Kentucky to Lexington. A purchase and sale agreement was executed between KAW and LWC, but in response to opposition by certain potentially affected stakeholders, KAW determined not to pursue the pipeline project.

A number of the communities surrounding Lexington formed the Bluegrass Water Supply Commission (BWSC) in 2004 with a mission to develop a solution to the long-term water supply problem. Both KAW and the BWSC have analyzed their water supply alternatives over the past few years, and have each decided to pursue Pool 3 of the Kentucky River as the preferred water supply source for the foreseeable future. KAW has recently completed the engineering design and permitting processes for the implementation of a 20 MGD Pool 3 project, and have invited the BWSC to piggyback their project for an additional 5 MGD to serve the needs of their member communities.

Since 2003, the LWC has made four distinct proposals to the BWSC and its' member governments at their request. All proposals established a point of delivery at the intersection of Interstate 64 and KY-53 in Shelby County. These proposals are summarized below:

- August 8, 2003 (amended proposal from July 9)- presented two scenarios, one a 5 MGD base flow and 10 MGD reserve capacity (25 MGD design capacity) and the other a 9 MGD base flow with an 18 MGD reserve capacity (45 MGD design capacity). Fixed costs were assigned for the base flow amount, a separate rate charged up to the reserve capacity, and the wholesale rate charged for usage above the reserve capacity up to the design capacity of the pipeline.
- December 15, 2005- five alternatives were presented, with minimum purchase amounts ranging from 2 MGD to 6.2 MGD, and design capacities ranging from 10 MGD up to 31 MGD. Most alternatives suggested a three-tiered rate structure, with one option involving reserve capacity quantity that varied from the design capacity of the pipeline.

- October 25, 2006- "Tailored Solution" presented to the BWSC, involving multiple minimum daily purchase, reserve capacity and design capacities based on pipeline size and take or pay contract commitments. Three tiered rate structure used that resulted in the lowest effective rate at the limit of the reserve capacity.
- July 10, 2007- simplified solution presented to the Lexington-Fayette Urban County Government (LFUCG). The tiered rate structure was replaced with the standard wholesale water rate (now $1.71/1,000 gallons) for all water consumed. Minimum take-or-pay amount established as approximately 1/5 of pipeline design capacity. Capacities ranged from 10 MGD to 31 MGD, with take-or-pay amounts from 2 MGD to 6 MGD.

LWC understands that the safe yield of Pool 3 on the Kentucky River may not provide adequate capacity to serve the collective water supply needs of Central Kentucky, and the only safe, reliable water supply for Central Kentucky is the Ohio River. Further, LWC understands that KAW determined that the LWC pipeline supply of treated water was the low-cost alternative in the 1990s, and the BWSC determined that the LWC treated water pipeline supply was the low-cost alternative for their needs in 2004. In order to validate previous findings, R.W. Beck has been asked by LWC to perform an independent technical and financial evaluation of an LWC treated water pipeline alternative to the Pool 3 water supply option for Central Kentucky.

1.2 Purpose of the Project

The objective of this study is to develop a life-cycle cost comparison between two alternatives:

Pool 3 Option - Construction and operation of a new intake at Pool 3 of the Kentucky River, water treatment plant, and 30-mile transmission pipeline from Pool 3 to the intersection of Iron Works Pike (KY 1973) and Newtown Pike (KY 922) in Fayette County.

Louisville Pipeline (LWC) Option - Construction and operation of a pipeline from KY 53 in Shelby County to approximately the same point of delivery in Fayette County. In this alternative, the cost of delivery from the LWC to KY 53 is included as the wholesale water rate charged by LWC.

Both alternatives assume a design capacity of 25 MGD, with 20 MGD allocated for KAW customers and 5 MGD for the various BWSC members in Central Kentucky. In the case of the Pool 3 option, the infrastructure will be 80% owned by KAW and 20% owned by the public, while the LWC pipeline is assumed to be 100% in public ownership.

KAW has stated that they believe Pool 3 provides water supply under drought conditions of at least 30 MGD, and that this project will serve the needs of Central Kentucky customers until the year 2030. We have therefore divided our analysis into two phases, one extending to the year 2030 and the other to accommodate growth beyond 2030 to the year 2050.

Section 2
FINANCIAL MODEL AND ASSUMPTIONS

Section 2
FINANCIAL MODEL AND ASSUMPTIONS

The modeling objective is to determine the life-cycle cost impact of the two alternatives on the customers within Central Kentucky. These customers are currently served by both KAW and BWSC member governments. The goal is to analyze the alternatives from both a present-worth cost basis and an annualized cost per 1,000 gallons basis.

There are two major components to any life-cycle cost comparison—capital costs and operating expenses. R.W. Beck did not develop any independent cost estimates for either the capital or operating components of the projects. Much of the cost information was derived from two previously prepared engineering reports:

2. *Final Report for the Water System Regionalization Feasibility Study*, prepared for the Bluegrass Area Development District by O'Brien & Gere Engineers, Inc., February, 2004
3. *Water Supply Study,* prepared for Kentucky American Water Company by Gannett Fleming, Inc., March, 2007

R. W. Beck also reviewed numerous documents provided by LWC, containing Kentucky Public Service Commission testimony and previous presentations by KAW, LWC and O'Brien & Gere on behalf of the BWSC, incorporating the data into the models as appropriate.

2.1 Capital Costs

Capital cost information was obtained from various sources and adjusted to 2007 dollars by the Engineering News Record (ENR) Construction Cost Index. Estimated construction costs were inflated for contingency, and soft costs added for engineering, legal, administrative expenses, permitting, easements and land purchases. The add-on percentages were held consistent with those used by both O'Brien & Gere and Gannett Fleming in their studies. Capitalized interest was charged during an assumed two-year construction period for Phase 1, and issuance costs were assumed for debt financing. Future capital expenditures were inflated by the Handy Whitman index for both pipeline and treatment plant cost elements.

The model translates the capital expenditures into an annual cost allocation by determining the principal and interest on a municipal bond issue for the publicly-financed portions of the project, or applying KAW's after-tax allowable rate of return on their rate base (7.75%).

The following table outlines the capital cost assumptions used as part of the baseline case in the financial model.

Table 2-1
Capital Cost Modeling Assumptions

ENR Construction Cost Index (2007)	7959
Construction contingency	20%
Engineering/legal/administrative	20%
Permitting/easements	5%
Handy Whitman construction inflation rate	3%
Municipal bond interest rate	4.7%
KAW interest rate on debt	6.5%
KAW return on rate base	7.75%

2.2 Operation and Maintenance Costs

In addition to the capital costs of the project, the model also considers the operation and maintenance costs of the two alternatives. For the Pool 3 option, this includes the labor, chemical, power and other miscellaneous expenses associated with operating and maintaining the new intake, treatment plant, transmission main and booster pump station. In the case of the LWC option, the O&M expense of operating the transmission main and booster pump station from KY 53 to Fayette County includes electrical costs and an allowance for line maintenance. The O&M costs are inflated each year by the rate of inflation, assumed to be 2.4% in the model.

The water delivered by LWC to the KY 53 point of connection in Shelby County is provided at the wholesale water rate, currently $1.71/1,000 gallons, plus an annual meter service charge. The cost to deliver treated water in full compliance with all regulatory requirements is imbedded in that rate, which will increase from time to time. Over the past 15 years, the average increase in the LWC wholesale rate has been 2%. The model assumes an annual increase in the wholesale rate of 3%.

2.3 Renewal and Replacement

In order to ensure sustainability of the newly-constructed assets, the model assumes an annual cost for infrastructure renewal and replacement (R&R). The costs assume an average asset life of 75 years for pipelines, and 40 years for treatment plants and associated equipment. Therefore, the R&R funding is established at 1.33% and 2.5% of the total project costs for the transmission and plant elements, respectively. This same approach is utilized for determining the depreciation on the KAW assets.

2.4 Model Output

The financial model generates results in two basic ways. First, a present worth cost is determined by taking the annual cost for each year over the timeframe modeled, and discounting back to 2007 using an assumed discount rate of 4.7% based on the opportunity cost of capital to the impacted customers. The difference in the present worth cost represents the difference paid by the end users for the two alternatives over the 20 or 40-years of operation in today's dollars.

The second output from the model is a plot of the cost per 1,000 gallons over the timeframe analyzed. This approach provides a more graphical representation of the financial impacts to customers over time for the two alternatives.

Section 3
PHASE 1 (2030) ANALYSIS

Section 3
PHASE 1 (2030) ANALYSIS

The first phase of the investigation was to perform a financial analysis of two alternatives:

1. Kentucky River Pool 3 option, involving a 25 MGD intake, water treatment plant and high-service pump station at Pool 3, and a 30 mile, 42-inch transmission main from the treatment plant to the connection to the KAW system at Iron Works Road (KY 1973) and Newtown Pike (KY 922) in Fayette County.
2. A 42 mile, 42-inch finished water transmission main from KY 53 in Shelby County, along the I-64 corridor to approximately the same point of connection with the KAW system in Fayette County.

Both of the above alternatives include a booster pump station and a 3 million gallon storage tank along the transmission pipeline route, including the land acquisition costs.

The analysis for each alternative includes the capital construction cost in 2007 dollars, plus the operating and maintenance (O&M) expenses over 20 years starting in 2010. This initial investigation (Phase 1) is expected to provide a 20-year solution, assuming that Pool 3 can sustain a 30 MGD withdrawal under peak day flow conditions, and that customer growth will result in approximately 0.5 MGD of additional flow each year from an initial value of 6 MGD.

The wholesale rate from LWC is initially $1.71/1,000 gallons, and inflates at 3% per year through 2030. Both the Pool 3 and LWC pipeline options include the Kentucky River Authority withdrawal permit fee of $0.05/1,000 gallons. The Pool 3 alternative also includes a capital project to address the Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR), published by the U.S. EPA in the Federal Register on January 6, 2006 with a 2012 compliance deadline. For the purpose of this investigation, we have assumed that the Pool 3 treatment plant will require an additional 1-log inactivation of Cryptosporidium, and that the likely technology to achieve the additional treatment credit will be with ultraviolet light (UV). The costs for UV disinfection were estimated in the March 2007 Gannett Fleming report and are included in the Pool 3 model assuming an installation date of 2011. Investments in the LWC system to comply with future drinking water regulations are included in the future increases in their wholesale rate.

3.1 Initial Capital Expenditure Assumptions

The following capital costs were used in developing the models for the Pool 3 and LWC pipeline options.

Table 3-1
Capital Costs - LWC Option (2007 $1,000)

42" Transmission Pipeline (incl. KY river crossing)	$ 68,280
Booster Pump Station/Storage Tank	4,743
Construction Cost Estimate	$ 73,023
Contingency @ 20%	14,605
Probable Construction Cost	$ 87,628
Permitting/Easements @ 5%	4,381
Engineering, Legal, and Administrative @ 20%	17,526
Land	87
Subtotal- Capital Cost	$109,622
Capitalized Interest @ 4.7% for two years	2,576
Issuance Costs @ 1%	1,096
Total LWC Phase 1 Project Cost	**$113,294**

Table 3-2
Capital Costs - Pool Three Option (2007 $1,000)

Intake, Pump Station and Treatment Plant	$ 54,867
Raw Water Main	402
42" Transmission Pipeline	48,300
Booster Pump Station/Storage tank	4,743
Construction Cost Estimate	$108,312
Contingency @ 20%	21,662
Probable Construction Cost	$129,974
Permitting/Easements @ 5%	6,499
Engineering, Legal, and Administrative @ 20%	25,995
Land	788
Subtotal- Capital Cost	$163,256
Capitalized Interest @ 6 5% for two years	3,183
Issuance Costs @ 1% of long-term debt	980
Total Pool 3 Phase 1 Project Cost	**$167,419**

Table 3-3
Capital Costs - Pool Three Option
UV Capital Expenditure (2011 $1,000)

UV Disinfection Costs	$ 5,355
Contingency @ 20%	1,070
Probable Construction Cost	$ 6,425
Permitting @ 5%	321
Engineering, Legal, and Administrative @ 20%	1,285
Subtotal- Capital Cost	$ 8,031
Capitalized Interest @ 6.5% for two years	261
Issuance Cost @ 1% of long-term debt	80
Total UV Project Cost	**$ 8,372**

3.2 Operation and Maintenance (O&M) Expenses

The operating costs for the Pool 3 river intake, water treatment plant and transmission pipeline were obtained from KAW estimates for labor, power, chemicals, and security as detailed in testimony before the Kentucky Public Service Commission in March of 2007. An allowance was also made for ongoing maintenance expenses. At the initial flow rate of 6 MGD, these costs totaled $0.98/1,000 gallons. Additional operating expenses for the Pool 3 option included the payment of property taxes by KAW and the Kentucky River Authority (KRA) withdrawal fee of approximately $0.05/1,000 gallons.

O&M expenses for the LWC pipeline include power and maintenance costs for the pipeline, an annual metering charge from LWC, and the wholesale rate charge from LWC, currently at $1.71/1,000 gallons of usage. For consistency, the KRA withdrawal fee of $0.05/1000 gallons was also charged as an operating cost in the LWC pipeline option.

3.3 Modeling Results

The Pool 3 option has been described in various documents and reports as both a peaking plant as well as to provide capacity for future regional population growth needs. Under the peaking plant concept, the facilities would normally operate under some minimal flow condition (6 MGD), but be available to provide up to its' peak capacity under severe drought conditions. As an integral part of the water supply solution for the region, the Pool 3 plant flows would increase as the population of the region and water needs increased over time.

Two baseline cases were therefore studied in the modeling effort. The first assumes that the initial volume of water delivered through either the Pool 3 or LWC option is 6 MGD and remains constant through the year 2030. A second analysis accounts for customer growth and assumes that the average volume of water delivered starts at 6 MGD and increases by 0.5 MGD each year from 2010 until 2030. Under this assumption, the average daily flow in 2030 would be 16 MGD. With a peak day to average day ratio of about 1.6, this rate of flow increase depletes the new system capacity of 25 MGD by the year 2030.

The present worth cost of the Pool 3 and LWC pipeline options are compared below.

Table 3-4
Comparison of Present Worth Costs
2010-2030 Analysis ($1,000)

	Constant Flow 6 MGD	Increasing Flow 0.5 MGD/yr
Pool 3 Option	$ 303,334	$ 313,248
LWC Option	$ 174,026	$ 221,584
Difference	$ 129,308	$ 91,664
%	43%	29%

The model also compares the two options on a cost per 1,000 gallons basis. Figure 3-1 and 3-2 plot the cost of each option over the 20-year analysis period for the two baseline cases. When the flow rates remain constant, the Louisville pipeline option is always less expensive on a unit cost basis as shown in Figure 3-1. The LWC option curve goes up because both the operating expenses and the wholesale rate are increasing. The Pool 3 option curve goes down because asset depreciation is reducing the return to KAW on their portion of the project, and that reduction is greater than the increases in operating expenses. After 20 years, the municipal revenue bonds used to fund the LWC pipeline and 20% of the Pool 3 option are retired, which will reduce the unit costs in 2030 to below $4/1,000 gallons for LWC and below $10/1,000 gallons for Pool 3.

Figure 3-1
Unit Cost Comparison (6 MGD Constant)

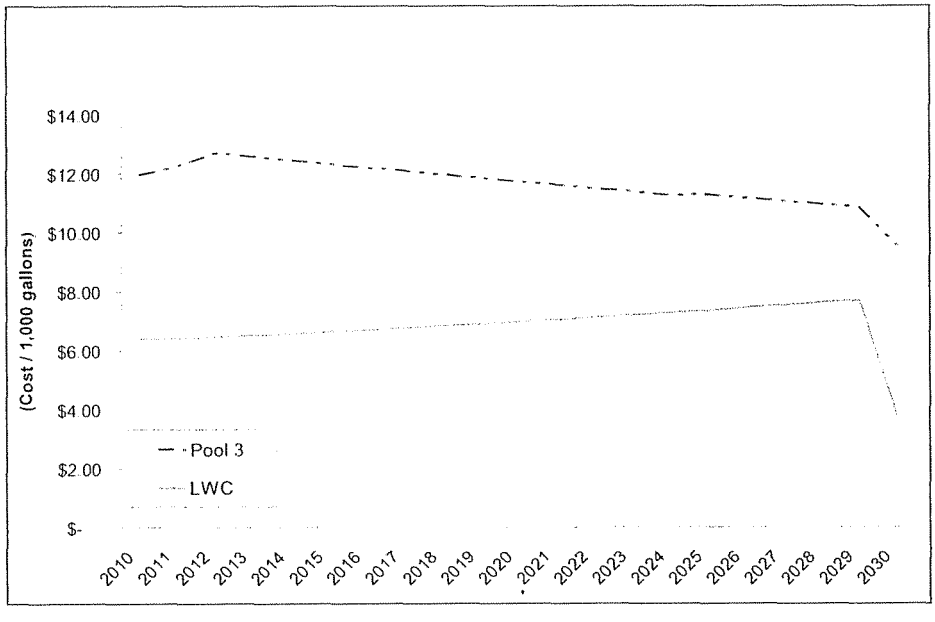
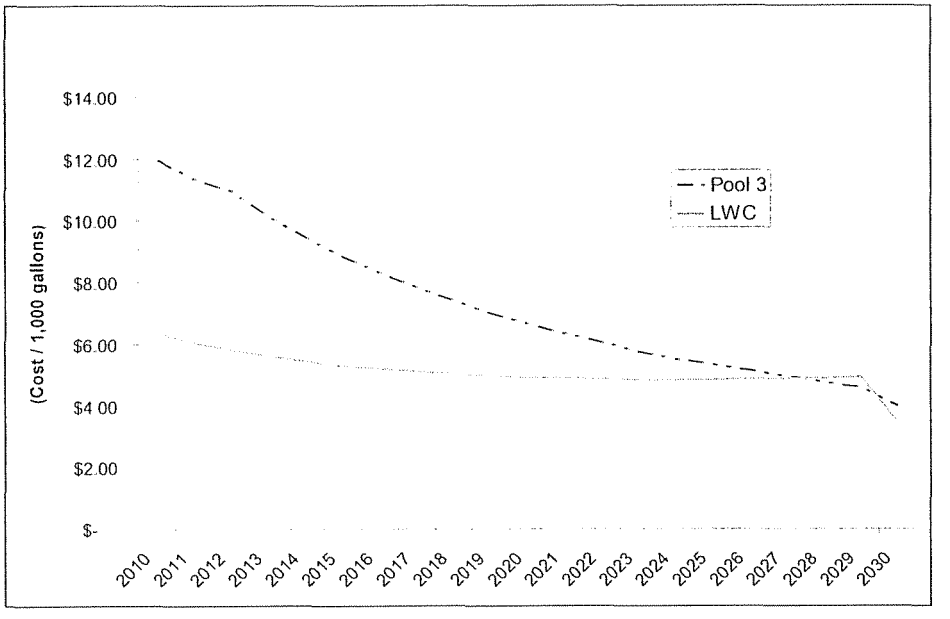


Figure 3-2 compares Pool 3 with LWC when flows are increasing by 0.5 MGD per year from the initial 6 MGD in 2010. In this instance, the Pool 3 curve shows a decrease in the unit cost over time because of the impact of depreciation on the KAW return on invested capital, while the LWC curve remains relatively flat. This causes the two curves to cross around the year 2027, but the life-cycle, present worth cost of the Pool 3 option is still $92 million more expensive over 20 years.

Figure 3-2
Unit Cost Comparison (0.5 MGD / yr Increase)



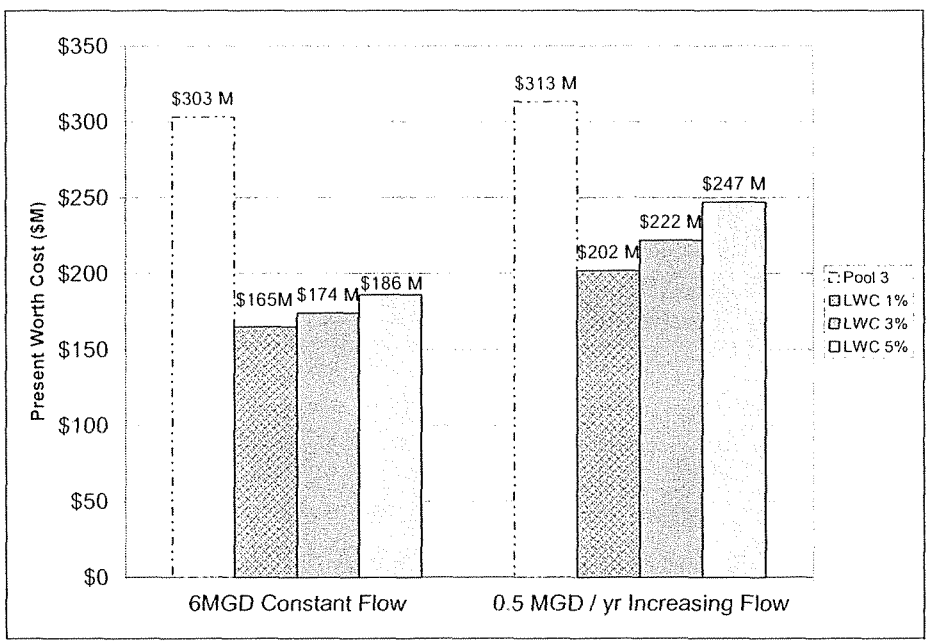
3.4 Sensitivity to LWC Wholesale Rate

The most significant variable in the analysis is the assumed increase in the rate charged by Louisville Water Company to its' wholesale customers. Over the past 15 years, the LWC wholesale rate has increased by an average of 2%. The baseline case presented above assumed an annual increase of the wholesale rate of 3% from the current rate of $1.71/1,000 gallons purchased. The model was used to analyze the effect of varying the future rate increases from 1% to 5% per year over 20 years.

The lower increase of 1% was chosen to reflect the potential that selling wholesale water to Central Kentucky customers spreads the fixed cost of operation across a larger volume of water distributed, and could result in rate increases below the 2% per year average over the past 15 years. The upper limit of 5% recognizes the potential that addition of enhanced treatment at both the Crescent Hill and B.E. Payne treatment plants to meet the 2012 regulations could cause a short-term wholesale rate increase above the rate of inflation.

Figure 3-3 presents the present worth cost of each alternative through the year 2030. The results indicate that at a 6 MGD constant flow rate, the difference between the Pool 3 option and the LWC option ranges from $138 million at 1% annual increase to $117 million at a 5% annual increase. The second set of plots show the same comparison for the 0.5 MGD per year flow increase. In this case, the LWC option is lower on a present worth basis by $111 million at 1% annual increase in the wholesale rate, down to a $66 million advantage at a 5% increase.

Figure 3-3
Phase 1 (2030) Present Worth Cost Comparison



Figures 3-4 and 3-5 present the unit cost of each option with separate curves presented for 1%, 3% and 5% wholesale rate increases from LWC. At a constant flow rate of 6 MGD, the unit costs for the LWC option are significantly less than the Pool 3 option over the 20-year analysis period. Figure 3-5 presents the unit cost comparison assuming the 0.5 MGD per year flow increase. In this instance, the LWC curves at a 3% and 5% wholesale rate increase eventually cross the Pool 3 option. Nevertheless, the present worth costs remain lower for LWC under all assumed rate increases over the 20-year analysis period.

Figure 3-4
Unit Cost Comparison (6 MGD Constant)

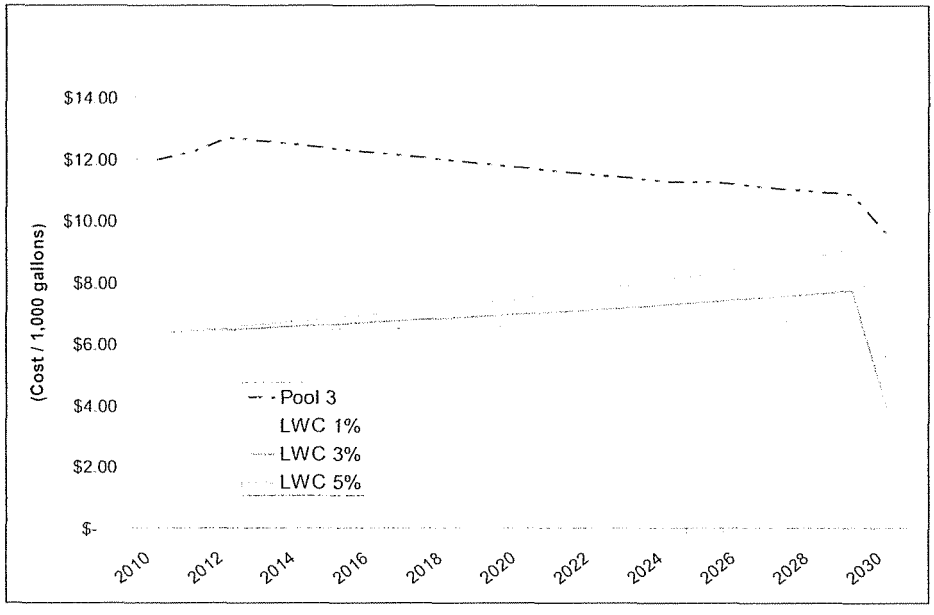
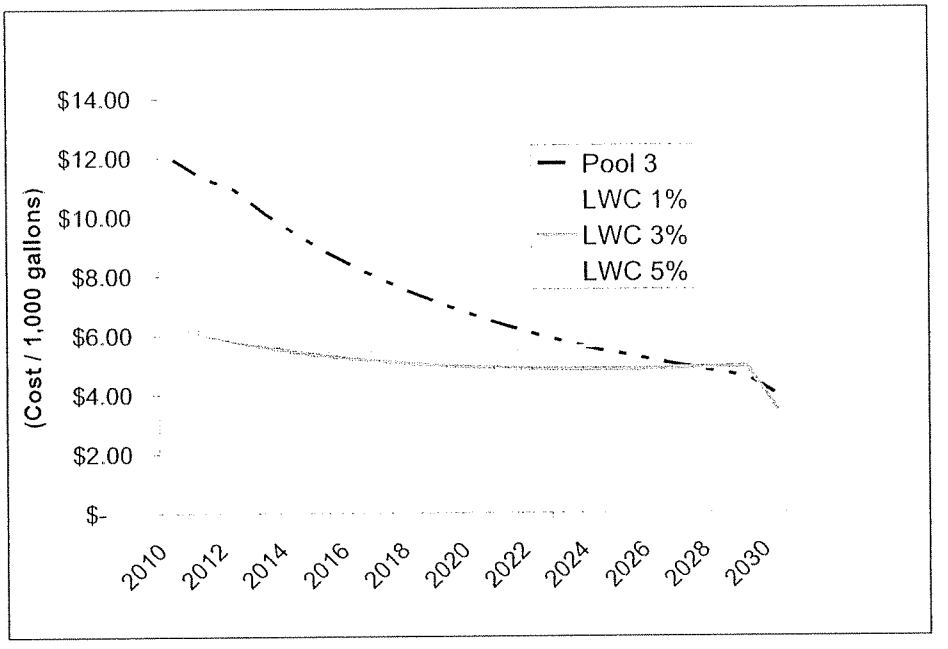


Figure 3-5
Unit Cost Comparison (0.5 MGD / yr Increase)



Section 4
PHASE 2 (2050) ANALYSIS

Section 4
PHASE 2 (2050) ANALYSIS

Previous studies acknowledge that a Pool 3 solution on the Kentucky River is likely a 20 to 25-year solution based on projected regional growth and an assumed 30 MGD of available capacity. The recommended Kentucky River solution outlined in the O'Brien & Gere study contemplated a second phase raw water pipeline to the Ohio River from Pool 3 at some point in the future.

Given the need for source water from the Ohio River, our Phase 2 investigation analyzes options to expand on the initial 25 MGD plan. If we assume that demand continues to increase by 0.5 MGD each year, phase 2 options will need to provide an additional 10 MGD average flow over that timeframe, for a total peak capacity of 45 MGD. Since the previously constructed 42-inch transmission mains can carry up to 31 MGD, the additional 14 MGD can be accommodated with a 30-inch diameter line for both the new raw water main and the parallel treated water transmission lines in both alternatives.

Phase 2 of the Pool 3 option will therefore include the following capital components:

- Construction of a new 15 MGD river intake and raw water pump station in the Ohio River
- Construction of a new 30 mile, 30-inch raw water main from the Ohio River to the Pool 3 WTP
- Expansion of the treatment plant and associated facilities to 45 mgd
- Construction of a parallel 30-inch transmission main from Pool 3 to Lexington
- Addition of a new booster pump station for the 30-inch treated water main
- Addition of a new 2 million gallon storage tank along the 30-inch pipeline route

Phase 2 of the LWC pipeline option will include:

- Construction of a parallel 30-inch transmission main from Shelbyville to Lexington
- Addition of a new booster pump station for the 30-inch main
- Addition of a new 2 million gallon storage tank along the 30-inch pipeline route

Since the current peak day capacity of the LWC treatment plants is 240 MGD, one or both of their plants will need to be expanded by at least 10 MGD by 2050 to accommodate the 45 MGD peak day flow for Central Kentucky. LWC has indicated they will increase the capacity of the B.E. Payne plant by 15 to 30 MGD before 2030, and those costs will be reflected in the wholesale rate.

4.1 Phase 2 Capital Costs

Since the system capacity is needed before 2030, the capital components outlined above must be designed and constructed prior to that date. The model assumes design and construction over a three-year period starting in 2025.

The following capital costs were used in developing the models for the Pool 3 and LWC pipeline options in Phase 2. All costs shown are in 2007 dollars. These costs were inflated to 2025 at an assumed 3% construction cost inflation rate and input into the model.

Table 4-1
Phase 2 Capital Costs - LWC Option (2007 $1,000)

Transmission Pipeline (incl. KY river crossing)	$ 50,909
Booster Pump Station/Storage Tank	3,165
Construction Cost Estimate	$ 54,074
Contingency @ 20%	10,815
Probable Construction Cost	$ 64,889
Permitting/Easements @ 5%	3,244
Engineering, Legal, and Administrative @ 20%	12,978
Subtotal- Capital Cost	$ 81,111
Capitalized Interest @ 4.7% for two years	1,525
Issuance Costs @ 1% of long-term debt	826
Total LWC Phase 2 Project Cost	**$ 83,462**

Table 4-2
Phase 2 Capital Costs - Pool Three Option (2007 $1,000)

Ohio River Intake and pump station	$ 3,774
Raw Water Main	34,060
Treatment plant expansion	35,765
Transmission Pipeline	34,060
Booster Pump Station/Storage tank	3,165
Land	200
Construction Cost Estimate	$111,024
Contingency @ 20%	22,165
Probable Construction Cost	$133,189
Permitting/Easements @ 5%	6,659
Engineering, Legal, and Administrative @ 20%	26,638
Subtotal- Capital Cost	$166,486
Capitalized Interest @ 6.5% for two years	3,871
Issuance Costs @ 1% of long-term debt	998
Total Pool 3 Phase 2 Project Cost	**$171,355**

4.2 Operation and Maintenance Expenses

O&M expenses in phase 2 were computed in similar fashion as was done for Phase 1. Two additional staff are assumed for the new Ohio River intake and raw water pump station facilities. Other fixed treatment plant costs were increased by the rate of inflation, while variable costs increased by both the rate of inflation and flow rate. Wholesale rate increases were once again assumed at 3% per year to be consistent with the assumed rate of inflation and construction cost increases.

4.3 Modeling Results

The model was run through the year 2050 under two distinct scenarios.

1. Both the Pool 3 and LWC option continue to provide 6 MGD on an average day basis throughout the analysis period. Under this scenario, the second phase of capacity expansion is not constructed.

2. Increasing flows by 0.5 MGD per year require an expansion to increase the capacity of each option to 45 MGD to accommodate future flows through the year 2050.

The table below presents the present worth cost comparison of the two options for each scenario. Note that when the analysis is extended beyond the initial 20-year analysis period, the LWC option remains more attractive under either scenario presented.

Table 4-3
Comparison of Present Worth Costs
2010-2050 Analysis ($1,000)

	Constant Flow 6 MGD	Increasing Flow 0.5 MGD/yr
Pool 3 Option	$ 384,419	$ 598,745
LWC Option	$ 220,720	$ 432,733
Difference	$ 163,699	$ 166,012
%	43%	28%

The same unit cost comparison was analyzed as was done for Phase 1 and presented in Section 3. Figures 4-1 and 4-2 provide the unit cost curves for the 40-year analysis period for the constant flow and increasing flow scenarios.

Figure 4-1
Unit Cost Comparison (6 MGD Constant)

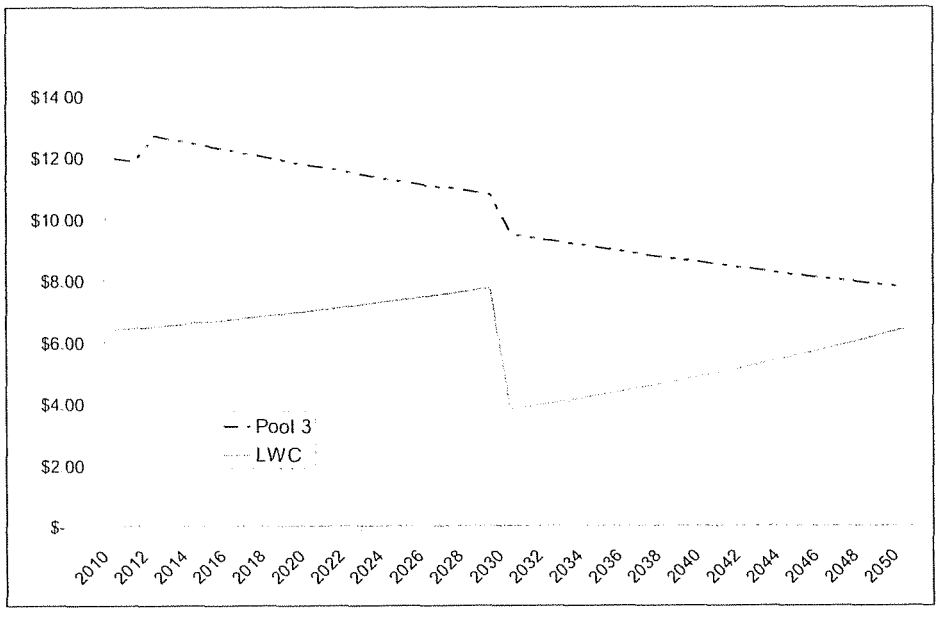
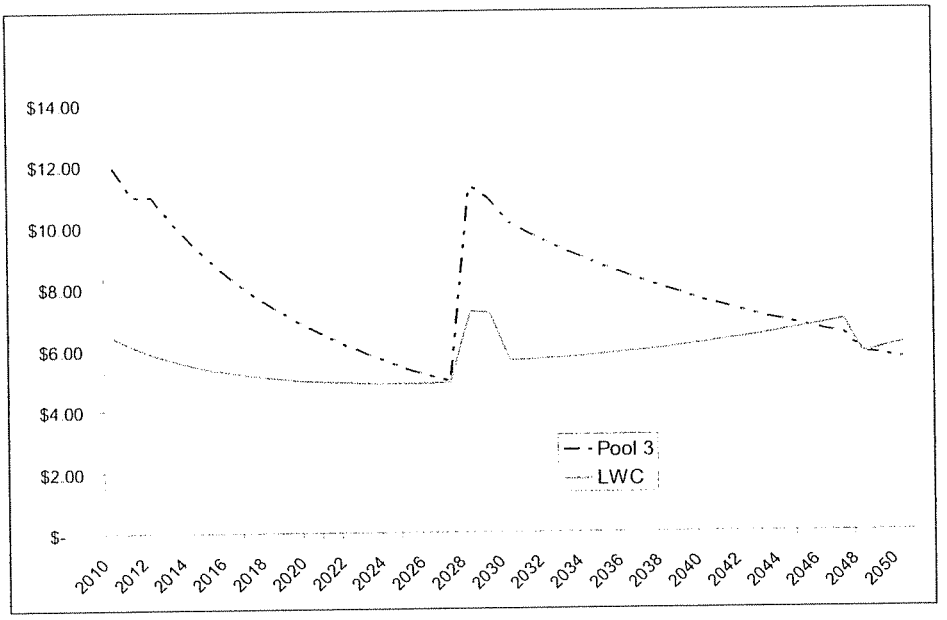


Figure 4-2
Unit Cost Comparison (0.5 MGD Increase)



Section 5
ALTERNATIVE LWC PIPELINE PROPOSAL

Section 5
ALTERNATIVE LWC PIPELINE PROPOSAL

Louisville Water Company believes that delivering up to 25 MGD from Louisville can be accomplished with a 36-inch pipeline rather than the 42-inch pipe utilized in the modeling effort. The reason for using a 42-inch pipeline, our model from Shelby County was to have an "apples-to-apples comparison" between the Pool 3 project and the LWC option. The 42-inch pipeline was chosen to transport the water from the Pool 3 facility to Fayette County in order to maintain water velocity below a nominal 5 feet per second (fps) at up to a 30 MGD flow rate. The larger diameter pipe also dissipates less energy (head loss) over the length of pipeline to be constructed, thereby reducing the need for additional booster pumping and lowering power costs to transport the water.

R.W. Beck was asked to consider the viability of a 36-inch pipeline for this project. While a detailed engineering study of the pipeline plan and profile would be required to fully understand the issues surrounding the use of a smaller pipeline, it appears the 36-inch alternative has merit in this application for the following reasons:

1. Given the lower cost of a 36-inch pipe, the total project cost could be as much as 20% less than the 42-inch option modeled based on lower construction costs and if lower contingencies and engineering cost assumptions are used;
2. The 5 fps velocity criterion is violated when flows exceed 23 MGD, which would occur only under the most severe peak flow conditions anticipated (at 25 MGD the velocity is 5.5 fps); and
3. Energy loss across the pipeline is about twice as large for the 36-inch versus the 42-inch pipeline, which will likely require an additional booster pumping station and higher electrical costs to operate.

5.1 Capital Costs

The following capital costs were used as input to the financial model for an assumed 36-inch pipeline alternative from Shelby County to Fayette County. This alternative includes an additional booster pump station along the pipeline alignment, but also includes lower contingency and engineering costs typically associated with pipeline projects. The total project cost for the 36-inch alternative is $25 million (22%) less than the cost for the 42-inch pipeline.

Table 5-1
Capital Costs of 36" LWC Pipeline

Transmission Pipeline (incl. KY river crossing)	$ 57,140
Storage Tank	2,165
Booster Pump Station (2)	5,155
Construction Cost Estimate	$ 64,460
Contingency @ 10%	6,446
Probable Construction Cost	$ 70,906
Permitting/Easements @ 5%	3,545
Engineering, Legal, and Administrative @ 15%	10,636
Land	150
Subtotal- Capital Cost	$ 85,237
Capitalized Interest @ 4.7% for two years	2,003
Issuance Costs @ 1%	853
Total LWC Phase 1 Project Cost	**$ 88,093**

5.2 Operation and Maintenance Expenses

O&M expenses are generally assumed to be the same for the 36-inch pipeline with the exception of power costs. Given that the head loss doubles in the 36-inch alternative, the power costs were assumed to double in this option as well.

5.3 Modeling Results

The model was once again run under two scenarios for the 36-inch pipeline. The first scenario holds the flow rate constant at 6 MGD over the 20-year operating period, and the second increases the average flow by 0.5 MGD per year. The present worth cost of the Pool 3 and 36-inch LWC pipeline projects are compared below.

Table 5-2
Comparison of Present Worth Costs
2010-2030 Analysis ($1,000)

	Constant Flow 6 MGD	Increasing Flow 0.5 MGD/yr
Pool 3 Option	$ 303,334	$ 313,248
36-inch LWC Option	$ 146,694	$ 194,252
Difference	$ 156,640	$ 118,996
%	52%	38%

Figure 5-1 presents the present worth costs for the Pool 3 option and both LWC options under both scenarios. A comparison was also made between the unit costs of the three options for both scenarios as shown on Figures 5-2 and 5-3. These results clearly demonstrate the benefits of using the smaller diameter pipeline to deliver water from Louisville to Central Kentucky, and the enhanced benefit of that alternative over the Pool 3 option.

Figure 5-1
Phase 1 (2030) Present Worth Cost Comparison

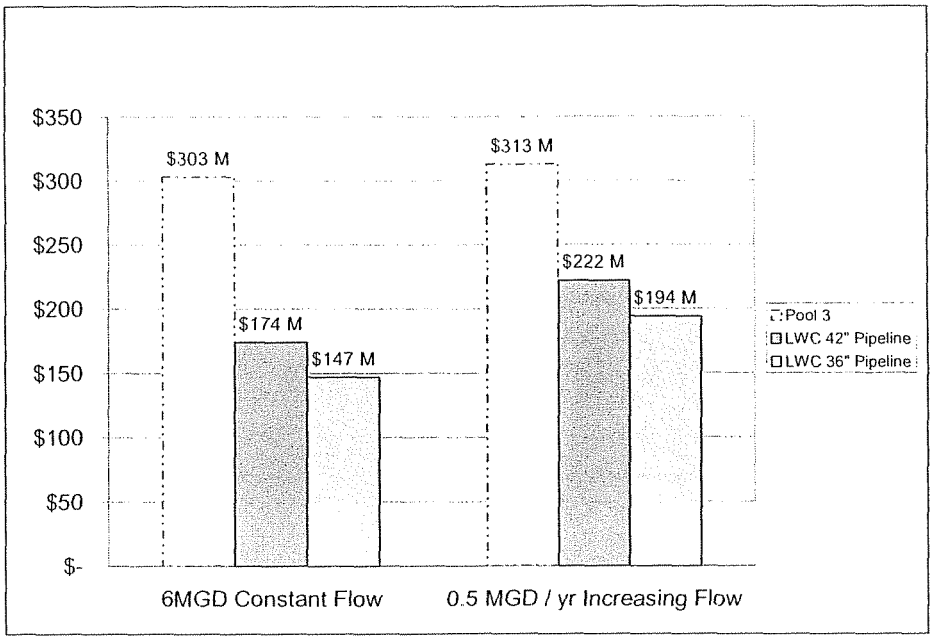


Figure 5-2
Unit Cost comparison (6 MGD Constant)

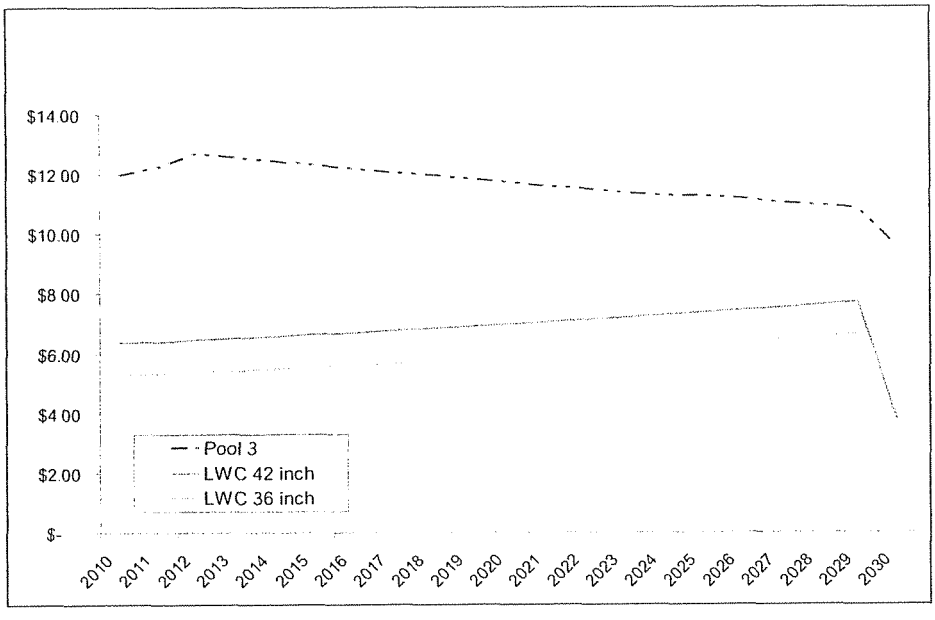
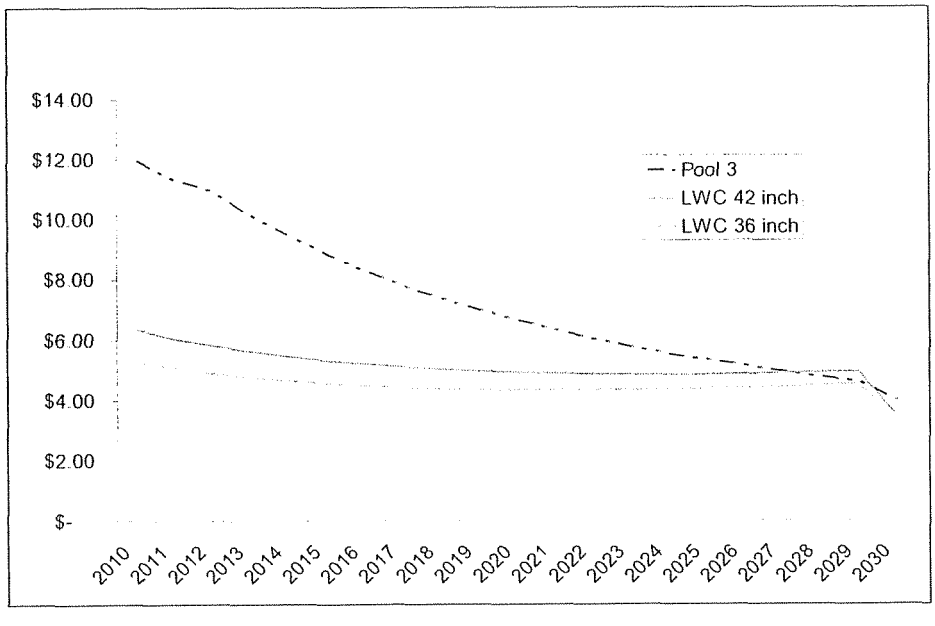


Figure 5-3
Unit Cost Comparison (0.5 MGD Increase)



Section 6
SUMMARY AND CONCLUSIONS

Section 6
SUMMARY AND CONCLUSIONS

6.1 Capital Costs

The capital costs for the Pool 3 and LWC pipeline options were compared. R.W. Beck performed no independent cost estimates, but rather extracted the estimated capital costs from previous engineering studies. Our investigation also included a 36-inch pipeline alternative from Louisville, as well as a Phase 2 project to expand both options in the case of increasing flows and capacity needs beyond the year 2030. Table 6-1 presents a summary of the capital cost comparison.

Table 6-1
Capital Cost Comparison (2007 $ million)

	Pool 3	LWC-42"	LWC-36"
Phase 1 (2007-2030)			
Construction Estimate	$ 108.3	$ 73.0	$ 64.5
Contingency	21.6	14.6	6.4
Probable Construction Cost	$ 129.9	$ 87.6	$ 70.9
Engineering/permitting/admin	33.3	22.0	14.3
Interest/financing	4.2	3.7	2.9
Total Phase 1 Project Cost	**$ 167.4[1]**	**$ 113.3**	**$ 88.1**
% difference	**---**	**32%**	**47%**
Phase 2 (2030-2050)			
Construction Estimate	$ 111.0	$ 54.1	
Contingency	22.2	10.8	
Probable Construction Cost	$ 133.2	$ 64.9	
Engineering/permitting/admin	33.3	16.2	
Interest/financing	4.8	2.4	
Total Phase 2 Project Cost	**$ 171.3**	**$ 83.5**	
% difference	**---**	**51%**	

1 Not including UV project

The capital costs are significantly lower for both a 42-inch and 36-inch pipeline from Louisville to Lexington than to build a new treatment plant on Pool 3. In the event future capacity needs require a connection from Pool 3 to the Ohio River, the cost to build that project is twice the cost of constructing a parallel LWC pipeline.

6.2 Present Worth Cost Comparison

The capital costs outlined above were translated into annual debt service and/or return on rate base numbers for the two options, added to the annual O&M expenses, and discounted back to 2007 to calculate a life-cycle present worth cost for each. Table 6-2 provides a comparison under both the constant 6 MGD flow and the increasing flow scenarios for phases 1 and 2. The LWC option shown is for the 42-inch pipeline so as to present an "apples-to-apples" comparison with the Pool 3 option.

Table 6-2
Present Worth Cost Comparison (2007 $ million)

	Constant Flow 6 MGD	Increasing Flow 0.5 MGD / yr
Phase 1 (2010-2030)		
Pool 3 Option	$ 303	$ 313
LWC Option	174	222
Difference	$ 129	$ 91
%	43%	29%
Phase 2 (2030-2050)		
Pool 3 Option	$ 81	$ 286
LWC Option	47	211
Difference	$ 34	$ 75
%	42%	26%
Combined (2010-2050)		
Pool 3 Option	$ 384	$ 599
LWC Option	221	433
Difference	$ 163	$ 166
%	43%	28%

The life-cycle, present worth cost comparison indicates that the LWC option has a lower present worth cost under both the constant 6 MGD and increasing flow assumptions. The LWC cost is lower in either the 20-year or 40-year analysis, and the difference exceeds $160 million (28-43%) over the 40-year timeframe.

The only scenario that produced a present worth cost for the LWC option within 20% of the Pool 3 option was the case where the LWC wholesale rate increased by 5% each year as opposed to the 3% per year assumption used in the baseline models. In discussing this with LWC, we believe it is possible that rate increases of that magnitude are possible in the short term, but unlikely over a sustained 20 or 40-year period. The economic conditions assumed in the model include a 2.4% inflation rate and an annual capital construction cost increase of 3%. Given these metrics and the fact that the LWC wholesale rate has increased by an average of 2% over the past 15 years, R.W. Beck is comfortable with the 3% per year wholesale rate increase assumption.

6.3 Conclusions

Delivering water from the Louisville Water Company to Central Kentucky customers through a publicly-owned pipeline from Shelby County is a more cost-effective alternative than constructing the proposed new intake and treatment plant on Pool 3 of the Kentucky River. Although the Pool 3 option becomes more cost-effective with increasing flows and better utilization of the assets, the LWC wholesale rate must increase by more than 5% per year for more than 20 years in order for the LWC pipeline option to approach the Pool 3 present worth cost.

Increasing flows will eventually deplete the capacity of Pool 3 and require an Ohio River supply. The capital cost to provide an Ohio River expansion of the Pool 3 option is twice the cost of a parallel pipeline to Louisville, and translates into even higher present worth costs for the Pool 3 option beyond 2030.

Appendix A
INCREASING FLOW SCENARIO
SAMPLE MODEL OUTPUT

R·W·BECK

Appendix A-1
POOL 3 OPTION

R·W·BECK

Water Supply Option Analysis
Louisville Water Company
Pool Three Option

	Basis %	Basis $	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Capital Expenditures													
Intake, Pump Station, Treatment Plant [1]	3.10%	$ 53,217,500	$ 54,867,243	$ 27,433,621	$ 27,433,621	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
UV Disinfection Costs (2011) [2]	3.10%						6,425,271	-	-	-	-	-	-
Raw Water Main [3]	3.10%	390,000	402,090	201,045	201,045								
Transmission Line (w/additional borings) [4]	3.10%	48,300,000	49,800,000	24,150,000	24,150,000								
Storage Tank [5]	3.10%	2,100,000	2,165,100	1,082,550	1,082,550								
Booster Pump Station [5]	3.10%	2,500,000	2,577,500	1,288,750	1,288,750								
Initial Capital Expenditures		$ 106,507,500	$ 109,811,933	$ 54,155,966	$ 54,155,966	$ -	$ 6,425,271	$ -	$ -	$ -	$ -	$ -	$ -
Treatment Plant Contingency [6]	20%	$ 11,143,500	$ 11,488,949	$ 5,744,474	$ 5,744,474	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Line Contingency [7]	20%	10,158,000	10,173,438	5,086,719	5,086,719								
Total Contingency		$ 21,301,500	$ 21,662,387	$ 10,831,193	$ 10,831,193								
Opinion of Probable Construction Cost		$ 127,809,000	$ 129,974,319	$ 64,987,160	$ 64,987,160	$ -	$ 6,425,271	$ -	$ -	$ -	$ -	$ -	$ -
Land [8]	2.4%	$ 770,000	$ 788,480	$ 394,240	$ 394,240	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Easements and Permitting [9]	5.0%	6,390,450	6,498,716	3,249,358	3,249,358		321,264	-	-	-	-	-	-
Engineering, Legal, Administrative [10]	20%	25,561,800	25,994,864	12,997,432	12,997,432		1,285,054						
Capital Cost		$ 160,531,250	$ 163,256,379	$ 81,628,189	$ 81,628,189	$ -	$ 8,031,589	$ -	$ -	$ -	$ -	$ -	$ -
Long Term Debt [11]	60%	$ 96,318,750	$ 97,953,827	$ 48,976,914	$ 48,976,914								
Issuance Cost [12]	1.0%	$ 963,188	$ 979,538	$ 489,769	$ 489,769	$ -	$ 80,316	$ -	$ -	$ -	$ -	$ -	$ -
Capitalized Interest [13]	5.50%		3,183,489	1,591,750	1,591,750		251,027						
Total Phase One Capital Expenditure			$ 167,419,416	$ 83,709,708	$ 83,709,708	$ -	$ 8,372,931	$ -	$ -	$ -	$ -	$ -	$ -
Phase Two Capital Expenditures													
15 MGD Intake and Pump Station at the Ohio River		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
30 Mile 30" Raw water main from Ohio River to Pool 3													
20 MGD Treatment Plant Expansion		$ -											
30 mile 30" Transmission main to Lexington													
New booster pump station and storage		$ -											
Land													
Initial Capital Expenditures			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Treatment Plant Contingency [6]		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Plant Contingency [7]													
Total Contingency		$ -	$ -										
Opinion of Probable Construction Cost		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Easements and Permitting [9]			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Engineering, Legal, Administrative [10]													
Capital Cost		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Issuance Cost [12]		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Capitalized Interest [13]													
Total Phase Two Capital Expenditure		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grand Total Capital Expenditures - Phase One and Two		$ -	$ 167,419,416	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Annual Operating Expenses													
WTP Operations and Maintenance Expenses [14]			$ -			$ 168,555	$ 169,584	$ 205,200	$ 224,231	$ 247,104	$ 268,950	$ 291,496	$ 315,875
Chemicals	2.4%					650,516	666,130	682,117	698,488	715,252	732,418	749,996	767,996
Labor	2.4%					300,000	307,200	314,573	322,123	329,853	337,770	345,876	354,177
Security	2.4%					314,573	322,123	329,853	337,770	345,876	354,177	362,678	371,382
Maintenance (Plant)	2.4%					526,415	583,970	643,384	706,543	771,733	839,946	910,373	984,013
Treatment Plant Electricity	2.4%												
Total Annual Operating and Maintenance Expenses		$ -	$ -	$ -	$ -	$ 1,960,061	$ 2,066,407	$ 2,175,726	$ 2,291,154	$ 2,409,815	$ 2,532,661	$ 2,660,420	$ 2,792,943
Booster Pump and Transmission Line O&M													
Maintenance (Transmission Lines)	2.4%					62,915	64,425	65,971	67,554	69,175	70,835	72,536	74,276
Booster Pump Electricity [15]	2.4%					120,273	123,423	147,135	161,425	176,323	191,833	207,990	224,823
Total Booster Pump and Transmission O&M		$ -	$ -	$ -	$ -	$ 183,188	$ 187,848	$ 213,106	$ 228,982	$ 245,498	$ 262,671	$ 280,534	$ 299,100
Total Operating Expenses		$ -	$ -	$ -	$ -	$ 2,143,249	$ 2,254,254	$ 2,388,834	$ 2,520,135	$ 2,655,317	$ 2,795,535	$ 2,940,954	$ 3,091,743
Total Annual Operating Expenses ($/000 gallon)		$ -	$ -	$ -	$ -	$ 0.99	$ 0.99	$ 0.94	$ 0.92	$ 0.93	$ 0.90	$ 0.90	$ 0.88
Other Operating Expenses													
Property Taxes [16]	2.4%	$ -	$ -	$ -	$ -	$ 1,212,674	$ 1,241,942	$ 1,271,749	$ 1,302,271	$ 1,333,526	$ 1,365,530	$ 1,398,301	$ 1,431,852
KRA Withdrawal Fee [16]	$0.05					$ 104,500	$ 118,625	$ 127,750	$ 136,875	$ 146,000	$ 155,125	$ 164,250	$ 173,375
Phase I Project													
KAWC Cost of Capital (80%) [17]						16,435,675	17,353,451	17,031,600	16,699,749	16,357,486	16,004,346	15,764,195	15,372,244
UV Cost of Capital (100%) [17]								1,045,452	1,039,620	992,788	965,956	939,124	912,292
Muni Debt Service (20%) [17]						2,618,914	2,618,914	2,618,914	2,618,914	2,618,914	2,618,914	2,618,914	2,618,914
Phase 2 Project													
KAWC Cost of Capital (80%) [17]													
Muni Debt Service (20%) [17]													
Total Other Operating Expenses		$ -	$ -	$ -	$ -	$ 20,777,924	$ 21,342,933	$ 22,095,465	$ 21,777,429	$ 21,459,125	$ 21,141,572	$ 20,824,786	$ 20,508,787
Renewal and Replacement Fund													
R&R (TP) [18]	2.5%	$ -	$ -	$ -	$ -	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928
R&R (UV) []	2.5%							$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323
R&R (TL) [19]	1.3%					982,129	982,129	982,129	982,129	982,129	982,129	982,129	982,129
Total Renewal and Replacement Fund Costs (Depreciation)						$ 3,236,057	$ 3,236,057	$ 3,445,381	$ 3,445,381	$ 3,445,381	$ 3,445,381	$ 3,445,381	$ 3,445,381
Total Expenses		$ -	$ -	$ -	$ -	$ 26,157,230	$ 26,843,245	$ 27,931,680	$ 27,742,945	$ 27,559,823	$ 27,382,487	$ 27,211,120	$ 27,045,910
Total Expenses ($/000gallon)		$ -	$ -	$ -	$ -	$ 11.94	$ 11.31	$ 10.93	$ 10.13	$ 9.44	$ 8.83	$ 8.28	$ 7.80
Discounted Value		$ -	$ -	$ -	$ -	$ 22,272,992	$ 21,431,068	$ 21,595,531	$ 20,582,548	$ 19,528,434	$ 18,532,162	$ 17,593,478	$ 16,697,884
Total Discounted Cost [20]	$ 313,247,585												
Discount Rate	4.7%												

Notes:

1 Price Adjusted to reflect cost of 25 MGD Plant - Gannett Fleming Report
2 UV Facility with Contingency included - Adjusted to reflect cost of 25 MGD plant - GF Report Page 26
3 1,300 foot pipe @ $300 per foot
4 Transmission Line - $46m with Additional Borings - $240k - Gannett Fleming Report Page 28
5 Gannett Fleming Report Page 28
6 20% of Treatment Plant Expenditures
7 20% of Transmission Line Expenditures
8 114 acres - Swindland Testimony
9 Based on percentage of Probable Construction Cost
10 Amount of Capital cost to be financed
11 Cost of issuing bonds - 1% of Long Term Debt
12 Interest on funds used during construction
13 From Kentucky American Water Annual Operation & Maintenance Costs Table 4
14 Increases with rate of inflation and with water usage (MGD) - Table 4 KAW Annual O & M Costs New WTP
15 Linda Bridwell Testimony
16 $.05 Paid per thousand gallons used - O Brien and Gere Report Page 4
17 Series of payments of principal and interest paid on debt based on 7.75% at 20 years
18 2.5% Depreciation Rate Utilized for Plant and UV - Based on 40 Year Life
19 2.0% Depreciation Rate Utilized for Lines - Based on 75 Year Life
20 Total of all expenses discounted to 2007 dollars

Water Supply Option Analysis
Louisville Water Company
Pool Three Option

	Basis		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	%	$													
Capital Expenditures															
Intake, Pump Station, Treatment Plant (1)	3.10%	$ 53,217,500	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
UV Disinfection Costs (2011) (2)	3.10%														
Raw Water Main (3)	3.10%	350,000													
Transmission Line (w/additional borings) (4)	3.10%	48,300,000													
Storage Tank (5)	3.10%	7,100,000													
Booster Pump Station (6)	3.10%	2,500,000													
		$ 166,567,500	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Initial Capital Expenditures															
Treatment Plant Contingency (7)	20%	$ 11,143,500	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Line Contingency (7)	20%	10,158,000													
Total Contingency		$ 21,301,500													
		$ 127,809,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Opinion of Probable Construction Cost															
Land (8)	2.4%	$ 770,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Easements and Permitting (9)	5.0%	6,390,450													
Engineering, Legal, Administrative (10)	20%	25,561,800													
		$ 160,531,250	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Capital Cost															
Long Term Debt (11)	50%	$ 66,318,750													
Issuance Cost (11)	1.0%	$ 663,188	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Capitalized Interest (12)	6.50%														
			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Phase One Capital Expenditure															
Phase Two Capital Expenditures		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
15 MGD Intake and Pump Station at the Ohio River															
30 Mile 30" Raw water main from Ohio River to Pool 3		$ -													
20 MGD Treatment Plant Expansion															
30 mile 30" Transmission main to Lexington		$ -													
New booster pump station and storage															
Land			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Initial Capital Expenditures															
Treatment Plant Contingency (7)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Plant Contingency (7)															
Total Contingency		$ -													
			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Opinion of Probable Construction Cost															
Easements and Permitting (9)			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Engineering, Legal, Administrative (10)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Capital Cost															
Issuance Cost (11)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Capitalized Interest (12)															
Total Phase Two Capital Expenditure		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grand Total Capital Expenditures - Phase One and Two		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Annual Operating Expenses															
WTP Operations and Maintenance Expenses (13)			$ 333,618	$ 355,157	$ 731,727	$ 419,161	$ 448,616	$ 477,549	$ 503,018	$ 541,282	$ 574,632	$ 609,618	$ 645,775	$ 681,316	$ 722,297
Chemicals	2.4%		795,428	805,302	824,629	844,420	864,686	885,439	906,689	1,037,045	1,124,295	1,178,909	1,207,203	1,236,176	
Labor	2.4%		352,674	371,382	380,295	389,422	398,768	408,339	418,139	428,174	438,450	448,973	459,749	470,783	482,081
Security	2.4%		360,295	389,422	394,764	404,339	418,139	428,174	438,450	448,973	459,749	470,783	482,081	493,651	506,469
Maintenance (Plant)	2.4%		1,060,662	1,140,424	1,223,403	1,309,705	1,339,452	1,422,745	1,582,718	1,690,482	1,795,185	1,903,992	2,016,832	2,134,068	2,255,776
Treatment Plant Electricity	2.4%														
		$ 2,929,680	$ 3,071,487	$ 3,218,822	$ 3,371,251	$ 3,529,142	$ 3,692,870	$ 3,862,015	$ 4,205,856	$ 4,392,463	$ 4,584,455	$ 4,783,337	$ 4,989,021	$ 5,201,822	
Total Annual Operating and Maintenance Expenses															
Booster Pump and Transmission Line O&M															
Maintenance (Transmission Line)	2.4%		76,059	77,884	79,754	81,668	83,628	85,635	87,690	89,795	91,950	94,157	96,416	98,730	101,100
Booster Pump Electricity (14)	2.4%		242,336	260,563	279,516	299,237	319,741	341,058	363,213	386,235	410,153	434,999	460,795	487,584	515,397
		$ 318,395	$ 338,444	$ 359,272	$ 380,905	$ 403,369	$ 426,692	$ 450,903	$ 476,029	$ 502,102	$ 529,153	$ 557,212	$ 586,314	$ 616,497	
Total Booster Pump and Transmission O&M															
Total Operating Expenses		$ 3,248,075	$ 3,410,131	$ 3,578,094	$ 3,752,156	$ 3,932,511	$ 4,119,563	$ 4,312,918	$ 4,682,886	$ 4,894,565	$ 5,113,608	$ 5,340,550	$ 5,575,335	$ 5,818,319	
Total Annual Operating Expenses ($/000 gallon)		$ 0.89	$ 0.89	$ 0.89	$ 0.89	$ 0.90	$ 0.90	$ 0.91	$ 0.95	$ 0.95	$ 0.97	$ 0.98	$ 0.98	$ 1.00	
Other Operating Expenses															
Property Taxes (15)	2.4%	$ 1,466,227	$ 1,501,416	$ 1,537,450	$ 1,574,349	$ 1,612,133	$ 1,650,825	$ 1,690,444	$ 1,731,015	$ 1,772,559	$ 1,815,101	$ 1,858,663	$ 1,903,271	$ 1,948,950	
KRA Withdrawal Fee (16)	$0.05	$ 182,500	$ 191,625	$ 200,750	$ 209,875	$ 219,000	$ 228,125	$ 237,250	$ 246,375	$ 255,500	$ 264,625	$ 273,750	$ 282,875	$ 292,000	
Phase I Project															
KAWC Cost of Capital (60%) (17)		15,040,493	14,708,642	14,376,790	14,044,938	13,713,086	13,381,237	13,049,386	12,818,250	12,486,398	12,154,547	11,822,695	11,490,845	11,158,994	
UV Cost of Capital (100%) (17)		685,459	668,627	651,795	634,963	618,131	751,299	724,467	697,635	670,803	643,971	617,139	590,306	563,474	
Muni Debt Service (20%) (17)		2,618,914	2,618,914	2,618,914	2,618,914	2,618,914	2,618,914	2,618,914	2,618,914	2,618,914	2,618,914	2,618,914	2,618,914	2,618,914	
Phase 2 Project															
KAWC Cost of Capital (80%) (17)		-	-	-	-	-	-	-	-	-	-	-	-	-	
Muni Debt Service (20%) (17)		-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Other Operating Expenses		$ -	$ 20,193,583	$ 19,675,224	$ 19,505,709	$ 19,253,041	$ 18,541,247	$ 18,630,400	$ 18,320,461	$ 18,112,189	$ 17,804,175	$ 17,467,158	$ 17,193,152	$ 16,865,212	$ 13,982,419
Renewal and Replacement Fund															
R&R (TP) (18)	2.5%	$ -	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928
R&R (DV) (18)	2.5%	$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323
R&R (TL) (18)	1.3%	982,129	982,129	982,129	982,129	982,129	982,129	982,129	982,129	982,129	982,129	982,129	982,129	982,129	982,129
		$ 3,445,381	$ 3,445,381	$ 3,445,381	$ 3,445,381	$ 3,445,381	$ 3,445,381	$ 3,445,381	$ 3,445,381	$ 3,445,381	$ 3,445,381	$ 3,445,381	$ 3,445,381	$ 3,445,381	$ 3,445,381
Total Renewal and Replacement Fund Costs (Depreciation)															
Total Expenses		$ -	$ 26,887,040	$ 26,734,736	$ 26,589,175	$ 26,450,577	$ 26,312,159	$ 26,105,143	$ 26,078,750	$ 26,240,455	$ 26,144,128	$ 26,094,246	$ 23,977,092	$ 25,204,927	$ 23,227,111
Total Expenses ($000/gallon)		$ -	$ 7.37	$ 6.58	$ 6.62	$ 6.01	$ 5.74	$ 5.50	$ 5.33	$ 5.12	$ 4.52	$ 4.74	$ 4.58	$ 4.84	$ 4.04
Discounted Value															
		$ -	$ 15,454,637	$ 15,057,135	$ 14,302,916	$ 13,549,050	$ 12,915,120	$ 12,277,274	$ 11,674,008	$ 11,215,083	$ 10,676,127	$ 10,162,601	$ 9,676,914	$ 9,217,551	$ 7,893,111
Total Discounted Cost (19)		$ 313,342,586													
Discount Rate		4.7%													

ES:

Price Adjusted to reflect cost of 25 MGD Plant - Gannett Fleming Report
UV Facility with Contingency included - Adjusted to reflect cost of 25 MGD plant - GF Report Page 26
1,300 feet pipe @ $300 per foot
Transmission Line - $46m with Additional Borings - $248k - Gannett Fleming Report Page 28
Gannett Fleming Report Page 28
20% of Treatment Plant Expenditures
20% of Transmission Line Expenditures
114 acres - Swinford Testimony
Based on percentage of Probable Construction Cost
Amount of Capital cost to be financed
Cost of issuing bonds - 1% of Long Term Debt
Interest on funds used during construction
From Kentucky American Water Annual Operation & Maintenance Costs Table 4
Increases with rate of inflation and with water usage (MGD) - Table 4 KAW Annual O & M Costs New WTP
Linda Bridwell Testimony
$.05 Paid per thousand gallons used - O'Brien and Gere Report Page 4
Series of payments of principal and interest paid on debt based on 2.75% at 20 years
2.5% Depreciation Rate Utilized for Plant and UV - Based on 40 Year Life
2.0% Depreciation Rate Utilized for Lines - Based on 74 Year Life
Total of all expenses discounted to 2007 dollars

Appendix A-2
LWC OPTION

R·W·BECK

Water Supply Option Analysis
Louisville Water Company
Louisville Water Company Option

	Basis												
	%	$	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Phase One Capital Expenditure												
Pipeline [1]	3.1%	$ 66,528,000	$ 66,528,000	$ 33,264,000	$ 33,264,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ky. River Crossing	3.1%	$ 1,700,000	$ 1,752,700	876,350	876,350							
Booster Pump Station & Storage [2]	3.1%	4,600,000	4,742,600	2,371,300	2,371,300	-	-	-	-	-	-	-
Initial Capital Expenditures		$ 72,828,000	$ 73,023,300	$ 36,511,650	$ 36,511,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contingency [3]	20%	14,565,600	14,604,660	7,302,330	7,302,330							
Opinion of Probable Construction Cost		87,393,600	87,627,960	43,813,980	43,813,980	-	-	-	-	-	-	-
Easements and Permitting [4]	5%	$ 4,369,680	$ 4,381,398	$ 2,190,699	$ 2,190,699	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Engineering, Legal, Administrative [4]	20%	17,478,720	17,525,592	8,762,796	8,762,796							
Land (4 Acres for Booster Pump Station) [5]	2.40%	85,000	87,040	43,520	43,520							
Capital Cost		$ 109,327,000	$ 109,621,990	$ 54,810,995	$ 54,810,995	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Issuance Cost [7]	1%	$ 1,093,270	$ 1,096,220	$ 548,110	$ 548,110	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Capitalized Interest [6]	4.7%	2,569,185	2,576,117	1,288,058	1,288,058							
Total Phase One Capital Expenditure		$ 112,989,455	$ 113,294,327	$ 56,647,163	$ 56,647,163	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Less Grant			$ -									
Total Net Capital Cost			$ 113,294,327									
Phase Two Capital Expenditures												
44 Mile 30" Parallel Transmission Line	0.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Kentucky River Crossing												
New booster Pump Station and storage	0.00%	-	-	-	-	-	-	-	-	-	-	-
Initial Capital Expenditures		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contingency [3]	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Opinion of Probable Construction Cost		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Easements and Permitting [4]	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Engineering, Legal, Administrative [4]	0%	-	-	-	-							
Capitalized Interest [6]	0%	-	-	-	-	-	-	-	-	-	-	-
Capital Cost		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Issuance Cost [7]	0%	-	-	-	-	-	-	-	-	-	-	-
Total Phase Two Capital Expenditures		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grand Total Capital Expenditures - Phase One and Two		$ -	$ 113,294,327	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operations and Maintenance Expenses												
Electricity [8]		$ -	$ -	$ -	$ -	$ 172,266	$ 191,100	$ 210,738	$ 231,211	$ 252,544	$ 274,768	$ 297,913
Maintenance [13]	2.40%	-	-	-	-	94,489	96,756	99,078	101,456	103,891	106,385	108,938
Wholesale Water Cost [9]		-	-	-	-	3,744,900	4,178,684	4,635,125	5,115,192	5,619,891	6,150,268	6,707,410
Meter Charge		$ -	$ 16,950	-	-	18,522	19,077	19,650	20,239	20,846	21,472	22,116
Total Annual Operating Expenses ($/000 gallon)		$ -	$ -	$ -	$ -	$ 4,030,176	$ 4,485,618	$ 4,964,593	$ 5,468,098	$ 5,997,173	$ 6,552,892	$ 7,136,377
Total Annual Operating Expenses ($)		$ -	$ -	$ -	$ -	$ 1.84	$ 1.89	$ 1.94	$ 2.00	$ 2.05	$ 2.11	$ 2.17
Other Operating Expenses												
Debt Service - Phase One [10]		$ -	$ -	$ -	$ -	$ 8,861,222	$ 8,861,222	$ 8,861,222	$ 8,861,222	$ 8,861,222	$ 8,861,222	$ 8,861,222
Debt Service - Phase Two [10]		-	-	-	-	-	-	-	-	-	-	-
KRA Withdrawal Fee	$0.05	-	-	-	-	109,500	118,625	127,750	136,875	146,000	155,125	164,250
Total Other Operating Expenses		$ -	$ -	-	$ -	$ 8,970,722	$ 8,979,847	$ 8,988,972	$ 8,998,097	$ 9,007,222	$ 9,016,347	$ 9,025,472
Renewal and Replacement Fund (Transmission) [11]	1.33%	-	-	-	-	950,275	887,040	887,040	887,040	887,040	887,040	887,040
Renewal and Replacement Fund (Treatment Plant) [11]	2.5%	-	-	-	-	-	-	-	-	-	-	-
Total R & R Fund		-	-	-	-	950,275	887,040	887,040	887,040	887,040	887,040	887,040
Total Annual Expenses ($)		$ -	$ -	$ -	$ -	$ 13,951,173	$ 14,352,505	$ 14,840,605	$ 15,353,235	$ 15,891,434	$ 16,456,279	$ 17,048,889
Total Annual Expenses ($/000 gallon)		$ -	$ -	$ -	$ -	$ 6.37	$ 6.05	$ 5.81	$ 5.61	$ 5.44	$ 5.30	$ 5.19
Discounted Value		$ -	$ -	$ -	$ -	$ 11,879,477	$ 11,672,601	$ 11,527,758	$ 11,390,597	$ 11,260,638	$ 11,137,427	$ 11,020,533
Total Discounted Cost [12]	$ 221,583,568											
Discount Rate	4.7%											

Notes:
1) 44 mile pipe @ $300/foot KAW Request for Documents - Bridwell/Svindland
2) Storage Tank = $2.1m Booster Pump Station = $2.6m both inflated to 2007 $'s. Gannett Fleming Report
3) 20% of Initial Capital Expenditures
4) As a percentage of Opinion of Probable Construction Cost
5) 4 Acres Testimony - Svindland
6) Interest on funds used during construction @ 6% assuming 2 year buildout
7) Cost of issuing bonds = 2% of Capital Cost
8) Electricity increases with rate of inflation and water usage - Table 4 Annual O & M Costs New WTP KAW
9) Rate - $1.71 increasing by inflation at 6 MGD and increasing 1 MGD thereafter - Presentation to BWSC
10) Series of payments of principal and interest paid on debt based on 4.7% at 20 years
11) Based on 2% of line with assumed life of 50 years
12) Total of all expenses discounted to 2007 dollars
13) Tab 4 KAW Annual O & M Expenses

Water Supply Option Analysis
Louisville Water Company
Louisville Water Company Option

	Basis																	
	%	$	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Phase One Capital Expenditure																
Pipeline [1]	3.1%	$ 66,528,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ky. River Crossing	3.1%	$ 1,700,000														
Booster Pump Station & Storage [2]	3.1%	4,600,000														
Initial Capital Expenditures		$ 72,828,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contingency [3]	20%	14,565,600														
Opinion of Probable Construction Cost		87,393,600														
Easements and Permitting [4]	5%	$ 4,369,680	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Engineering, Legal, Administrative [5]	20%	17,478,720														
Land (4 Acres for Booster Pump Station) [6]	2.40%	85,000														
Capital Cost		$ 109,327,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Issuance Cost [7]	1%	$ 1,093,270	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Capitalized Interest [8]	4.7%	2,569,185														
Total Phase One Capital Expenditure		$ 112,989,455	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Less Grant																
Total Net Capital Cost																
Phase Two Capital Expenditures																
44 Mile 30" Parallel Transmission Line	0.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Kentucky River Crossing																
New booster Pump Station and storage	0.00%	-														
Initial Capital Expenditures		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contingency [3]	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Opinion of Probable Construction Cost		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Easements and Permitting [4]	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Engineering, Legal, Administrative [5]	0%	-														
Capitalized Interest [8]	0%	-														
Capital Cost		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Issuance Cost [7]	0%	-														
Total Phase Two Capital Expenditures		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grand Total Capital Expenditures - Phase One and Two		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operations and Maintenance Expenses																
Electricity [9]		$	$ 322,011	$ 347,094	$ 373,196	$ 400,350	$ 428,593	$ 457,961	$ 488,492	$ 520,224	$ 553,198	$ 587,456	$ 623,039	$ 659,991	$ 698,359	$ 738,188
Maintenance [10]	2.40%	-	111,552	114,230	116,971	119,778	122,653	125,597	128,611	131,698	134,859	138,095	141,409	144,803	148,279	151,837
Wholesale Water Cost [11]		-	7,292,445	7,906,545	8,550,929	9,226,859	9,935,650	10,678,664	11,457,316	12,273,077	13,127,472	14,022,085	14,958,560	15,938,604	16,963,987	18,036,549
Meter Charge		-	22,779	23,463	24,167	24,892	25,638	26,408	27,200	28,016	28,856	29,722	30,614	31,532	32,478	33,452
Total Annual Operating Expenses ($/000 gallon)		$ -	$ 7,748,788	$ 8,391,332	$ 9,065,262	$ 9,771,880	$ 10,512,535	$ 11,288,629	$ 12,101,619	$ 12,953,015	$ 13,844,386	$ 14,777,358	$ 15,753,622	$ 16,774,931	$ 17,843,103	$ 18,960,027
Total Annual Operating Expenses ($)		$ -	$ 2.23	$ 2.30	$ 2.37	$ 2.43	$ 2.50	$ 2.58	$ 2.65	$ 2.73	$ 2.81	$ 2.89	$ 2.98	$ 3.06	$ 3.15	$ 3.25
Other Operating Expenses																
Debt Service - Phase One [12]		$ -	$ 8,661,222	$ 8,661,222	$ 8,661,222	$ 8,661,222	$ 8,661,222	$ 8,661,222	$ 8,661,222	$ 8,661,222	$ 8,661,222	$ 8,661,222	$ 8,661,222	$ 8,661,222	$ 8,661,222	$ -
Debt Service - Phase Two [13]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KRA Withdrawal Fee	$0.05	-	173,375	182,500	191,625	200,750	209,875	219,000	228,125	237,250	246,375	255,500	264,625	273,750	282,875	292,000
Total Other Operating Expenses		$ -	$ 9,034,597	$ 9,043,722	$ 9,052,847	$ 9,061,972	$ 9,071,097	$ 9,080,222	$ 9,089,347	$ 9,098,472	$ 9,107,597	$ 9,116,722	$ 9,125,847	$ 9,134,972	$ 9,144,097	$ 292,000
Renewal and Replacement Fund (Transmission) [14]	1.33%	-	887,040	887,040	887,040	887,040	887,040	887,040	887,040	887,040	887,040	887,040	887,040	887,040	887,040	887,040
Renewal and Replacement Fund (Treatment Plant) [15]	2.5%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total R & R Fund			887,040	887,040	887,040	887,040	887,040	887,040	887,040	887,040	887,040	887,040	887,040	887,040	887,040	887,040
Total Annual Expenses ($)		$ -	$ 17,670,425	$ 18,322,094	$ 19,005,149	$ 19,720,892	$ 20,470,672	$ 21,255,891	$ 22,078,006	$ 22,938,527	$ 23,839,023	$ 24,781,120	$ 25,766,509	$ 26,796,942	$ 27,874,240	$ 20,139,067
Total Annual Expenses ($/000 gallon)		$ -	$ 5.10	$ 5.02	$ 4.96	$ 4.91	$ 4.86	$ 4.85	$ 4.84	$ 4.83	$ 4.84	$ 4.85	$ 4.87	$ 4.89	$ 4.93	$ 3.45
Discounted Value		$ -	$ 10,909,550	$ 10,804,092	$ 10,703,795	$ 10,608,314	$ 10,517,323	$ 10,430,515	$ 10,347,599	$ 10,268,301	$ 10,192,362	$ 10,119,537	$ 10,049,596	$ 9,982,322	$ 9,917,511	$ 6,843,721
al Discounted Cost [17]	$ 221,583,568															
Discount Rate	4.7%															

[1] mile pipe @ $300/foot KAW Request for Documents - Bridwell/Svindland
[2] rage Tank - $2.1m Booster Pump Station - $2.6m both inflated to 2007 $'s: Gannett Fleming Report
[3] % of Initial Capital Expenditures
[4] s percentage of Opinion of Probable Construction Cost
[5] cries Testimony - Svindland
[6] rest on funds used during construction @ 5% assuming 2 year buildout
[7] t of issuing bonds - 2% of Capital Cost
[8] ctricity increases with rate of inflation and water usage - Table 4 Annual O & M Costs New WTP KAW
[9] - $1.71 increasing by inflation at 6 MGD and increasing 1 MGD thereafter - Presentation to BWSC
[10] ies of payments of principal and interest paid on debt based on 4.7% at 20 years
[11] ed on 2% of line with assumed life of 50 years
[12] of all expenses discounted to 2007 dollars
[13] 4 KAW Annual O & M Expenses

Appendix B
CONSTANT 6 MGD FLOW SCENARIO
SAMPLE MODEL OUTPUT

Appendix B-1
POOL 3 OPTION

R·W·BECK

Water Supply Option Analysis
Louisville Water Company
Pool Three Option

	Basis			2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
	%	$	2007										
Capital Expenditures													
Intake, Pump Station, Treatment Plant [1]	3.10%	$ 53 217 500	$ 54 467 243	$ 27 433 621	$ 27 433 621	$ -	$ 6 425 271	$ -	$ -	$ -	$ -	$ -	$ -
UV Disinfection Costs (25MG) [2]	3.10%												
Raw Water Main [3]	3.10%	390 000	402 050	201 045	201 045								
Transmission Line (water) borings) [4]	3.10%	48 300 000	49 300 000	24 150 000	24 150 000								
Storage Tank [5]	3.10%	2 100 000	2 165 100	1 082 550	1 082 550								
Booster Pump Station [5]	3.10%	2 500 000	2 577 500	1 288 750	1 288 750								
		$ 106 507 500	$ 108 311 933	$ 54 155 966	$ 54 155 966	$ -	$ 6 425 271	$ -	$ -	$ -	$ -	$ -	$ -
Initial Capital Expenditures													
Treatment Plant Contingency [6]	20%	$ 11 143 500	$ 11 488 849	$ 5 744 474	$ 5 744 474	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Line Contingency [7]	20%	10 154 000	10 173 438	5 086 719	5 086 719								
Total Contingency		$ 21 331 500	$ 21 662 287	$ 10 831 193	$ 10 831 193								
Opinion of Probable Construction Cost		$ 127 839 000	$ 129 974 319	$ 64 987 160	$ 64 987 160	$ -	$ 6 425 271	$ -	$ -	$ -	$ -	$ -	$ -
Land [8]	2.4%	$ 770 000	$ 784 480	$ 392 240	$ 392 240	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Easements and Permitting [9]	5.0%	4 390 450	4 474 714	3 249 358			321 264						
Engineering, Legal, Administrative [9]	20%	25 564 800	25 904 864	12 997 432	12 997 432		1 285 054						
		$ 160 531 250	$ 163 256 379	$ 81 626 190	$ 81 626 190	$ -	$ 8 031 589	$ -	$ -	$ -	$ -	$ -	$ -
Capital Cost													
Long Term Debt [10]	60%	$ 96 318 750	$ 97 953 827	$ 48 976 914	$ 48 976 914								
Issuance Cost [11]	1.0%	$ 963 188	$ 979 539	$ 489 769	$ 489 769	$ -	$ 64 256	$ -	$ -	$ -	$ -	$ -	$ -
Capitalized Interest [12]	5.50%		3 143 499	1 591 750	1 591 750		261 027						
Total Phase One Capital Expenditure			$ 167 419 416	$ 83 702 709	$ 83 702 709	$ -	$ 8 356 931	$ -	$ -	$ -	$ -	$ -	$ -
Phase Two Capital Expenditures													
15 MGD Intake and Pump Station at the Ohio River		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
39 Mile 36" Raw water main from Ohio River to Pool 3		$ -											
20 MGD Treatment Plant Expansion													
39 mile 36" Transmission main to Lexington		$ -											
New booster pump station and storage													
Land			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Initial Capital Expenditures													
Treatment Plant Contingency [6]		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Plant Contingency [7]													
Total Contingency		$ -	$ -										
Opinion of Probable Construction Cost		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Easements and Permitting [9]			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Engineering, Legal, Administrative [9]		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Capital Cost													
Issuance Cost [11]		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Capitalized Interest [12]			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Phase Two Capital Expenditure		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grand Total Capital Expenditures - Phase One and Two		$ -	$ 167 419 416	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Annual Operating Expenses													
WTP Operations and Maintenance Expenses [13]			$ -	$ -	$ -	$ 168 555	$ 172 609	$ 176 743	$ 180 985	$ 185 328	$ 189 776	$ 194 331	$ 198 995
Chemicals	2.4%					650 518	666 130	682 117	698 488	715 252	732 418	749 936	767 996
Labor	2.4%					300 000	307 200	314 573	322 123	329 853	337 770	345 876	354 177
Security	2.4%					314 573	322 123	329 853	337 770	345 876	354 177	362 678	371 382
Maintenance (Plant)	2.4%					526 415	539 049	551 987	565 234	578 800	592 631	606 916	621 482
Treatment Plant Electricity													
Total Annual Operating and Maintenance Expenses		$ -	$ -	$ -	$ -	$ 1 960 061	$ 2 007 102	$ 2 055 273	$ 2 104 599	$ 2 155 110	$ 2 206 832	$ 2 259 796	$ 2 314 032
Booster Pump and Transmission Line O&M						62 915	64 425	65 971	67 554	69 175	70 835	72 536	74 276
Maintenance (Transmission Line)	2.4%					120 273	123 160	126 116	129 143	132 242	135 416	138 666	141 994
Booster Pump Electricity [14]	2.4%												
Total Booster Pump and Transmission O&M		$ -	$ -	$ -	$ -	$ 183 188	$ 187 584	$ 192 086	$ 196 697	$ 201 417	$ 205 251	$ 211 201	$ 216 270
Total Operating Expenses			$ -	$ -	$ -	$ 2 143 249	$ 2 194 687	$ 2 247 359	$ 2 301 296	$ 2 356 527	$ 2 413 084	$ 2 470 998	$ 2 530 302
Total Annual Operating Expenses ($/000 gallon)		$ -	$ -	$ -	$ -	$ 0.98	$ 1.00	$ 1.03	$ 1.05	$ 1.08	$ 1.10	$ 1.13	$ 1.16
Other Operating Expenses						$ 1 212 834	$ 1 241 942	$ 1 271 749	$ 1 302 271	$ 1 333 526	$ 1 365 530	$ 1 398 303	$ 1 431 862
Property Taxes [15]	2.4%	$ -	$ -	$ -	$ -	$ 109 500	$ 109 500	$ 109 500	$ 109 500	$ 109 500	$ 109 500	$ 109 500	$ 109 500
KRA Withdrawal Fee [16]	$0.05												
Phase I Project						16 436 475	17 363 451	17 031 609	16 699 748	16 367 886	16 036 045	15 704 185	15 372 344
KAWC Cost of Capital (80%) [17]								1 046 452	1 013 620	980 788	965 956	929 124	912 292
UV Cost of Capital (100%) [17]						2 618 914	2 618 914	2 618 914	2 618 914	2 618 914	2 618 914	2 618 914	2 618 914
Muni Debt Service (20%) [17]													
Phase 2 Project													
KAWC Cost of Capital (80%) [17]													
Muni Debt Service (20%) [17]													
Total Other Operating Expenses		$ -	$ -	$ -	$ -	$ 20 777 924	$ 21 333 808	$ 22 078 215	$ 21 750 054	$ 21 422 625	$ 21 095 047	$ 20 770 036	$ 20 444 912
Renewal and Replacement Fund						$ 2 253 928	$ 2 253 928	$ 2 253 928	$ 2 253 928	$ 2 253 928	$ 2 253 928	$ 2 253 928	$ 2 253 928
R&R (TP) [18]	2.5%	$ -	$ -	$ -	$ -			$ 209 323	$ 209 323	$ 209 323	$ 209 323	$ 209 323	$ 209 323
R&R (UV) [18]	2.5%					982 129	982 129	982 129	982 129	982 129	982 129	982 129	982 129
R&R (TL) [19]	1.3%					$ 3 236 057	$ 3 236 057	$ 3 445 381	$ 3 445 381	$ 3 445 381	$ 3 445 381	$ 3 445 381	$ 3 445 381
Total Renewal and Replacement Fund Costs (Depreciation)													
Total Expenses		$ -	$ -	$ -	$ -	$ 26 157 230	$ 26 764 452	$ 27 770 955	$ 27 496 731	$ 27 224 533	$ 26 954 431	$ 26 686 414	$ 26 420 594
Total Expenses ($/000gallon)		$ -	$ -	$ -	$ -	$ 11.94	$ 12.22	$ 12.68	$ 12.56	$ 12.43	$ 12.31	$ 12.19	$ 12.06
Discounted Value		$ -	$ -	$ -	$ -	$ 22 272 982	$ 21 767 057	$ 21 571 695	$ 20 399 881	$ 19 291 248	$ 18 242 445	$ 17 250 304	$ 16 311 920
Total Discounted Cost [20]	$ 303 334 024												
Discount Rate	4.75%												

Notes:

1 Price adjusted to reflect cost of 25 MGD Plant - Gannett Fleming Report
2 UV Facility with Contingency included - Adjusted to reflect cost of 25 MGD plant - GF Report Page 26
3 1,300 foot pipe @ $300 per foot
4 Transmission Line - $48m with Additional Borings - $240k - Gannett Fleming Report Page 28
5 Gannett Fleming Report Page 26
6 20% of Treatment Plant Expenditures
7 20% of Transmission Line Expenditures
8 114 acres - Swindland Testimony
9 Based on percentage of Probable Construction Cost
10 Amount of Capital cost to be financed
11 Cost of issuing bonds - 1% of Long Term Debt
12 Interest on funds used during construction
13 From Kentucky American Water Annual Operation & Maintenance Costs Table 4
14 Increases with rate of inflation and with water usage (MGD) - Table 4 KAW Annual O & M Costs New WTP
15 Linda Bridwell Testimony
16 $.05 Paid per thousand gallons used - O'Brien and Gere Report Page 4
17 Series of payments of principal and interest paid on debt based on 7.75% at 20 years
18 2.5% Depreciation Rate Utilized for Plant and UV - Based on 40 Year Life
19 2.0% Depreciation Rate Utilized for Lines - Based on 75 Year Life
20 Total of all expenses discounted to 2007 dollars

Water Supply Option Analysis
Louisville Water Company
Pool Three Option

	Basis %	Basis $	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Capital Expenditures															
Intake, Pump Station, Treatment Plant (1)	3.10%	$ 53,217,500	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
UV Disinfection Costs (2011) (2)	3.10%	-													
Raw Water Main (3)	3.10%	399,000													
Transmission Line (w/addt'l borings) (4)	3.10%	48,300,000													
Storage Tank (5)	3.10%	2,100,000													
Booster Pump Station (6)	3.10%	2,500,000													
		$ 105,507,500	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Initial Capital Expenditures															
Treatment Plant Contingency (7)	20%	$ 11,143,500	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Line Contingency (8)	20%	10,158,000													
Total Contingency		$ 21,301,500													
		$ 127,809,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Opinion of Probable Construction Cost															
Land (9)	2.4%	$ 770,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Easements and Permitting (10)	5.0%	4,390,450													
Engineering, Legal, Administrative (11)	20%	25,561,800													
		$ 169,531,250	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Capital Cost															
Long Term Debt (12)	60%	$ 99,318,750													
Issuance Cost (13)	1.0%	$ 993,188	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Capitalized Interest (14)	5.60%														
Total Phase One Capital Expenditure			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Phase Two Capital Expenditures															
15 MGD Intake and Pump Station at the Ohio River		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
30 Mile 30" Raw water main from Ohio River to Pool 3		$ -													
20 MGD Treatment Plant Expansion															
30 mile 30" Transmission main to Lexington		$ -													
New booster pump station and storage															
Land			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Initial Capital Expenditures															
Treatment Plant Contingency (15)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Plant Contingency (16)															
Total Contingency		$ -													
Opinion of Probable Construction Cost		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Easements and Permitting (17)			$ -	$ -	$ -	$ -	$ -	$ -	$ -						
Engineering, Legal, Administrative (18)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Capital Cost															
Issuance Cost (19)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Capitalized Interest (20)															
Total Phase Two Capital Expenditure		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grand Total Capital Expenditures - Phase One and Two		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Annual Operating Expenses															
WTP Operations and Maintenance Expenses (21)	2.4%		$ 203,771	$ 208,661	$ 213,669	$ 218,797	$ 224,048	$ 229,425	$ 234,932	$ 240,570	$ 246,344	$ 252,256	$ 258,310	$ 264,509	$ 270,858
Chemicals	2.4%		786,428	805,302	824,629	844,420	864,686	885,439	906,689	1,097,945	1,124,295	1,151,279	1,178,909	1,207,203	1,236,176
Labor	2.4%		362,678	371,382	380,295	389,422	398,769	408,339	418,139	428,174	438,450	448,973	459,749	470,783	482,081
Security	2.4%		380,395	389,422	398,749	408,330	418,139	428,174	438,450	448,973	459,749	470,783	482,081	493,651	505,498
Maintenance (Plant)	2.4%		636,397	651,671	667,311	683,326	699,724	716,519	733,716	751,325	769,357	787,822	806,722	826,061	845,912
Treatment Plant Electricity	2.4%														
Total Annual Operating and Maintenance Expenses		$	$ 2,369,668	$ 2,426,438	$ 2,484,672	$ 2,544,305	$ 2,605,368	$ 2,667,897	$ 2,731,926	$ 2,966,587	$ 3,038,195	$ 3,111,112	$ 3,185,778	$ 3,262,237	$ 3,340,531
Booster Pump and Transmission Line O&M															
Maintenance (Transmission Line)	2.4%		76,659	77,884	79,754	81,668	83,628	85,635	87,690	89,795	91,950	94,157	96,416	98,730	101,100
	2.4%		145,402	148,891	152,465	155,124	159,871	163,708	167,637	171,660	175,780	179,998	184,318	188,742	193,272
Booster Pump Electricity (22)		$	$ 221,481	$ 226,776	$ 232,219	$ 237,792	$ 243,499	$ 249,343	$ 255,327	$ 261,455	$ 267,729	$ 274,155	$ 280,735	$ 287,472	$ 294,372
Total Booster Pump and Transmission O&M															
Total Operating Expenses		$	$ 2,591,029	$ 2,653,214	$ 2,716,891	$ 2,782,096	$ 2,848,866	$ 2,917,239	$ 2,987,253	$ 3,228,042	$ 3,305,925	$ 3,385,267	$ 3,466,513	$ 3,549,710	$ 3,634,903
Total Annual Operating Expenses ($/000 gallon)		$	$ 1.16	$ 1.21	$ 1.24	$ 1.27	$ 1.30	$ 1.33	$ 1.36	$ 1.47	$ 1.51	$ 1.55	$ 1.58	$ 1.62	$ 1.66
Other Operating Expenses															
Property Taxes (23)	2.4%	$	$ 1,486,227	$ 1,501,416	$ 1,537,450	$ 1,574,349	$ 1,612,133	$ 1,650,825	$ 1,690,444	$ 1,731,015	$ 1,772,559	$ 1,815,101	$ 1,858,663	$ 1,903,271	$ 1,948,950
KRA Wholesale Fee (24)	$0.05		$ 109,500	$ 109,500	$ 109,500	$ 109,500	$ 109,500	$ 109,500	$ 109,500	$ 109,500	$ 109,500	$ 109,500	$ 109,500	$ 109,500	$ 109,500
Phase I Project															
KAWC Cost of Capital (60%) (25)			15,049,493	14,708,642	14,375,750	14,044,939	13,713,088	13,381,237	13,049,386	12,818,250	12,486,398	12,154,547	11,822,696	11,490,845	11,158,994
UV Cost of Capital (100%) (26)			895,450	858,627	831,705	804,963	778,131	751,299	724,467	697,635	670,803	643,971	617,139	590,306	563,474
Muni Debt Service (20%) (27)			2,618,914	2,618,914	2,618,914	2,618,914	2,618,914	2,618,914	2,618,914	2,618,914	2,618,914	2,618,914	2,618,914	2,618,914	
Phase 2 Project															
KAWC Cost of Capital (60%) (27)															
Muni Debt Service (20%) (27)															
Total Other Operating Expenses		$	$ 20,120,583	$ 19,797,099	$ 19,474,450	$ 19,152,666	$ 18,831,767	$ 18,511,775	$ 18,192,711	$ 17,975,314	$ 17,658,175	$ 17,342,033	$ 17,026,912	$ 16,712,837	$ 13,780,918
Renewal and Replacement Fund															
R&R (TP) (28)	2.5%	$	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928	$ 2,253,928
R&R (UV) (29)	2.5%		$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323	$ 209,323
R&R (TL) (30)	1.3%		982,129	982,123	982,120	982,129	982,129	982,123	982,129	982,129	982,129	982,129	982,129	982,129	982,129
Total Renewal and Replacement Fund Costs (Depreciation)		$	$ 3,445,381	$ 3,445,391	$ 3,445,391	$ 3,445,391	$ 3,445,391	$ 3,445,391	$ 3,445,391	$ 3,445,391	$ 3,445,391	$ 3,445,391	$ 3,445,391	$ 3,445,391	$ 3,445,391
Total Expenses		$	$ 26,157,003	$ 25,895,604	$ 25,636,722	$ 25,380,142	$ 25,126,014	$ 24,874,394	$ 24,625,345	$ 24,649,136	$ 24,409,489	$ 24,172,685	$ 23,938,896	$ 23,707,027	$ 20,691,201
Total Expenses ($/000gallon)		$	$ 11.94	$ 11.82	$ 11.71	$ 11.59	$ 11.47	$ 11.35	$ 11.24	$ 11.26	$ 11.15	$ 11.04	$ 10.93	$ 10.83	$ 9.53
Discounted Value		$	$ 15,424,146	$ 14,584,563	$ 13,790,572	$ 13,039,687	$ 12,329,630	$ 11,658,221	$ 11,022,385	$ 10,508,726	$ 9,967,775	$ 9,427,992	$ 8,917,617	$ 8,435,158	$ 7,969,119
Total Discounted Cost (31)	$ 303,334,024														
Discount Rate	4.7%														

ps:
Price adjusted to reflect cost of 25 MGD Plant - Gannett Fleming Report
UV Facility with Contingency included - Adjusted to reflect cost of 25 MGD plant - GF Report Page 26
1,300 foot pipe @ $300 per foot
Transmission Line - $48m with Additional Borings - $240k - (Gannett Fleming Report Page 28
Gannett Fleming Report Page 28
20% of Treatment Plant Expenditures
20% of Transmission Line Expenditures
114 acres - Swindland Testimony
Based on percentage of Probable Construction Cost
Amount of Capital cost to be financed
Cost of issuing bonds - 1% of Long Term Debt
Interest on funds used during construction
From Kentucky American Water Annual Operation & Maintenance Costs Table 4
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Linda Bridwell Testimony
$.05 Paid per thousand gallons used - O'Brien and Gere Report Page 4
Series of payments of principal and interest paid on debt based on 7.75% at 20 years
2.5% Depreciation Rate Utilized for Plant and UV - Based on 40 Year Life
2.0% Depreciation Rate Utilized for Lines - Based on 75 Year Life
Total of all expenses discounted to 2007 dollars

Appendix B-2
LWC OPTION

R·W·BECK

Water Supply Option Analysis
Louisville Water Company
Louisville Water Company Option

	Basis												
	%	$	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Phase One Capital Expenditure												
Pipeline [1]	3.1%	$ 55,440,000	$ 55,440,000	$ 27,720,000	$ 27,720,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ky. River Crossing	3.1%	$ 1,700,000	$ 1,752,700	876,350	876,350							
Booster Pump Station & Storage [2]	3.1%	4,600,000	4,742,600	2,371,300	2,371,300							
Initial Capital Expenditures		$ 61,740,000	$ 61,935,300	$ 30,967,650	$ 30,967,650	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contingency [3]	10%	6,174,000	6,193,530	3,096,765	3,096,765		-	-	-	-		
Opinion of Probable Construction Cost		67,914,000	68,128,830	34,064,415	34,064,415		-	-	-	-		
Easements and Permitting [4]	5%	$ 3,395,700	$ 3,406,442	$ 1,703,221	$ 1,703,221	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Engineering, Legal, Administrative [4]	15%	10,187,100	10,219,325	5,109,662	5,109,662	-	-	-	-	-	-	-
Land (4 Acres for Booster Pump Station) [5]	2.40%	85,000	87,040	43,520	43,520	-	-	-	-	-	-	-
Capital Cost		$ 81,581,800	$ 81,841,636	$ 40,920,818	$ 40,920,818	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Issuance Cost [7]	1%	$ 815,818	$ 818,416	$ 409,208	$ 409,208	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Capitalized Interest [6]	4.7%	1,917,172	1,923,278	961,639	961,639	-	-	-	-	-	-	-
Total Phase One Capital Expenditure		$ 84,314,790	$ 84,583,331	$ 42,291,665	$ 42,291,665	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Less Grant			$ -									
Total Net Capital Cost			$ 84,583,331									
Phase Two Capital Expenditures												
44 Mile 30" Parallel Transmission Line	0.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Kentucky River Crossing												
New booster Pump Station and storage	0.00%	-	-	-	-	-	-	-	-	-	-	-
Initial Capital Expenditures		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contingency [3]	20%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Opinion of Probable Construction Cost		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Easements and Permitting [4]	5%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Engineering, Legal, Administrative [4]	15%	-	-	-	-	-	-	-	-	-	-	-
Capitalized Interest [6]	4.7%	-	-	-	-	-	-	-	-	-	-	-
Capital Cost		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Issuance Cost [7]	1%	-	-	-	-	-	-	-	-	-	-	-
Total Phase Two Capital Expenditures		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grand Total Capital Expenditures - Phase One and Two		$ -	$ 84,583,331	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operations and Maintenance Expenses												
Electricity [8]		$ -	$ -	$ -	$ -	$ 172,266	$ 176,400	$ 180,634	$ 184,969	$ 189,408	$ 193,954	$ 198,609
Maintenance [9]	2.40%	-	-	-	-	94,489	96,756	99,078	101,456	103,891	106,385	108,938
Wholesale Water Cost [4]						3,744,900	3,857,247	3,972,964	4,092,153	4,214,918	4,341,365	4,471,606
Meter Charge			$ 16,950			18,522	19,077	19,650	20,239	20,846	21,472	22,116
Total Annual Operating Expenses ($/000 gallon)		$ -	$ -	$ -	$ -	$ 4,030,176	$ 4,149,481	$ 4,272,326	$ 4,398,818	$ 4,529,064	$ 4,663,176	$ 4,801,269
Total Annual Operating Expenses ($)		$ -	$ -	$ -	$ -	$ 1.84	$ 1.89	$ 1.95	$ 2.01	$ 2.07	$ 2.13	$ 2.19
Other Operating Expenses												
Debt Service - Phase One [10]		$ -	$ -	$ -	$ -	$ 6,615,615	$ 6,615,615	$ 6,615,615	$ 6,615,615	$ 6,615,615	$ 6,615,615	$ 6,615,615
Debt Service - Phase Two [10]		-	-	-	-	-	-	-	-	-	-	-
KRA Withdrawal Fee	10.05	-	-	-	-	109,500	109,500	109,500	109,500	109,500	109,500	109,500
Total Other Operating Expenses		$ -	$ -	$ -	$ -	$ 6,725,115	$ 6,725,115	$ 6,725,115	$ 6,725,115	$ 6,725,115	$ 6,725,115	$ 6,725,115
Renewal and Replacement Fund (Transmission) [11]	1.33%					802,435	739,200	739,200	739,200	739,200	739,200	739,200
Renewal and Replacement Fund (Treatment Plant) [11]	2.5%					-	-	-	-	-	-	-
Total R & R Fund						802,435	739,200	739,200	739,200	739,200	739,200	739,200
Total Annual Expenses ($)		$ -	$ -	$ -	$ -	$ 11,557,726	$ 11,613,796	$ 11,736,641	$ 11,863,133	$ 11,993,379	$ 12,127,491	$ 12,265,584
Total Annual Expenses ($/000 gallon)		$ -	$ -	$ -	$ -	$ 5.28	$ 5.30	$ 5.36	$ 5.42	$ 5.48	$ 5.54	$ 5.60
Discounted Value		$ -	$ -	$ -	$ -	$ 9,841,448	$ 9,445,265	$ 9,116,688	$ 8,801,283	$ 8,498,484	$ 8,207,751	$ 7,928,568
Total Discounted Cost [12]	$ 146,693,865											
Discount Rate	4.7%											

Notes:
1) 44 mile pipe @ $300/foot KAW Request for Documents - Bridwell/Swindland
2) Storage Tank - $2.1m Booster Pump Station - $2.6m both inflated to 2007 $'s Gannett Fleming Report
3) 20% of Initial Capital Expenditures
4) As a percentage of Opinion of Probable Construction Cost
5) 4 Acres Testimony - Swindland
6) Interest on funds used during construction @ 6% assuming 2 year buildout
7) Cost of issuing bonds - 2% of Capital Cost
8) Electricity increases with rate of inflation and water usage - Table 4 Annual O & M Costs New WTP KAW
9) Rate - $1.71 increasing by inflation at 6 MGD and increasing 1 MGD thereafter - Presentation to BWSC
10) Series of payments of principal and interest paid on debt based on 4.7% at 20 years
11) Based on 2% of line with assumed life of 50 years
12) Total of all expenses discounted to 2007 dollars
13) Tab 4 KAW Annual O & M Expenses

Water Supply Option Analysis
Louisville Water Company
Louisville Water Company Option

	Basis		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	%	$														
Phase One Capital Expenditure																
Pipeline [1]	3.1%	$ 55,440,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ky. River Crossing	3.1%	$ 1,700,000														
Booster Pump Station & Storage [2]	3.1%	4,600,000														
Initial Capital Expenditures		$ 61,740,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contingency [3]	10%	6,174,000														
Opinion of Probable Construction Cost		67,914,000														
Easements and Permitting [4]	5%	$ 3,395,700	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Engineering, Legal, Administrative [5]	15%	10,187,100														
Land (4 Acres for Booster Pump Station) [5]	2.40%	85,000														
Capital Cost		$ 81,581,800	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Issuance Cost [7]	1%	$ 815,818	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Capitalized Interest [8]	4.7%	1,917,172														
Total Phase One Capital Expenditure		$ 84,314,790	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Less Grant																
Total Net Capital Cost																
Phase Two Capital Expenditures																
44 Mile 30" Parallel Transmission Line	0.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Kentucky River Crossing																
New booster Pump Station and storage	0.00%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Initial Capital Expenditures		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contingency [3]	20%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Opinion of Probable Construction Cost		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Easements and Permitting [4]	5%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Engineering, Legal, Administrative [4]	15%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capitalized Interest [8]	4.7%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capital Cost		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Issuance Cost [7]	1%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Phase Two Capital Expenditures		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grand Total Capital Expenditures - Phase One and Two		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operations and Maintenance Expenses																
Electricity [9]		$ -	$ 203,376	$ 208,257	$ 213,255	$ 218,373	$ 223,614	$ 228,980	$ 234,476	$ 240,103	$ 245,866	$ 251,767	$ 257,809	$ 263,997	$ 270,332	$ 276,820
Maintenance [10]	2.40%	-	111,552	114,230	116,971	119,779	122,653	125,597	128,611	131,698	134,859	138,095	141,409	144,803	148,279	151,837
Wholesale Water Cost [11]		-	4,605,755	4,743,927	4,886,245	5,032,832	5,183,817	5,339,332	5,499,512	5,664,497	5,834,432	6,009,465	6,189,749	6,375,442	6,566,705	6,763,706
Meter Charge		-	22,779	23,463	24,167	24,892	25,638	26,408	27,200	28,016	28,856	29,722	30,614	31,532	32,478	33,452
Total Annual Operating Expenses ($/000 gallon)		$ -	$ 4,943,462	$ 5,089,876	$ 5,240,638	$ 5,395,875	$ 5,555,723	$ 5,720,317	$ 5,889,799	$ 6,064,314	$ 6,244,013	$ 6,429,049	$ 6,619,581	$ 6,815,773	$ 7,017,794	$ 7,225,816
Total Annual Operating Expenses ($)		$ -	$ 2.26	$ 2.32	$ 2.39	$ 2.46	$ 2.54	$ 2.61	$ 2.69	$ 2.77	$ 2.85	$ 2.94	$ 3.02	$ 3.11	$ 3.20	$ 3.30
Other Operating Expenses																
Debt Service - Phase One [12]		$ -	$ 6,615,615	$ 6,615,615	$ 6,615,615	$ 6,615,615	$ 6,615,615	$ 6,615,615	$ 6,615,615	$ 6,615,615	$ 6,615,615	$ 6,615,615	$ 6,615,615	$ 6,615,615	$ 6,615,615	$ -
Debt Service - Phase Two [12]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KRA Withdrawal Fee	$0.05	-	109,500	109,500	109,500	109,500	109,500	109,500	109,500	109,500	109,500	109,500	109,500	109,500	109,500	109,500
Total Other Operating Expenses		$ -	$ 6,725,115	$ 6,725,115	$ 6,725,115	$ 6,725,115	$ 6,725,115	$ 6,725,115	$ 6,725,115	$ 6,725,115	$ 6,725,115	$ 6,725,115	$ 6,725,115	$ 6,725,115	$ 6,725,115	$ 109,500
Renewal and Replacement Fund (Transmission) [13]	1.33%		739,200	739,200	739,200	739,200	739,200	739,200	739,200	739,200	739,200	739,200	739,200	739,200	739,200	739,200
Renewal and Replacement Fund (Treatment Plant) [14]	2.5%		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total R & R Fund			739,200	739,200	739,200	739,200	739,200	739,200	739,200	739,200	739,200	739,200	739,200	739,200	739,200	739,200
Total Annual Expenses ($)		$ -	$ 12,407,777	$ 12,554,191	$ 12,704,953	$ 12,860,191	$ 13,020,038	$ 13,184,632	$ 13,354,114	$ 13,528,629	$ 13,708,328	$ 13,893,364	$ 14,083,896	$ 14,280,089	$ 14,482,109	$ 8,074,516
Total Annual Expenses ($/000 gallon)		$ -	$ 5.67	$ 5.73	$ 5.80	$ 5.87	$ 5.95	$ 6.02	$ 6.10	$ 6.18	$ 6.26	$ 6.34	$ 6.43	$ 6.52	$ 6.61	$ 3.69
Discounted Value		$ -	$ 7,660,442	$ 7,402,900	$ 7,155,493	$ 6,917,787	$ 6,689,372	$ 6,469,854	$ 6,258,854	$ 6,056,014	$ 5,860,989	$ 5,673,449	$ 5,493,079	$ 5,319,579	$ 5,152,660	$ 2,743,908
al Discounted Cost [15]	$ 146,693,865															
Discount Rate	4.7%															

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