

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

AN INVESTIGATION INTO THE)
FEASIBILITY AND ADVISABILITY OF)
KENTUCKY-AMERICAN WATER) CASE NO. 2001-00117
COMPANY'S PROPOSED SOLUTION TO)
ITS WATER SUPPLY DEFICIT)

** ** ** ** **

**NOTICE OF FILING OF
SUPPLEMENTAL ENGINEERING REPORT
ON BEHALF OF THE
BLUEGRASS WATER SUPPLY COMMISSION**

** ** ** ** **

Comes the Bluegrass Water Supply Commission (the "BWSC"), by
counsel, and gives Notice that it is filing with the Commission a
Supplemental Engineering Report (the "Supplemental Report").

1. Attached is the Supplemental Report prepared by O'Brien & Gere Engineers, Inc. ("O'Brien & Gere"). This is the same firm which prepared the 2004 Water System Regionalization Feasibility Study (the "Regional Study") which was filed with the Commission on June 28, 2004.

2. The Supplemental Report consists of a three (3) page letter dated December 12, 2005 to Don R. Hassall, General Manager of BWSC, from George B. Rest, P.E., Sr. Vice President of O'Brien & Gere and 10 exhibits.

3. Following the release and publication of the Regional Study, Kentucky-American Water Company ("Kentucky-American") expressed concern that its participation in BWSC's plan to construct a regional water treatment plant and pipeline grid might result in higher rates to its customers than if Kentucky-American constructed its own, separate facilities. BWSC commissioned O'Brien & Gere to study this issue.

4. The Supplemental Report concludes that it will be cheaper for the customers of Kentucky-American if Kentucky-American participates in BWSC's proposed regional solution than it will be if Kentucky-American constructs its own, separate facilities.

5. The Regional Study was filed with the Commission and made a part of the record in this proceeding as directed by the May 14, 2004 letter from Beth O' Donnell, Executive Director of the Commission and in response

to the various information requests and requests for production of documents served upon the BWSC by the other parties to this proceeding.

6. The Supplemental Report is being filed: (a) to update and supplement the Regional Study; and (b) to satisfy BWSC's continued and ongoing obligation, both to the Commission and to the other parties, to supplement its responses to previous information and document requests as it receives or generates new information.

7. In the future, as BWSC receives or generates additional reports and information that is relevant to the Commission's "investigation into the feasibility and advisability of Kentucky-American's proposed solution to its water supply deficit," BWSC will continue to provide that information to the Commission, to the other parties to this proceeding, and to the public.

This 21st day of July, 2006.

Respectfully submitted,
DAMON R. TALLEY, P.S.C.

/s/ Damon R. Talley
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WATER SUPPLY COMMISSION

INSTRUCTION 10 CERTIFICATION

Per Instruction 10 of the Commission's May 15, 2001, procedural Order, the undersigned counsel certifies that the electronic version of this document is a true and accurate copy of the document filed in paper medium; the electronic version of this document has been transmitted to the Commission; and the Commission and other parties have been notified by electronic mail that the electronic version of this document has been transmitted to the Commission.

DAMON R. TALLEY, P.S.C.

BY: /s/ Damon R. Talley
DAMON R. TALLEY



O'BRIEN & GERE

December 12, 2005

Mr. Don R. Hassall, PE, General Manager
Bluegrass Water Supply Commission
c/o Bluegrass Area Development District
699 Perimeter Drive
Lexington, KY 40517-4120

Re: Unit Cost Analysis
File: 36270

Dear Don,

This letter reports on O'Brien & Gere's analysis of comparative unit costs for the Bluegrass Water Supply Commission's (BWSC's) proposed water system. This analysis was performed to address Kentucky American's concern that their customers would be required to pay at rates that effectively subsidize the cost of the full BWSC pipeline grid. The objective of this analysis was to compare the unit cost for the proposed water system (with all nine customers), assuming all wholesale customers pay at the same rates, versus the unit cost if facilities were reduced in size and cost, and most grid components eliminated, so that the water system is adequate to serve only Kentucky American. The results of this analysis were provided in draft form to the BWSC members and Kentucky American at the BWSC workshop on November 7, 2005. No comments have been received, and this letter report is now issued as final.

Approach - Our approach utilized the cost model and data from the 2004 Feasibility Study wherever possible. Those data were updated using the recent study completed by BWSC, the (Phase 1) Water Main Routing Study, completed this year by R&R Engineers.

- Scenario No. 1 - Modified Separate Grid - This scenario, shown on the attached figure, provides BWSC water directly to all customers except Nicholasville and Lancaster. The premise is that Nicholasville would receive "flow through" via Kentucky American, and that Lancaster would receive flow through via Kentucky American and/or Nicholasville. It should be noted that BWSC intends to ultimately construct a full "separate" grid (no flow-through), however recent discussions indicate that Scenario No. 1, as described above, is a likely approach for the near term.
- Scenario No. 2 - Kentucky American Only - This scenario assumes that the recommended water supply (Pool 3 Option, with supplemental supply from the Ohio River) is constructed, but only to the capacity required to meet Kentucky American's needs, assumed to be 22 mgd based on the non-binding commitment.

Methodology - We employed the following methods and assumptions, in order to create an "apples to apples" comparison:

- While recognizing that BWSC will likely construct some spare capacity, this analysis was performed without the "unknown" of how much excess capacity. That means the treatment and pumping facilities, and some pipelines were sized down from the 45 MGD used in the Feasibility Study to the actual non-binding commitments of 31 mgd for the full group, and 22 mgd for Kentucky American alone. This simplification provides a useful basis for comparison.
- To account for the economy of scale, we utilized the equation provided by the American Water Works Association/American Society of Civil Engineers text "Water Treatment Plant Design", Fourth Edition, which is:

$$\text{Cost WTP}_{\text{Size A}} = \text{Cost WTP}_{\text{Size B}} \times (\text{Size A}/\text{Size B})^{0.6}$$

We used the 2004 Feasibility Study unit costs for the 45 mgd size, and scaled to the 31 mgd and 22 mgd sizes using the above equation.

- Length and cost in Scenario No. 1 for the Phase 1 Pipeline are from the (Phase 1) Water Main Routing Study, which is based on a 42" transmission main from Frankfort to Lexington (southern end point). We used the actual estimates from the (Phase 1) Water Main Routing Study for construction, engineering, etc., and added an allowance of \$1,000,000 for land and easements. For Scenario No. 2, we used a 36" pipeline, and scaled the pipeline construction cost back in proportion to the diameter. Engineering was scaled back in proportion to the construction cost.
- We used updated lengths for other grid pipelines from the Phase 1 Study, with unit costs from the 2004 Feasibility Study. We included only those pipes needed to serve the current members and Kentucky American. We used the pipe sizes from the 2004 Feasibility Study except for the transmission main from the WTP to the Phase 1 Pipeline, which we reduced from 48" to 42" for Scenario No. 1, and to 36" for Scenario No. 2. These sizes provide approximately the same water velocity for the 31 mgd and 22 mgd flow conditions respectively, as the 48" pipelines provides for the 45 mgd condition used in the 2004 Feasibility Study.
- We used a 30" raw water pipeline to the Ohio River (as in the 2004 Feasibility Study) in both Scenarios.
- To simplify the comparison, the unit costs are presented on the basis of "project costs", meaning the capital components only. It is reasonable to assume that adding the operating and maintenance costs would favor the full grid option, but we would need to discuss those assumptions. We would be pleased to include these costs if desired.

Conclusion - As shown on the attached bar chart, the unit cost for the BWSC Regional Water Supply system is lower for the full grid than for the "Kentucky American only" option. This finding leads us to conclude that Kentucky American's customers would not subsidize the cost of the BWSC pipeline grid, but rather, Kentucky American's customers will benefit from the lower unit costs of the regional grid.

We trust that this information resolves any questions about the economic benefit of the regional grid. We would be pleased to discuss this analysis at your convenience.

Very truly yours,

O'BRIEN & GERE

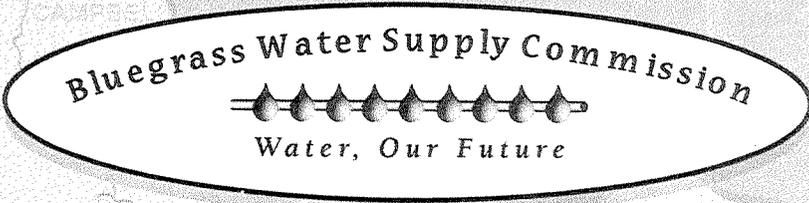
A handwritten signature in black ink, appearing to read "G. B. Rest". The signature is stylized and somewhat cursive.

George B. Rest, P.E.
Sr. Vice President

CC: BWSC Commissioners
Bryan Lovan, P.E.
Linda Bridwell, Kentucky American
Damon Talley, Esq.

Bluegrass Regional Water Supply

Modified Separate Grid



OHIO RIVER
BACKUP
RAW WATER
SUPPLY

PROPOSED WTP

Louisville

Frankfort

Georgetown

Paris

Cynthiana

Mt. Sterling

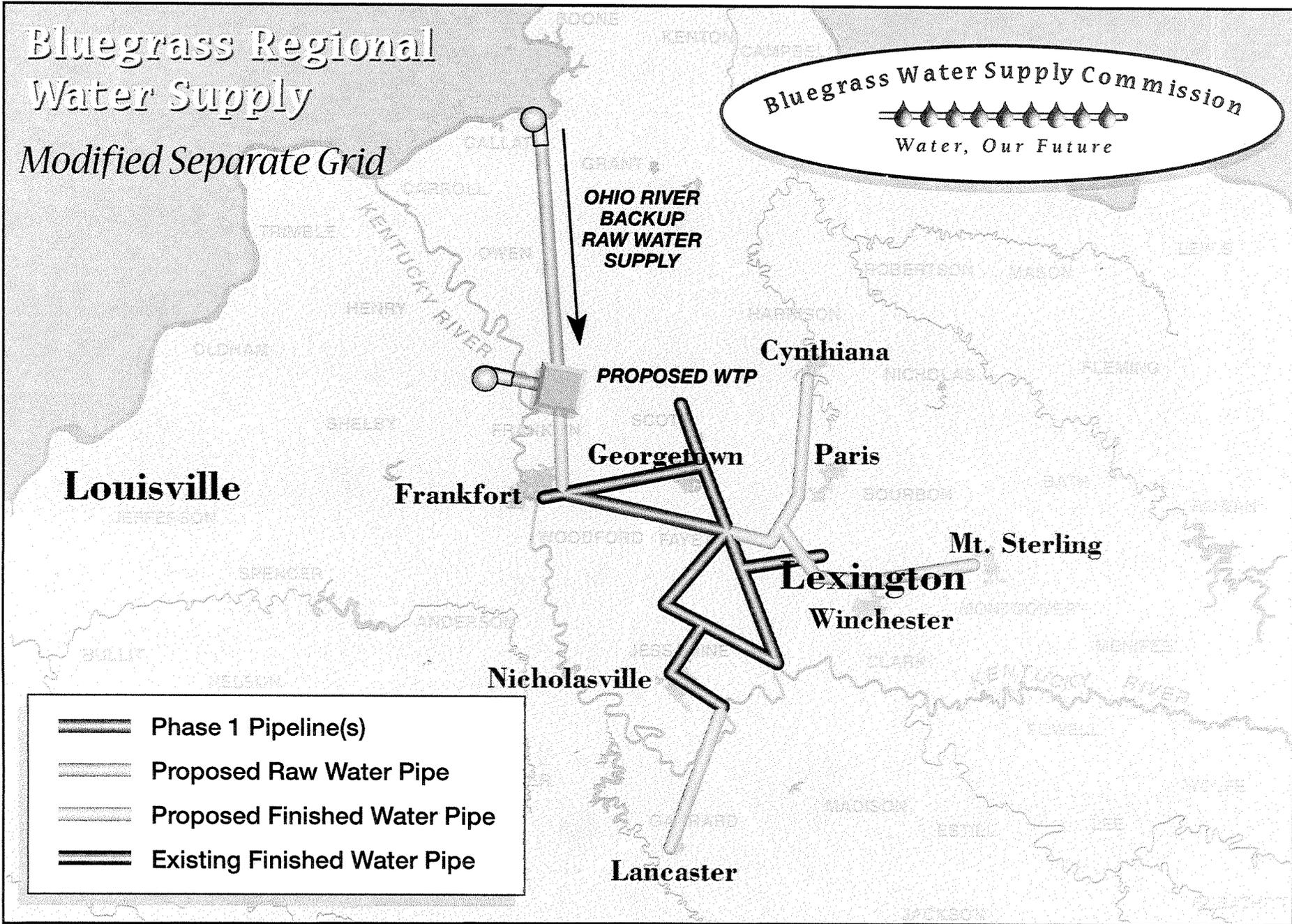
Lexington

Winchester

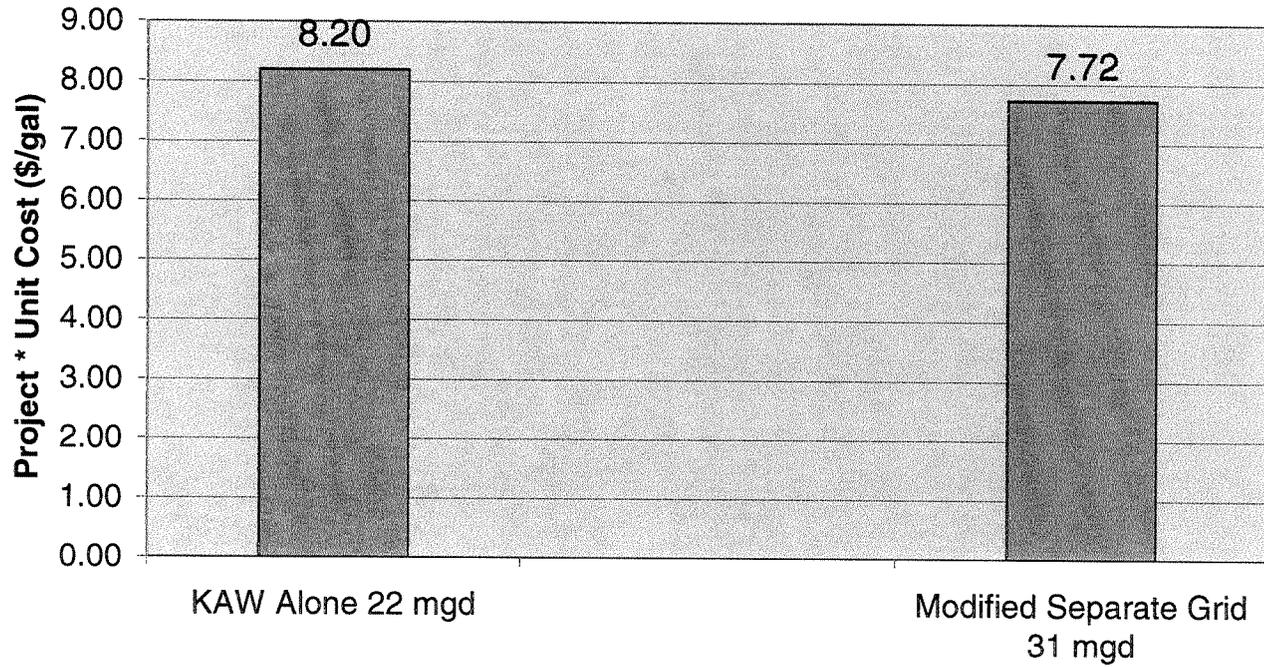
Nicholasville

Lancaster

-  Phase 1 Pipeline(s)
-  Proposed Raw Water Pipe
-  Proposed Finished Water Pipe
-  Existing Finished Water Pipe



BWSC Economy of Scale Analysis



8.20 KAW Alone 22 mgd

7.72 Modified Separate Grid 31 mgd

* Project cost does not include O&M

Grid Options

November 2, 2005

| Alternative Number | Description | Increase in Safe Yield (mgd) | Project Cost | | | | | | | | | | | | | | Unit Cost based on Project Cost (\$/gallon) | Present Worth of Annual Operation & Maintenance (\$) | Total Present Value of Alternative (\$) | |
|-----------------------------------|--|------------------------------|--------------|-------------------|------------|------------|-----------|---------------|---------------------|---------------|--------------------------------------|-------------------------|--|---|------------------------------------|---------------------------|---|--|---|-------------------------|
| | | | WTPs (\$) | PS + Intakes (\$) | Pipes (\$) | Wells (\$) | Dams (\$) | Dredging (\$) | Transportation (\$) | Subtotal (\$) | Contingencies (20% of Subtotal) (\$) | Total Capital Cost (\$) | Regulatory Permitting (5% of Total Cap) (\$) | Engineering Legal & Admin (20% of Total Cap) (\$) | Phase 1 Pipeline R&R Estimate (\$) | Upfront Capital Cost (\$) | | | | Total Project Cost (\$) |
| Cost Modified Flow-through 22 mgd | New WTP at Pool 3 with Ohio River Pipeline | 22 | 42,248,043 | 23,209,295 | 32,693,760 | 0 | | | | 98,151,098 | 19,630,220 | 117,781,318 | 5,889,066 | 23,556,264 | 33,160,000 | | 180,407,000 | 8.20 | #REF! | #REF! |
| Cost Separate 31 mgd | New WTP at Pool 3 with Ohio River Pipeline | 31 | 48,459,865 | 25,445,551 | 60,665,510 | 0 | | | | 134,570,927 | 26,914,185 | 161,485,112 | 8,074,256 | 32,297,022 | 37,480,000 | | 239,336,000 | 7.72 | #REF! | #REF! |

Pumping Station and Intake Costs

| Alternative Number | | Finished Water Pumping Station Costs | | | | | Raw Water Pumping Station Costs | | | | | New Intake/Modified Intake Cost (\$) | Intake Expansion Cost (\$) | Total Cost (\$) | |
|-----------------------------------|--|--------------------------------------|------|----------|----------------|-----------|---------------------------------|------|----------|----------------|------------|--------------------------------------|----------------------------|-----------------|--|
| | | Capacity (mgd) | Unit | Quantity | Unit Cost (\$) | Cost (\$) | Capacity (mgd) | Unit | Quantity | Unit Cost (\$) | Cost (\$) | | | | |
| | | | | | | | | | | | | | | | |
| Cost Modified Flow-through 22 mgd | New WTP at Pool 3 with Ohio River Pipeline | 22 | gal | 1 | 0.23 | 5,069,765 | 22 | gal | 2 | 0.23 | 10,139,530 | 8,000,000 | | 23,209,295 | |
| Cost Separate 31 mgd | New WTP at Pool 3 with Ohio River Pipeline | 31 | gal | 1 | 0.19 | 5,815,184 | 31 | gal | 2 | 0.19 | 11,630,368 | 8,000,000 | | 25,445,551 | |

Water Treatment Plant Costs

| Alternative Number | | Water Treatment Plant Costs | | | | |
|-----------------------------------|--|-----------------------------|------|----------|----------------|------------|
| | | Capacity (mgd) | Unit | Quantity | Unit Cost (\$) | Cost (\$) |
| | | | | | | |
| Cost Modified Flow-through 22 mgd | New WTP at Pool 3 with Ohio River Pipeline | 22 | gal | 1 | 1.92 | 42,248,043 |
| | | | | | | |
| Cost Separate 31 mgd | New WTP at Pool 3 with Ohio River Pipeline | 31 | gal | 1 | 1.56 | 48,459,865 |
| | | | | | | |

Pipeline Costs

| Alternative Number | | Pipeline Costs | | | | | Pipeline Costs | | | | | Grid Cost (\$) | River Crossing (\$) | Total Pipeline Cost (\$) | |
|-----------------------------------|--|----------------|------|----------|----------------|------------|----------------|------|----------|----------------|------------|----------------|---------------------|--------------------------|--|
| | | Diameter (in) | Unit | Quantity | Unit Cost (\$) | Cost (\$) | Diameter (in) | Unit | Quantity | Unit Cost (\$) | Cost (\$) | | | | |
| | | | | | | | | | | | | | | | |
| Cost Modified Flow-through 22 mgd | New WTP at Pool 3 with Ohio River Pipeline | 36 | lf | 95,040 | 144 | 13,685,760 | 30 | lf | 158,400 | 120 | 19,008,000 | 0 | 0 | 32,693,760 | |
| Cost Separate 31 mgd | New WTP at Pool 3 with Ohio River Pipeline | 42 | lf | 95,040 | 168 | 15,966,720 | 30 | lf | 158,400 | 120 | 19,008,000 | 25,690,790 | 0 | 60,665,510 | |

Well Costs

| Alternative Number | | Ground Water Well Construction Costs | | | | |
|-----------------------------------|--|--------------------------------------|------|----------|----------------|-----------|
| | | Capacity (mgd) | Unit | Quantity | Unit Cost (\$) | Cost (\$) |
| | | | | | | |
| Cost Modified Flow-through 22 mgd | New WTP at Pool 3 with Ohio River Pipeline | | | | | 0 |
| | | | | | | |
| Cost Separate 31 mgd | New WTP at Pool 3 with Ohio River Pipeline | | | | | 0 |
| | | | | | | |

| | Flow-through Grid Option | Diameter (inches) | | | | | | | | Cost @ \$4/ft/inch | Miles | Inches | Inch-miles |
|----|-------------------------------|-------------------|-----|-----|-----|-----|-----|-----|-----|--------------------|-------|---------|------------|
| | | 42 | 36 | 24 | 16 | 18 | 12 | 10 | 8 | | | | |
| 1 | Shelbyville-Frankfort | | | | | | | | | | | | |
| 2 | Frankfort-Lawrenceburg | | | | | | | | | | | | |
| 3 | Lexington-Paris | | | | | | | 0 | | \$0 | 0 | #DIV/0! | #DIV/0! |
| 4 | Paris-Cynthiana | | | | | | | 0 | | \$0 | 0 | #DIV/0! | #DIV/0! |
| 5 | Lexington-Winchester | | | 0 | | | | | | \$0 | 0 | #DIV/0! | #DIV/0! |
| 6 | Winchester-Mt. Sterling | | | | | | | | 0 | \$0 | 0 | #DIV/0! | #DIV/0! |
| 7 | Lexington-Nicholasville | | | 0 | | | | | | \$0 | 0 | #DIV/0! | #DIV/0! |
| 8 | Nicholasville-Lancaster | | | | | | | | 0 | \$0 | 0 | #DIV/0! | #DIV/0! |
| 9 | Harrodsburg-Wilmore | | | | | | | | | | | | |
| 10 | Harrodsburg-Danville | | | | | | | | | | | | |
| 11 | Danville-Lancaster | | | | | | | | | | | | |
| 12 | Lexington-Richmond | | | | | | | | | | | | |
| 13 | Berea-Richmond | | | | | | | | | | | | |
| 14 | Frankfort-Lexington (Phase 1) | 94,670 | | | | | | | | \$0 | 18 | 0 | 0.00 |
| | Totals | 94,670 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 94,670 | | | #DIV/0! |
| | Cost @ \$4/ft/inch | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | | | |

Red - Deleted grid component
Blue - Retained grid component

| | Flow-through Grid Option | Diameter (inches) | | | | | | | | Cost @ \$4/lf/inc | Miles | Inches | Inch-miles |
|----|-------------------------------|-------------------|-----|--------------|-----|-----|-------------|-------------|-------------|---------------------|-------|---------|------------|
| | | 42 | 36 | 24 | 16 | 18 | 12 | 10 | 8 | | | | |
| 1 | Shelbyville-Frankfort | | | | | | | | | | | | |
| 2 | Frankfort-Lawrenceburg | | | | | | | | | | | | |
| 3 | Lexington-Paris | | | | | | | 5,280 | | \$253,440 | 1 | 12 | 12.00 |
| 4 | Paris-Cynthiana | | | | | | | 75,821 | | \$3,639,398 | 14 | 12 | 172.32 |
| 5 | Lexington-Winchester | | | 116,899 | | | | | | \$11,222,323 | 22 | 24 | 531.36 |
| 6 | Winchester-Mt. Sterling | | | | | | | | 79,464 | \$2,542,848 | 15 | 8 | 120.40 |
| 7 | Lexington-Nicholasville | | | 0 | | | | | | \$0 | 0 | #DIV/0! | #DIV/0! |
| 8 | Nicholasville-Lancaster | | | | | | | | 106,603 | \$4,264,128 | 20 | 10 | 201.90 |
| 9 | Harrodsburg-Wilmore | | | | | | | | | | | | |
| 10 | Harrodsburg-Danville | | | | | | | | | | | | |
| 11 | Danville-Lancaster | | | | | | | | | | | | |
| 12 | Lexington-Richmond | | | | | | | | | | | | |
| 13 | Berea-Richmond | | | | | | | | | | | | |
| 14 | Frankfort-Lexington (Phase 1) | 94,670 | | | | | | | | \$0 | 18 | 0 | 0.00 |
| | Totals | 94,670 | 0 | 116,899 | 0 | 0 | 81,101 | 106,603 | 79,464 | 478,738 | | | |
| | Cost @ \$4/lf/inch | \$0 | \$0 | \$11,222,323 | \$0 | \$0 | \$3,892,838 | \$4,264,128 | \$2,542,848 | \$21,922,138 | | | #DIV/0! |

Red - Deleted grid component
Blue - Retained grid component

| | Separate Grid Option | Diameter (inches) | | | | | | Cost @ \$4/lf/inc | | | Miles | Inches | Inch-miles |
|----|-------------------------------|-------------------|-----|--------------|-----|-----|-------------|-------------------|--------------|----|---------|---------|------------|
| | | 42 | 36 | 24 | 16 | 18 | 12 | 10 | 8 | | | | |
| 1 | Shelbyville-Frankfort | | | | | | | | | | | | |
| 2 | Frankfort-Lawrenceburg | | | | | | | | | | | | |
| 3 | Lexington-Paris | | | | | | 83,794 | | \$4,022,093 | 16 | 12 | 190.44 | |
| 4 | Paris-Cynthiana | | | | | | 75,821 | | \$3,639,398 | 14 | 12 | 172.32 | |
| 5 | Lexington-Winchester | | | 116,899 | | | | | \$11,222,323 | 22 | 24 | 531.36 | |
| 6 | Winchester-Mt. Sterling | | | | | | | 79,464 | \$2,542,848 | 15 | 8 | 120.40 | |
| 7 | Lexington-Nicholasville | | | 0 | | | | | \$0 | 0 | #DIV/0! | #DIV/0! | |
| 8 | Nicholasville-Lancaster | | | | | | | 106,603 | \$4,264,128 | 20 | 10 | 201.90 | |
| 9 | Harrodsburg-Wilmore | | | | | | | | | | | | |
| 10 | Harrodsburg-Danville | | | | | | | | | | | | |
| 11 | Danville-Lancaster | | | | | | | | | | | | |
| 12 | Lexington-Richmond | | | | | | | | | | | | |
| 13 | Berea-Richmond | | | | | | | | | | | | |
| 14 | Frankfort-Lexington (Phase 1) | 94,670 | | | | | | | \$0 | 18 | 0 | 0.00 | |
| | Totals | 94,670 | 0 | 116,899 | 0 | 0 | 159,614 | 106,603 | 79,464 | | | | #DIV/0! |
| | Cost @ \$4/lf/inch | \$0 | \$0 | \$11,222,323 | \$0 | \$0 | \$7,661,491 | \$4,264,128 | \$2,542,848 | | | | |

Red - Deleted grid component
Blue - Retained grid component