

EXHIBIT "F"

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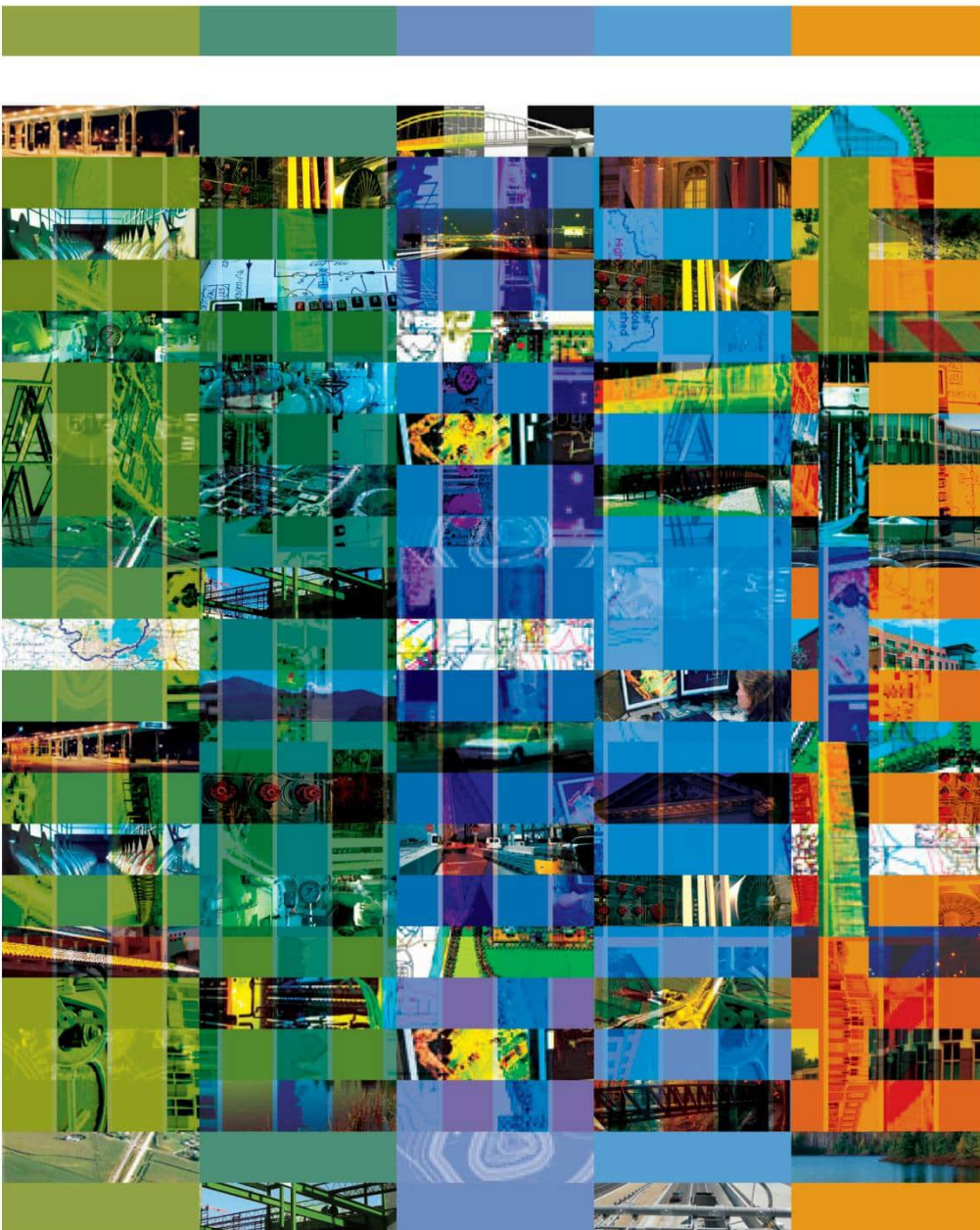
Final Engineering Report for US 27 and KY 353 Water Main Replacement and Extension Project

Report

Harrison County

Water Association, KY

September 2026





Strand Associates, Inc.®
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Louisville, KY 40202
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August 31, 2026

Mr. Lincoln Clifford, President
Harrison County Water Association
2167 US Highway 27 South
P.O. Box 215
Cynthiana, KY 41031

Re: US 27 and KY 353 Water Main Replacement and Extension Project
Harrison County, Kentucky

Dear Mr. Clifford:

Enclosed is the Final Engineering Report for the US 27 and KY 353 Water Main Replacement and Extension Project.

Please call 502-583-7020 with questions.

Sincerely,

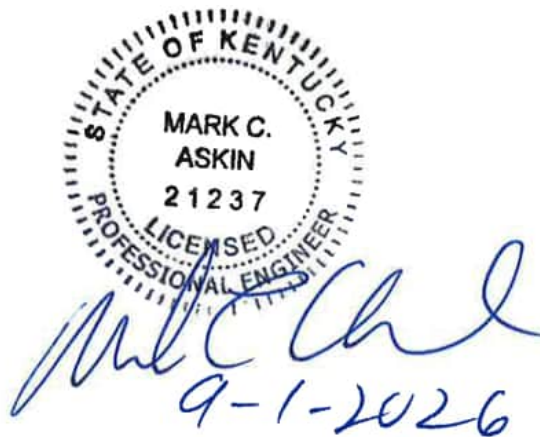
STRAND ASSOCIATES, INC.®

Mark C. Askin, P.E.

Enclosure: Report

Report for Harrison County Water Association, Kentucky

Final Engineering Report for US 27 and KY 353 Water Main Replacement and Extension Project



Prepared by:

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September 2026



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BID TABULATION

PURPOSE OF REPORT

This report describes the scope of the proposed project and presents the general background data used in the project planning and development. Design criteria and financial data are presented and discussed.

GENERAL BACKGROUND DATA

In June 2021, Strand Associates, Inc.® (Strand) was authorized by the Harrison County Water Association, Kentucky (HCWA) to perform engineering services for the US 27 and KY 353 Water Main Replacement and Extension Project. The project scope includes investigating the following two project parts. The location of each part of the project can be seen in Figure 1.

- Part 1–US 27 Water Main Replacement
- Part 2–KY 353 Water Main Extension

A. Part 1

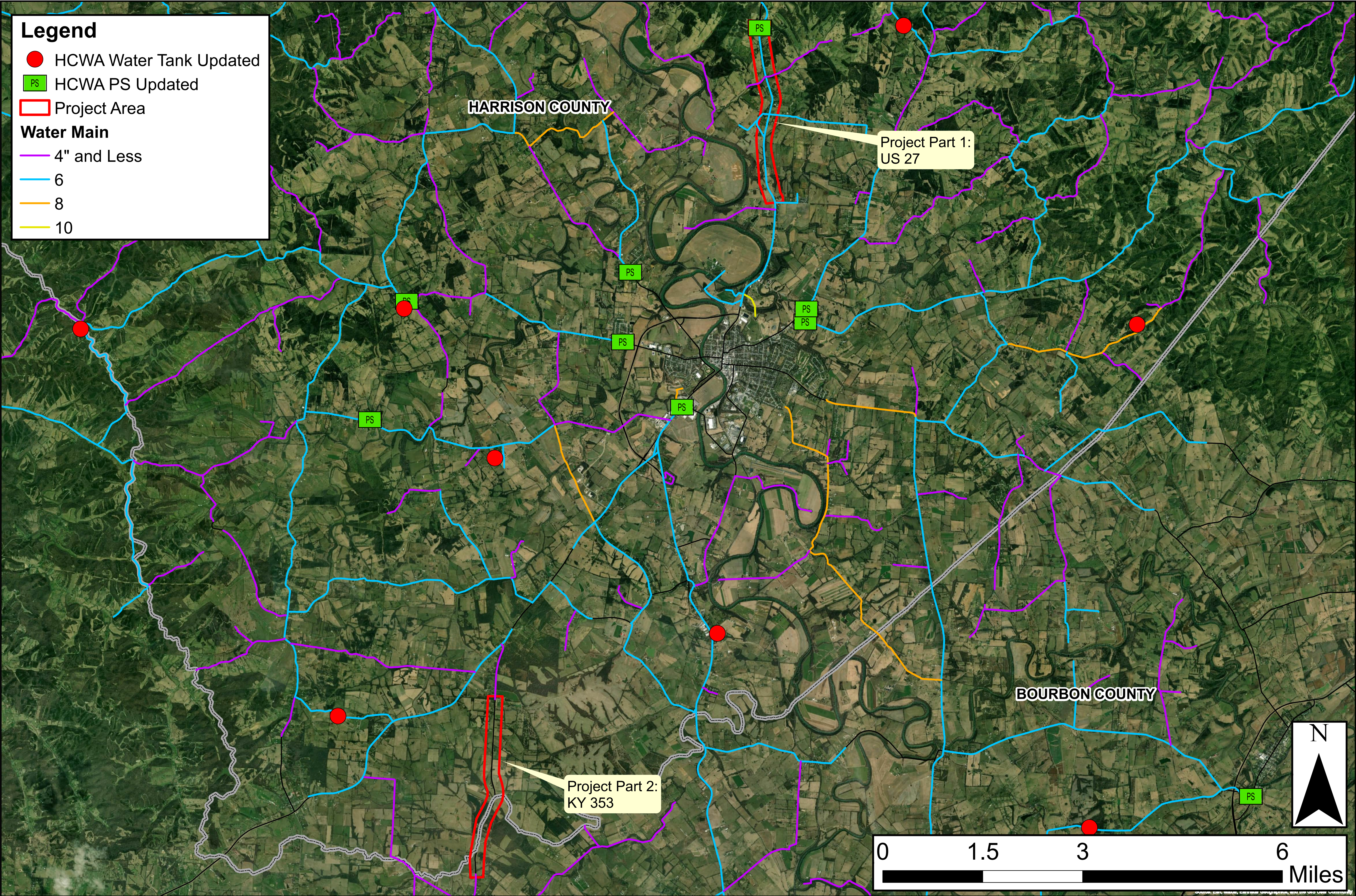
This portion of the project involves the abandonment and replacement of approximately 2.9 miles of asbestos cement water main along US 27 with 6-inch polyvinyl chloride (PVC) water main. The existing water main was constructed in the early 1970s. Because of the age of the existing water main, leakages and breaks have become more frequent, causing disruptions to customer service as well as water contamination concerns.

B. Part 2

This portion of the project involves an approximately 2.7-mile-long extension of 4-inch PVC water main along KY 353. The proposed water main extension will provide water supply to unserved customers. The proposed water main will further eliminate two dead-end water mains by creating a new loop in the water distribution system. Looping can reduce the water age in the water distribution system by allowing older water to mix with newer water and eliminating stagnated water in dead-end mains.

PROJECT PLANNING AREA

The project planning area lies within the HCWA service area, which serves Harrison County, Kentucky (Harrison County) except for the City of Cynthiana, Kentucky (Cynthiana). HCWA also has facilities extending into Bourbon, Scott, and Nicholas Counties. As shown in Table 1, the population of Harrison County has been growing steadily by approximately 6 percent every 10 years. Applying the average growth rate over the next 20 years, the 2040 population is projected to be approximately 21,000. The completion of this project will add new or improved service to 666 unserved or underserved households. HCWA holds monthly meetings that are open to community members for participation. The proposed project was presented on October 23, 2024, at a meeting to provide information and receive feedback regarding the project.



Legend

- HCWA Water Tank Updated
- PS HCWA PS Updated
- Project Area

Water Main

- 4" and Less
- 6
- 8
- 10

PROJECT LOCATION AND PLANNING AREA
WATER SYSTEM IMPROVEMENTS PROJECT
HARRISON COUNTY WATER ASSOCIATION
HARRISON COUNTY, KY

Year	Harrison County
1970	14,158
1980	15,166
1990	16,248
2000	17,997
2010	18,799
2020	18,920
2030*	20,055
2040*	21,259

*Population Estimate
Source: US Census

Table 1 Population Trends for Harrison County

The project area falls within the critical habitat for several species of bats and clams; however, the proposed project is not expected to negatively affect these species. The project is located in areas that have been previously disturbed with minimal trees in the area, and the stream crossing will be horizontal directional drilled with no disturbance. As a result, these species are not expected to be impacted.

The project planning area includes two separate locations within the HCWA service area. The first location is along US 27 between mile points 9.5 and 12.3, approximately 2 miles north of Cynthiana. This area serves approximately 650 homes.

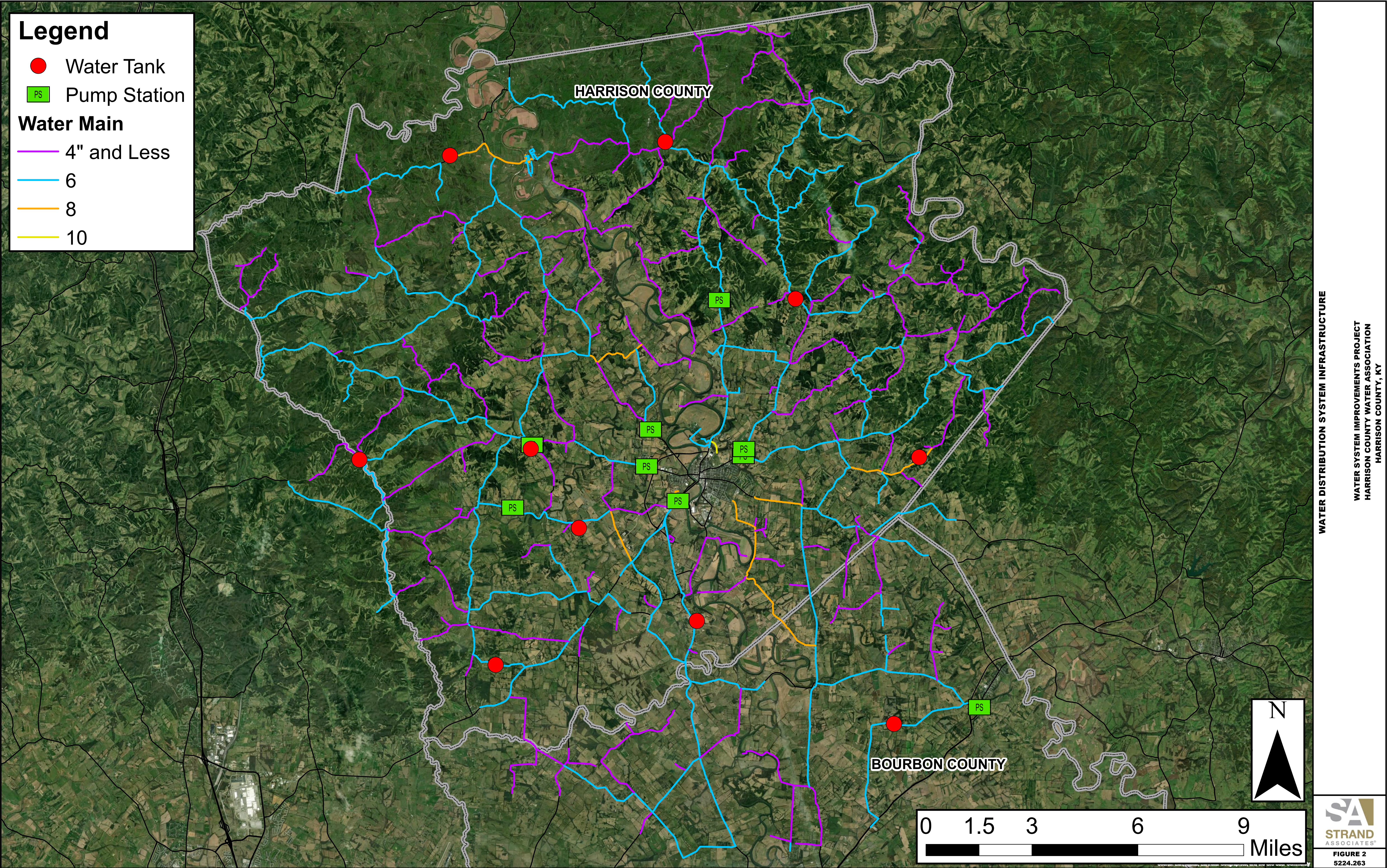
The second location is along KY 353 between mile point 5.4 in Bourbon County and mile point 1.4 in Harrison County. There are currently 15 homes within this area that are not tied to a water infrastructure.

The proposed project is located in existing disturbed farm fields and existing right of way. There should be minimum disturbance. In accordance with the environmental review, there are no additional environmental resources present.

DESCRIPTION OF EXISTING FACILITIES

The HCWA water distribution system includes ten water storage tanks, nine pumping stations, and more than 300 miles of water main. Figure 2 shows the existing HCWA water distribution system infrastructure.

Approximately 120 miles of water main throughout this system were constructed before 1980. There are ten water tanks throughout the system. The first tank was constructed in 1967 and the newest tank was constructed in 2004. Five of the tanks are coated in galvanized paint and the other five are glass-lined. There are nine pumping stations throughout the system, each with two pumps. The pumps in each pumping station range from 50 to 600 gallons per minute (gpm) with an average of 190-gpm pumps. Detailed pipe, tank, and pump information are included in Tables 2 through 4. The existing system has 6,223 customers (6,087 residential and 136 commercial). The residential customers use an average of 150 gallons per day (gpd) each, and the commercial customers use an average of 160 gpd each.



WATER DISTRIBUTION SYSTEM INFRASTRUCTURE

WATER SYSTEM IMPROVEMENTS PROJECT
HARRISON COUNTY WATER ASSOCIATION
HARRISON COUNTY, KY



FIGURE 2
5224.263

Pipe Diameter (inches)	Length (miles)
2	1.3
3	4.5
4	139.7
6	147.3
8	14.0
10	0.4

Table 2 Pipe Table

Tank	Capacity (gallons)	Constructed	Interior Coating
Oddville Tank	200,000	2004	Glass-Lined
Ardery Tank	110,000	1997	Glass-Lined
Lair Tank	117,000	1979	Galvanized Paint
Alberta Tank	112,800	1991	Glass-Lined
Colemansville Tank	110,500	1967	Galvanized Paint
Mudlick Tank	103,000	1979	Galvanized Paint
KY 32 Tank	112,800	1976	Glass-Lined
Switzer Tank	117,000	1979	Galvanized Paint
Kelat Tank	106,000	1979	Galvanized Paint
Mill Creek Tank	190,000	2001	Glass-Lined

Table 3 Tank Information

Pumping Station	No. of Pumps	Horsepower	Pump Capacity (gpm)
Mason Lane	2	60	600
KY 1842	2	15	150
Connersville	2	15	150
Carl Stevens	2	5	50
US 27	2	15	60
KY 1893	2	5	100
US 62	2	15	250
US 62 North	2	15	150
KY 392	2	20	200

Table 4 Pump Information

The US 27 north segment of the HCWA water distribution system currently consists of 6-inch cast iron pipe built in the 1970s. Because of the age of the existing water main, breaks and needed repairs are becoming more frequent, causing service disruption to customers.

The KY 353 segment of the HCWA distribution system currently includes two 4-inch water main dead-ends, one at either end of the project planning area. Residents in the area between the two dead-ends are currently receiving water by nondependable sources that may not be monitored for water quality.

These two portions of water main are not suitable for continued use because they cause service disruptions or may not provide residents with quality water. The proposed project is expected to add 15 new residential service connections and improve service to 650 existing customers. The 15 new connections are expected to use average flow for residential users through the system with a peak flow demand of 15 gpm. With the replacement of the existing main along US 27, no additional demands are expected to be added.

An itemized list of operation and maintenance (O&M) expenses is provided in Table 5. In 2022, O&M expenses were \$2,808,263. The current rate schedule for HCWA is shown in Table 6. There are currently no capital improvement plans in place.

Operating Expense	2022 Cost
Purchased Water	\$1,522,156
Salaries	\$557,565
Payroll Taxes	\$43,460
Employee Benefits	\$223,832
Utilities	\$89,246
Material and Supplies	\$15,604
Office Supplies	\$77,659
Transportation	\$67,129
Repairs	\$81,233
Insurance	\$38,941
Accounting	\$22,937
Legal	\$22,080
Other Contractual Services	\$11,223
Bad Debt Expense	\$10,760
Telephone	\$14,220
Miscellaneous	\$1,939
Regulatory Assessment Fee	\$8,279
Total Operating Expenses	\$2,808,263

Table 5 2022 Itemized O&M Expenses

Usage from 5/8- by 3/4-Inch Meter	Monthly Rate
First 2,000 gallons	\$20.53 (Minimum Bill)
Next 1,000 gallons	\$0.00795 per gallon
Next 2,000 gallons	\$0.00777 per gallon
Next 45,000 gallons	\$0.00723 per gallon
More than 50,000 gallons	\$0.00631 per gallon

Table 6 Existing HCWA Rate Schedule

NEED FOR PROJECT

HCWA has highlighted several needs for each part of the US 27 and KY 353 Water Main Replacement and Extension Project. These needs are outlined in the following sections.

A. Part 1 Needs

The existing water main that runs along US 27 was constructed in the early 1970s. Because of the age of the existing water main, there has been an increase in leakage and breaks, leading to increased water loss and water contamination. The disruptions to water service for the customers that rely on this section of the HCWA water distribution system has become a critical issue. Similarly, the increase in resources allocated to repairing this section of water main has informed the decision to replace it rather than to continue to repair it.

B. Part 2 Needs

This section of the project is needed due to health risks posed by the independent acquisition of water by unserved residents. It is not guaranteed that precautionary steps or treatment methods for independently acquired or delivered water are compliant with the safety standards presented by the HCWA or the Environmental Protection Agency. The extension of a new water main between the two dead-ends would eliminate the risks posed by receiving water by means other than via HCWA.

The elimination of the two dead-ends would form a loop in the water distribution system, allowing for water turnover and eliminating water stagnation. Dead-end water mains can be prime locations for the formation of disinfection byproducts (DBP). DBP formation potential is a function of numerous physical and chemical characteristics of water, with water age being a prime factor. Some DBPs are classified as possible human carcinogens and are regulated at the state and federal level. At existing conditions, HCWA maintenance personnel flush out the dead-end water lines to maintain water quality. The elimination of the two dead-end water mains would eliminate the need for flushing.

ALTERNATIVES CONSIDERED

Several alternatives were considered for this project. The new water service installations near KY 353 will be the responsibility of the property owner. PVC pipe is assumed in the cost opinions; however, the project will be bid as "PVC or equal." Each alternative is summarized below.

1. Alternative 1—Continue performing reactive maintenance on the water main that runs along US 27. Continue flushing out the dead-end water mains along KY 353 to promote water quality.

This alternative needs the least upfront capital and would not need easements to be obtained; however, as the water main continues to age, reactive repairs will continue to increase and O&M costs will rise. When reactive maintenance is needed, construction is often unplanned and can come with challenges such as material sourcing or maintenance of traffic. This alternative does not address the water quality issues near KY 353; therefore, it is not considered a sustainable alternative for HCWA.

2. Alternative 2—Complete the US 27 water main replacement. Continue flushing out the dead-end water mains along KY 353 to promote water quality.

Completing the US 27 water main replacement will provide the existing 650 users with reliable water service instead of addressing problems and leaks as they arise. Replacement of the US 27 water main will be scheduled with adequate notice to residents and HCWA staff to avoid unplanned problems at the project site, which will be more beneficial to residents and HCWA. Alternative 2 would not need easements to be obtained because this alternative does not address the existing water quality issues along KY 353.

3. Alternative 3—Complete the KY 353 water main extension. Continue performing reactive maintenance on the water main that runs along US 27.

By completing the KY 353 water main extension, 15 additional customers will receive water service and additional flushing will not be needed to provide existing customers with quality water. Alternative 3 would need easements to be obtained to complete the extensions and individual property owners will need to install water service to their households. By continuing the reactive maintenance along US 27, repairs and O&M costs will continue to increase. Construction challenges may occur if HCWA is only performing reactive maintenance.

4. Alternative 4—Complete the US 27 water main replacement and the KY 353 water main extension as two separate projects.

This alternative would address the problems occurring at both locations by replacing the existing pipe along US 27 and adding a new line along KY 353 to improve water quality. This alternative would need easements to be obtained for the portion of the project along KY 353. By completing the two projects separately, individual project costs may be higher and project phasing will take longer.

5. Alternative 5—Complete the US 27 water main replacement and the KY 353 water main extension as one project.

This alternative would address the problems occurring at both locations by replacing the existing pipe along US 27 and adding a new line along KY 353 to improve water quality. This alternative would need easements to be obtained along KY 353. By completing both projects at the same time, the life cycle cost of the project will be lower than Alternative 4 because material costs are expected to increase over time. Construction time would also be quicker because the contractor would be mobilized at the same time.

SELECTION OF AN ALTERNATIVE

A life cycle analysis for each viable alternative is presented in Table 7. The lowest life cycle cost is Alternative 1; however, this alternative has the highest annual O&M costs. The highest life cycle cost is Alternative 4.

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Capital Cost	N/A	\$1,607,300	\$1,249,500	\$2,874,500	\$2,773,600
Annual O&M Cost	\$1,338,500	\$1,217,300	\$1,176,800	\$1,217,300	\$1,055,600
Net Present Worth	\$1,338,500	\$2,824,600	\$2,426,300	\$4,091,800	\$3,829,200

N/A=Not applicable

Table 7 Present Worth Analysis

A combination of monetary and nonmonetary factors was considered when evaluating the five alternatives. While Alternative 5 has a higher initial capital cost, it has the lowest annual O&M costs and a lower upfront capital cost than Alternative 4. Alternative 5 provides improved water quality to more than 650 residents and new water service to 15 residents. Alternatives 1 through 3 do not address the water quality needs of existing and proposed customers even though they have lower life cycle costs. No additional environmental concerns, operator training, or extra permits will be needed as part of any alternative.

PROPOSED PROJECT (RECOMMENDED ALTERNATIVE)

A. Basic Design Information

The proposed water mains will be constructed on existing easements owned by HCWA or newly acquired easements along with encroachment permits as needed for roadway crossings.

B. Construction Cost Based on Project Bid

The Construction Cost Based on Project Bid and what was in the Letter of Conditions are presented in the following Tables 8 and 9.

Item	Total
Administrative and Legal	\$49,000.00
Development	\$2,676,000.00
Contingency (10%)	\$267,000.00
Engineering Fees	\$280,000.00
Design and Additional Services	\$168,000.00
Resident Project Representative	\$112,000.00
Interest-Interim	\$25,000.00
Land and Right-of-Way	\$60,000.00
Total Project Cost	\$3,357,000.00

Table 8 Letter of Conditions

No.	Item	Total
1.	KY 353 Water Main Extension	\$626,288.00
2.	US 27 Water Main Replacement	\$1,148,483.00
	Total	\$1,774,771.00
	Land and Easements	\$60,000.00
	Contingencies (10% of Total Construction Cost)	\$177,477.10
	Administrative and Legal	\$49,000.00
	Engineering Fees	\$138,000.00
	Resident Project Representative	\$112,000.00
	Additional Services	\$30,000.00
	Additional Services	\$25,000.00
	Total Construction Cost	\$2,366,248.10

Table 9 Construction Cost Based on Project Bid

Strand recommends that HCWA proceed with Alternative 5 as defined previously in the Alternatives Considered section. The alternatives have been reviewed, and the proposed alternative provides a cost-effective approach to meet HCWA's goals for this project. The Bid Tabulation for this project is enclosed in the Appendix.

C. Project Funding

A summary of the proposed project funding is as follows:

Letter of Conditions

Agency Loan	\$2,437,000.00
Applicant Contribution	\$200,766.00
Connection and Tap Fees	\$24,700.00
21SB036 Cleaner Water Program (Fiscal Year 2022)	\$194,534.00
22HB001 Cleaner Water Program (Fiscal Year 2023)	<u>\$500,000.00</u>
Total Project Cost	\$3,357,000.00

Revised Funding

Agency Loan	\$1,446,248.10
Applicant Contribution	\$200,766.00
Connection and Tap Fees	\$24,700.00
21SB036 Cleaner Water Program (Fiscal Year 2022)	\$194,534.00
22HB001 Cleaner Water Program (Fiscal Year 2023)	<u>\$500,000.00</u>
Total Project Cost	\$2,366,248.10

D. Project Schedule

A finalized project schedule is shown in Table 10.

Table 10 Project Schedule

	Year 1												Year 2											
Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
US 27 Water Main Replacement																								
Design																								
Bidding																								
Loan Closing and Contract Award																								
Initiation of Construction																								
Construction																								
Substantial Completion																								
Final Completion																								
Initiation of Operation																								
KY 353 Water Main Extension																								
Design																								
Land Acquisition																								
Bidding																								
Loan Closing and Contract Award																								
Initiation of Construction																								
Construction																								
Substantial Completion																								
Final Completion																								
Initiation of Operation																								

ANNUAL OPERATING BUDGET

A. Income

The project is expected to add no more than 15 new customers. This additional income will be small and is not anticipated to impact current user rates. HCWA's revenues include charges for services, service line and meter installations, and other miscellaneous activities. The proposed income generated with the implementation of this project is approximately \$4,600,000. Annual O&M costs are expected to be approximately \$3,900,000. With an average annual debt repayment of \$142,600, the average monthly user rate is estimated to be \$57.38 per month. An additional discussion of user rates may be found in the Reserves section of this report. A proposed rate schedule is included in Table 11.

Usage from 5/8- by 3/4-Inch Meter	Monthly Rate
First 2,000 gallons	\$28.90 (Minimum Bill)
Next 1,000 gallons	\$0.01119 per gallon
Next 2,000 gallons	\$0.01094 per gallon
Next 45,000 gallons	\$0.01018 per gallon
More than 50,000 gallons	\$0.00888 per gallon

Table 11 Proposed HCWA Rate Schedule

B. Equivalent Dwelling Units and Flow Date

HCWA purchases 35 to 45 million gallons of water per month from four different providers: Cynthiana, the Nicholas County Water District, the City of Millersburg, Kentucky, and the Kentucky American Water Company. Of the water purchased, approximately 20 percent is lost each month due to line leaks. The remaining water is sold to customers with the majority going toward residential use.

C. O&M Costs

The operating revenue from 2019 to 2022 was compared, and it was found that the total operating revenue has increased by approximately \$215,000 since 2019. Water sales make up 97 to 99 percent of the total operating revenue, with the remaining 1 to 3 percent coming from miscellaneous sales. According to HCWA, its customer base is expected to increase by 100 to 110 customers each year. This increase in customers would result in approximately \$50,000 in additional water sales each year. From the audit reports conducted by Ray, Foley & Hensley, the total operating expense increased from 2019 to 2022. The operating expense increase is due to an increase in purchased water, which accounts for 55 to 57 percent of the operating expenses. These operating expenses, along with depreciation, were assumed to increase by 3 percent each year. Table 12 details the operating revenue and expenses for 2022 in addition to depreciation expenses.

	2022 Cost	2025 Cost (Estimated)
Water Sales	\$2,981,501	NA
Late Charges	\$43,893	NA
Other Service	\$12,752	NA
Other Revenue	\$6,300	NA
Total Operating Revenue	\$3,044,446	NA
Purchased Water	\$1,522,156	\$1,663,300
Salaries	\$557,565	\$609,266
Payroll Taxes	\$43,460	\$47,490
Employee Benefits	\$223,832	\$244,587
Utilities	\$89,246	\$97,521
Material and Supplies	\$15,604	\$17,051
Office Supplies	\$77,659	\$84,860
Transportation	\$67,129	\$73,354
Repairs	\$81,233	\$88,765
Insurance	\$38,941	\$42,552
Accounting	\$22,937	\$25,064
Legal	\$22,080	\$24,127
Other Contractual Services	\$11,223	\$12,264
Bad Debt Expense	\$10,760	\$11,758
Telephone	\$14,220	\$15,539
Miscellaneous	\$1,939	\$2,119
Regulatory Assessment Fee	\$8,279	\$9,047
Depreciation	\$515,698	\$563,517
Total Operating Expense	\$3,323,961	\$3,632,181
Operating Income	(\$279,515)	NA

Note: () denote a loss
NA=Not available

Table 12 2022 and Estimated 2025 Operating Revenue and Expenses

D. Debt Repayment

From the Water Resource Information System, HCWA has been approved for two new projects that would have a combined project cost of \$3.6 million: KY 353 Water Main Extension and US 27 Water Main Replacement. Currently, HCWA is paying \$58,033 per year for two loans; however, with the addition of the two new projects, HCWA will be paying a combined debt repayment of approximately \$200,000 per year for the four projects.

RESERVES

A. Debt Service

Based on the projections for operating revenue and expenses, debt repayment, and depreciation, HCWA is projected to have a deficit with its current rate structure. Currently, the average customer bill is \$40.06 per month. In order for HCWA to be net revenue neutral, the average customer bill will need to be increased to \$55.65 per month. To account for this increase, the existing rates will need to be raised by 30 percent over the course of 5 years. Table 13 details the existing and projected expenses.

	2022 Existing	2028 Projected (without loan)	2028 Projected (with loan)
Operating Revenue	\$3,044,446	\$4,540,450	\$4,716,838
Operating Expenses	(\$2,808,263)	(\$3,862,409)	(\$3,862,409)
Nonoperating Income	(\$22,173)	(\$22,173)	(\$22,173)
Debt Repayment	(\$58,033)	(\$58,033)	(\$233,088)
Depreciation	(\$515,698)	(\$597,835)	(\$597,835)
Short-Lived Asset Cost	\$0	\$0	(\$1,333)
Surplus (Deficit)	(\$359,721)	\$0	\$0
Number of Customers	6,333	6,883	6,883
Average Customer Usage	4,490	4,490	4,490
Average Customer Monthly Bill	\$40.06	\$55.67	\$57.79

Note: () denote a loss

Table 13 Existing and Projected Expenses

Table 14 provides information on HCWA's short-lived assets, the expected year of replacement, and the anticipated cost of each associated with the proposed alternatives.

Asset	Expected Replacement Year	Anticipated Cost
Distribution System Related		
Electrical and Instrumentation Equipment	2050	\$40,000

Table 14 Short-Lived Assets, Expected Replacement Year, and Anticipated Cost

ENGINEER'S RECOMMENDATIONS

Strand recommends that HCWA proceed with the project with Alternative 5, as noted in the Proposed Project section. The alternatives have been reviewed, and the proposed alternative provides a cost-effective approach to meet HCWA's goals for this project.

Strand understands that funding for this project is anticipated to be covered by the United States Rural Development Agency Rural Utilities Service Water and Waste Loan, the sale of the old office building on US 27, and the Cleaner Water Program grants already received.

KY 353 Water Main Extension and US 27 Water Main Replacement Project, Contract 1-2025, Harrison County Water Assoociation (#10289320)													
Contract 1-2025													
Harrison County Water Association													
Solicitor: Strand Associates, Inc.													
August 21, 2026 10 A.M. Eastern Time													
						BP Pipeline		Mofield Brothers Construction Company, LLC		Norris Bros Excavating, LLC		Roe Enterprises Inc.	
Section Title	Line Item	Item Code	Item Description	UofM	Quantity	Unit Price	Extension	Unit Price	Extension	Unit Price	Extension	Unit Price	Extension
	1	KY353-1	4-IN PVC C900 DR18 Water Main, Fittings, Trenching, Bedding, Laying, Testing, and Backfill (Unclassified Excavation)	LF	13700	\$32.00	\$438,400.00	\$34.00	\$465,800.00	\$32.00	\$438,400.00	\$75.00	\$1,027,500.00
	2	KY353-2	8-IN Steel Casing Pipe Installed by Jack and Bore, Fittings, Trenching, Bedding, Laying, and Backfill (Unclassified Excavation)	LF	50	\$420.00	\$21,000.00	\$300.00	\$15,000.00	\$320.00	\$16,000.00	\$460.00	\$23,000.00
	3	KY353-3	6-IN HDPE DR 11 IPS Pipe W/ Directional Bore, Water Main, Labor, Fittings, Trenching, Bedding, Laying, Testing, and Backfill (Unclassified Excavation)	LF	200	\$100.00	\$20,000.00	\$200.00	\$40,000.00	\$320.00	\$64,000.00	\$220.00	\$44,000.00
	4	KY353-4	6-IN HDPE DR 11 IPS Pipe Water Main, Labor, Fittings, Trenching, Bedding, Laying, Testing, and Backfill (Unclassified Excavation)	LF	60	\$37.00	\$2,220.00	\$100.00	\$6,000.00	\$60.00	\$3,600.00	\$95.00	\$5,700.00
	5	KY353-5	HDPE To PVC Adapter, Labor, Fittings, Trenching, Bedding, Laying, Testing, and Backfill (Unclassified Excavation)	EA	2	\$400.00	\$800.00	\$1,000.00	\$2,000.00	\$450.00	\$900.00	\$250.00	\$500.00
	6	KY353-6	4-IN to 6-IN MJ Sleeve, Labor, Fittings, Trenching, Bedding, Laying, Testing, and Backfill (Unclassified Excavation)	EA	2	\$400.00	\$800.00	\$1,000.00	\$2,000.00	\$1,500.00	\$3,000.00	\$250.00	\$500.00
	7	KY353-7	8-IN Steel Casing Pipe Installed by Open CutFittings, Trenching, Bedding, Laying, and Backfill (Unclassified Excavation)	LF	100	\$90.00	\$9,000.00	\$200.00	\$20,000.00	\$125.00	\$12,500.00	\$440.00	\$44,000.00
	8	KY353-8	Free Bore Installation of Water Main W/ no Casing Pipe Installed by Jack and Bore, Fittings, Trenching, Bedding, Laying, and Backfill (Unclassified Excavation)	LF	65	\$100.00	\$6,500.00	\$100.00	\$6,500.00	\$125.00	\$8,125.00	\$400.00	\$26,000.00
	9	KY353-9	Tie-in to Existing 4-IN Water Main, Excavation, Fittings, Sleeves, Couplings, Anchoring, Testing, and Backfill	EA	1	\$4,600.00	\$4,600.00	\$5,000.00	\$5,000.00	\$6,800.00	\$6,800.00	\$6,400.00	\$6,400.00
	10	KY353-10	Install 4-IN MJ Gate Valve and Box, Excavation, Backfill, and Testing	EA	12	\$2,200.00	\$26,400.00	\$2,500.00	\$30,000.00	\$5,800.00	\$69,600.00	\$3,200.00	\$38,400.00
	11	KY353-11	Install Air Release Valve, Labor, Equipment, Tapping the Main, MH, Excavation, and Backfill	EA	1	\$1,600.00	\$1,600.00	\$2,500.00	\$2,500.00	\$4,800.00	\$4,800.00	\$5,000.00	\$5,000.00
	12	KY353-12	Install Blowoff Valve, Labor, Equipment, Tapping the Main, Excavation, and Backfill	EA	3	\$6,000.00	\$18,000.00	\$8,000.00	\$24,000.00	\$4,800.00	\$14,400.00	\$2,500.00	\$7,500.00
	13	KY353-13	Install 4-IN Leak Detection Meter, Labor, Equipment, Main Taps, Tapping Saddles, and Backfill	EA	2	\$4,300.00	\$8,600.00	\$4,000.00	\$8,000.00	\$12,500.00	\$25,000.00	\$3,600.00	\$7,200.00
	14	KY353-14	1-IN CTS ServiceShort Side, New Meter, Main Tap, Coupling, Labor, Equipment, Excavation, Testing, and Backfill (Unclassified Excavation)	EA	7	\$2,000.00	\$14,000.00	\$1,500.00	\$10,500.00	\$1,200.00	\$8,400.00	\$2,800.00	\$19,600.00
	15	KY353-15	1-IN CTS ServiceLong Side, New Meter, Main Tap, Coupling, Labor, Equipment, Excavation, Testing, and Backfill (Unclassified Excavation) W/ Plastic Casing Pipe Under Road	EA	9	\$2,900.00	\$26,100.00	\$3,000.00	\$27,000.00	\$2,500.00	\$22,500.00	\$4,500.00	\$40,500.00
	16	KY353-16	Gravel Driveway Repair, Labor, Excavation, Backfill, and Restoration	LF	250	\$10.00	\$2,500.00	\$20.00	\$5,000.00	\$10.00	\$2,500.00	\$45.00	\$11,250.00
	17	KY353-17	Permanent Seeding	LF	13760	\$1.80	\$24,768.00	\$1.00	\$13,760.00	\$0.50	\$6,880.00	\$10.00	\$137,600.00
	18	KY353-18	Preconstruction Video	LS	1	\$1,000.00	\$1,000.00	\$5,000.00	\$5,000.00	\$1,500.00	\$1,500.00	\$2,500.00	\$2,500.00
KY 353 Water Main Extension Section Total:						\$626,288.00		\$688,060.00		\$708,905.00		\$1,447,150.00	
	19	US27-1	6-IN PVC C900 DR18 Water Main, Fittings, Trenching, Bedding, Laying, Testing, and Backfill (Unclassified Excavation)	LF	14700	\$40.00	\$588,000.00	\$46.00	\$676,200.00	\$42.00	\$617,400.00	\$85.00	\$1,249,500.00
	20	US27-2	Abandon Existing Water Main in Place	EA	1	\$2,000.00	\$2,000.00	\$3,000.00	\$3,000.00	\$5,600.00	\$5,600.00	\$2,500.00	\$2,500.00
	21	US27-3	Abandon, Demolition, and Remove Existing Pump Station	EA	1	\$30,000.00	\$30,000.00	\$3,000.00	\$3,000.00	\$25,000.00	\$25,000.00	\$16,500.00	\$16,500.00
	22	US27-4	Install 6-IN MJ Gate Valve and Box, Excavation, Backfill, and Testing	EA	24	\$2,000.00	\$48,000.00	\$3,000.00	\$72,000.00	\$3,000.00	\$72,000.00	\$3,600.00	\$86,400.00
	23	US27-5	Install 6-IN Leak Detection Meter, Labor, Equipment, Main Taps, Tapping Saddles, and Backfill	EA	4	\$4,800.00	\$19,200.00	\$4,000.00	\$16,000.00	\$54,000.00	\$216,000.00	\$5,500.00	\$22,000.00
	24	US27-6	12-IN Steel Casing Pipe Jack and Bore, Labor, and Equipment	LF	560	\$470.00	\$263,200.00	\$400.00	\$224,000.00	\$420.00	\$235,200.00	\$520.00	\$291,200.00
	25	US27-7	Free Bore Installation of Water Main W/ no Casing Pipe Installed by Jack and Bore, Fittings, Trenching, Bedding, Laying, and Backfill (Unclassified Excavation)	LF	510	\$100.00	\$51,000.00	\$100.00	\$51,000.00	\$225.00	\$114,750.00	\$420.00	\$214,200.00
	26	US27-8	Install Air Release Valve, Labor, Equipment, Tapping the Main, MH, Excavation, and Backfill	EA	1	\$2,000.00	\$2,000.00	\$2,500.00	\$2,500.00	\$5,200.00	\$5,200.00	\$5,000.00	\$5,000.00

	27	US27-9	Cap Existing Water Main, Labor, Equipment, Excavation, Backfill, and Restoration	EA	5	\$452.60	\$2,263.00	\$500.00	\$2,500.00	\$6,800.00	\$34,000.00	\$3,200.00	\$16,000.00
	28	US27-10	Tie-in to Existing 6-IN Water Main, Excavation, Fittings, Sleeves, Couplings, Anchoring, Testing, and Backfill	EA	8	\$4,320.00	\$34,560.00	\$4,000.00	\$32,000.00	\$5,800.00	\$46,400.00	\$8,700.00	\$69,600.00
	29	US27-11	1-IN CTS ServiceShort Side, Main Tap, Coupling, Labor, Equipment, Excavation, Testing, and Backfill (Unclassified Excavation)	EA	22	\$1,200.00	\$26,400.00	\$1,500.00	\$33,000.00	\$1,200.00	\$26,400.00	\$2,800.00	\$61,600.00
	30	US27-12	1-IN CTS ServiceLong Side, Main Tap, Coupling, Labor, Equipment, Excavation, Testing, and Backfill (Unclassified Excavation) W/ Plastic Casing Pipe Under Road	EA	17	\$2,000.00	\$34,000.00	\$3,000.00	\$51,000.00	\$2,500.00	\$42,500.00	\$4,500.00	\$76,500.00
	31	US27-13	Concrete Repair, Labor, Equipment, Excavation, Backfill, and Restoration	LS	50	\$200.00	\$10,000.00	\$50.00	\$2,500.00	\$300.00	\$15,000.00	\$220.00	\$11,000.00
	32	US27-14	Gravel Driveway Repair, Labor, Excavation, Backfill, and Restoration	LF	50	\$8.00	\$400.00	\$20.00	\$1,000.00	\$10.00	\$500.00	\$45.00	\$2,250.00
	33	US27-15	Trench Width Asphalt Repair, Labor, Equipment, Excavation, Backfill, and Restoration	LF	50	\$200.00	\$10,000.00	\$50.00	\$2,500.00	\$45.00	\$2,250.00	\$152.00	\$7,600.00
	34	US27-16	Permanent Seeding	LF	14700	\$1.80	\$26,460.00	\$1.00	\$14,700.00	\$0.50	\$7,350.00	\$10.00	\$147,000.00
	35	US27-17	Preconstruction Video	LS	1	\$1,000.00	\$1,000.00	\$5,000.00	\$5,000.00	\$1,500.00	\$1,500.00	\$2,500.00	\$2,500.00
US 27 Water Main Replacement Section Total:						\$1,148,483.00		\$1,191,900.00		\$1,467,050.00		\$2,281,350.00	
Base Bid Total:						\$1,774,771.00		\$1,879,960.00		\$2,175,955.00		\$3,728,500.00	

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