

**COMMONWEALTH OF KENTUCKY**  
**BEFORE THE PUBLIC SERVICE COMMISSION**

In the Matter of:

ELECTRONIC APPLICATION OF NORTHERN	)	
KENTUCKY WATER DISTRICT FOR A	)	
CERTIFICATE OF PUBLIC CONVENIENCE	)	CASE NO. 2021-00095
AND NECESSITY TO REPLACE ITS EXISTING	)	
AUTOMATED METER READING ("AMR")	)	
METERS WITH ADVANCED METERING	)	
INFRASTRUCTURE ("AMI") AND ISSUANCE	)	
OF A BOND ANTICIPATION NOTE	)	

**APPLICATION**

Northern Kentucky Water District (NKWD), by counsel, petitions for an order approving the replacement of its existing Automated Meter Reading ("AMR") meters with Advanced Metering Infrastructure ("AMI") pursuant to KRS 278.020 using interim financing with a Bond Anticipation Note (BAN).

In support of the application, the following information is provided:

1. NKWD's office address is 2835 Crescent Springs Rd., Erlanger, KY 41018-0640. Its principal officers are listed in its current Annual Report on page 6, which is filed with the Commission as are its prior years Reports and is incorporated by reference.

Its contact officer is:

Lindsey Rechtin, Vice President Finance and Support Services  
2835 Crescent Springs Rd.  
Erlanger, KY 41018-0640  
(859) 578-9898 Phone  
(859) 578-3668 fax  
lrechtin@nkywater.org

2. NKWD is a non-profit water district organized under Chapter 74 and has no separate articles of incorporation;

3. A description of NKWD's water system and its property stated at original cost by accounts is contained in its Annual Report.

4. NKWD serves retail customers in Kenton, Boone and Campbell Counties and sells water at wholesale to non-affiliated water distribution systems in Kenton, Boone, Pendleton and Campbell Counties.

5. NKWD proposes to install new facilities as described in Exhibit A. This project will be paid from the District's internal funds and a Bond Anticipation Note (BAN).

The project will be funded with \$2,500,000 of internal funds and \$11,000,000 from a future Bond Anticipation Note (BAN). That BAN will be converted to permanent financing with the issuance of bonds. Approval for the issuance of bonds will be requested in a future NKWD rate application. Because the BAN conforms to the requirements of KRS 278.300(8) and no other debt will be incurred at this time, NKWD believes no approval for financing is required at this time. However, to the extent approval of the financing is required, NKWD requests approval.

6. The construction is in the public interest, and is required to allow NKWD to continue to provide adequate service to its customers. The cost benefit analysis and engineering study filed as Exhibits A-1 and A-3 support the need for the project.

a. In 2008 and 2009, the District installed Badger's Orion Mobile Automated Meter Reading System which included the installation of a transmitter onto each of the District's approximately 85,500 water meters in use. With this system, readings are imported into the District's CIS Infinity utility billing system, from which utility billing statements are generated. Water consumption data is also provided to Sanitation District No. 1 of Northern Kentucky ("SD1"), which sends separate wastewater bills to its customers based on those customers' water consumption. The primary issue with the existing AMR system is that the current

transmitter units are no longer manufactured by Badger. In 2018, Badger stopped manufacturing and selling the replacement transmitters. The existing Badger transmitters are failing at an increasing rate due to their age and are not repairable. Over five hundred Badger transmitters have failed since Badger stopped producing the transmitter with additional transmitters failing every month. As a result, the District cannot obtain repair parts when transmitter failures occur. To meet the District's future requirements, a significant modification to the existing system or implementation of a new meter reading system is required.

b. The engineering study and bids indicated that a hybrid solution with AMI Standard Power or High Power, combined with AMR in areas that are challenging for the fixed network to serve, offers the lowest present value cost with a lower up-front capital cost than an AMI only system. The hybrid system stood out as a preferred solution as it provided significant initial capital costs savings. For example, the initial capital cost savings between the CITCO Water full AMI system using 26 base stations for data collection and the hybrid AMI/AMR system using 12 base stations is \$468,645.00.

c. The AMR portion of the system will serve approximately 2,000 customer meters (2.3% of customers in more rural areas of District). The improved AMR system will still be read using a mobile drive-by system but should additional AMI infrastructure be built at a later date, the same transmitters can be used.

d. NKWD's proposed AMI deployment will provide significant benefits to its customers. AMI transmitters provide comprehensive usage data that allows better monitoring and regulating. The District intends to implement an AMI system which will provide enhanced dependability and functionality which benefits the utility and its customers. The products and services being obtained through this procurement include the following major components:

- Meter Interface Units ("MIUs" or "transmitters") capable of

transmitting water usage and other data.

- A working communication network to collect and convey meter reading data from the meters to a cloud-based service.
- A cloud-based service, to collect, store, manage, and analyze the data delivered through the network.
- Installation and testing of the MIUs, communication network components, and all information system components.
- Documentation and training for District staff on all components.
- Maintenance support for all software, communications network, and other hardware for 20 years.

e. Further, the AMI deployment will provide significant reliability and operational benefits. Specifically, AMI technology can identify leaks more quickly and accurately. AMI transmitters can also support equipment automation, efficiency programs, remote meter reading and customer conservation.

f. Given the obsolescence and failure of the existing AMR transmitters, and the significant benefits associated with the proposed AMI deployment, the planned replacement of the existing AMR transmitters with AMI technology is the most reasonable and prudent course of action to continue to provide reliable service to customers.

g. The proposed retirement of the existing AMR transmitters, and deployment of AMI transmitters will not result in "an excess of capacity over need." It also will not produce "an excessive investment in relation to productivity or efficiency, ... [nor] an unnecessary multiplicity of physical properties" and will not result in wasteful duplication based on the engineering and financial analyses provided in Exhibits A-D. Kentucky Utilities Co. v. Public Service Com., 252 S.W.2d 885, 890 (Ky 1952).

h. Detailed specifications of the meter reading system are provided in "Bidding Documents for Meter Reading System Replacement" - Exhibit

A, page 16.

7. No approval from the DOW for the Plans and Specifications and funding for these improvements is required.

8. Easements and rights of way are not required, see Exhibit B.

9. This service will not compete with any other utility in the area.

10. The proposed construction project identified in Exhibit A is scheduled to begin construction in upon PSC approval and with an expected installation period of two years. Board approval of the final bids for the project is included in Exhibit C. The bids were opened November 5, 2020 and are subject to acceptance for one year. **The bids will expire November 5, 2021.**

11. No new franchises are required.

12. Specifications and descriptions are in Exhibit A and Bid Documents. Facts relied on to justify the public need are included in the project descriptions in Exhibit A.

13. Map is included in Exhibit A.

14. The construction costs will be funded by as described above.

15. Estimated operating costs for operation and maintenance, depreciation and debt service after construction are shown in Exhibit D.

16. A description of the facilities and operation of the system are in Exhibit A.

17. A full description of the route, location of the project, description of construction and related information is in Exhibit A.

18. The total estimated cost of construction at completion is referenced in Exhibits A, B and C.

19. CWIP at end of test year is listed in the Annual Report incorporated by reference.

20. Plant retirements are listed in the Annual Report. No salvage values are included as booked.

21. The use of the funds and need for the facilities are justified based on the engineering report included as Exhibit A

22. No rate adjustment is being proposed.

23. Depreciation cost, cost of operation after installation and debt service are in Exhibit D.

24. The financing is based on the need to fund this project. The construction project, identified in Exhibit A, is scheduled to be completed within two years. The following information is provided in support of the issuance of a BAN.

a. Financial operations for twelve-month period not less than 90 days prior –  
See Exhibit E.

b. No stock is authorized; No stock is issued.

c. There are no stock preferences.

d. Mortgages are listed in Exhibit E.

e. Bonds are listed in Exhibit E.

f. Notes are listed in Exhibit E.

g. Other indebtedness is listed in Exhibit E.

h. No dividends have been paid.

i. Current balance sheet and income statement are attached as Exhibits F.

25. The following information is provided as required by 807 KAR 5:001 (18):

a. A general description of the property is contained in the Annual Report. The 2019 Report and attached financial information is the latest available from the District.

b. No stock is to be issued; No bonds are to be issued in this case.

c. There is no refunding or refinancing.

d. The proceeds of the BAN are to acquire and install the property described in Exhibit A.

e. The par value, expenses, use of proceeds, interest rates and other information is not applicable because no bonds are being issued at this time.

26. The following exhibits are provided pursuant to 807 KAR 5:001 (18)(2):

a. There are no trust deeds. All notes, indebtedness and mortgages are

included in Exhibit E.

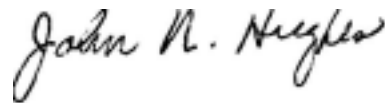
b. No property is to be acquired. 807 KAR 5:001(18)(2)(c).

27. Plant additions will be classified according to USoA. See Exhibit D.

28. The Kentucky Debt Officer was notified of the BAN. See Exhibit B.

For these reasons, the District requests issuance of an order granting authority to install and finance the facilities and for any other authorization that may be necessary.

SUBMITTED BY:



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Attorneys for Northern  
Kentucky Water District

## LIST OF EXHIBITS

Section 8(1)	Full name and post office address of applicant and a reference to the particular provision of law requiring Commission approval.	Application
Section 8(2)	The original and 10 copies of the application with an additional copy for any party named therein as an interested party.	n/a
Section 8(3)	If applicant is a corporation, a certified copy of the Articles of Incorporation and all amendments thereto <u>or</u> if the articles were filed with the PSC in a prior proceeding, a reference to the style and case number of the prior proceeding.	n/a
Section 9(2)	1. The facts relied upon to show that the proposed new construction is or will be required by public convenience or necessity.	Exhibit A
	2. Copies of franchises or permits, if any, from the proper public authority for the proposed new construction or extension, if not previously filed with the commission.	Exhibit B
	3. A full description of the proposed location, route, or routes of the new construction or extension, including a description of the manner in which same will be constructed, and also the names of all public utilities, corporations, or persons with whom the proposed new construction or extension is likely to compete.	Exhibit A
	4. Three (3) maps to suitable scale (preferably not more than two (2) miles per inch) showing the location or route of the proposed new construction or extension, as well as the location to scale of any like facilities owned by others located anywhere within the map area with adequate identification as to the ownership of such other facilities.	Exhibit A
	5. The manner, in detail, in which it is proposed to finance the new construction or extension.	Exhibits A, D
	6. An estimated cost of operation after the proposed	Exhibit D



facilities are completed.

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KRS 322.340	Engineering plans, specifications, plats and report for the proposed construction. The engineering documents prepared by a registered engineer, requires that they be signed, sealed, and dated by an engineer registered in Kentucky.	Exhibit A
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Section 8(1)	Full name and post office address of applicant and a reference to the particular provision of law requiring Commission approval.	Application
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Section 8(2)	The original and 10 copies of the application with an additional copy for any party named therein as an interested party.	n/a
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Section 8(3)	If applicant is a corporation, a certified copy of the Articles of Incorporation and all amendments thereto <u>or</u> if the articles were filed with the PSC in a prior proceeding, a reference to the style and case number of the prior proceeding.	n/a
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KRS 278.300(2)	Every financing application shall be made under oath, and shall be signed and filed on behalf of the utility by its president, or by a vice president, auditor, comptroller or other executive officer having knowledge of the matters set forth and duly designated by the utility.	Application
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807 KAR 5:001: Section 11(1)(a)	Description of applicant's property. Statement of original cost of applicant's property and the cost to the applicant, if different.	Annual Rpt
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Section 11(1)(b)	If stock is to be issued: and kinds to be issued.  --Description of amount and kinds to be issued.	none
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--If preferred stock, a description of the preferences.	none
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If Bonds or Notes or Other Indebtedness is proposed:  --Description of the amount(s)	Exhibit F
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	--Full description of all terms	
	--Interest rates(s)	
	--Whether the debt is to be secured and if so a description of how it's secured.	
Section 11(1)(c)	Statement of how proceeds are to be used. Should show amounts for each type of use (i.e., property, debt refunding, etc.)	Exhibit A
807 KAR 5:001:		
Section 11(1)(d)	If proceeds are for property acquisition, give a full description thereof. Supply any contracts.	n/a
Section 11(1)(e)	If proceeds are to refund outstanding obligations, give:	n/a
	--Par value	
	--Amount for which actually sold	
	--Expenses and application of proceeds	
	--Date of obligations	
	--Total amount	
	--Time held	
	--Interest rate	
	--Payee	
Section 11(2)(a)	Financial Exhibit (see below)	
Section 11(2)(b)	Copies of all trust deeds or mortgages. If previously filed, state case number.	Annual Rpt
Section 11(2)(c)	If Property to be acquired:	Exhibit A
	--Maps and plans of property.	
Section 11(2)(c)	--Detailed estimates by USOA account number.	Exhibit D

**ALL INFORMATION BELOW IN SECTIONS 6(1) THROUGH 6(9) SHOULD COVER THE PERIOD ENDING NOT MORE THAN 90 DAYS PRIOR TO DATE ON WHICH APPLICATION WAS FILED:**

807 KAR 5:001

Section 6(1)	Amount and types of stock authorized.	None
Section 6(2)	Amount and types of stock issued and outstanding.	None
Section 6(3)	Detail of preference terms of preferred stock.	None
Section 6(4)	<u>Mortgages:</u>	Exhibit E
	--Date of Execution	
	--Name of Mortgagor	
	--Name of Mortgagee or Trustee	
	--Amount of Indebtedness Secured	
	--Sinking Fund Provisions	
Section 6(5)	<u>Bonds</u>	Exhibit E
	--Amount Authorized	
	--Amount Issued	
	--Name of Utility Who Issued	
	--Description of Each Class Issued	
	--Date of Issue	
	--Date of Maturity	
	--How Secured	
	--Interest Paid in Last Fiscal Year	
Section 6(6)	<u>Notes Outstanding:</u>	Exhibit E
	--Date of Issue	
	--Amount	
	--Maturity Date	
	--Rate of Interest	
	--In Whose Favor	

	--Interest Paid in Last Fiscal Year	
Section 6(7)	<u>Other Indebtedness:</u>	
	--Description of Each Class	
	--How Secured	
	--Description of Any Assumption of Indebtedness by Outside Party (i.e., any transfer)	
	--Interest Paid in Last Fiscal Yr.	none
Section 6(8)	Rate and amount of dividends paid during the five (5) previous fiscal years and the amount of capital stock on which dividends were paid each year.	None
Section 6(9)	Detailed income statement and balance sheet.	Exhibits F

NORTHERN KENTUCKY  
WATER DISTRICT

Case No. 2021-00095

**Project**

**Meter Reading System Replacement**

184-4015

**NORTHERN KENTUCKY WATER DISTRICT**  
**Meter Reading System Replacement**  
**184-4015**

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A	ENGINEERING REPORTS AND INFORMATION  (1) Project Description (2) Map (3) Meter Reading Study; (4) Specifications titled "Meter Reading System Replacement" dated October 2020
B	Certified statement from an authorized utility Official confirming:  (1) Affidavit (2) Franchises (3) Plan review and permit status (4) Easements and Right-Of-Way status (5) Construction dates and proposed date in service (6) Plant retirements (7) State Debt Officer Notification
C	BID INFORMATION AND BOARD RESOLUTION Bid tabulation, Engineer's recommendation of award, Board resolution.
D	PROJECT FINANCE INFORMATION Customers added and revenue effect, Debt issuance and source of debt, Additional costs and operating and maintenance, USoA plant account, Depreciation cost and debt service after construction.
E	SCHEDULE OF MORTGAGES, BONDS, NOTES, AND OTHER INDEBTEDNESS
F	CURRENT BALANCE SHEET AND INCOME STATEMENT

NORTHERN KENTUCKY  
WATER DISTRICT

**Project**

**Meter Reading System Replacement**

184-4015

PROJECT DESCRIPTION, MAP, ENGINEERING  
REPORTS AND SPECIFICATIONS

Project Description (A.1)

Map (A.2)

Meter Reading Study (A.3)

Specifications prepared by HDR Engineering, Inc. titled "Meter Reading System Replacement" dated October 2020 (A.4)

NORTHERN KENTUCKY  
WATER DISTRICT

*Project*

*Meter Reading System Replacement*

184-4015

Project Description



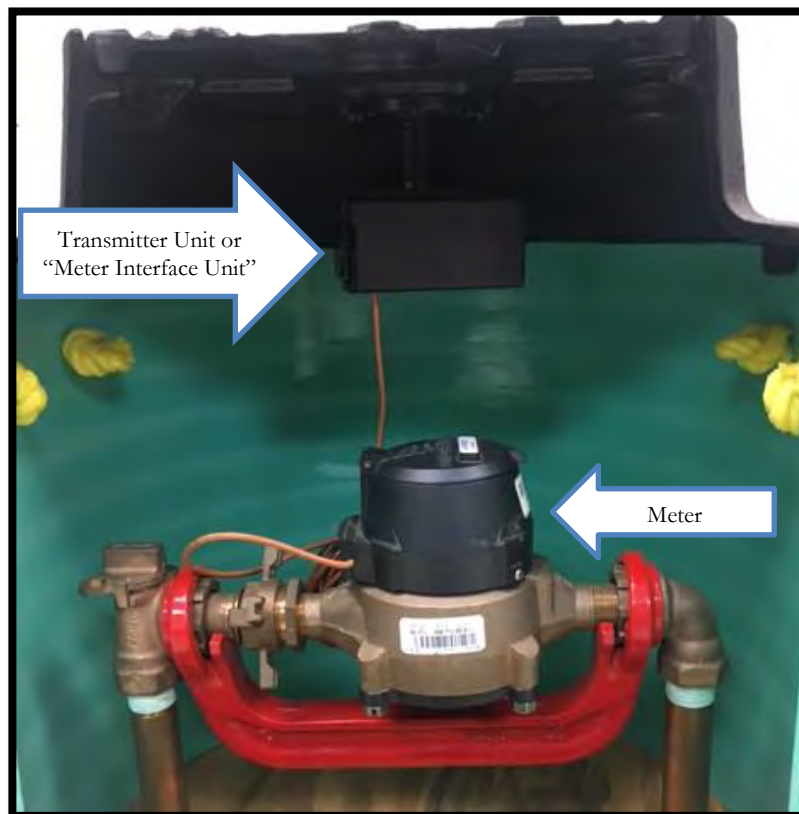
# Automated Meter Reading System Replacement Project Description

## 1. Summary.

The Automated Meter Reading System Replacement Project (“Project”) is designed to replace the existing and failing Orion Mobile Automated Meter Reading (“AMR”) System from Badger Meter Inc. This is a replacement of the meter reading system and not the meters (a separate and distinct piece of equipment).

## 2. Background.

The District has approximately 85,500 water meters in use. In 2008 and 2009, the District purchased and installed the Orion Mobile Automated Meter Reading (AMR) System from Badger Meter Inc (“Badger”). As part of that system, each meter has a data line that connects to an external transmitter to allow for the collection of meter readings while driving by in the vicinity of the meter’s physical location.



*Interior Picture of Meter Well*

Said data is collected and upon return to the District's facility, downloaded into the District's computer system and converted to the billing software.

Unfortunately, in 2018 Badger stopped manufacturing and selling the replacement transmitters. The existing Badger transmitters are failing at an increasing rate due to their age and are not repairable. Over five hundred Badger transmitters have failed since Badger stopped producing the transmitter with additional transmitters failing every month.

Accordingly, a replacement of the transmitters and reading system is warranted as continued operations of the Badger reading system is no longer sustainable. However, existing water meters are compatible with new reading systems and replacement of meters is not needed nor included in this project.

### **3. Objective/Goal**

Obtain a replacement meter reading system that is sustainable over a long term, reduces water loss, increases reading efficiency, improves water resource management and enhances customer services.

### **4. Project Scope and Methodology.**

Generally, there are two types of meter reading technologies currently available. They are Automated Meter Reading ("AMR") which collect readings while walking or driving by, and Advanced Metering Infrastructure ("AMI") which collect readings through a fixed network stationed throughout the area. AMI systems are further defined into three types which are: standard power, high power and cellular.

To determine the best course of action, the District hired HDR Inc. ("HDR"), a nationally recognized engineering firm, to prepare a study to evaluate the meter reading technologies currently available and to evaluate the costs for owning and operating a meter reading system.

To capture a wide range of implementation options, HDR presented nine scenarios and evaluated the costs for solutions available to the District, which consisted of the different types of AMR and AMI

and hybrid systems plus optional features such as remote shutoff valves (“RSV”) and a customer portal. Some key findings by HDR include:

- AMR is the lowest capital cost to install followed by AMI cellular;
- When considering the total cost of ownership on a 20-year present value basis, AMI standard power and high-power systems are less expensive than both AMR and AMI cellular; and
- The study also indicated that installing RSVs at accounts having frequent manual shutoffs will save significant money (estimated at approximately One Million Dollars over 20 years).

A full copy of the HDR study is included as Exhibit A-3.

With assistance from HDR, the District prepared bidding documents that invited responses from vendors for AMR, AMI, and a hybrid system of both AMR and AMI. The bidding documents presented an option for using funding with a State Revolving Fund (SRF) Loan through the Kentucky Infrastructure Authority instead of using conventional loans and/or cash. The bid also included costs for multiple alternate items including RSVs, a customer portal, maintenance of the AMI system, support of the meter data management system, and replacement of meters and older pressure regulating valves.

The District received bids from seven vendors: Aclara, Badger Meter, CITCO Water (Sensus), IBT AMI Solutions (Master Meter), Neptune, United Systems (Itron), and Zenner USA. The Table below outlines HDR’s estimates and actual range of bids received.

<b>Table 1 Summary of Meter Reading Systems and Bids Costs</b>				
<b>Scenario</b>	<b>HDR’s Estimate</b>		<b>Base Bid Range of Costs</b>	<b>20-Yr Present Value Bid Range</b>
	<b>Capital Cost</b>	<b>20-Year PV Cost</b>		
Automated Meter Reading (AMR)	\$11.7 M	\$21.8 M	\$11.0 M- \$14.6 M	\$21.4 M - \$25.0 M
AMI Cellular	\$12.9 M	\$23.0 M	\$13.5 M - \$28.2 M	\$19.1 M – \$35.0 M
AMI Standard Power/Cellular Hybrid	\$14.9 M	\$19.7 M	\$20.9 M - \$22.1 M	\$25.5 M - \$26.8 M
AMI/AMR Hybrid (Standard and High Power)	\$15.1 M	\$19.9 M	\$13.1 M - \$18.2 M	\$18.8 M - \$22.8 M
AMI Standard Power	\$15.4 M	\$18.6 M	\$15.5 M - \$20.4 M	\$19.7 M - \$25.0 M
AMI High Power/Other Network Hybrid	\$15.4 M	\$19.0 M	No Bids	No Bids
AMI High Power	\$15.5 M	\$18.7 M	\$13.6 M - \$16.4 M	\$18.2 M - \$20.9 M
AMI High Power with Customer Portal	\$15.6 M	\$18.9 M	\$13.8 M - \$16.6 M	\$17.8 M - \$20.6 M
AMI High Power with Remote Shutoff	\$15.9 M	\$18.0 M	\$14.0 M - \$16.9 M	\$17.6 M - \$20.4 M

With assistance from HDR, bids were evaluated by a team of nine people from the District's Finance, Customer Service, Engineering, and Information Systems departments. The District members on the bid evaluation team include:

- Lindsey Rehtin – Vice President, Finance & Support Service
- Amy Kramer – Vice President, Engineering, Production & Distribution
- Stacey Kampsen – Finance Manager
- Barry Miller – Customer Service Supervisor
- Jenny Klute – Account Services Supervisor
- Kenny Ford – CIS/Network Administrator
- Steve Oldiges – Customer Service Foreman
- Fred Marksberry – Meter Shop Foreman
- Barb Northcutt – Account Services & Billing Lead

The bids supported the findings of the HDR study. The bids indicated that a hybrid solution with AMI Standard Power or High Power, combined with AMR in areas that are challenging for the fixed network to serve, offers the lowest present value cost with a lower up-front capital cost than an AMI only system.

The functional benefits of AMI over AMR include:

- More frequent readings that can assist in proactively identifying customer-side leaks;
- Reduced staff time to obtain regular reads and follow-up reads;
- Potential use of remote shutoff valves for disconnecting and reconnecting water service;
- Potential for add-on enhancements now or in the future such as a customer portal for customer self-monitoring of water usage and communication, connecting leak detection sensors for finding water loss and pressure sensors for monitoring system operations.

The base bid for an AMI (standard or high power)/AMR Hybrid system included:

- Furnishing transmitters for all water meters;
- Building a fixed network;
- Providing software for collecting and managing the readings;
- Furnishing handheld devices for field programming;
- Integration with the existing customer information and billing system;
- Training and post-implementation support;
- The first five years of all licenses and fees;
- Replacement of an expected number of broken meter boxes and missing lids;
- Furnishing and installing foam covers for an estimated number of meters that will need them for freeze protection;
- An allowance for miscellaneous meter setting repair materials and right-of-way restoration.

## **5. Project Development and Plan.**

After careful consideration and in consultation with HDR, the bid from CITCO Water for a hybrid AMI/AMR using a Sensus reading system was selected by the District's team as the preferred solution and evaluated in further detail. The hybrid system stood out as a preferred solution as it provided significant initial capital costs savings. For example, the initial capital cost savings between the CITCO Water full AMI system using 26 base stations for data collection and the hybrid AMI/AMR system using 12 base stations is \$468,645.00.

The AMR portion of the system will serve approximately 2,000 customer meters (2.3% of customers in more rural areas of District). The improved AMR system will still be read using a mobile drive-by system, but, should additional AMI infrastructure be built at a later date, the same transmitters can be used.

The AMI portion of the Sensus reading system will serve the majority of the customers in the District. The Sensus reading system uses a high-power AMI system (using 2 watts of power to transmit instead of the standard power of 1 watt). Each transmitter reads the meter register hourly unless programmed to read less frequently, and every four hours, the reading is transmitted to a local base station and onto

the District’s main office using cellular service. The AMI network allows for on-demand readings that are made remotely from the office and available within 90 seconds of making the request. In addition, the AMI network of the Sensus reading system provides dedicated, secure, two-way communications to water meters through a Federal Communications Commission (“FCC”) licensed spectrum. Because the license is issued for primary use, the FCC can fine violators if they are caught interfering with the assigned bandwidth.

The Sensus transmitter on each meter not only reports the meter register but also reports meter tampering, continuous flow, high or low consumption, and low battery alarms during normal transmission intervals. Should battery failure occur, the battery replacement is covered under a 20-year warranty (15 years full warranty plus 5 years prorated warranty). The transmitter failure rate is projected to be 0.05% through year 15 and increase to 0.20% through year 20. Moreover, transmitters may transmit data through the AMI network or read using a mobile collector or handheld device like the AMR portion of the system. All data is encrypted and follows established security standards.

The Sensus reading system includes 12 AMI base stations that will be installed on twelve of the District’s water storage tank sites. The base stations receive data from the transmitters. The base stations have battery back-up provisions for at least 8 hours and up to 40 hours of backup power.

The District expects the system will be compatible with the District’s existing water meters and that the system will be supported by the vendor for at least 20 years.

In addition to the primary system outlined above, the District evaluated several additional alternate bid items from CITCO Water for a hybrid AMI/AMR using a Sensus reading system, and, although the District rejected many of the alternate bids, the following items were selected:

<b>Item Description</b>	<b>Bid Amount</b>
Supply and Install 1,000 Remote Shutoff Valves	\$425,000.00
Data Management Support for Years 6-20	\$2,399,730.00

The Remote Shutoff Valves (“RSV”) do as the name suggest and allow for remote turn on and off of the water service. For purposes of bidding, the District analyzed the number of water disconnections (i.e. shutoffs) conducted annually and determined that approximately 1,000 accounts required three

or more shutoffs a year (pre-COVID). It is believed three shutoffs per year per account is the level at which installing a valve that can be opened and closed remotely from the office is more cost effective than dispatching a service representative each time the valve needs to be open or closed. Taking advantage of the AMI system capabilities by also installing 1,000 RSVs reduces the 20-year operating costs by \$1,029,150.00 due primarily to manpower savings of manually completing the process each time.

The Data Management Support for years 6 through 20 includes supplying all hardware, licensing, software and data storage including the Data Management System and Data Analytics. Data Management Support is very desirable and necessary to ensure the functionality, durability, and performance of the Sensus reading system for at least a 20-year lifespan.

The entire hybrid AMI/AMR Sensus reading system installation is expected to be completed within two years of the contract start date. Customers billing cycles would remain the same. The method and means to installation will be determined by the Contractor in deploying the system. Although disruption to service is expected to be minimal during installation of the new meter transmitter, customers will be notified of any impact to their service.

**6. Project Budget.**

Based on the aforementioned, the District, in concert with HDR’s review and recommendation, desires to contract with CITCO Water (Sensus), for a total 20-year bid amount of \$16,648,219.00. A breakdown of the bid by budget category is as follows:

Capital Cost – AMI/AMR Hybrid System	\$12,456,300
Operation & Maintenance Cost – Data Management Support Years 1-5	<u>\$662,024</u>
Sub-Total: Base Bid	\$13,118,324
Capital Cost – Remote Shutoff Valves	\$425,000
Operation & Maintenance Cost - Data Management Support Years 6-20	\$2,399,730
Operation & Maintenance Cost – AMI System Maintenance	<u>\$705,165</u>
<b>Total 20-Year Bid Cost</b>	<b><u>\$16,648,219</u></b>

The District intends to fund the project, PSC Ref. No. 267 “Automated Meter System”, as part of a future 2021 Bond Anticipation Note (BAN) for \$11,000,000 and cash fund the remaining balance of \$2,500,000 for a total capital budget of \$13,500,000.

The District also bid the project utilizing a State Revolving Fund (“SRF”) loan but has determined it would not be cost efficient. For example, CITCO Water’s comparable bid utilizing such funds was \$19,541,719.00. This was over two million dollars more than the bid without utilization of a SRF loan. CITCO Water indicated the price increase was higher due to the SRF loan’s federal prevailing wage rate and American Made Iron and Steel requirements.

## **7. Miscellaneous Notes.**

**A.** In Case 2005-00148, the Public Service Commission required the District to relocate 8,500 inside meters to an outside location by year 2038. At this point, the District has moved a total of 5, 241 meters and expects that this project will further assist the District in completing this requirement.

**B.** Until a replacement system can be deployed, the District was forced to implement an interim solution to continue collecting readings. This interim solution for replacement of the failed transmitters included converting some accounts to Badger’s cellular meter reading system and purchasing a small number of mobile-read transmitters from market competitors such as Sensus, Mueller and Neptune. This allowed the District to test the compatibility of reading equipment from multiple vendors with the District’s existing meters and billing software. Each vendor’s meter reading equipment performed satisfactorily and gives the District assurances that replacement of the reading system will not require replacement of existing meters or billing/customer service software.

**C.** Sensus, a Xylem Inc. brand, was founded in 1870 as National Meter Company and was acquired by Xylem Inc. in 2016. Sensus maintains 3,500 employees with about \$1 billion in revenues a year. The Sensus FlexNet AMI system has over 20 million endpoints deployed for over 900 utilities.

## **8. Conclusion.**

As determined by the District and a third-party Engineer, the CITCO Water (Sensus) hybrid AMI/AMR system is the most responsive proposal to meet the District and its customer’s meter reading system needs. The system provides on-demand functionality with only limited infrastructure as compared to other alternatives but retains sufficient redundancies to ensure optimal performance. With this new system, the District expects to see significant long-term benefit for its customers in



providing water usage data and preventing customer water loss. These benefits are a public convenience that will inevitably increase customer satisfaction due to the responsive nature of the reading system and a necessary improvement to replace a now obsolete and failing system.

NORTHERN KENTUCKY  
WATER DISTRICT

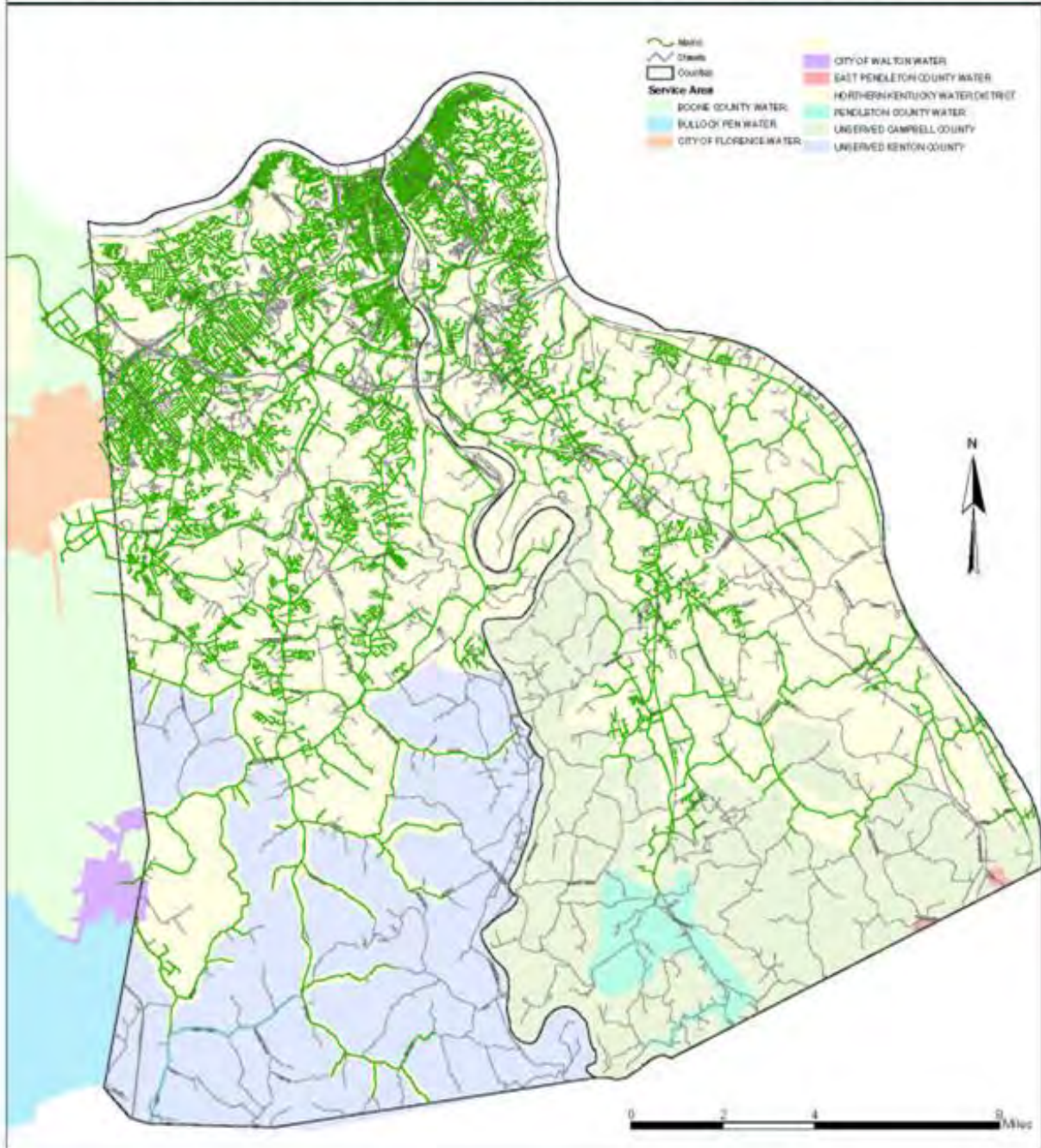
*Project*

*Meter Reading System Replacement*

184-4015

Map

# Northern Kentucky Water District



NORTHERN KENTUCKY  
WATER DISTRICT

*Project*

*Meter Reading System Replacement*

184-4015

Meter Reading Study



# Meter Reading Study (FINAL DRAFT)

Northern Kentucky Water District

August 17, 2020







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# Executive Summary

The Northern Kentucky Water District (District) currently operates a water utility meter reading program that involves mobile radio reading of approximately 85,500 water service meters. Water metering information is imported into the District's utility billing system, from which utility billing statements are generated. This information is also used by Sanitation District No. 1 of Northern Kentucky (SD1) in the generation of wastewater billing statements.

The District is evaluating options to improve its current water metering practices and upgrade its current Automated Meter Reading<sup>1</sup> (AMR) system or potentially transition to an Advanced Metering Infrastructure<sup>2</sup> (AMI) system. Such improvements are necessary because replacement equipment associated with the District's current system is no longer being manufactured and continued operation of the system is therefore no longer sustainable. The objectives of potentially transitioning to AMI include implementation of a meter reading approach that will best support reduced water loss, enhanced meter reading efficiency, improved water resource management, and provide greater resources with which to communicate to customers their daily water usage characteristics.

This meter reading study provides an assessment of the District's current meter reading program, identifies the AMR/AMI technologies and implementation options available to the District, documents a business case evaluation of a range of alternatives, and offers recommendations for next steps

## Assessment of Current Metering Program

Summary statements regarding the District's current metering program are:

- The District has approximately 85,500 water service meters installed throughout its service area, and currently obtain quarterly (for most service connections) readings via a mobile AMR system.
- The most significant challenge facing the District with respect to its existing meter reading system is that the current transmitter units (Badger model CE) are no longer manufactured, making the system unlikely to be fully functional system-wide beyond 12 to 18 months. Therefore, as the District looks to the future, a significant modification to the existing system or implementation of a new system is required to meet the long-term needs of the District.
- The District desires to identify a meter reading approach/technology to best support its goals of having a long-term, sustainable meter reading program, while also improving customer service, reducing water loss, decreasing operational costs, and effectively managing its water resources.

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<sup>1</sup> Automatic Meter Reading refers to a meter reading system whereby a meter reader collects water meter readings while walking or driving by meters equipped with devices that transmit reading information via radio frequency.

<sup>2</sup> Advanced Metering Infrastructure refers to a meter reading system whereby reading information transmitted from radio-equipped water meters is captured through a system of collectors, requiring no physical presence by a meter reader in the field to retrieve the information.

## Alternatives Analysis

To capture a wide range of implementation options, nine AMR/AMI scenarios were evaluated in a present value (PV) cost model. The scenarios are as follows:

- **Scenario 1 – AMR.** Full deployment of a new AMR system. This would be similar to the existing system, but would resolve the current problem of components of the existing system not being manufactured any longer.
- **Scenario 2 – AMI-Standard.** Full deployment of a standard-power AMI system, with transmitter units having radio power of up to 1 Watt, and operating on unlicensed frequencies.
- **Scenario 3 – AMI-High Power.** Full deployment of a high-power AMI system, with transmitter units having radio power of up to 2 Watts, and operating on FCC licensed frequencies.
- **Scenario 4 – AMI-Cellular.** Full deployment of a Network as a Service (NaaS) system, using an existing cellular network. In this type of system, the transmitter units communicate via cellular radio to an existing communications network owned and managed by an entity other than the District.
- **Scenario 5 – AMI-High Power; Remote Shutoff Valves.** Full deployment of a high-power AMI system but assuming 1,000 meters, associated with customers that are routinely delinquent in payment, will have remote shutoff valves.
- **Scenario 6 – AMI-Standard/AMR Hybrid.** Partial deployment of a standard-power AMI system to cover 80 percent of the District, with the remaining 20 percent deployed as an AMR system. This scenario acknowledges that some rural portions of the District's service area may be challenging or costly for AMI implementation, due to hilly terrain and low density of meters.
- **Scenario 7 – AMI-Standard/Cellular Hybrid.** Partial deployment of a standard-power AMI system to cover 80 percent of the District, with the remaining 20 percent deployed as a NaaS system, using an existing cellular network. This is similar to Scenario 6, but assumes that an existing cellular network has suitable coverage in the more remote portions of the District's service area that is suitable for cellular-based AMI.
- **Scenario 8 – AMI-High Power/NaaS Hybrid.** Partial deployment of a high-power AMI system to cover 90 percent of the District. The remaining, southern 10 percent of the system deployed as NaaS, piggybacking on the existing Owen Electric network.
- **Scenario 9 – AMI-High Power; Customer Portal.** Similar to Scenario 3, with full deployment of a high-power AMI system, but also including upfront and annual costs for customer portal integration. A customer portal allows District customers to access their water usage data and can also be configured to automatically alert customers of potential leaks or other concerns regarding their water consumption.

The table below provides a summary of the upfront capital costs for each scenario during the two-year deployment period, as well as the total 15-year PV cost, which includes capital and operational costs throughout the expected life of the system.



**AMR/AMI Implementation Scenario Cost Summary**

Scenario	Deployment Period Capital Costs	Total 15-Year PV Cost
Scenario 1 – AMR	\$11,740,000	\$19,560,000
Scenario 2 – AMI-Standard	\$15,350,000	\$17,650,000
Scenario 3 – AMI-High Power	\$15,510,000	\$17,780,000
Scenario 4 – AMI-Cellular	\$12,860,000	\$20,790,000
Scenario 5 – AMI-High Power; Remote Shutoff Valves	\$15,860,000	\$17,260,000
Scenario 6 – AMI-Standard/AMR Hybrid	\$15,100,000	\$18,600,000
Scenario 7 – AMI-Standard/Cellular Hybrid	\$14,900,000	\$18,430,000
Scenario 8 – AMI-High Power/NaaS Hybrid	\$15,380,000	\$17,950,000
Scenario 9 – AMI-High Power; Customer Portal	\$15,600,000	\$17,710,000

Results of this analysis indicate:

- Transition to AMI would significantly reduce operational costs associated with meter reading activities. It is important to note that though this will result in operational savings for the meter reading program, it may not for the District as a whole, assuming those resources are reallocated to address other needs.
- Implementing a traditional AMI system with remote shutoff valves (RSVs) (Scenario 5) is the least expensive alternative from a 15-year PV perspective, as higher initial capital costs are offset by long term reduction in operation costs.
- Implementing a fully NaaS AMI system (Scenario 4) is the most expensive alternative, as high operation and maintenance costs persist through the evaluation period as a result of annual service contract costs.
- Hybrid AMI systems offer reductions in capital costs for all alternatives due to lower initial equipment costs, but ultimately have higher long-term present value costs due to operation and maintenance costs associated with supplemental network portions.
- The customer portals available with AMI systems (reflected in Scenario 9) increase operational costs, but ultimately even out total PV costs when accounting for associated labor cost savings.
- In terms of non-quantifiable metrics, transitioning to an AMI system would provide the most benefits for both customers and the District, in terms of supporting leak detection and water loss management; providing real-time, daily information to use during customer service interactions; and monitoring and managing water demand.

## Recommended Next Steps

Based on this analysis, HDR provides the following recommendations to the District:

- Focus on implementation of AMI. Most water utilities have recognized the many benefits associated with moving away from reading meters through manual or mobile AMR approaches, even though the upfront capital cost to implement a new approach is significant.
- Specifically, the District should pursue implementation of a fixed network AMI system. The long-term present value cost of such systems are on the order of, if not lower than, the AMR approach currently employed by the District. In addition, although difficult to monetize, the numerous benefits associated with this type of system (including ability to identify leaks much more rapidly than is currently possible and therefore better manage water loss, availability of information to support customer service interactions, reduced operational costs of meter reading, and increased granularity of water consumption data with which water demand can be monitored and managed) outweigh the capital investment for such systems over the long term.
- A replacement meter reading system should be selected and implemented as soon as possible because the District's current system may not be fully functional for more than an additional 12 to 18 months.
- The District should explore partnering with SD1 in implementing an AMI system, as this technology benefits both agencies. For example, there are benefits to both the District and SD1 if RSVs are included for select locations, due to the reduction in operational costs associated with shutoffs. For this reason, it is suggested that the investment in AMI be allocated in part based on the historical quantities of shutoffs by the two agencies. In addition, SD1's benefits from a customer portal, both for its communications with customers and for the portal's use by SD1 customers, should justify a proportional investment for this feature.
- As a next step, it is recommended that the District issue an "open" request for proposals (RFP), inviting vendors to propose a range of meters and AMI systems that can meet the District's needs. This can be structured in a performance specification based format, without identifying a specific technology or brand, to ensure that proposals from various vendors associated with different technologies can be compared. There are multiple reasons why this is the suggested next step:
  - Technology advancements are occurring continually in this arena. As such, it is not prudent to "pre-select" a particular AMI technology or vendor without first obtaining detailed proposals, including costs. This ensures that the District is making an informed decision on the most current information available.
  - This will help the District better understand key differences between the available AMI technologies, as applied to the District's unique water system characteristics. For example, the quantitative analysis contained in this report indicates that a Network as a Service (NaaS) AMI solution (as is reflected in Scenario 4) could be nearly 15 to 20 percent greater in cost (over a 15-year period) than a more traditional standard or high powered fixed network system (as defined in Scenarios 2 and 3). However, through the open RFP process, the

District will learn more precisely the number of collectors and repeaters the traditional technologies would entail to provide network coverage throughout the District's service area. The cost and maintenance requirements associated with owning such equipment can then be weighed against the annual cost of a NaaS system, which eliminates the need for the District to own and maintain the network assets. Getting current proposals on NaaS systems will also allow the District to learn of the additional "smart city" type of functionality that can be provided by such systems. All of these benefits can then be considered in light of actual proposed costs.

- AMI system costs have trended downward in the past five years, due to increased compatibility between AMI systems and meters of various brands, and greater competition amongst the primary vendors that are active in the marketplace. While the cost assumptions used in this analysis are based on actual vendor proposals submitted for other utilities over the past two years, it is important for the District to obtain current year pricing from vendors to better inform its cost/benefit analysis.
- Regarding meters, it is recommended that pricing be obtained during the RFP process for both mechanical and solid state "smart" meters. Although the District has implemented a separate bidding process to procure meters, the pricing information on meters requested through this process could be useful in future meter procurement decision-making. While solid state meters are more expensive, new vendors have entered the US market, including some that previously typically only sold products in Europe, and are offering competitive pricing and contracting terms. It is worth exploring such options before making a firm decision on meter type/brand.
- If the District implements a new AMR/AMI system, concurrent installation of transmitter units with new meters (which will be procured through a separate process than the AMR/AMI system) is recommended. This will reduce overall installation costs (i.e., with each service connection being visited once as opposed to twice) and should be the least disruptive to routine billing and customer service processes. However, it is acknowledged this may not be feasible given the timing of meter procurement compared to that of the meter reading system.
- The District should consider requesting approval for 15 year meter life by the Kentucky Public Service Commission. AMR/AMI system components are warranted for 15-20 years, while the majority of meters are warranted at 20 years. If the District in the near future installs an upgraded AMR or AMI system, as well as new meters concurrently over a short span of approximately two years, the benefits of this investment would be constrained if the meters must be replaced within ten years. Alignment of meter and AMR/AMI transmitter replacements will be cost-effective over the long term and are expected to not be needed within a ten-year time horizon.

# 1 Introduction

The Northern Kentucky Water District (District) currently operates a water utility meter reading program that involves mobile radio reading of approximately 85,500 water service meters. Water metering information is imported into the District's utility billing system, from which utility billing statements are generated. Water consumption data is also provided to Sanitation District No. 1 of Northern Kentucky (SD1), which sends separate wastewater bills to its customers based on those customers' water consumption.

The District is evaluating options to improve its current water metering practices and upgrade its current Automated Meter Reading (AMR) system or potentially transition to an Advanced Metering Infrastructure (AMI) system. Additionally, the District is exploring the option of hybrid systems to combine the benefits of multiple technologies. The objectives of such a transition include implementation of a meter reading approach that will best support reduced water loss, enhanced meter reading efficiency, improved water resource management, and provide greater resources with which to communicate to customers their daily water usage characteristics.

The following steps have been taken to perform this evaluation:

- Review of the District's existing meter-reading practices and procedures.
- Identification and evaluation of the current state of available meter reading approaches and technologies.
- Identification of implementation issues and considerations important in implementing a transition to AMI or hybrid systems.
- Evaluation of the business case and cost effectiveness of various implementation strategies.
- Development of recommendations for next steps.

The information presented in this report is based on data provided to HDR Engineering, Inc., (HDR) by the District in late 2019 and early 2020, and additional information HDR has compiled during the course of conducting similar studies for other water utilities throughout the United States.

## 2 Description of Current Metering Program

The following are summary descriptions of the primary components of the District's current water service metering program:

- The District has a total of approximately 85,500 water service meters installed throughout its service area as of October, 2019. Meters consist primarily of Badger Recordall and Neptune T10 models. Other meter types include Badger eSeries and Neptune Mach10. Meters are configured to be read in hundreds of cubic feet (CCF). In accordance with Kentucky Public Service Commission (PSC) requirements, the District maintains a meter replacement program wherein meters do not exceed ten years in service.
- Approximately 72,000 meters are located outside in meter boxes, with the remainder currently installed inside customer buildings. Per a PSC requirement, the District must relocate all inside meters to be outside by 2038. This is translating into approximately 450 meter relocations conducted by District staff per year.
- The District currently employs a Badger mobile AMR system to read its water service meters on a quarterly basis. Monthly reads are obtained for approximately 3,600 accounts, which are by request or are sub-district accounts. Overall, District staff report that the AMR system has worked well and reads are reliably obtained. Typical challenges that are encountered include tampering with Badger transmitter units and meter/transmitter communication failures. In addition, some transmitter unit antennas have been reported to become unattached to meter box lids and fall down into the meter pit.
- The most significant challenge facing the District with respect to its current meter reading system is that the current transmitter units (model CE) are no longer manufactured by Badger. Therefore, as the District looks to the future, a significant modification to the existing system or implementation of a new system is required.
- The District has implemented a pilot study to field test multiple AMR/AMI vendor systems (Neptune, Mueller, Badger, and Sensus). In addition, the District invited six AMR/AMI vendors (Neptune, Mueller, Badger, Sensus, Master Meter, and Itron) to provide presentations regarding their systems and demonstrations of their software platforms at District offices. The results of the pilot study and information obtained from the vendor presentations will be used in conjunction with this study to guide the District's next steps on upgrading its meter reading system.
- Staff directly involved in the meter reading process include the District's one meter reader (who obtains regular mobile reads) and nine customer service field representatives (CSFRs, who perform follow-up reads and respond to various customer service inquiries/requests). The District's 13 account service representatives (ASRs) field customer phone calls and requests, some of which relate to bills and meter reads. The District's eight meter shop staff are involved with the District's meter testing program, which includes annual testing of large meters (3-inch and above) and the testing of approximately 12,000 smaller meters per year, as well as routine meter changeouts.

- The District currently uses CIS Infinity by Advanced Utility Systems as its customer information system and to support billing. Online bill pay is supported by Paymentus.
- SD1 utilizes the District's water meter readings for wastewater billing purposes.
- AMI benefits identified by District staff as being of interest during the course of this study include:
  - Increased granularity of water consumption data that will assist in proactively identifying customer-side leaks supporting customer service interactions regarding consumption, and water usage analysis to inform water conservation efforts.
  - Reduced staff time required to obtain regular and follow-up reads, thereby freeing up resources to address other District needs.
  - Potential use of remote shutoff valves (RSVs) that could be used in conjunction with the AMI system to remotely turn-off and turn-on services that require such actions often.
  - Potential future “add-on” enhancements, such as distribution system leak detection sensors to aid in locating leaks and managing water loss, and pressure sensors and integration with the District hydraulic model, to support system analysis and operations.
  - Possibility of offering a customer portal to customers for their use in tracking water consumption and to support District and SD1 communications with customers.
  - Increased data to support water usage analysis and inform water conservation efforts.



## 3 Technology Options

This section provides a description of available technology options. A brief description of the key water service meter types is first provided. This is followed by a more detailed discussion of AMR/AMI systems, as that is the primary focus of this effort.

### 3.1 Meter Technologies

As noted in Section 2, the District has a meter replacement program such that meters do not exceed 10 years in service, per a PSC requirement; therefore, a mass change-out of meters is not required to support a change in the meter reading approach. Therefore, meter types are not considered in the scenarios proposed for analysis. However, should the District elect to consider incorporating new meter types as part of AMR/AMI implementation, the discussion below frames the available options.

The two primary categories of water service meters currently available to utilities are mechanical and electronic. Mechanical meters include various types of technologies that have been employed for many decades such as positive displacement, turbine, and single-jet/multi-jet meters. Construction, installation, and accuracy requirements are governed by American Water Works Association (AWWA) standards, such as C700 (Displacement Type, Metal), C708 (Multijet Type), C710 (Displacement Type, Plastic). Primary vendors include Badger, Elster, Master Meter, Mueller, Neptune, and Sensus.

Electronic meters, including electromagnetic and ultrasonic meter types, have become more prevalent over the past decade. The recently adopted AWWA standard C715 governs the construction, installation, and accuracy requirements of these meters. All of the above mentioned vendors have electronic meter offerings. In addition, other vendors such as Kamstrup, are newer to the United States market and focus on electronic meter options.

Detailed comparison of these meter types is not presented in this report, as the focus of this review is upon AMR/AMI systems and because both meter types are suitable for use by the District. However, summary information is provided below on a couple key points: costs and warranty.

In HDR's recent experience soliciting and reviewing vendor proposals, costs between mechanical and electronic meters have become much more closely aligned than they were approximately 5-10 years ago. Table 1 presents a summary of ranges of meter costs for select sizes, based on input in vendor AMI proposals received in the past three years.



**Table 1. Typical Water Meter Costs**

Meter Type	Cost
Mechanical Meters	
¾"	\$70-130
1"	\$115-190
4"	\$1,100-2,500
Electronic Meters	
¾"	\$90-150
1"	\$105-180
4"	\$1,800-3,000

Most water meter warranties (for 1-inch and smaller) are for 20 years, with the first 10 years covering full replacement cost and the subsequent 10 years covering a pro-rated share of the costs (with schedules of declining cost coverage differing amongst the vendors). Some exceptions to this general rule include:

- Sensus iPERL. Instead of the industry-typical 10/10 warranty described above, Sensus is now offering a 15/5 warranty, with full replacement cost coverage through the first 15 years.
- Kamstrup (includes flowIQ series, MAG 8000, and MULTICAL series). Kamstrup offers a standard warranty of full replacement within 2 years of the date of delivery on all products. They then provide extended full replacement product warranties at additional cost, with timelines of up to 15 years.

## 3.2 Meter Reading Technologies

There are four basic approaches to meter reading:

- Manual Read
- Touch Read
- AMR, also known as Mobile Radio Read (Drive-By)
- AMI, also known as Fixed Network

The District currently uses a mobile radio read AMR system to accomplish the core business function of meter reading. Because of this, it is assumed that the District will not revert to a manual or touch read approach. Therefore, the discussion below provides an overview only of AMR and AMI options.

### 3.2.1 AMR (Mobile Radio)

The AMR mobile radio system enables a meter reader to collect meter readings while walking or driving by a meter equipped with a radio frequency (RF) reading device. The mobile reading system requires the addition of an RF transmission device (also called a

transmitter unit or TU) to the encoder meter register. The RF device is powered by a battery.

As additional electronic components are added to the metering system, operating and capital costs rise. Electronics have a failure rate, typically of less than one percent per year. However, the major operations cost driver for such a system is the battery life of the RF device. The longer the battery life and life of the RF device, the more cost effective it becomes.

Additional benefits accrue in situations where the meter life is in lockstep with the RF device life so that both the meter and TU can be replaced at the same time. RF device products are being offered with an estimated battery life of 10 to 20 years. Warranty coverage becomes an important component of owning and operating this type of system, so it is important to clearly define warranty terms ahead of implementation. Most vendors are currently offering 10 years of 100 percent warranty coverage, with pro-rated coverage for the following 10 years, similar to the meter warranties described in the previous section.

RF devices operate in two different transmitting modes. The first transmission mode is constant transmission from the TU, and the RF reading device just happens to “bump into” the TU signal. These systems have a lower production cost because only signal-sending electronics are needed. The battery life for such products is approximately 10 to 15 years, though some companies offer longer battery-life guarantees. The second transmitting mode requires the TU to be “woken up” to transmit the meter reading data. The battery life for these systems is in the 20 year range. These systems are generally more expensive because they contain sending and receiving electronics, but the additional service life may offset the additional capital cost.

Operational costs might also include software licensing and upgrade fees, and maintenance of reading equipment. Reading systems are offered in both licensed and unlicensed frequencies. Unlicensed frequencies operate in the 900 MHz range, and compete for space with other RF operated consumer products which may cause some problems in “capturing” meter readings. Licensed systems provide the utility with its own unique operating frequency, eliminating the interference issues associated with unlicensed frequency, thus making the system more reliable.

The meter reading productivity for a mobile RF system is significantly better than manual (visual) or touch read systems. The actual productivity achieved by a utility is based upon many, ever-changing factors such as meter population density, location of the RF device, weather, temporary obstructions, and average driving speed. Typically, drive-by reading productivity has been in the range of 5,000 to 10,000 reads per day, but current systems are demonstrating even higher reading performance. With flatter terrain and improved signal strength, less travel time is required and reading productivity increases. Some utilities read during late evening hours or off peak traffic hours to improve reading productivity even more. Given the initial capital cost of a mobile collector unit, it is better suited for high volume, repetitive work.

The RF handheld reading devices have a typical reading productivity of 800 to 1,500 reads per day. Often, these devices become part of fixed network AMI strategies, for use in special and final readings, or as a backup in the event a portion of the AMI data collection network is malfunctioning. It is often more cost effective to use the mobile,

drive-by collector for routine meter reading functions and reserve the special and final readings for the handheld collectors. Special and final readings occur at various locations throughout the service territory and may average a few hundred per day, depending upon the size of the utility. It may be more cost-effective from an operations standpoint to have this division of labor and equipment rather than only using a mobile collector.

Mobile drive-by reading reliability is typically 98 percent or better. Many specifications have this requirement built into the purchase agreement. The initial reading reliability rate may be less during the early stages of implementation, normally due to non-product related issues. For example, meter readers getting used to the equipment and reading routes may result in lower reading rates. There may also be some RF device location issues affecting the range of the device. This problem occurs with higher frequency in large meter/vault locations than in residential and small commercial accounts. Temporary obstruction issues such as cars parked on or near the RF device, or the device being under water will also affect transmission range and the reading rate. Such items will need to be addressed and accounted for prior to pursuing equipment related issues with the vendor.

Following the manufacturer's installation instructions is an important consideration for reading reliability, especially in a pit set environment. For cast iron lids, maximum reading range is obtained by installing the RF device through the lid. If plastic or polymer concrete lids are used, the RF device may potentially be installed below the lid without significantly affecting reading range. Reading range claims for RF products need to be tempered with how it will actually affect the meter reading process. There may also be some degradation in the reading distance over time. However, unless the signal strength is so great that it enables the utility to consistently reduce its total drive time or mileage, the extra range may not be operationally beneficial.

### 3.2.2 AMI (Fixed Network)

Fixed network radio, or AMI, systems offer a truly fully automatic meter reading capability. The meter reading is "captured" through a system of collectors which transmits the meter reading back to the utility location. The RF devices are programmed to send the readings to the utility on at least a daily basis.

Additional capital costs for this reading system include an array of collectors and repeaters positioned throughout the service territory. The number of collection units required is mainly dependent upon the topography of the area. The typical range for a fixed network collector is one collector per square mile, with as little as one collector per four square miles in a flat terrain situation. Generally, collectors are placed upon public buildings, power poles, or water towers. A specialized system server for collecting the reading data and software for its operation is needed as well, adding to the initial cost of this option.

The above fixed network system description is sometimes referred to as a "standard" fixed network, meaning it is the arrangement of most fixed network systems. By comparison, there are currently two vendors who provide a "high powered" system, employing higher powered radio transmissions which serves to reduce the number of collectors needed throughout the service area.

Another variation on fixed network systems are mesh systems, which are currently not offered by a major vendor for water systems. With this type of system, radio signals are sent from one meter location to the next, and onward to other meters that essentially serve as repeaters, which ultimately convey the signals to collectors. Such systems usually employ lower profile collectors (installed at lower elevations than those involved with high power systems).

Additional operating costs include ongoing operational costs for the transmission of readings from the data collectors to the utility (e.g., through use of cell networks or leasing of fiber bandwidth), hardware and software licensing fees and memory and software upgrades, if not included in the annual licensing fees. Optional monitoring is an additional service available to utilities for a fee, where the vendor replicates the data received by the utility. Depending upon the location of collection units, owners of buildings and power poles may require some form of compensation for use of those facilities.

The reading productivity of the fixed network system is basically unlimited. As long as there is sufficient memory and software capacity in the collection and utility based components, the utility can collect as much usage data as it wants without sending a meter reader or other personnel into the field.

Regarding reliability, fixed network systems have the same RF device reliability ratings and considerations as the mobile systems. During initial project start up, some adjustments may need to be made, including relocation of the RF device to get more reliable, consistent readings. Due to temporary obstructions, meter readings at a property can be missed for several days. Meter reading policies should be established as to when to make an investigative field service call to address these missed readings. For a mobile system, if missed reads continue into the next reading period (monthly), a field service work order should be initiated to determine the cause of the missed read. For a fixed network system and due to the ability to read the meter daily, a missed read investigation may be required within 72 hours of no concurrent reads. A typical lag time policy (72 hours) may be required to address temporary obstructions and possible meteorological conditions.

The ability to capture more frequent meter reads at little or no cost creates the opportunity for utilities to proactively identify and manage leaks, enhance customer service interactions, and increase the monitoring and management of water demand.

## 3.3 Comparison of AMR and AMI Systems

As the District looks to the future and the possibility of implementing a new AMR or AMI system, there are a number of evaluation parameters that should be considered when reviewing meter reading options. The sections below provide comparative information on such parameters.

### 3.3.1 Operational Comparison

Table 2 provides a side-by-side comparison between an AMR and AMI system, from the perspective of labor requirements and some of the key benefits obtained from each.



**Table 2. Operational Comparison of Meter Reading Alternatives**

Parameter	AMR (Mobile Radio)	AMI (Fixed Network)
Eliminate estimated bills	Dependent upon meter reader capturing a read/visiting the property.	Almost all, unless reading system at meter location is not functioning a few days prior to billing date.
Reduce re-reads & customer requested field service calls	30 to 100 per day/person (re-reads require a physical visit to the meter location).	Unlimited (no physical visit to meter location required).
Customer Service transaction times	1 to 2 business days	<1 business day
Proactive high-bill tracking and notification	Same as manual/touch read, unless additional reading done for high-bill tracking purposes. RF device with profiling capability provides daily usage and leak detection.	Single to multiple daily reads enable this function.
Tamper & theft of service	Sets tamper flag if wire is cut or disconnected from register. Pick up at time of reading or report.	Identifies tamper same day and sends to collector unit. Utility able to identify next business day.
Customize reading/billing dates	Account must stay within designated billing cycle.	Complete flexibility in establishing billing cycle to meet account needs. Rules and priorities need to be established.
Bill consolidation	Only for accounts within same reading cycle.	Can be extended to accounts regardless of cycle.
Provide consumption profiles for high bill investigations and conservation	Some capability, depending on system, including on site information.	Daily information available. Web access possible.
Ability to monitor for leaks in customer's premises	Same as manual/touch read, unless additional reading done for high-bill tracking purposes. Encoder with logging capability provides daily usage and leak detection. Some systems set flag for continuous usage.	Single to multiple daily reads enable this function.
Monitor for compliance with conservation or watering restrictions	No, unless special reading is conducted.	Able to monitor compliance remotely.
Support unaccounted-for water studies	More than Manual and Touch Read, but less than Fixed Network.	Provides daily, detailed data.
Support inflow/infiltration studies, hydraulic modeling	More than Manual and Touch Read, but less than Fixed Network.	Provides daily, detailed data.
Support cost of service rate modeling	More than Manual and Touch Read, but less than Fixed Network.	Provides daily, detailed data.

**Table 2. Operational Comparison of Meter Reading Alternatives**

Parameter	AMR (Mobile Radio)	AMI (Fixed Network)
Improve resource planning	More than Manual Touch Read, but less than Fixed Network.	Provides daily, detailed data
Labor/Staffing requirements	Enables the meter reader to collect meter readings while walking or driving by a meter equipped with a RF transmitter. Typical reading productivity is on the order of 5,000-10,000 meters/reader/day.	Meter readings are collected automatically and transmitted back to a central utility. No labor is required to collect the reading data. Reading productivity is essentially unlimited.

### 3.3.2 Technical Parameters

It is also important to consider the technology that drives a particular AMR/AMI solution. There are different technology solutions and provided below is a brief listing of these options. These technology parameters were chosen because they are considered to be important features that will affect the productivity of the meter reader and the life-cycle cost of the meter reading equipment.

#### Signal Transmission Power

When transmitting a radio signal, there are limitations set by the Federal Communications Commission (FCC) as to the strength of the signal that is allowed. Signals with a higher transmission power will have greater reliability and consistency. Therefore, meter transmitter units with a higher transmission power will allow the signal to travel farther and have less chance of interference.

- For systems operating within a FCC unlicensed band, the FCC allows transmission power levels up to 1.0 watt.
- For systems operating within a FCC licensed band, the FCC allows transmission power levels up to 2.0 watts.

#### Signal Communications

There are two types of signal communication for RF transmitter units:

1. One-way communication means that the water meter transmits information at a fixed time interval regardless of whether anyone is receiving the information. For example, a one-way transmitter will transmit the meter information via radio signal every 14 seconds for 24 hours per day, 7 days per week, 52 weeks per year. In an AMR system, given that the signal will only be read about once every month during the reading cycle, considerable battery life will be wasted making the other signal transmissions. To conserve battery life, the meter supplier limits the amount of information that is transmitted to just the bare minimum.
2. Two-way communication means that the meter reader sends a signal to the meter, the meter acknowledges that it is being interrogated, and then the meter returns a radio signal to the reader. The only time the battery is being used to transmit a radio signal is when a meter reader has asked for the information. Therefore, in an AMR system, the life of the battery is extended and the meter can transmit much more

information without draining the battery. Two-way communications also includes alert signals to the endpoints which notify the user that a successful transmission has been completed. With this confirmation, misreads are avoided. Other features include password protection, diagnostic capabilities and the ability to adjust features remotely without visiting each site. All true fixed network AMI systems are now two-way.

### Battery Life

The 20 year warranty on the battery typically includes a 10-year full replacement warranty, and a 10-year pro-rated warranty. Exceptions include the 15/5 warranty now associated with Sensus products. In many cases, at the end of the battery life, the utility will choose to upgrade the meter technology rather than replace the battery (if that is even a possibility).

### Field Replaceable Battery

Some manufacturers build their transmitter units such that the battery is separable from the housing. This type of system allows the battery to be replaced in the field without having to remove the register or the transmitter. In contrast, some manufacturers build their systems so that the battery is integral with the meter register and/or transmitter. This design requires that the register and/or transmitter be removed in order to replace the battery. The trend in the industry is moving away from field replaceable batteries, due to concerns over water-tightness with some replaceable units.

Given this overview of some of the key technology features associated with AMR/AMI, Table 3 provides an overview of the major meter brands and the key technology features of each brand.



**Table 3. AMI Vendor Features**

Vendor	Available Technology	Signal Transmission Power	Communications	Battery Life	Field Replaceable Battery?
Badger	Touch Fixed Network Mobile Radio	1 watt	Two-way	20 year Pro-Rated Warranty	No
Itron	Touch Fixed Network Mobile Radio	500 mW	Two-way	20 year Pro-Rated Warranty	No
Master Meter	Touch Fixed Network Mobile Radio	<1 watt	Two-way	20 year Pro-Rated Warranty	No
Mueller	Touch Fixed Network Mobile Radio	Up to 2 watt	Two-way	20 year Pro-Rated Warranty	No
Neptune	Touch Fixed Network Mobile Radio	<1 watt	Two-way	20 year Pro-Rated Warranty	Yes
Sensus	Touch Fixed Network Mobile Radio	1-2 watts	Two-way	20 year Pro-Rated Warranty (15/5)	Yes

### 3.3.3 Compatibility

Compatibility is an important feature because many utilities employ multiple brands of meters within their system. The more compatible an AMI technology solution is with various meter brands, the greater potential to minimize installation and operating costs. Provided below in Table 4 is a comparison of the major AMI vendors with some meter brands. Over the past five years, compatibility has greatly increased, with most AMI vendors capable of functioning with most major meter manufacturers.

Differences can arise between AMI vendors in the form of the type of physical connection between the AMI transmitter unit and the meter. Options include direct wired connections (often referred to as fully potted), third-party connectors (e.g., Nicor connectors), and spliced wire connections (protected with gel caps). Most vendors are amenable to providing equipment that supports any of these options if required by the utility.



**Table 4. Compatibility of Major AMI and Select Meter Manufacturers for Mobile and Fixed Network Systems**

AMI Brand	Meter Brand				
	Hersey/ Mueller	Sensus	Neptune	Badger	AMCO
Badger	Yes - Absolute Encoder with cellular endpoints			Yes	Yes - Absolute Encoder with cellular endpoints
Itron	Yes	Yes	Yes	Yes	Yes
Mueller	Yes, Universal MTU with Mi.Net Licensed System				
Neptune	No	Yes	Yes	Yes - ADE/ No-RTR	No
Sensus	Yes	Yes	Yes	Yes - ADE/ No-RTR	Yes

Notes: Badger ADE = Absolute Digital Encoder / Badger RTR = Incremental Encoder

### 3.3.4 Technology Trends

Technology, by its very nature, is ever changing and improving. Given that, a key concern of the District is to avoid a technology that may become obsolete or unsupported in the future. Compatibility of devices between manufacturers provides added security concerning the District’s technology choice. At the same time, the District would ideally like to understand where the technology is headed. Provided below is a brief overview of some technology trends that should be considered by the District.

#### Software as a Service (SaaS)

An additional service that most AMI providers are now making available is “data hosting” or “software as a service”, which is essentially a form of cloud computing wherein the vendor stores and manages the meter reading data, with the utility then able to access the data via a secured internet connection, so as to obtain data for billing or analysis purposes. This eliminates the need for the utility to purchase and maintain an on-site server for data storage and management. All major AMI vendors provide a minimum of two years of data storage, with additional storage durations available at additional cost. Differences amongst vendors arise in the form of varying user interfaces, which are best evaluated at the time of RFP review.

#### Network as a Service (NaaS)

There is also continued movement to making use of other existing communications networks for transmitting water meter information. This includes cellular-based communications options and Internet-of-Things (IoT) solutions (e.g., that utilize cable communications networks). Cellular options are currently available from Badger, Itron, and Metron-Farnier, while IoT-based solutions are now available from Itron and Mueller. The latter include systems deploying new communications technologies such as the LoRa-WAN and OpenWay RIVA protocols. This type of service eliminates the need for the utility to own and maintain its own communications network. However, annual operating costs are greater (e.g., including cellular costs associated with each transmitter

unit) and there are risks with systems that have not been fully deployed yet at other utilities.

### 3.3.5 Cost

Costs for AMR and AMI system components can vary widely, depending on the type of system being considered. During the cost/benefit analysis (CBA) of scenarios, detailed cost estimates will be used for each type of AMR/AMI system considered. However, to provide a general sense as to the level of costs, Table 5 summarizes typical costs observed in recent vendor proposals for key AMI system cost components. Traditional AMI systems, meaning those for which the utility owns and maintains data collection infrastructure, have primary costs associated with TUs, collectors, and annual maintenance agreements. NaaS systems exclude collector infrastructure cost, but typically have larger annual costs that are a function of the number of TUs in the system.

**Table 5. AMI Component Cost Summary**

AMI System Type	Transmitter Cost	Collector Cost	Annual Service/Maintenance Costs
Traditional – Standard Power	\$70–100	\$7,000–\$12,000	\$20,000–\$40,000
Traditional – High Power	\$70–100	\$20,000–\$40,000	\$20,000–\$60,000
NaaS - Cellular	\$60–90	\$0	\$6–10/TU/year
NaaS - Other	\$60–90	\$0	\$2–6/TU/year

### 3.3.6 Other Considerations

Other considerations for the District include the potential to “piggy-back” on local electric utility AMI systems, the use of 5G small cell networks, and deployment of remote shutoff valves (RSVs). These are each described briefly below.

#### Electric Utility AMI

District staff have indicated that conversations have recently occurred between District management and local area electric utilities (Duke Energy and Owen Electric) that have their own AMI systems, regarding the potential for the water utility to “piggy-back” on the electric utility’s system. Key considerations for this type of approach include:

- Communication approach between water meter and electric utility AMI system. In some cases, this involves a direct one-way communication to the electric meter. While potentially cost-efficient, this can limit some functionality of a typical two-way water AMI system, such as ability to obtain on-demand reads and to remotely upgrade firmware on the water meter TU. In other cases, the water meter TU communicates with the electric utility’s data collection network. There is no direct linkage between water and electric meter. While this can support more functionality of the water AMI system, it often requires more extensive data collection network infrastructure, due to the location of the water meter versus the electric meter.

- Data management and cybersecurity. Compared to a traditional AMI system, the District would relinquish some control over management of the network communications under this approach. This is similar to a managed network or NaaS system. Therefore, critical elements include contract terms regarding network communications performance and data security.

### 5G Small Cell Networks

5G represents the next generation in wireless technology. Small cell networks will rely on a denser infrastructure of smaller repeaters to support communications systems that allow for transmission of larger amounts of data and better avoidance of signal blockage by geographic features. In essence, this really represents an evolution in an existing AMI technology, the cellular-based NaaS option. Therefore, in terms of the types of systems to be considered by the District for analysis, this does not reflect a new or different option; rather, an extension of one already being considered. It is recommended that the further steps in the analysis, including the cost/benefit analysis, treat this option in this way. Costs associated with cellular-based NaaS systems will be included as an alternative, with an acknowledgement that one of the next evolutions of that option is through 5G small cell communications networks.

### Remote Shutoff Valves

RSVs allow the utility to remotely activate a valve, which is either integral to or installed adjacent to the meter, for the purpose of turning off or on service for a given connection. RSV technology has advanced significantly in the past five years, with utilities more and more considering deployment throughout select portions of their service areas. The District has analyzed the number of shutoffs it conducts annually, and the costs associated with them, determining that it would likely be cost effective if approximately 1,000 RSVs were installed, at services where more than three shutoffs were conducted per year in recent years. The capital costs and associated operational savings associated with this have been considered in the alternatives analysis described in Section 4.

## 4 Evaluation of Meter Reading Alternatives

The purpose of this analysis is to evaluate options to support the District's objectives by upgrading its current AMR system or potentially transitioning to an AMI system, and to determine the feasibility of implementing the recommended option.

### 4.1 Methodology

The District is considering multiple alternatives (or scenarios) for AMR/AMI installation programs. The scenarios will describe different installation process variables that have the most significant impact on long-term life-cycle costs. The evaluation is proposed to be comprised of two components:

- *Quantitative Analysis:* HDR developed a spreadsheet-based cost model that calculates the present value (PV) of implementation costs (both capital and operational) over 15-year and 20-year planning horizons. This allows direct monetary comparison of each program alternative.
- *Qualitative Analysis:* For those considerations that cannot be reasonably monetized, a brief qualitative analysis has been prepared that summarizes how the various scenarios impact a range of non-quantifiable criteria.

Details regarding the analysis methodology are provided below.

### 4.2 Scenario Variables

The primary variables used to construct the scenarios are described below.

#### 4.2.1 Meter Reading Technology

The following options are considered:

- AMR – Mobile radio read. This assumes meters are converted to a new AMR system, with transmitter units in production and supported.
- AMI – Fixed network system. This assumes all meters are converted to an AMI system. Three sub-types of AMI are considered: Standard, High Power, and Network-as-a-Service (NaaS).
  - Standard: Assumes a system utilizing a low-powered radio signal (up to 1 Watt, operating on an unlicensed frequency) to communicate through a network of repeaters and collectors. Based on the propagation studies conducted previously for the District by vendors, the number of collectors/repeaters is anticipated to be 110.
  - High Power: Assumes a system utilizing a high-powered radio signal (typically up to 2 Watts, operating on a FCC licensed frequency) to communicate through a network of repeaters and collectors. Since this system uses a higher powered radio signal than a standard system, it normally allows for the system to have less repeater and collector units. Based on the propagation studies conducted previously for the District by vendors, the number of collectors and repeaters is anticipated to be 20 and 40, respectively.

- NaaS: Assumes the use of existing communications network (e.g., cellular or other) for collection of data through a “network as a service”. As contrasted with the other AMI options, under this alternative the District would not own AMI communication network infrastructure; rather, it would lease the use of infrastructure owned and managed by others.

#### 4.2.2 Deployment Approach

All AMR/AMI scenarios are modeled for a two-year deployment. The following options are considered:

- Full AMR. 100 percent of the system is AMR.
- Full AMI. 100 percent of the system is AMI.
- Hybrid AMR/AMI. The majority of the system is converted to AMI, with the portions of the service area comprised of more challenging terrain (relative to radio transmission) remaining AMR or converted to an alternative AMI technology (i.e., cellular). The percentage of the system to remain AMR will be estimated based on detailed results of the previous vendor propagation studies (if available) and District mapping.

### 4.3 Scenarios

Nine scenarios were evaluated in the cost model. The scenarios are as follows:

- **Scenario 1 – AMR.** Full deployment of a new AMR system. This would be similar to the existing system, but would resolve the current problem of components of the existing system not being manufactured any longer.
- **Scenario 2 – AMI-Standard.** Full deployment of a standard-power AMI system, with transmitter units having radio power of up to 1 Watt and operating on unlicensed frequencies.
- **Scenario 3 – AMI-High Power.** Full deployment of a high-power AMI system, with transmitter units having radio power of up to 2 Watts and operating on FCC licensed frequencies.
- **Scenario 4 – AMI-Cellular.** Full deployment of a NaaS system, using an existing cellular network. In this type of system, the transmitter units communicate via cellular radio to an existing communications network owned and managed by an entity other than the District.
- **Scenario 5 – AMI-High Power; Remote Shutoff Valves.** Full deployment of a high-power AMI system but assuming 1,000 meters, associated with customers that are routinely delinquent in payment, will have remote shutoff valves. The purpose of this scenario is to identify the difference that results from including RSVs. Other than the RSVs, this scenario is the same as Scenario 3.
- **Scenario 6 – AMI-Standard/AMR Hybrid.** Partial deployment of a standard-power AMI system to cover 80 percent of the District, with the remaining 20 percent deployed as an AMR system. This scenario acknowledges that some rural portions

of the District's service area may be challenging or costly for AMI implementation, due to hilly terrain and low density of meters.

- **Scenario 7 – AMI-Standard/Cellular Hybrid.** Partial deployment of a standard-power AMI system to cover 80 percent of the District, with the remaining 20 percent deployed as a NaaS system, using an existing cellular network. This is similar to Scenario 6, but assumes that an existing cellular network has suitable coverage in the more remote portions of the District's service area that is suitable for cellular-based AMI.
- **Scenario 8 – AMI-High Power/NaaS Hybrid.** Partial deployment of a high-power AMI system to cover 90 percent of the District. The remaining, southern 10 percent of the system deployed as NaaS, piggybacking on the existing Owen Electric network.
- **Scenario 9 – AMI-High Power; Customer Portal.** Full deployment of a high-power AMI system, including upfront and annual costs for customer portal integration. The purpose of this scenario is to identify the difference that results from including the customer portal. Other than the portal, this scenario is the same as Scenario 3.

## 4.4 Key Cost Model Inputs

The cost model utilizes information provided by the District, as well as industry information and data gathered from other utility projects that HDR has worked on. The information provided and collected was inserted in the cost model to calculate present value capital and operational costs for each scenario over 15-year and 20-year periods. Key parameters, and associated input values, considered in the cost model include the following:

1. Capital Cost Elements
  - a. Transmitters
    - i. Equipment Cost – All meters regardless of scenario require a transmitter. Transmitter unit costs were assumed to be \$90 in all situations except for cellular NaaS systems, where transmitter unit costs were assumed to be \$75, based on costs observed in recent Badger Meter cellular AMI system proposals.
    - ii. Installation Cost – For retrofit installations, Contractor installation costs were assumed to be \$35 in all situations. For future transmitter replacements due to failure, District installation unit costs were assumed to be \$25 in all situations.
  - b. Meter Box Modifications
    - i. Meter Boxes – AMI system installation may require modifications to meter boxes to accommodate new transmitters and/or antennas. All scenarios assumed 10 percent of installations required full box replacements. Contractor installation costs for these modification were assumed to be \$250. The remaining 90 percent of meter boxes were assumed to require no modifications, due to the District's current replacement schedule.
  - c. "Centralized" Capital Costs

- i. Fixed Network Components – There are three types of fixed networks considered in this analysis: Standard Power, High Power, and Network as a Service (NaaS). Each network type has its own set of assumptions for number of collectors and repeaters, relative costs for the equipment and installation, and replacement rates. For Scenario 8, all NaaS as Owen Electric costs were assumed to be 75 percent of the NaaS as cellular costs.
  1. *Collectors (applies only to high power and standard power):*
    - a. High Power – 20 collectors at a unit price of \$35,000 for equipment and installation.
    - b. Standard Power – 110 collectors at a unit price of \$10,000 for equipment and installation.
  2. *Repeaters:* Repeaters are assumed to be needed only in the standard power systems. This analysis assumes 40 repeaters at a unit price of \$7,500.
  3. *Other Costs (only applies to AMI types):* Various other costs such as communications infrastructure and field programmers/testers are required to implement an AMI system. These costs were grouped into a single category.
    - a. High Power - \$288,700
    - b. Standard Power - \$36,000
    - c. NaaS as cellular - \$32,400
    - d. NaaS as Owen Electric - \$24,300
  4. *Remote Shutoff Valves (applies only to Scenario 5):* Remote shutoff valves (RSVs) allow for remote shutoff of service at desired locations. This analysis assumes 1,000 RSVs are installed at select services, based on a District analysis indicating that for the three-year period of 2016-2018, there was an average of approximately 1,000 accounts that required at least three shutoffs per year (a threshold that the District has previously considered as roughly the point at which the operational cost savings associated with RSVs offset their capital cost). A unit cost of \$250 and unit installation cost of \$70 were assumed for this model.
  5. *Integrations/Portal (applies only to Scenario 9):* The cost to develop necessary integrations between the AMR/AMI system and other data management platforms such as the District's customer information system, and development of a customer portal if desired. Customer Portal costs were assumed to be \$80,000.
  6. *NaaS Costs:* NaaS systems do not have any fixed network components installed and owned by the District. See the description of annual NaaS costs under operational cost elements.
- ii. Hybrid Installation – Scenarios 6, 7, and 8 consider hybrid installations of meter reading technology in different parts of the water system. The costs associated with hybrid installations are as follows:



1. *AMR/AMI*: Scenario 6 considers hybrid installation of standard-power AMI on 80 percent of the District with the remaining 20 percent deployed as AMR, based generally on terrain and density of water meters. Percentage splits were factored into the cost model when calculating capital equipment costs. In annual operations and maintenance costs, percentages were factored into labor and vehicle costs.
  2. *AMI/Cellular Hybrid*: Scenario 7 considers hybrid installation of standard-power AMI on 80 percent of the District with the remaining 20 percent deployed as NaaS. Percentage splits were factored into the cost model when calculating capital equipment costs. In annual operations and maintenance costs, percentages were factored into labor, and vehicle costs.
  3. *AMI/NaaS*: Scenario 8 considers hybrid installation of high-power AMI on 90 percent of the District with the remaining 10 percent deployed as NaaS piggybacking on Owen Electric. Percentage splits were factored into the cost model when calculating capital equipment costs. In annual operations and maintenance costs, percentages were factored into labor, and vehicle costs.
- iii. Project Management/Training – Each AMR/AMI system requires special expertise to operate. There are one-time costs associated with installation project management and training programs. In hybrid scenarios, the higher of the two project management/training cost was applied, rather than a percentage factor since these costs are less scalable than physical equipment costs.
1. AMR - \$200,000
  2. Standard Power - \$280,000
  3. High Power - \$280,000
  4. NaaS as Cellular - \$350,000
  5. NaaS as Owen Electric - \$262,500
2. Operational Cost Elements
- a. Labor
- i. Full-Time Equivalent (FTE) – Labor costs are estimated by using a number of FTEs required to do a job. The District’s FTE cost for meter reading is approximately \$90,500. This value was developed by dividing the total cost to the District for meter reading staff by the number of staff. The District’s FTE value for other functions related to metering and AMI maintenance is approximately \$76,700. This value was developed by dividing the total cost to the District for multiple employees with job responsibilities related to metering (i.e. WD Crewleader, General Craftworker, and M&C Craftworker) by their relative time commitment to those responsibilities.
  - ii. Meter Reading/AMI Maintenance – For AMR meter reading, the analysis assumes 1 FTE for basic meter reading duties, and 8 FTEs for other related functions, as are performed by CSFRs (e.g., follow-up reads, general meter

box maintenance). For AMI, no labor is assumed for basic meter reading, however, 2 FTEs are allocated to AMI system maintenance (e.g., troubleshooting non-communicating transmitters units, network communications maintenance).

- iii. Remote Shutoff Valve Cost Reduction – For the partial Remote Shutoff Valve installation in Scenario 5, the model assumes an associated annual cost savings of \$80,000 in labor (based on analysis of District costs associated with truck rolls related to service connections requiring at least three shut-offs in a year). Since this is the assumed base cost, this cost was removed from annual labor costs only in Scenario 5.
- b. Vehicles – Operational vehicle costs were based on averages produced from HDR and District data.
    - i. Maintenance – Annual vehicle maintenance costs for AMR systems were calculated using data from similar meter studies conducted by HDR, resulting in an assumed annual vehicle maintenance cost of approximately \$3,200. For AMI systems, annual vehicle maintenance costs were scaled based FTE requirements developed in Section 2 above. AMI annual vehicle maintenance costs were assumed to be 25 percent of AMR costs.
    - ii. Fuel – Annual fuel costs for the current AMR system were provided by the District. From this data, annual AMR fuel costs of \$50,048 were assumed in the model. Scaling for AMI systems was done in the same manner as vehicle maintenance. Annual fuel cost were assumed to be 25 percent of AMR costs.
  - c. AMR/AMI Annual Costs
    - i. Service/Maintenance – This refers to annual support contracts/agreements that the District can enter into with the AMR/AMI vendor. Most vendors offer various levels of support. The cost model assumes the base level of support, which also includes annual software as a service (SaaS) costs.
      1. AMR - \$30,000
      2. AMI (all types) - \$65,000
    - ii. Collector Maintenance Costs – This category applies only to Standard and High Power AMI systems, as these are the only systems requiring Collector Units. Maintenance costs, comprised of staff time to inspect, troubleshoot, and fix collectors were assumed to be \$25,000 annually on average.
    - iii. Annual Customer Portal/Integrations Costs (applies only to Scenario 9) – This category applies only to the AMI installation in Scenario 9 and is assumed to be \$25,000 annually.
      1. Account Service Representative (ASR) Cost Savings – Based on ASR overhead costs provided by the District, 20 percent of the ASR job function is related to customer service calls associated with meter-related issues. This percentage was factored in by reducing ASR workload by 20 percent in operations and maintenance, labor cost calculations; as Customer Portal installation would absorb those costs.

- iv. NaaS Costs – NaaS services have additional costs related to contracts with external service providers, such as annual cellular costs. The model assumes an annual cost of \$581,760 for NaaS as cellular, and is based on a charge of \$6.80 per meter in the system. Annual customer portal and service/maintenance costs were lumped with annual NaaS costs in applicable scenarios. These costs can be highly variable, reflecting a range of NaaS type such as cellular or vendor-owned AMI fixed network, and would be best refined by obtaining costs through a formal Request for Proposal (RFP) process.
  - v. NaaS Piggybacking Costs - Additional costs associated with NaaS piggybacking on Owen Electric were assumed to be 75 percent of traditional NaaS Costs shown above. These costs are highly uncertain and would require additional detailed discussion/analysis with Owen Electric to determine if Owen’s communications network would be capable of supporting District water meters or if modifications would be needed. The cost model assumes no such modifications.
3. Additional Model Elements and Assumptions
- a. SaaS – As noted above, annual service/maintenance costs include SaaS costs. All scenarios assume use of SaaS, or hosted data solutions, as opposed to the District storing and managing data on premise. During procurement of an AMI system, the District can structure its Request for Proposals (RFP) such that costs for both SaaS and on-premise data solutions are obtained. In the latter case, the District would need to account for additional staffing to support this function when evaluating costs.
  - b. Failure Schedules
    - i. Transmitters – Transmitter failure rates were based on information provided by AMI providers. Failure rates were assumed to be 0.5 percent of all transmitters annually for the first 5 years, 1 percent of all transmitters annually for years 6–10, and 1.5 percent failure annually from years 11–20.
    - ii. Centralized AMI Equipment – Centralized AMI equipment refers to collectors and repeaters. Like transmitters, this equipment can fail, and the model makes assumptions about the timing of failure and the costs associated with replacement.
      - 1. High Power – For this analysis, a “unit failure” assumes the combined unit costs of a collector and repeater (\$42,500). The model assumes 2 failures; 1 at year 10 and 1 at year 20.
      - 2. Standard Power – Standard power only uses collectors in this analysis. The schedule assumes one failure at 5 years, 2 failures at 10 years, 4 failures at 15 years, and 5 failures at 20 years.
  - c. Transmitter Warranty – Vendors typically offer warranties on transmitters due to the potential of unexpected failure in the early years after installation. Warranty replacement cost (equipment only) is 0 percent for the first 10 years, 50 percent in years 11 through 15, and 75 percent in years 15 through 20. The model

assumes no warranty coverage of centralized AMI equipment (i.e. replacement will always be full price).

- d. Escalation – The model accounts for the changing price of equipment and services due to broader economic inflation. The escalation rate used in this model is 3 percent per year on all annual costs.

## 4.5 Results of Quantitative Analysis

The results of the quantitative cost analysis are presented in Figure 1, which provides a summary of the 15-year present value (PV) capital and operational costs of each scenario.

**Figure 1. Summary of 15-Year Present Value Costs**

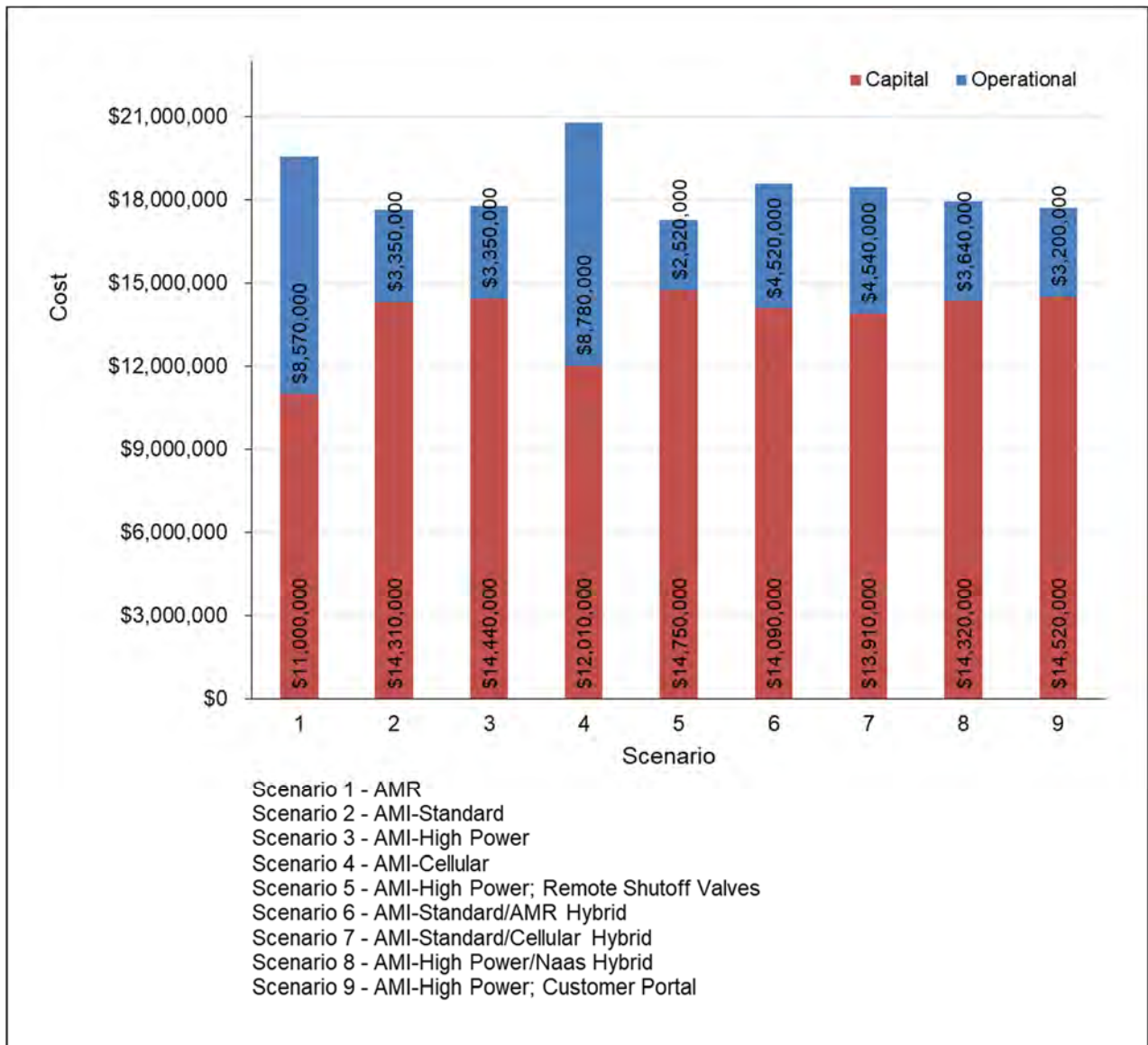


Table 6 provides a breakdown of the capital costs for each scenario during the two-year deployment period, as well as the total 15-year and 20-year PV cost.

**Table 6. Cost Summary**

Scenario	Deployment Period Capital Costs	Total 15-Year PV Cost	Total 20-Year PV Cost
<b>Scenario 1 – AMR</b>	\$11,740,000	\$19,560,000	\$21,800,000
<b>Scenario 2 – AMI-Standard</b>	\$15,350,000	\$17,650,000	\$18,610,000
<b>Scenario 3 – AMI-High Power</b>	\$15,510,000	\$17,780,000	\$18,740,000
<b>Scenario 4 – AMI-Cellular</b>	\$12,860,000	\$20,790,000	\$23,010,000
<b>Scenario 5 – AMI-High Power; Remote Shutoff Valves</b>	\$15,860,000	\$17,260,000	\$18,020,000
<b>Scenario 6 – AMI-Standard/AMR Hybrid</b>	\$15,100,000	\$18,600,000	\$19,850,000
<b>Scenario 7 – AMI-Standard/Cellular Hybrid</b>	\$14,900,000	\$18,430,000	\$19,670,000
<b>Scenario 8 – AMI-High Power/NaaS Hybrid</b>	\$15,380,000	\$17,950,000	\$18,970,000
<b>Scenario 9 – AMI-High Power; Customer Portal</b>	\$15,600,000	\$17,710,000	\$18,660,000

Key results/observations from the quantitative analysis are:

- **AMR versus AMI.** While upfront capital costs for AMI systems are greater than those of an AMR system, in most cases the long-term reductions in operational costs lead to lower overall costs for the AMI scenarios. This can be most readily seen in the approximately 30 percent increase in capital costs when comparing Scenario 1 (AMR) to Scenarios 2, 3, and 5 through 8 (AMI and hybrid AMI).
- **Cellular NaaS versus Traditional AMI.** The analysis indicates that a full cellular NaaS solution (Scenario 4) has the highest overall PV cost. Although the upfront transmitter costs are slightly lower than those for other AMI options, the ongoing annual NaaS fees are significant enough to result in the long-term operational costs being on par with those of the AMR option (Scenario 1).
- **Deployment Costs.** Deployment period capital costs are lowest in Scenario 1, since transitioning to a new AMR system would require replacement of transmitter units, but not installation of an AMI communications network. Deployment costs are second lowest for Scenario 4 and third lowest for Scenario 7, since the upfront transmitter costs of NaaS as cellular are lower than those for AMR and standard/high power AMI systems. For all traditional AMI network scenarios, deployment costs are within the same range. This is a result of similar upfront equipment and network installation costs in all scenarios.
- **Remote Shutoff Valves.** Scenario 5 includes the capital costs for 1,000 RSVs and the resulting reduction in operational costs associated with eliminated field time for turn-offs/-ons at those service connections. In comparison to Scenario 3, the same AMI approach but without inclusion of RSVs, the overall 15-year PV cost is

approximately \$0.5 million lower. This suggests that limited, strategic deployment of RSVs may be cost-effective. It is also noted that Scenario 5 has the lowest overall PV cost of all scenarios.

- **Hybrid Options.** Scenario 6 (AMR/AMI Hybrid) is similar in all aspects to Scenario 2 (AMI-Standard), except for partial deployment of AMR, which decreases upfront capital costs while increasing long-term operational costs due to continued labor needs. Scenario 7 is similar in all aspects to Scenario 6, except for partial deployment of NaaS as cellular, which increases operational costs due to annual contract costs. Scenario 8 (AMR/NaaS Hybrid) is comparable to Scenario 3, except for partial deployment of NaaS, piggybacking on Owen Electric, which decreases capital costs while increasing operational costs due to annual service provider contracts. While Scenario 8 has the lowest PV cost of all the hybrid options, it also has the greatest uncertainty in costs, related to annual Owen Electric NaaS fees. Refinement of this cost through continued discussions with Owen Electric is needed to better understand how it compares with other options.
- **Customer Portal.** Scenario 9 is similar in all aspects to Scenario 3, except for inclusion of Customer Portal costs, which results in a slight increase in capital costs and an associated slight decrease in operational costs.
- **15-year versus 20-year Present Value.** Both 15-year and 20-year present value calculations are depicted. This reflects that although most system components from the major AMI vendors carry 20-year warranties, there are no deployments of current AMI offerings that have been installed for that length of time and technology-based procurements often have lifecycles shorter than 20 years. Thus, the 15-year calculation was performed to discern any differences in the results. In summary, the order (in terms of lowest to highest costs) is the same under both calculation. However, the separation between the lowest and highest scenarios increases from the 15-year calculation (\$3.5 million difference between low and high) to the 20-year calculation (\$5.0 million difference). This is due to the significant annual costs associated with the highest-cost option, Scenario 4 (NaaS, cellular).

## 4.6 Results of Qualitative Analysis

In addition to the quantitative PV analysis, there are various non-cost considerations that should be taken into account when deciding which meter reading strategy to employ. Considerations important to the District include:

**“Freeing up” of Staff Resources** – This reflects the degree to which a given alternative reduces staff time needed for meter reading activities; thereby freeing staff up to address other District priorities.

**Resolution of Available Data** – This refers to the amount of data, and resolution of data intervals, available for analysis purposes.

**Support to Customer Service Interactions** – This refers to the ability of data obtained from a given meter reading technology to be used in customer service interactions, both in a proactive sense (e.g., addressing leaks proactively) and in

addressing customer concerns/calls (e.g., with real-time or near real-time data being shared by staff with customers on the phone).

**Support to Other District Information Systems** – This refers to the ability of data obtained from a given meter reading technology to be integrated with and used by other District information systems, such as potential linkages with work order management systems, GIS, etc.

**Utility “Visibility” to Customers** – This refers to maintaining a visible presence in the community either through District staff collecting meter reads in the field or the availability of a customer portal for accessing their utility data.

**Meter Access/Reader Safety** – This refers to the difficult access and high traffic location of some meters, which pose safety risks to readers. While the District has not experienced any significant worker’s compensation claims to date regarding meter-reading, it is acknowledged that this risk is greater for reading methods that involve readers stopping at every meter location and making physical contact with the meter or meter vault.

**Public Perception (Technology vs. Manpower)** – This refers to a general public perception that a higher level of technology is an advancement in utility operations.

**Support of Conservation Activities** – This refers to the ability of data obtained from a given meter reading technology to be used in consumption trend evaluations and advanced leak detection.

**Environmental Impact (Carbon Footprint)** – The District is interested in being environmentally sensitive and promoting sustainable practices. Therefore, it is desired to implement programs with minimal environmental impacts. With regard to meter reading, this can translate to the level of vehicle use (and therefore fuel use and automotive emissions) for routine operations. The amount of data obtained and its ability to be used for water conservation analysis is another environmental element of meter reading.

Table 7 summarizes how the various meter reading approaches positively or negatively impact each non-cost consideration, relative to the current approach of mobile AMR meter reading (hence, Scenario 1 receives a neutral score of “0” in all instances).





**Table 7. Qualitative Analysis of Scenarios**

Parameter	Sc. 1 AMR	Sc. 2 AMI Stan.	Sc. 3 AMI High	Sc. 4 AMI Cell	Sc. 5 AMI RSV	Sc. 6 Hyb. AMR	Sc. 7 Hyb. Cell	Sc. 8 Hyb. NaaS	Sc. 9 AMI Port.
“Freeing up” of Staff Resources	0	+	+	++	++	+	+	+	+
Resolution of Available Data	0	++	++	++	++	++	++	++	++
Support to Customer Service Interactions	0	++	++	++	++	++	++	++	++
Support to Other District Information Systems	0	++	++	++	++	++	++	++	++
Utility “Visibility” to Customers	0	--	--	--	--	-	--	--	+
Meter Access/Reader Safety	0	+	+	++	++	+	+	+	+
Public Perception (Technology vs. Manpower)	0	++	++	++	++	+	++	++	++
Support of Conservation Activities	0	++	++	++	++	++	++	++	++
Environmental Impact (Carbon Footprint)	0	++	++	++	++	+	++	++	++

Notes:

-- = Strongly negative impact; - = negative impact; 0 = no impact; + = positive impact;  
++ = strongly positive impact

Key observations from the qualitative assessment include:

- All AMI scenarios score positive (i.e., better) than AMR with respect to all of the qualitatively-assessed criteria, except for Utility “Visibility” to Customers, as there would be less presence of District staff throughout the service area collecting meter reading data in the field.
- The AMI scenarios generally score similarly, with minor differences reflecting:
  - Less staff resources required for Scenarios 4 and 5, due to less maintenance time required for the NaaS approach (Scenario 4) and fewer truck rolls related to turn-offs/-ons (Scenario 5).
  - Related to the above, a higher score for Scenarios 4 and 5, due to less staff time in the field and therefore reduced potential for staff accidents.



## 5 Summary

A summary of the findings of this study is provided below, organized according to the assessment of the existing system, analysis of alternatives, and recommendations for next steps.

### 5.1 Assessment of Current Metering Program

Summary statements regarding the District's current metering program are:

- The District has approximately 85,500 water service meters installed throughout its service area, and currently obtain quarterly (for most service connections) readings via a mobile AMR system.
- The most significant challenge facing the District with respect to its current meter reading system is that the current transmitter units (Badger model CE) are no longer manufactured by the vendor, making the system unlikely to be fully functional system-wide beyond 12 to 18 months. Therefore, as the District looks to the future, a significant modification to the existing system or implementation of a new system is required to meet the long-term needs of the District.
- The District desires to identify a meter reading approach/technology to best support its goals of having a long-term, sustainable meter reading program, while also improving customer service, reducing water loss, decreasing operational costs, and effectively managing its water resources.

### 5.2 Alternatives Analysis

Results of the present value cost analysis described in Section 4 are summarized as follows:

- Transition to AMI would significantly reduce operational costs associated with meter reading activities. It is important to note that though this will result in operational savings for the meter reading program, it may not for the District as a whole, assuming those resources are reallocated to address other needs.
- Implementing a traditional AMI system with remote shutoff valves is the least expensive alternative, as higher initial capital costs are offset by long term reduction in operational costs.
- Implementing a fully NaaS AMI system is the most expensive alternative, as high operation and maintenance costs persist through the evaluation period as a result of annual service contract costs.
- Hybrid AMI systems offer reductions in capital costs for all alternatives due to lower initial equipment costs, but ultimately have higher long-term present value costs due to operation and maintenance costs associated with supplemental network portions.
- The customer portals available with AMI systems increase operational costs, but ultimately even out total present value costs when accounting for associated labor cost savings.

- In terms of non-quantifiable metrics, transitioning to an AMI system would provide the most benefits for both customers and the District, in terms of monitoring and managing water demand, supporting leak detection and water loss management, and providing real-time, daily information to use during customer service interactions.

## 5.3 Recommended Next Steps

Based on this analysis, HDR provides the following recommendations to the District:

- Focus on implementation of AMI. Most water utilities have recognized the many benefits associated with moving away from reading meters through manual or mobile AMR approaches, even though the upfront capital cost to implement a new approach is significant.
- Specifically, the District should pursue implementation of a fixed network AMI system. The long-term present value cost of such systems are on the order of, if not lower than, the AMR approach currently employed by the District. In addition, although difficult to monetize, the numerous benefits associated with this type of system (including ability to identify leaks much more rapidly than is currently possible and therefore better manage water loss, availability of information to support customer service interactions, reduced operational costs of meter reading, and increased granularity of water consumption data with which water demand can be monitored and managed) outweigh the capital investment for such systems over the long term.
- A replacement meter reading system should be selected and implemented as soon as possible because the District's current system may not be fully functional for more than an additional 12 to 18 months.
- The District should explore partnering with SD1 in implementing an AMI system, as this technology benefits both agencies. For example, there are benefits to both the District and SD1 if RSVs are included for select locations, due to the reduction in operational costs associated with shutoffs. For this reason, it is suggested that the investment in AMI be allocated in part based on the historical quantities of shutoffs by the two agencies. In addition, SD1's benefits from a customer portal, both for its communications with customers and for the portal's use by SD1 customers, should justify a proportional investment for this feature.
- As a next step, it is recommended that the District issue an "open" request for proposals (RFP), inviting vendors to propose a range of meters and AMI systems they have to offer that can meet the District's needs. This can be structured in a performance specification based format, without identifying a specific technology or brand, to ensure proposals from various vendors associated with different technologies can be compared. There are multiple reasons why this is the suggested next step:
  - Technology advancements are occurring continually in this arena. As such, it is not prudent to "pre-select" a particular AMI technology or vendor without first obtaining detailed proposals, including costs. This ensures that the District is making an informed decision on the most current information available.
  - This will help the District better understand key differences between the available AMI technologies, as applied to the District's unique water system

characteristics. For example, the quantitative analysis contained in this report indicates that a Network as a Service (NaaS) AMI solution (as is reflected in Scenario 4) could be nearly 15 to 20 percent greater in cost (over a 15-year period) than a more traditional standard or high powered fixed network system (as defined in Scenarios 2 and 3). However, through the open RFP process, the District will learn more precisely the number of collectors and repeaters the traditional technologies would entail to provide network coverage throughout the District's service area. The cost and maintenance requirements associated with owning such equipment can then be weighed against the annual cost of a NaaS system, which eliminates the need for the District to own and maintain the network assets. Getting current proposals on NaaS systems will also allow the District to learn of the additional "smart city" type of functionality that can be provided by such systems. All of these benefits can then be considered in light of actual proposed costs.

- AMI system costs have trended downward in the past five years, due to increased compatibility between AMI systems and meters of various brands, and greater competition amongst the primary vendors that are active in the marketplace. While the cost assumptions used in this analysis are based on actual vendor proposals submitted for other utilities over the past two years, it is important for the District to obtain current year pricing from vendors to better inform its cost/benefit analysis.
- Regarding meters, it is recommended that pricing be obtained during the RFP process for both mechanical and solid state "smart" meters. Although the District has implemented a separate bidding process to procure meters, the pricing information on meters requested through this process could be useful in future meter procurement decision-making. While solid state meters are more expensive, new vendors have entered the US market, including some that previously typically only sold products in Europe, and are offering competitive pricing and contracting terms. It is worth exploring such options before making a firm decision on meter type/brand.
- If the District implements a new AMR/AMI system, concurrent installation of transmitter units with new meters (which will be procured through a separate process than the AMR/AMI system) is recommended. This will reduce overall installation costs (i.e., with each service connection being visited once as opposed to twice) and should be the least disruptive to routine billing and customer service processes. However, it is acknowledged this may not be feasible given the timing of meter procurement compared to that of the meter reading system.
- The District should consider requesting approval for 15 year meter life by the Kentucky Public Service Commission. AMR/AMI system components are warranted for 15-20 years, while the majority of meters are warranted at 20 years. If the District in the near future installs an upgraded AMR or AMI system, as well as new meters concurrently over a short span of approximately two years, the benefits of this investment would be constrained if the meters must be replaced within ten years. Alignment of meter and AMR/AMI transmitter replacements will be cost-effective over the long term and are expected to not be needed within a ten-year time horizon.

NORTHERN KENTUCKY  
WATER DISTRICT

**Project**

**Meter Reading System Replacement**

184-4015

Specifications titled “Meter Reading System Replacement”  
dated October 2020”

# BIDDING DOCUMENTS

FOR

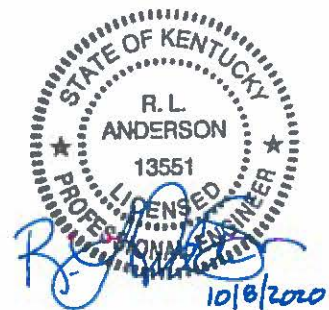
## METER READING SYSTEM REPLACEMENT (WX21117007)

Reissued October 2020

**\*\*ALL UPDATES / CHANGES SHOWN IN BLUE\*\***

Northern Kentucky Water District  
2835 Crescent Springs Rd.  
Erlanger, Kentucky 41018

City of Florence, Kentucky  
8100 Ewing Boulevard  
Florence, Kentucky 41042



PREPARED BY:

HDR Engineering, Inc.

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# **GOVERNING BODIES**

## **NORTHERN KENTUCKY WATER DISTRICT**

### **COMMISSIONERS:**

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**JOSEPH J. KOESTER – VICE CHAIR**

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## **CITY OF FLORENCE, KENTUCKY**

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# METER READING SYSTEM REPLACEMENT (WX21117007)

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# INVITATION TO BID

Date: September 3, 2020, September 24, 2020, [October 15, 2020](#)

PROJECT: Meter Reading System Replacement ([WX21117007](#))

SEALED BID PROPOSALS WILL BE RECEIVED AT:

Northern Kentucky Water District ([NKWD](#))

2835 Crescent Springs Rd.  
P.O. Box 18640  
Erlanger, Kentucky 41018

UNTIL: Date: October 8, 2020 [for City of Florence Bid Items Only](#)  
Time: 2:00 p.m., local time

UNTIL: Date: [November 5, 2020 for Northern Kentucky Water District Bid Items Only](#)  
Time: 2:00 p.m., local time

At said place and time, and promptly thereafter, all Bid Proposals that have been duly received will be publicly opened and [the names of the Bidders will be](#) read aloud. Entities on the registered list of plan holders will be sent a link to attend the virtual bid openings. The public may access the virtual bid openings by calling Barry Miller at (859) 578-7892 to get the meeting number and password.

The proposed services are generally described as follows: Provide and install all required equipment, licenses, hardware, and software to implement a system-wide meter reading system to replace the existing Automated Meter Reading (AMR) system for the Northern Kentucky Water District (District) and the Advanced Metering Infrastructure (AMI) system for the City of Florence (City) (and referred to individually as "Owner" and collectively as "Owners") to record and transmit meter readings for all of the Owners' customers. The system must be a radio frequency based system employing mobile radio, fixed radio, cellular, or a combination of these technologies. Services will include installation, training, and post-installation support. A bidder may submit bids for multiple meter reading systems. For example, a bidder may submit a bid for a mobile system, for a fixed system, and for a hybrid system. The Bidder's bid must include a deployment plan that demonstrates compliance with the requirements as defined in the Technical Specifications section.

The District has approximately 85,500 water service meters. The majority of these are read quarterly using a Badger mobile AMR system. Meters consist primarily of Badger Recordall and Neptune T10 models, but also include Badger eSeries, Master Meter Octave, Neptune Mach10, Zenner, Sensus SR11, and AMCO models. The current meter interface units (Badger model CE)

are no longer manufactured by the vendor. Therefore, the District desires to replace its existing AMR system by implementing a utility-wide meter reading system, to be deployed over a period of 24 months.

The City currently has approximately 8,775 water meters, which are read using a Mueller AMI system. Through this procurement, the City intends to replace the existing AMI with a new AMI meter reading system which will provide enhanced reliability and functionality. The City's deployment is expected to be completed over a period of 12 months.

Liquidated damages shall be assessed at \$750 per calendar day past substantial completion and \$500 per calendar day past final completion.

All Bids must be in accordance with the Bidding Documents. Copies of the Bidding Documents may be obtained by contacting Denise Manning at 859-426-2718. There is no charge for these documents.

A virtual pre-bid meeting will be held on October 16<sup>th</sup>, 2020 at 10:30 a.m. Prospective bidders are not required to attend, although attendance is encouraged. The possibility of funding the project through a Kentucky Drinking Water State Revolving Fund (SRF) will be discussed along with the additional requirements this funding source brings. Attendees will also be afforded the opportunity to ask additional questions.

Outside of the scheduled pre-bid meeting, all inquiries must be submitted in writing to Barry Miller with Northern Kentucky Water District, email: [bmiller@nkywater.org](mailto:bmiller@nkywater.org) before the COB on [October 22, 2020](#). All responses as well as the pre-bid meeting minutes will be provided by addendum.

Site visits may be accommodated upon request but are not guaranteed. Requests for the Northern Kentucky Water District can be made by contacting Barry Miller at (859) 578-7892. Requests for the City of Florence can be made by contacting Ryan Sullivan at (859) 647-5416. Bidders must provide its own personnel protective equipment.

Bids will be received on a unit price basis as described in the Bidding Documents.

Bid security, in the form of a certified check or a Bid Bond (insuring/bonding company shall be rated "A" by AM Best) in the amount of ten percent (10%) of the maximum total bid price, must accompany each Bid.

The Successful Bidder for the District will be required to furnish a Construction Payment Bond and a Construction Performance Bond (insuring/bonding company shall be rated "A" by AM Best) as security for the faithful performance of the contract and the payment of all bills and obligations arising from the performance of the Contract with the District. The Successful Bidder for the City will agree that 10% retainage will be held on payments for all work; this will be reduced to 5% at 50% completion of the Contract.

The NKWD portion of the project only may be funded with funds provided by the Kentucky Drinking Water State Revolving Fund (SRF) with federal funds provided by the Environmental Protection Agency. An alternate bid is included to allow for SRF funding. If the alternate bid is selected by NKWD to enable SRF funding, SRF requirements (including American Iron and Steel and Davis Bacon) and provisions must be met by the Bidder and all subcontractors. If the alternate bid is selected by NKWD to enable SRF funding, SRF requires federal prevailing wage rates to be paid to all employees of the Bidder and all employees of any subcontractor.

On the NKWD portion of the project for the SRF alternate bid item, Bidders must comply with the President's Executive Order No. 11246 as amended, which prohibits discrimination in employment regarding race, creed, color, sex or national origin.

The NKWD portion of the project for the SRF alternate bid item will be in compliance with Executive Order 11246 (Equal Employment Opportunity) as amended.

On the NKWD portion of the project for the SRF alternate bid item, all Bidders, Contractors and Subcontractors will comply with 41 CFR 60-4, in regard to affirmative action, to insure equal opportunity to females and minorities and will apply the time tables and goals set forth in 41 CFR 60-4.

On the NKWD portion of the project for the SRF alternate bid item, Bidders will make positive efforts to use small, minority, women owned and disadvantaged businesses.

On the NKWD portion of the project for the SRF alternate bid item, the procurement will be subject to DOW Procurement Guidance including the Davis-Bacon Act.

On the NKWD portion of the project for the SRF alternate bid item, all Bidders must comply with Title VI of the Civil Rights Act of 1964, the Anti-Kickback Act, and the Contract Work Hours Standard Act.

On the NKWD portion of the project for the SRF alternate bid item, the Successful Bidder and all Subcontractors will be required to conform to the labor standards set forth in the Contract Documents.

Evaluation of Bids and the awarding of a final contract are subject to the reciprocal preference for Kentucky resident bidders pursuant to KRS 45A490 to 45A.494 and KAR 200 5:400. Each Bid must contain evidence of Bidder's qualifications to transact business in the Commonwealth of Kentucky or covenant to obtain such qualifications prior to award of the Contract. The Bidder's Organization Number from the Kentucky's Secretary of State and principal place of business as filed with Kentucky's Secretary of State must be included where applicable.

Owners reserve the right to reject any or all Bids, including without limitation the right to reject any or all nonconforming, non-responsive, incomplete, unbalanced, or conditional Bids, to waive informalities, to reject the Bid of any Bidder if Owners believe that it would not be in the best interest of Owners to make an award to that Bidder, and/or to accept a Bid that is deemed the most desirable and advantageous from the standpoint of customer value and service and concept of operations, even though such bid may not, on its face, appear to be the lowest price. Owner also reserves the right to negotiate with the apparent Successful Bidder to such an extent as may be determined by Owner.

Note that the District and the City will enter into separate contracts with the Successful Bidder, selecting the options and quantities that are most advantageous to each agency. Both agencies' Agreement Forms are attachments to this solicitation. **If there are tangible benefits to both Owners implementing the same system, Bidders should provide that information where prompted in the bid forms and their responses to the Technical Specifications.** Note also that the District and the City reserve the right to select and contract with different Bidders.

[Small, Minority, and Disadvantaged Business Enterprises are encouraged to bid on this project.](#)

Bids shall remain subject to acceptance for one year after the day of bid opening or for such longer period of time to which a Bidder may agree in writing upon request of the Owners. If a Contract is to be awarded, the Owners will give the Successful Bidder a Notice of Award during the period of time which the Successful Bidder's Bid remains subject to acceptance. Note that the Owners do not anticipate requiring a full year for acceptance of this bid; however, potentially time-consuming required activities include approval by the Kentucky Public Service Commission, the District's Board, and the City's Council.

[Award of the Contract\(s\) will be made to the lowest, responsive, responsible bidder in accordance with Article 15, Award of Contract, specified in the Instructions to Bidders.](#)

The Northern Kentucky Water District is an Equal Opportunity Employer.

Lindsey Rehtin  
V.P. Finance & Support Services  
Northern Kentucky Water District

On behalf of the Northern Kentucky Water District and as Agent for City of Florence pursuant to Interlocal Cooperation Agreement between the Owners.

## INSTRUCTIONS TO BIDDERS

1. COPIES OF BIDDING DOCUMENTS. Complete sets of Bidding Documents must be used in preparing Bids; Bidder shall have sole responsibility for errors or misrepresentations resulting from the use of incomplete sets of Bidding Documents.

Owners, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the services and do not confer a license or grant for any other use.

2. EXAMINATION OF BIDDING DOCUMENTS AND SITE. It is the responsibility of each Bidder, before submitting a Bid, to:

- a. thoroughly examine and study the Instructions to Bidders and the Bidding Documents, including any Addenda;
- b. become familiar with and satisfy Bidder as to the general, local, and site conditions that may affect cost, progress, performance, or furnishing of the services;
- c. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, performance, or furnishing of the services;
- d. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the services at the price bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;
- e. correlate the information known to Bidder, information and observations obtained from visits to the Site, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;
- f. promptly give Owners written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Owners is acceptable to Bidder; and
- g. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the services.

3. INTERPRETATIONS AND ADDENDA. All questions about the meaning or intent of the Bidding Documents shall be submitted to Owners in writing or electronic mail to Mr. Barry Miller with the Northern Kentucky Water District, Email: [bmiller@nkywater.org](mailto:bmiller@nkywater.org) **before the COB on September 23, 2020**. Questions received after this date may not be answered. Any interpretations or clarifications that are considered necessary by Owners in response to such questions will be issued by Addenda, which will be emailed, mailed or delivered to all parties recorded by Owners as having received the Bidding Documents. The person submitting

questions shall be responsible for their prompt delivery. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner.

Owners will not be responsible for explanations or interpretations of the Bidding Documents or Contract Documents except as issued in accordance herewith.

4. SUBMITTAL REQUIREMENTS. In addition to completion and submittal of all forms indicated in the Bidding Documents, Bidders are required to provide responses to the items listed in this paragraph. All questions and requests for specificity must be answered. Owners retain the right to deem any Bidder that fails to respond to one or more of these requests for information as unresponsive.

All specifications incorporating “shall,” “must,” etc., are requirements, and Bidder must explicitly affirm that the system or component meets that requirement. Requesting a discussion of a mandatory requirement may also be deemed non-responsive. Failure to fully comply with the mandatory requirements must be specifically noted. All specifications incorporating “should,” “desires,” etc., are highly desirable features but are not considered mandatory requirements.

The items listed below shall be submitted with the Bid and shall be presented in the order listed herein. Each item shall be clearly labeled, with pages numbered and separated by tabs. Bidders should clearly indicate and explain how the specified meter reading system requirements are being met by the proposed meter reading system and deployment plan.

Responses shall be no more than 50 pages in length, excluding appendices and bid forms. A double-sided sheet of paper equals 2 pages.

A. Table of Contents

The Table of Contents shall identify all materials and enclosures being forwarded in response to the Bidding Documents including optional appendices for submittal of additional materials that will clarify the response. All pages of the submittal are to be numbered.

B. Cover Letter

The cover letter shall be on company letterhead and shall be signed by a person who is authorized to commit the Bidder’s organization to perform the services included in the Bid.

C. Corporate Experience and Capacity

Provide information that documents Bidder’s qualifications, as well as those of any subcontractors, to produce the required outcomes, including its ability, capacity, skill,

financial strength, and the number of years of experience in providing the required services. Respond to each item below:

1. Number of years Bidder has been in business and any business mergers within the last 10 years.
2. Number of persons directly employed by Bidder.
3. Provide evidence showing Bidder has experience supplying, installing, and supporting the proposed meter reading system at water utilities of similar size and projects of similar scope, and that the Bidder performed satisfactorily.
4. Provide evidence of Bidder's past cost performance and ability to meet project schedules.
5. Describe experience of proposed Contract Manager and other key staff, including Installation Manager.
6. Describe the ability of the Bidder to meet the Owners' bonding, insurance requirements, and contract general conditions, as provided in Attachments 1 and 2.

Within five days of Owners' request, the Bidder must submit any additional written evidence such as financial data, previous experience, present commitments, and such other data as may be requested by Owners. Bidders who have not, in the Owners' opinion, had sufficient experience in the size and type of work involved may not be considered.

Each Bid must contain evidence of Bidder's qualifications to transact business in the Commonwealth of Kentucky or covenant to obtain such qualifications prior to award of the Contract. The Bidder's Organization Number from Kentucky's Secretary of State and principal place of business as filed with Kentucky's Secretary of State must be included where applicable.

#### D. Financial Information

1. Bidder must provide a minimum of one of the following in support of the financial stability of the firm:
  - a) A statement regarding the firm's financial stability, including information as to any current or prior bankruptcy proceedings.
  - b) A Dun & Bradstreet (D&B) Supplier Evaluation Report (SER), or similar type report. All costs associated with this report shall be borne by the Bidder.



- c) A copy of a certified financial statement for each of the last three years prepared by an independent certified public accounting firm or Federal Tax Return for previous years.
2. Bidder's five-year revenue
3. Last five years of Bidder's net income
4. Revenue from sales of recommended product

If the Bidder is an incorporated subsidiary or joint venture, it shall include relevant financial information of its parent companies.

Bidder shall submit full details of all terminations for default, settlements to avoid litigation, or pending terminations experienced in the past five (5) years including the other party's name, address, and telephone number. Termination for default is defined as notice to stop performance due to Proposer's non-performance or poor performance, and the issue was either: (a) not litigated; or (b) litigated and such litigation determined Proposer to be in default. Bidder shall also present its position on the matter.

If Bidder has experienced no such settlement or termination for default in the past five (5) years, and has no pending terminations, it must affirmatively declare to be so.

Prior to disclosure of company financial information, provide a non-disclosure agreement to be signed by Engineer and Owners, if required.

#### E. Previous Installations and References

The proposed system and components must have been deployed and in production usage for a minimum of 1 year at other water utilities. Indicate the number of years the proposed meter reading system has been deployed, and the number of water utilities using the proposed system. If Bidder is proposing a new technology or newly modified technology, it shall describe which elements of the technology have been deployed previously and which have not.

Provide a minimum of five (5) references regarding similar projects completed by the Respondent for water utilities within the past 10 years. Information for each client should include the following:

- Client name and address
- Description of system deployed and services provided
- Project beginning and completion dates
- Number of meter reading units and percent installed to date



- Major subcontractors and suppliers
- Contact reference name
- Contact's current telephone number
- Contact's email address

F. Response to Technical Specifications

In this section, Bidders are required to provide the information requested and responses to all questions posed in the Technical Specifications below. Guidance for this portion of the submittal is in the Technical Specifications, Introduction to "4. SYSTEM REQUIREMENTS".

Each Bidder must be registered as a plan holder with the Issuing Office or Engineer on record in the advertised "Invitation to Bid". There shall be no substitution of bidders without proper registration with the Issuing Office or Engineer on record in the advertised "Invitation to Bid".

5. BIDDER DEMONSTRATIONS. All submitted responses will be evaluated, and the Owners reserve the right to select certain Bidders to perform demonstrations for both Owners at one of their facilities or through an on-line meeting platform. Bidder's presentation and demonstration should last no more than one half day.

6. BID SECURITY. Each Bid must be accompanied by Bid security made payable to Owners in an amount of 10 percent of Bidder's maximum Bid price and in the form of a Bid Bond (on the form attached) issued by a surety meeting the requirements of paragraphs 5.01 and 5.02 of the General Conditions and shall be rated "A" by AM BEST or by certified check.

Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owners may annul the Notice of Award and Bid security of that Bidder will be forfeited. Bid security of other Bidders whom Owners believe to have a reasonable chance of receiving the award may be retained by Owners until the earlier of seven days after the Effective Date of the Agreement or one day after the last day the Bids remain subject to acceptance, whereupon Bid security furnished by such Bidders will be returned.

7. CONTRACT TIMES. The numbers of days within which, or the dates by which, the services are to be (a) Substantially Completed and (b) also completed and ready for final payment are set forth in each Owners' Agreement.

8. LIQUIDATED DAMAGES. Provisions for liquidated damages, if any, are set forth in the Agreement.

9. PREPARATION OF BID. The Bid Form is included with the Bidding Documents. Additional copies may be obtained from Owners.

All blanks on the Bid Form shall be completed by printing in ink and the Bid signed. Bidders must supply Bids for all portions (Base Bid and Alternate Bid Items) of the Bid Form. A Bid price shall be indicated for each unit price item listed within each Part being bid.

A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.

A Bid by a limited liability company shall be executed in the name of the firm by a member (if member-managed) or manager (if manager-managed) and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown below the signature.

A Bid by an individual shall show the Bidder's name and official address.

A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture must be shown below the signature.

All names shall be typed or printed in ink below the signatures.

The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.

The address and telephone number for communications regarding the Bid shall be shown.

The Bid shall identify whether the Bidder is a resident or nonresident bidder for purposes of Kentucky's reciprocal preference statute (KRS 45A.490 to 45A.494 and 200 KAR 5:400). If the Bidder is claiming a "resident bidder" status as defined in KRS 45A.494 (2), the Bid shall include a properly executed and notarized affidavit affirming that it meets the criteria to be considered such a resident bidder. If requested by Owners, Bidder shall also provide documentation proving such resident bidder status; failure to do so shall result in disqualification of the Bidder or contract termination.

While the Bidder should consult the applicable statutes and regulation, generally speaking, a "resident bidder" is an individual or business entity that, on the date the contract is first advertised or announced as available for bidding: (a) is authorized to transact business in the Commonwealth; AND (b) has for one (1) year prior to and through the date of the

advertisement, (i) filed Kentucky corporate income taxes, (ii) made payments to the Kentucky unemployment insurance fund established in KRS 341.490, and (iii) maintained a Kentucky workers' compensation policy in effect. A "nonresident bidder" is any other individual or business entity.

10. **BID PRICING.** Bidders shall submit a Bid on a unit price basis for each item listed in the Bid Form. The total price for each item will be determined as the product of the estimated quantity of each item multiplied by the unit price Bid for the item. The final quantities and Contract Price will be determined in accordance with the General Conditions.

Discrepancies between the multiplication of units and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

11. **SUBMITTAL OF BID.** Due to the COVID-19 situation, the Northern Kentucky Water District (NKWD) has implemented temporary changes that will impact the bidding of projects, goods, and services. The lobby is closed to the public at the District's Erlanger office. All hand delivered bids to this location must be turned in via the drive-thru window. Additionally, the District will not be hosting group meetings or gatherings, including public bid openings. Bid openings will be conducted by NKWD staff only and broadcast via a virtual meeting. Entities on the registered list of plan holders will be sent a link to attend the virtual bid opening. The public may access the virtual bid opening by calling Barry Miller at (859) 578-7892 to get the meeting number and password. These changes will remain in place until further notice.

A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to Bid and shall be enclosed in an opaque sealed envelope plainly marked with the proper title, the name and address of Bidder, and shall be accompanied by any other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "Bid Enclosed – Meter Reading System Replacement".

Bids shall be addressed to Owners at:

Northern Kentucky Water District (Owner)  
2835 Crescent Springs Road  
P.O. Box 18640  
Erlanger, Kentucky 41018

The unbound copy of the bid booklet that includes the Bid Form and Supplements to Bid Form are to be completed and submitted with the Bid Security and the following data:

1. Certification Regarding Debarment, Suspension and Other Responsibility Matters (EPA Form 5700-49).

2. Certification Regarding Lobbying, Certification for Contracts, Grants, Loans and Cooperative Agreements.
3. Statement of Bidder's Qualifications
4. Bidder's Experience Record
5. Proposed Subcontractors
6. Bid Security
7. Non-Collusion Affidavit
8. Required Notarized Affidavit for Bidders, Offerors, and Contractors Claiming Kentucky Resident Bidder Status

One complete and executed set of the Bid Form along with a "Non-Collusion Affidavit" and Bid Bond shall be submitted along with the responses listed in "#4. SUBMITTAL REQUIREMENTS" earlier in this section, including responses to the technical specifications. Bids shall be typed or in ink. Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids. Bids received after the time and date for receipt of Bids may be returned unopened. Oral, telephone, facsimile, email, or telegraph Bids are invalid and will not receive consideration.

All responses to questions in this section and the technical specifications shall be submitted as a set of 10 hard copies, with at least one (1) being an original signed by Proposer's authorized representative(s). Bidders shall also submit one electronic version (PDF file) on a USB drive. The Bid Form must also be submitted (in PDF file and Excel format) on the same USB drive.

12. MODIFICATION AND WITHDRAWAL OF BIDS. A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. For a period ending 72 hours after Bids are opened, any Bidder may request the withdrawal of its Bid by filing with Owners a duly signed written notice and otherwise demonstrating by clear and convincing evidence to the reasonable satisfaction of Owners that the Bid was submitted in good faith but there was a material and/or substantial mistake in the preparation of its Bid. Without the advanced full disclosure by the withdrawing Bidder to and written consent of the Owners, (a) no Bid shall be withdrawn under this section when the result would be the awarding of the contract on another Bid of the same Bidder or of another Bidder in which the withdrawing Bidder has a direct or indirect equitable interest and (b) no Bidder who is permitted to withdraw a Bid shall, for compensation, supply any material or labor to or perform any subcontract or other work agreement for the Bidder to whom the contract is awarded or otherwise benefit, directly or indirectly, from the performance of the Project.

13. OPENING OF BIDS. Bids will be opened at the time and place indicated in the advertisement or invitation to Bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

14. BIDS TO REMAIN SUBJECT TO ACCEPTANCE. All Bids will remain subject to acceptance for the period of time stated in the Bid Form.

15. AWARD OF CONTRACT. Owners reserve the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, incomplete, unbalanced, or conditional Bids. Owners further reserve the right to reject the Bid of any Bidder which it finds, after reasonable inquiry and evaluation, to be non-responsive. Owners may also reject the Bid of any Bidder if Owners believe that it would not be in the best interest of the Owners to make an award to that Bidder. Owners also reserve the right to waive any informalities and to negotiate with the selected Bidder and to accept a bid which is deemed the most desirable and advantageous from the standpoint of customer value and service and concept of operations, even though such Bid may not, on its face value, appear to be the lowest price.

In evaluating Bids, Owners will consider, among other lawful considerations, the following:

- a. Whether or not the Bid complies with the prescribed requirements, and provides such alternates, unit prices and other data as may be requested in the Bid Form or prior to the Notice of Award.
- b. Evaluation to include fixed tangible cost elements, variable cost elements and intangible cost elements including meeting functional requirements and business objectives. The fixed tangible elements include the fee pricing structure proposed for each payment method. The variable cost elements of the proposal to be evaluated include the setup, testing and ancillary costs that will be required by the Owners to implement the selected solution. And last, the intangible cost elements would be based on responses to questions in this section, the technical specifications, and other such investigation undertaken by Owners as part of the evaluation process.
- c. The qualifications of the Bidder.
- d. Whether the proposed meter reading system, and all of the included products and services, are expected to meet the Owners' requirements over the 20 year life of the system.
- e. Bidder's financial status to meet all obligations and incidentals to the services.
- f. Whether the Bidder has appropriate technical expertise and experience.
- g. Bidder's performance record.
- h. The amount of the Bid and best Bid.

In addition, the evaluation of Bids will be subject to the reciprocal preference for Kentucky resident bidders pursuant to KRS 45A.490 to 45A.494 and KAR 200 5:400. These statutes and regulation provide in part as follows: (a) a resident bidder of the Commonwealth shall be given a preference against a nonresident bidder registered in any state that gives or requires a preference to bidders from that state; (b) the preference shall be equal to the preference given or required by the state of the nonresident bidder; (c) this preference shall not be applied

against nonresident bidders residing in states that do not give preference against Kentucky bidders; (d) if a procurement determination results in a tie between a resident bidder and a nonresident bidder, preference shall be given to the resident bidder; and (e) the preference shall not result in a nonresident bidder receiving a preference over another nonresident bidder.

Owners may conduct such investigations as Owners deem necessary to establish the responsibility, qualifications, and financial ability of Bidders to perform the services in accordance with the Bidding Documents and the Contract Documents, including, without limitation, a Bidder's claim that it is a resident bidder for purposes of Kentucky's preference statute.

16. CONTRACT SECURITY AND INSURANCE. Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owners' requirements as to performance and payment of Bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owners, it must be accompanied by such Bonds or certified checks.

17. SIGNING OF AGREEMENT. When an Owner gives a Notice of Award to a Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents identified in the Agreement as attached thereto. Within 15 days thereafter, the Successful Bidder shall sign, leaving the dates blank, and deliver the required number of counterparts of the Agreement and attached documents to the Owner, as applicable. Within 15 days thereafter, the Owner shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Contract Documents with appropriate identification.

18. RETAINAGE. Provisions concerning retainage are set forth on the Owners' Agreements.

19. DRINKING WATER STATE REVOLVING FUND LOAN. Some of the funding for NKWD's portion of the project comes from a Drinking Water State Revolving Fund (DWSRF) loan. This loan originates with the United States Environmental Protection (USEPA) and has several provisions that directly impact the Bidder for the NKWD portion of the project. These include:

1. A certificate that the Bidder, and any subcontractors used by the Bidder, are not on the Federal List of Debarred Contractors. (CERTIFICATION REGARDING DEBARMENT, SUSPENSION AND OTHER MATTERS – EPA Form 5700-49) addresses this item and must be executed and included with the bid
2. A certification from the Bidder that no appropriate funds were or will be used for the purposes of lobbying the legislative or executive branches of the Federal government. (CERTIFICATION REGARDING LOBBYING) address this item and must be submitted with the Bid.

The DWSRF loan creates additional documentation requirements on both the Contractor and the Owner. These are set forth in the Supplemental General Conditions for Drinking Water State Revolving Fund Loans (DWSRF Supplemental General Conditions). The items identified, but not limited to, in this section must be submitted with the Bid. The remaining items identified in the DWSRF Supplemental General Conditions Section will be submitted by the selected

bidder within 21 days of the District's formal request. The NKWD portion of the project will not be awarded until this information is received.

DWSRF funding requires a recipient to utilize minority or women owned businesses as subcontractors where possible. Certain information and documentation is required by the funding agencies and other governing bodies prior to awarding a necessary approval for the NKWD portion of the project. The BIDDER acknowledges, through the act of submitting a Bid, a commitment to submit the following documentation or information within 7 days of the District's formal request to do so, whichever is greater. Failure to produce any of this documentation or information within the prescribed period will serve as grounds for rejection of the Bid. If the information is required from a subcontractor or vendor and is not produced within the prescribed, it will serve as grounds to replace the subcontractor or vendor with another company or product.

Specific items to be submitted within 7 days of the District's formal request include:

- A. Disadvantage Enterprise Participation Policy (Attachment 11-Section 00810).
- B. List of DBE Bidders of Subcontractors (Attachment 11-Section 00810).

End of Section



## TECHNICAL SPECIFICATIONS

**1. OVERVIEW.** The Contractor shall provide and install all required equipment, licenses, hardware, and software to implement a system-wide meter reading system to replace the existing Automated Meter Reading (AMR) system for the Northern Kentucky Water District (District) and the existing Advanced Metering Infrastructure (AMI) system for the City of Florence (City) (and referred to individually as “Owner” and collectively as the “Owners”) to record and transmit meter readings for all of the Owners’ customers. The system must be a radio frequency based system employing mobile radio, fixed radio, cellular, or a combination of these technologies. Services will include installation, training, and post-installation support. The meter reading system shall have a design life of 20 years. The time to deploy the system will be 24 months for the District and 12 months for the City. These durations begin on the date of a Notice to Proceed and include full delivery of the system including completion of all installations, training, and acceptance. The date of substantial completion of all services, including all installations, training, and acceptance shall be the beginning date for warranties and agreements for service and maintenance.

The following table summarizes the products and services being procured by both Owners with this procurement:

<b>Product/Service</b>	<b>Northern Kentucky Water District</b>	<b>City of Florence</b>
Technologies to be considered:	AMR or AMI	AMI only
Endpoints (meter interface units, or “MIUs”) capable of encoding, storing and transmitting meter-reading and other data, such as tampering alerts.	Required (85,500 estimated)	Required (8,775 estimated)
A Utility-dedicated network or non-Utility-dedicated communications service to collect and transport meter-reading and other information from the endpoints to a head-end computer system.	Required if AMI	Required
Handheld devices and software necessary to program and/or initialize the endpoints and collect installation data.	If Bidder’s solution requires	If Bidder’s solution requires
Head-end computer hardware and software, or a service, to collect, store, and manage the data which is delivered through the network.	Required	Required
A meter data management system (MDMS) which can store meter reads and consumption data and allow that data to be	Required	Required



<b>Product/Service</b>	<b>Northern Kentucky Water District</b>	<b>City of Florence</b>
queried, exported, summarized, and analyzed, and from which standard reports can be generated.		
A customer web portal to display interval consumption data and other information.	Optional	Optional
The design, installation and successful testing of information interfaces between the AMI system's software components and Utility's customer information system (CIS) and other systems, including GIS, field work order system, & hydraulic model.	CIS integration required; GIS & field work order system integrations are highly desirable	CIS integration required; all other integrations are highly desirable
All related documentation, including technical manuals and operating procedures.	Required	Required
Training of Utility's employees in endpoint installation, maintenance, diagnosis and troubleshooting, as well as system use, operation and maintenance.	Required	Required
Shipping and managing the inventory of AMI equipment during the course of project deployment.	Required	Required
Where appropriate, installation of fixed data collection units, including the communications links between those collection units and the head-end system.	Required	Required
Provision of all necessary radio licenses, firmware, third party software or operating systems to ensure a complete and working system.	Required	Required
Satisfactory testing of all software, hardware and procedures prior to the deployment of the system according to the system testing and acceptance process set forth in the contract, and satisfactory testing of system performance at the completion of the project or at major milestones.	Required	Required
Coordination, scheduling, communications and documentation of all installation services.	Required	Required
Project management to ensure all products and services are coordinated.	Required	Required

<b>Product/Service</b>	<b>Northern Kentucky Water District</b>	<b>City of Florence</b>
Cold water meters with AMR/AMI-compatible registers to replace some existing meters.	May obtain up to 85,500	May obtain up to 8,775
AMR/AMI-compatible lids for outside set meter boxes, or the modification of existing lids (where applicable)	May obtain up to 85,500	May obtain up to 8,775
AMR/AMI-compatible registers to be retrofit to some existing meter bases.	None	May obtain
Remote shutoff capability for a subset of service connections with operation provided through the AMI system	May obtain up to 1,000	500 Required
Installation of new meters, retrofit registers, and AMI endpoints.	Required for quantity acquired	Required for quantity acquired
Disposal of old meter-reading equipment, old meters, and old meter box lids	Old meters and 2,000 old transmitters returned to District; disposal of other parts required	Old nodes (MiNodes) returned to City until new system is operational; disposal of meters, nodes & other parts required
Hosting of the head-end software, meter data management system and customer web portals	Optional	Optional
Operation and maintenance of the data collection network.	Optional	Optional
Maintenance and support for all software obtained through this procurement, including the head-end, MDMS, and customer portal	Required	Required
Pressure regulating valves	May obtain up to 5,000	None

Note regarding sharing AMI data collection and communication system infrastructure between the District and the City:

- Under no circumstances will the Owners share data collection and communication system infrastructure regardless of any cost advantage; the District's and the City's data collection and communication systems shall remain fully independent of each other.
- If there is a benefit to the Owners from contracting with the same Bidder, the savings shall be quoted on the Bid Form.
- If there is a benefit to the Owners from locating their separate infrastructure on shared structures, the savings shall be quoted on the Bid Form.

The Owners will entertain offers of creative financing or alternative cash flows for obtaining the products and services specified herein. In the Bid Form, please fill in either Alternate Bid Item #2-A28, #3-A28, or #4-A28 (as applicable) if you are making such an offer.

2. TERMS AND ABBREVIATIONS. The following are key terms used throughout this Technical Specification:

**AASHTO:** American Association of State Highway and Transportation Officials.

**Advanced Metering Infrastructure (AMI):** Fixed network type meter reading system, allowing for remote collection of meter reading and associated data provided by meters.

**AMI Compatible Meter:** A meter that requires a change of register to an encoder type register with a connector ready to connect to an MIU.

**AMI Ready Meter:** A meter that has a register and connector ready to connect to an MIU. All AMI-Ready meter registers will be of the dial position or electronic encoder type.

**ANSI:** American National Standards Institute.

**Automated Meter Reading (AMR):** System of meter reading allowing for reads to be obtained in a drive-by manner.

**Bid:** Bidder's proposed system costs, as presented per the instructions in Section 5 of this request for bids.

**Bidder:** Firm or company responding to the request for proposals.

**CIS:** Customer Information System.

**City:** City of Florence.

**Contract Manager:** The Contractor will designate a Contract Manager who is a direct employee of the selected firm for the duration of the contract, and who shall have the authority to handle and resolve any disputes or contract issues with the Owners.

**Contractor:** Bidder to this request for proposals whose proposal is determined to be the most advantageous to the Owners, and with whom the Owners enter into a contract for the furnishing of either an AMR or AMI system for their water utilities.

**Data Collection Unit (DCU):** AMI system device that collects information transmitted by Meter Interface Units (MIUs).

**District:** Northern Kentucky Water District (NKWD).

**Engineer:** Owners' authorized persons acting as Owners' Agent throughout the procurement and implementation of the project.

**Installation Manager:** The Contractor will designate an Installation Manager, who shall be responsible for managing the entire installation project on a day-to-day basis on behalf of the Contractor.

**Installation Period:** The period that begins on the Commencement Date stated in the Owner's issued Notice to Proceed and ends upon the certification of Substantial Completion.

**Invitation to Bid (ITB):** This document including all attachments, which will become incorporated into the contract developed between the Owner and the Contractor.

**MDMS:** Meter Data Management System.

**MIU:** Meter Interface Unit (Endpoint); device that stores information obtained from meter (including meter reading interval data and alarms/alerts) and sends information to AMR/AMI data collection system.

**Owner Project Manager:** Employee or agent of the Owner(s) designated to manage this project.

**Pre-Deployment Meeting:** Meeting between the Owner and the Contractor that will occur subsequent to a contract being fully executed but prior to commencement of contracted work, with the primary purpose of establishing the detailed AMR/AMI system deployment schedule.

**PSI:** Pounds per Square Inch.

### 3. PROJECT BACKGROUND AND SCOPE OF WORK.

#### A. NORTHERN KENTUCKY WATER DISTRICT

The Northern Kentucky Water District (District) currently operates a water utility meter reading program that involves mobile radio reading of approximately 85,500 water service meters. Water consumption data is imported into the District's utility billing system (CIS Infinity by Advanced Utility Systems), from which utility billing statements are generated. Water consumption data is also provided to Sanitation District No. 1 of Northern Kentucky

(SD1), which sends separate wastewater bills to its customers based on those customers' water consumption.

- Meters consist primarily of Badger Recordall and Neptune T10 models. Other meter types include Badger eSeries, Master Meter Octave, Neptune Mach10, Zenner, Sensus SR11, and AMCO meters. Meters are configured to be read in hundreds of cubic feet (CCF).
- Approximately 75,000 meters are located outside in meter boxes, with the remainder currently installed inside customer buildings.
- The District currently employs a Badger mobile AMR system to read the majority of its water service meters on a quarterly basis. Monthly reads are obtained for approximately 3,600 accounts.
- In accordance with Kentucky Public Service Commission (PSC) requirements, the District maintains a meter testing program.
- The District's meter shop performs annual testing of large meters (3-inch and above) and the testing of approximately 12,000 smaller meters per year, including testing removed meters in accordance with Kentucky PSC requirements.

## B. CITY OF FLORENCE

The City of Florence, Kentucky (City) has approximately 8,775 water meters, which are currently read using a Mueller AMI system. Meter readings are imported into the City's Springbrook utility billing system, from which utility billing statements are generated. Issues with the existing AMI system have included battery life at the MIUs and at repeaters. Through this procurement, the City intends to implement a new AMI system which will provide enhanced reliability and functionality.

- Small meters consist primarily of Sensus, Mueller SSR Standard, Hersey, and Invensys models. Customers are billed in hundreds of cubic feet (CCF), but for leak identification, the analytics system will need to read to the nearest 1 cubic foot.
- 99% of meters are located outside in meter boxes.
- The existing AMI system includes 7 data collectors with 2 available spares. Since the system's original implementation, more than 250 repeaters have been added to address communications issues, largely related to the City's proximity to the Cincinnati/Northern Kentucky International Airport.

- With this procurement, the City intends to replace at least 95% of its meters beginning with 5/8" and moving up in size. The "actual" amount of meters that are replaced will be determined by the overall cost of the project as it relates to the funds budgeted.

## C. SCOPE OF WORK

The work involved under the terms of the contract with the Owners shall be full and complete execution of the items noted below, and as described further throughout these technical specifications. The scope of work is divided into seven parts, as described below. Bidders must provide proposals addressing all parts of the scope of work. Bidders may exercise the option of partnering with others to complement the offerings in their proposals.

Part A. Meters

Part B. AMR/AMI Meter Interface Units

Part C. Data Collection and Communication System

Part D. Meter Data Management System and Data Analytics

Part E. System Integration and Customer Portal

Part F. Installation of Meters and Meter Interface Units

Part G. Project Management, Training, and Support

The next several paragraphs summarize these components of the AMR or AMI system to be furnished by the Contractor:

### **Part A. Meters**

1. The City intends to acquire water meters with AMI-compatible registers to replace its existing meters. If the City determines that certain existing meters only require that the meter register be replaced with an AMI-compatible retrofit register instead of completely replacing the meter, the City may procure these retrofits (but the quantity of these is not presently known). For the City, note that wire splicing of the MIUs to meter registers is not allowed for new meter/register installations.
2. The District intends to acquire MIUs for all of its existing meters, and is requesting pricing to optionally purchase a portion of its meters.
3. Both the District and the City intend to implement remote shutoff valve (RSV) functionality, controlled through the AMI system, at a limited number of service connections. The Owners will consider Bidder options with the RSV integral to

the meter body, as well as options that involve infrastructure separate from the meter.

4. The following table provides estimates of the total number of existing water service meters for the District and the City, based on records within the past 6 months. Note that the District has not determined how many (if any) of these meters will be replaced during this project.

<b>Meter Size</b>	<b>District Quantity</b>	<b>City Quantity</b>
5/8"	72,592	7,762
3/4"	3	49
5/8"x3/4"	9,104	25
1"	1,787	248
1.5"	909	332
2"	945	290
3"	112	53
4"	82	19
6"	48	12
8"	16	10
10"	5	
<b>Total: All Sizes</b>	<b>85,603</b>	<b>8,775</b>

**Part B. AMR/AMI Meter Interface Units**

1. Furnish MIUs for all water service meter locations. MIUs shall be capable of transmitting information to the data collection and communication system installed as part of this contract or to other existing collection points (e.g., existing cellular networks and their associated infrastructure). Provide, if applicable, required cabling, splice kits, and all equipment necessary to connect meter registers to MIUs, in order to obtain a failure-free connection for the 20-year life of the installation.

**Part C. Data Collection and Communication System**

1. Furnish and install the proposed AMR or AMI data collection/communication system. For AMI systems, this may include data collection units (DCUs) and repeaters as necessary for a fully functioning system. This element of the scope of work includes installation of DCUs and repeaters, along with required support structures, electrical power connections, and everything necessary to make them operational.

2. Furnish and install the communication or data transfer (“backhaul”) system capable of transferring data from DCUs to the Owners’ information networks (if using on premise data storage) or to a hosted data storage site.
3. If field programming units are required to program MIUs or meter registers, and/or to diagnose problems with registers or MIUs, these handheld devices and software must be furnished.
4. Obtain all Federal, State and local permits required for the installation and operation of the system and any other approvals.

#### **Part D. Meter Data Management System (MDMS) and Data Analytics**

1. Furnish and implement a Meter Data Management System (MDMS) to store and manage data collected by the AMR/AMI system. This shall be either licensed and hosted on the Owners’ network and computing hardware, or using data hosting services offered by the Bidder. This shall include a head-end through which the Owners will operate and manage the AMR/AMI system.
2. For AMI systems, furnish a data analytics package that provides the ability to obtain, analyze, and utilize data stored in the MDMS. Software must be provided with all licenses (or provided through a hosted solution), and must be maintained by the Contractor over the 20-year life of the meter reading system.
3. Provide direct and unrestricted access to MDMS and other relevant systems’ databases, either on premise or hosted.

#### **Part E. Customer Information System Integration and Customer Portal**

1. Provide integration of the AMR/AMI system with the Owners’ billing systems.
2. For AMI systems:
  - a. Enable the means by which to communicate appropriate meter data to the Owners’ geographic information system (GIS), enterprise asset management system, and hydraulic model (if possible)
  - b. If selected by Owner, furnish and implement a customer portal for utility account holders at a minimum to access their consumption history and leak detection information in “near real time”.

#### **Part F. Installation of Meters and Meter Interface Units**

1. Where directed by Owner, install replacement meters and pressure regulating valves.



2. Install replacement meter registers and MIUs.
  - a. This includes installation of replacement meter box covers or meter boxes, if/as needed for the system to function as specified.

### **Part G. Project Management, Training, and Support**

1. Provide technical and installation support to the Owners during system deployment.
2. Provide documentation adequately describing the configuration, operation and maintenance of the AMR/AMI and metering system and its components, for use by Owners' employees or agents.
3. Provide training sufficient to enable Owners' personnel to configure, implement, and properly operate and maintain the AMR/AMI system.
4. Provide technical support for the system over the life of the system, including on-site and telephone support for Owners' personnel, and patches and upgrades to the system software and firmware to ensure that the system continues to perform to design criteria.
5. Enter into a service contract with the Owners for the on-going maintenance of the meter reading system equipment and system software for fixes and upgrades. This includes all components of the data collection/communication system including DCUs and repeaters.
6. The Contractor will be the single point of contact to resolve any and all issues between meters, registers, software, etc.
7. The Contractor for this project shall comply with all Federal, State, County, District, and City codes and regulations applicable to such work and perform the work in accordance with the requirements and specifications of the contract documents.

The District's objective is to have the AMR/AMI system fully installed and operational for its entire water service area within 24 months of a Notice to Proceed. The City's goal is to have its AMI system fully installed and operational for its entire water service area within 12 months.

## **4. SYSTEM REQUIREMENTS**

### **Introduction**

The following describes the technical requirements for the AMR/AMI system. The Owners intend to procure the most advantageous AMR/AMI system to meet their long-term needs. For

some items listed below, the Owners have identified minimum requirements that must be met. All specifications incorporating “shall,” “must,” etc., are such requirements, and failure to comply with these must be specifically noted as exceptions. For other items, the Owners have identified desired end results and are open to various methods for achieving those results. All specifications incorporating “should,” “desires,” etc., are highly desirable features. The Owners are solely responsible for making judgments about the products and services being offered and whether they meet the intent of this specification and the Project.

Provide brief narrative responses to each numbered/lettered section of these Technical Specifications. Some responses may simply note that the Bidder’s proposed approach/system “**complies with the specification**”, while other responses may require brief narrative explanation of how the approach/system meets the technical requirements. Such narrative explanations are required where the Bidding Document language includes underlined text such as: describe, state, indicate, or note.

The Bidder shall clearly identify any exceptions. Taking exception to the Owners’ requirements will not necessarily adversely affect consideration. In describing any exception, the Bidder should note how the system achieves the performance and operational requirements specified and any potential benefits of the proposed system to the Owners.

The Bidder shall respond to each section below.

## **Overview**

Bidder shall provide a summary description, not to exceed one page, to provide the Owners with an understanding of the products being proposed and how the functions and features of the proposed meter reading system will meet the mandatory requirements of the Bidding Documents. In addition to the one-page summary description, provide a schematic depicting the system’s components and configuration and a brief overview of the architecture and normal functioning of the system.

### **Part A. Meters**

*Sections A.1 through A.3 describe the minimum requirements for meters, and include requests for specific information to be provided by the Bidder. Additional detailed meter specifications applicable to the District and the City are provided in Attachment 4.*

#### **A.1 General Requirements**

Replacement water service meters shall be new mechanical or electronic meters of the same flow characteristics. Bidders shall describe how the proposed meters/registers meet the requirements stated below. Bidders may propose either or both mechanical and electronic meter options.

A. Conformance to Standards

- i. All new meters shall be warranted to meet or exceed American Water Works Association (AWWA) standards C700, C701, C702, C707, C708, C710 and/or C715 (as most recently revised, and as applicable based on meters proposed) for accuracy and head loss requirements for new meters.
- ii. All products that come in contact with potable water, (which includes: meters, valves, fittings, couplings, adapters, etc.) must be “no-lead” and shall comply with applicable provisions of the NFS/ANSI 61 Annex F & G and NSF/ANSI 372 Standards for no lead.

B. Requirements

- i. All meters shall have a unique serial number stamped or embossed on the main case.
- ii. Meters shall be packaged in cartons or crates consecutively numbered, and marked with the serial number of the meter contained therein. Such cartons or crates shall be secured on approximately 39” x 44” wooden skids or pallets to facilitate handling by forklift.
- iii. Registers shall display water consumption in units of cubic feet.
- iv. Registers must have a unique serial number stamped or embossed.
- v. Provide warranty information for meters and registers (these are to be included in Bidder’s proposal, in an appendix).
- vi. Indicate current lead time for delivery of meter orders.

**A2. Mechanical Meters**

- A. If proposed, mechanical residential meters shall be manufactured in strict accordance with the applicable AWWA standard(s) as noted in Section A1. An affidavit of compliance shall be submitted that indicates the meters to be furnished are in compliance with the applicable AWWA standard. For each meter furnished, a certificate shall be submitted showing that the meter has been tested for accuracy and capacity, in accordance with the applicable AWWA standard.
- B. All mechanical meters shall be provided with a removable stainless steel or plastic strainer in accordance with the applicable standard.
- C. Bottom main case covers shall be breakable (frost protection) cast iron or thermal plastic, in accordance with the applicable standard.

- D. Describe the materials used for external fasteners and threads. If multiple options are available, indicate as such, identify the recommended/proposed solution, and describe differences in costs between the options.
- E. Encoder-type registration devices shall be furnished with the mechanical meters, and manufactured in accordance with the applicable AWWA standard. Describe the materials used for register fabrication, number of digits displayed, and the resolution of the register.

### **A3. Electronic Meters**

- A. If proposed, electronic type residential meters shall be manufactured in strict accordance with the applicable AWWA standard(s) as noted in Section A1.
- B. Describe the materials used in meter fabrication, including provisions for frost protection.
- C. Describe battery life warranty and procedures for replacing batteries.
- D. Describe the materials used for external fasteners and threads. If multiple options are available, indicate as such, identify the recommended/proposed solution, and describe differences in costs between the options.
- E. Describe the environmental operating ranges/tolerances of the proposed electronic meter, particularly with respect to temperature.

### **A4. Remote Shutoff Capability**

- A. Both the District and the City intend to implement remote shutoff valve (RSV) functionality, controlled through the AMI system, at a limited number of service connections. Describe the proposed approach to provide this functionality. Options the Owners will consider include, but are not limited to: functionality integral to meter; functionality provided via a separate device that can be installed with a meter within a standard lay length; functionality provided via a separate device installed with a meter within a non-standard lay length that requires modification to the meter setter.

## **Part B. AMR/AMI Meter Interface Units**

*If both AMR and AMI systems are proposed, please indicate if the same Meter Interface Units are compatible with both types of systems. Note in Sections B.2 and B.3 any unique characteristics for AMR- or AMI-specific MIUs.*

### **B.1 General Requirements**

Meter Interface units (MIUs), designed to capture meter readings or accumulated consumption and other information from the meters and transmit this information to the data collection system, must be furnished for all water service meter locations. The information provided by the

MIU must be sufficient to enable the system to replace the routine manual reading of meters by Owners' staff.

- A. Physical characteristics. Describe the physical characteristics of the MIU, including height, length, width and weight. Describe the standard length of connecting wire which shall be a minimum of six (6) feet.
- B. Transmitter configuration. Describe the MIU configuration that you are proposing. Note if the MIU will be integral to the register, remote or under the meter register. Note the features and benefits of the proposed configuration. Multiple configuration options may be proposed.
- C. Multiple meters/registers. Describe how the MIU handles multiple meter registers and multiple meters in close proximity (i.e., state if there is a dual-port option). Note if there is a price differential for an MIU that can handle multiple registers.
- D. Batteries. State the type of battery used by the MIU. State the expected battery life. Indicate if the battery is removable and replaceable. If it is, state the current cost of replacement batteries and availability. Describe the process for field battery replacement. State how the system will prevent loss of programming or data if the battery expires. Describe any special MIU battery disposal provisions, and indicate the current cost of providing battery disposal if special handling is required. Describe the impact additional reading frequency has on battery life and at what frequencies battery life may be affected. Describe the end-of-battery-life indication of the system: a) at the battery level, and b) at the system software level.
- E. ID Number. Each MIU must have a unique, permanent ID number that is transmitted with the meter readings. Note the length of the ID number and any other characteristics. State whether the meter register ID is also transmitted with the meter readings and how the situation of one MIU serving two or more meters is handled.
- F. Programmability. Describe all MIU programmability options, features and procedures. Note whether programming of the MIU is needed due to meter register or other maintenance.
- G. Activation. Describe the tools needed and how an MIU is activated, then recognized by the system once installed.
- H. Environmental tolerance. The MIU must operate in conditions subject to water submergence (i.e., meter boxes or vaults) and heat. Describe features of the MIU that prevent corrosion or degradation of mechanical or electrical performance.
- I. Labeling. The MIU must be permanently labeled with the manufacturer's name, model number, "Northern Kentucky Water District" or "City of Florence" as appropriate, a tamper warning, MIU identification number, required FCC labeling, input/output

connections, and date of manufacture. Labeling must include a bar code of the MIU serial number. If the MIU antenna is visible outside of the meter lid, it is desired that the MIU identification number be displayed so it can be read without opening the meter lid.

- J. Ease of installation. Describe installation procedures. Indicate design provisions to avoid installers' mistakes in installation, connection to meters, and programming.
- K. Ease of maintenance. Describe procedures that need to be followed to replace the MIU should it fail. Describe procedures for the various MIU configurations. Note any specialty tools, materials or supplies that are needed to perform this work.
- L. Meter box installation. The Owners' water meters are located in a variety of enclosures: plastic boxes with plastic, concrete, aluminum, or steel plate lids; concrete boxes with cast iron or steel plate lids; and, concrete vaults with steel plate lids. Refer to the following links for meter box details:

**District:** [www.nkywater.org](http://www.nkywater.org) ; Then on the left side of screen go to "Standard Drawings". Then sections 107, 108, 202, 206 & 207

**City:**

[https://cms3.revize.com/revize/florence/document\\_center/Public%20Services%20Forms/Drinking%20Water%20Specifications.pdf](https://cms3.revize.com/revize/florence/document_center/Public%20Services%20Forms/Drinking%20Water%20Specifications.pdf)

**Meter Box Details**

Some of the meter boxes are in vehicle traffic areas, including parking areas. Describe any issues and or limitations with the meter pit installation that will affect immediate or long-term reading reliability and reading range and suggested solutions. Note if the MIU requires a through-the-lid solution, under-the-lid solution, or can be installed in either fashion. Describe minimum height clearances needed above meter body or register for MIU installation. Note any requirements that must be met to avoid voiding or diminishment of system warranties and guarantees. For through-the-lid solutions, indicate compliance with ADA requirements.

- M. Connections to meter registers. Describe the means of connection between the MIU and the meter register(s), and provisions to prevent misconnection, corrosion or disruption of any connections. Note that wire splicing is not allowed by the City. Factory potting of the MIU to the register is preferred. Describe such options if available.
- N. Warranty. Attach the MIU warranty information for the MIU and battery in the appendix. The warranty for the MIUs and batteries must address frequency of reads.
- O. Indicate current lead time for delivery of MIU orders.

**B.2 AMR Meter Interface Units**

- A. Describe unique characteristics of AMR-specific MIUs that are not described in Section B.1.

### **B.3 AMI Meter Interface Units**

- A. Describe unique characteristics of AMI-specific MIUs that are not described in Section B.1.

## **Part C. Data Collection and Communications System**

### **C.1 General Requirements**

The Owners require that all water service meters be equipped to communicate with an AMR or AMI system that will enable it to obtain timely, accurate, and automated meter readings. Within the items noted below, describe the proposed system features and characteristics, and performance that results from the interaction of components. It shall be the Bidder's responsibility to propose in detail any components, ancillary services, etc., not addressed in this solicitation, that are required to ensure that the Owners obtain complete and fully functional systems.

- A. Environmental tolerances. All system components must operate over a temperature range of -20° F to 120° F, and a humidity range of 0% to 100% non-condensing. State the operational temperature and humidity ranges for system components.
- B. FCC licenses. Indicate what FCC or other regulatory agency licenses, if any, the system will require. Indicate the expected length of time to acquire such licenses. Indicate what problems can occur in the process of obtaining such licenses, especially taking into account the Owners' proximity to the Cincinnati/Northern Kentucky International Airport. Note if licenses must be acquired prior to the installation of the AMR/AMI system equipment. Note if licenses have a renewal period.
- C. Obtaining licenses. Bidder must obtain all necessary licenses on behalf of the Owners. Licenses must be obtained and assigned radio frequencies verified as suitable for use with the AMI system before any AMI equipment may be installed. If the Bidder is unable to obtain the necessary licenses in a timely manner, the Owners reserve the right to cancel the contract and orders for all or part of the system, and receive a full refund from the Bidder of all amounts paid. The Bidder will be required to remove all installed AMI system equipment solely at its cost, including any AMI system equipment installed by the Bidder that cannot be operated due to the lack of a proper license.
- D. Component firmware. Bidder must include firmware for all system components, including MIUs, data collectors and portable interrogator/programming/testing units, at no additional cost. Bidder must provide any available upgrades or patches to such firmware to correct problems, add new standard features, and ensure system compatibility and full

functionality for the 20 year life of the system at no additional cost, including installation. Describe how firmware is updated.

E. Handheld Data Collectors

1. System Functions. The Owners require handheld meter reading devices, cradle/data transfer units, software, etc., to read meters equipped with MIUs as well as capture manual meter readings. The handheld device must present to the meter reader unambiguous and accurate information needed to locate a water meter. It must also inform the meter reader of the next meter to read, any upcoming hazard (e.g., beware of dog), special routing or location information, and special instructions (including the presence of an AMR/AMI-equipped meter, which is not manually read).
  - a. Time stamp. The handheld device must automatically time stamp each meter reading with unalterable date and time of read.
  - b. Searching. The handheld device must allow for searching and viewing of data within the handheld meter reading device, by several fields or keys, including meter location address, meter number, unread account, sequence number and manually-entered flag/tag/bookmark.
  - c. Out-of range warning. The handheld device must visually and audibly warn the meter reader of a meter reading entry that is out of range, including no consumption for an active account, or of an inactive account that has consumption since the previous reading. The device must allow the meter reader to override an out-of-range warning, to enter an unusual reading, to enter a trouble or skip code, or skip a reading and make a notation of the fact, if a meter has been removed from service.
  - d. Data displayed. The handheld device must be capable of displaying all of the following information on the primary screen:
    - i. Route number
    - ii. Meter reading sequence number
    - iii. Customer name
    - iv. Meter number and radio identification number
    - v. Meter address
    - vi. Meter location description, hazard descriptions, and additional special instructions



- e. Data entry by meter reader. The handheld device must allow for field entry of data, including meter readings, and information on meters that are out of sequence or that were not transferred into the handheld meter reading device. The handheld device must allow the meter reader to modify or correct certain fields, including meter location, hazard, and special instructions to update the associated billing system data. Note if there is a tracking feature that documents when information is changed manually.
  - f. Codes and comments entry by meter reader. The handheld device must allow for entering an unable-to-read code and up to two additional special reporting codes and comments for each meter reading record. Describe if a field code book is provided for Owners' staff use in conjunction with the handheld device.
  - g. GPS capabilities. The handheld device must be able to obtain GPS coordinates to sub-meter accuracy. Describe the GPS capabilities of the proposed device, and how GPS coordinates are assigned to meters.
2. Handheld Physical and Environmental Characteristics
- a. Size and weight. Indicate the size and weight (with batteries installed) of the handheld meter-reading device.
  - b. Resistance to dropping. The handheld unit must be able to withstand an impact of a five-foot drop onto a concrete surface without breaking or losing data and must be water tight.
  - c. Display. Must have a multi-line alpha/numeric display, large enough for easy reading of route data, readable in normal daylight, and have an internal display light for reading the display under low-light conditions.
  - d. Environmental. The unit must be capable of being submerged for up to 20 seconds without loss of functionality. Indicate the temperature and humidity operating ranges for the handheld unit.
  - e. Carrying. The handheld device must be able to be carried by hand (left or right hand equally) and secured by a hand strap or supported by a belt and/or shoulder strap, to free up both hands when device is not in use.
  - f. Keypad. The handheld device must have alpha/numeric/special function keys that allow a meter reader to easily enter data correctly while wearing gloves.

- g. Batteries. Rechargeable batteries must power the handheld device. These batteries should be user-replaceable. The unit must have provisions to retain all data while the primary batteries are being replaced. The handheld device batteries must be able to be fully recharged in eight hours.
- h. Data/meter reading capacity. Describe the capacity of the handheld device, in terms of the number of meter readings that may be captured under normal circumstances.
- i. Data fields. The handheld meter reading device must keep the following data internally, for use in calculations and validations:
  - i. Time and date of reading
  - ii. Handheld meter reading device identification code
  - iii. Meter reader identification code
  - iv. High consumption reading limit
  - v. Low consumption reading limit
  - vi. Table of utility-defined codes, with associated code descriptions

3. Handheld Device/Computer Data Transfer

- a. Data transfer method. Describe the method used to transfer data between the handheld device and a computer.
- b. Data transfer rate. Indicate how long it normally takes to upload the data from a 200-meter route, and how long to download the next 200-meter route.
- c. Data protection in transfer process. Data sent to the handheld meter reading device must overwrite existing data, with proper warning and the opportunity to cancel the action before the transfer begins, so as not to allow the accidental erasure of un-transferred meter reading data. The handheld meter reading device must display a message or other warning when data transfer is taking place and when the transfer is complete.
- d. Device ID synchronization. The data transfer method must synchronize the meter reading data with the associated handheld meter-reading device, through identification validation, so that the handheld meter-reading device has the appropriate route data for its assigned meter reader.

#### 4. Field Programming and Testing Devices

Indicate if field programming units are required to program MIUs or meter registers, and/or to diagnose problems with register or MIUs. If such functionality is **not** incorporated into the handheld data collectors discussed above, respond to the items below.

a. Number of units. Bidder shall supply all units required for Bidder's installation subcontractor. Indicate how many units are required for maintenance by Owners' employees after installation. Pricing and totals for these units shall be included as part of the cost proposal.

b. Functions/modes of operation. Describe all of the functions of each unit.

The field programmer must be capable of programming the MIU with any information required for operation. The portable field programmer must be capable of providing instructions to the MIU concerning the make, model and data protocol of the meter being connected, should the MIU not be able to determine this itself.

The field tester must be able to locate and diagnose problems with a system component (meter register, MIU or DCU) unless the system incorporates an alternate way to make such diagnoses. The field tester should be able to ascertain the condition of the battery in an MIU. Indicate if the field test unit can simulate the functions of an MIU.

c. Interface to computer. Describe the mechanism and procedure for downloading data from and uploading data to a computer.

d. Capacity. Describe the capacity of each unit. If the unit stores work order information, how much data, or how many work orders, can it accommodate?

e. Physical characteristics. Indicate unit weight and dimensions. Describe any features, such as shoulder or belt strap, to facilitate carrying and preventing it from being dropped.

f. Accessories. Describe the connecting hardware and software, including cables, modem, cradle, battery, charger, etc. required for the unit to be fully functional.

g. Bar code reader. The unit should be capable of accommodating a bar code reader to capture meter or MIU numbers from bar codes pasted on these components.

h. Batteries. The unit must ensure against accidental data loss in case of a dead battery. Describe the types of batteries required. If the unit uses rechargeable

batteries, describe how long it takes to fully recharge a battery after a full day of normal use.

- i. User interface. Indicate the display's overall dimensions, the number of characters displayed, and the height and width of the characters. Include an illustration of the display screen and keypad. Describe how the unit enables the display to be easily readable in bright or dim light. Indicate the angular range readability. Describe any audible tones used by the unit, and their function (e.g., confirming a reading or successful programming, warning of an out-of-limits condition, low battery, etc.).
- j. Manual entry. Describe how the unit permits manual entry of meter readings and other information (for example, the information necessary to complete a meter or MIU investigation or repair work order). Describe its capability to record notes or comments.

## **C.2 AMR System**

- A. Communication channels. Indicate the radio frequencies that are used for communication between the MIUs and data collection device proposed. Describe the radio communication mode (s) used by the system in terms of radio technology (s) used. Provide information about interference issues that could be encountered in the Owners' service area, especially taking into account the Owners' proximity to the Cincinnati/Northern Kentucky International Airport and how the proposed solution would mitigate for potential signal interference in this area.
- B. Data collection device. Indicate if the handheld described in Section C.1 is used to obtain meter read data, or if a separate device is utilized. If the latter, describe this device.

## **C.3 AMI System**

- A. Communication channels. Indicate the radio frequencies that are used for communication between the MIUs and data collection device proposed. Describe the radio communication mode (s) used by the system in terms of radio technology (s) used. Provide information about interference issues that could be encountered in the Owners' service areas
- B. System Design – Provide the following information for the AMI system being proposed. Include any charts, graphs or illustrations that will help demonstrate/show how the design meets the Owners' requirements.
  1. Frequency of reading. State how often meter readings are normally obtained (i.e., the default setting). Describe any options for changing the reading

- frequency at which meter readings may be obtained. Describe how the changes to the reading frequency are made.
2. System capacity. Describe the capacity of each system component, in terms of the number of meter readings stored and/or the number of meter readings that can be transmitted or received in a given time interval.
  3. Read on demand. Describe how the system obtains "off-cycle", special or on-demand readings from a particular meter.
  4. Demand profiling. Describe the capabilities of the system to obtain short-interval readings (e.g., hourly or several times per day) to monitor and profile water consumption patterns from a particular meter or group of meters.
  5. Communication system. Describe the system's proposed backhaul communication methodology, basis for pricing and communication technology, as prompted below.
    - a. Radio-based Systems. State the radio frequencies that are used for communication between the MIUs and data collectors proposed. Describe any licensing requirements and the process of obtaining and maintaining such licenses. Describe transmission power and receiver sensitivity with respect to retransmissions and number of collectors required. Describe the radio communication mode (s) used by the system in terms of radio technology (s) used. Describe interference issues that could be encountered in the Owners' service areas, especially taking into account the Owners' proximity to the Cincinnati/Northern Kentucky International Airport, and how the proposed solution would mitigate for potential signal interference in this area.
    - b. Cellular-based Systems. State what cellular networks are utilized by the system and the nature of any agreements between cellular providers and the Bidder. Describe interference issues that could be encountered in the Owners' service areas, especially taking into account the Owners' proximity to the Cincinnati/Northern Kentucky International Airport, and how the proposed solution would mitigate for potential signal interference in this area.
  6. Stored data system integrity and security. The system must ensure data integrity and data security. The system must ensure against loss of data. Describe how the proposed AMI system achieves these requirements.
  7. Mode of operation. Describe the system's normal mode of operation (i.e., for obtaining periodic readings for billing and other purposes).

8. Data transmission accuracy, security, and integrity. The system must include provisions to ensure data transmission accuracy, security, integrity, and protection from outside interference as well as signal degeneration, to prevent accidental loss or interception of customer or meter reading data. Describe how the proposed AMI system achieves these requirements.
  9. Tamper detection. The system must contain tamper detection capability which, when the meter, MIU or any wiring between components has been tampered with (cut wire, tilting of meter, backflow, etc.), must cause a tamper message to be indicated when the MIU sends its data. Indicate how quickly tampering with each component will be reported and how it will be reported. State whether or not the system generates a notification if the register number of the field device changes or there is a mismatch between the register number of the field device and the current register number in the system database.
  10. Leak detection. The system must monitor water consumption through the meter and indicate when there is a suspected leak. Describe how the system identifies and communicates leak detection information at the time reading information is communicated. Note if there are any other leak detection capabilities that the system has, such as configuration of leak threshold at the individual meter level. State if distribution leaks can be detected with the system using additional sensors.
  11. Other detection / status and trend monitoring, and configuration flexibility. Describe what other detection and / or status and trend monitoring capabilities the system has, e.g., register malfunction detection (under registration, over registration, no registration), trend analysis to aid in developing policies to promote water conservation, battery power levels (replacement predictions), and signal-to-noise performance of transmissions (system tuning). Describe the flexibility the system has for the user (i.e., Owners' staff) to define and modify parameter set points or trigger thresholds.
  12. System enhancements. Describe what future system enhancements are anticipated to be developed or incorporated in the next 20 years.
- C. Quantity of accounts.
1. Initially, the District system shall support 90,000 metered accounts and shall be scalable to at least 110,000 during the 20 year life of the AMI system.
  2. Initially, the City system shall support 10,000 metered accounts and shall be scalable to at least 15,000 during the 20 year life of the AMI system.
- D. System performance warranty. The Owners require the Bidder to design and provide an AMI and metering system that reliably and accurately transmits water meter readings

along with other information contained in transmissions. The Bidder must warrant that the system will achieve a 99.5% reading rate over any mutually-agreed-upon reading period (e.g., a three-day reading period), by comparing the number of actual reads received versus the number of reading attempts made at any time reading activity is performed, when the MIUs are installed and the reading equipment is operated and maintained according to the Bidder's instructions.

- E. System maintenance agreements. Describe service/maintenance agreement options available to the Owners. The Owners are interested in options involving full communications system monitoring and maintenance by Bidder. Describe the proposed terms of such arrangements if this is an option.
- F. Fixed Network Radio Data Collectors

The Bidder is responsible for estimating the number and location of fixed data collectors required in the Owners' service territories. **The Bidder shall perform a radio frequency (RF) propagation study to determine the installation locations for any and all data collection units and repeaters.**

The Owners own a number of towers/facilities that may be used for locating fixed network data collectors. In addition, there are other facilities not owned by the Owners that may potentially be utilized and are the responsibility of the Bidder to identify and procure. Location information will be provided to prospective Bidders upon submittal of an inquiry as described above in the Invitation to Bid. The Owners prefer that, to the extent practical, these existing sites be used for the mounting of fixed radio data collector units. Fixed radio data collection units must be mounted on roofs, towers, etc., at sufficient height and density to enable the Owners to collect readings from all meters in that portion of its service territory designed for use by this system.

The Owners intend to avoid locations where leasing arrangements must be made, if possible. However, if communication equipment is to be installed on third-party sites, the Contractor shall obtain 20-year rights for installing and operating that equipment; these rights will be transferred to Owner at no additional cost at the time of successful system acceptance testing.

1. Modes of operation. Indicate the mode of operation and schedule by which the data collector captures, stores, and re-transmits data received from MIUs back to the AMI control computer.
2. Communication to Owners' information networks (i.e., on premise solution) or data hosting site. The Bidder shall be responsible for a communication network or provisions to deliver meter readings and other AMI system data to the Owners' information network or data hosting site. Indicate available options and proposed method for transmitting data. For on premise solutions, indicate the point of demarcation between the AMI system and the Owners' information networks.



3. Number of units. Indicate the estimated number of data collectors, noting how many are estimated to be mounted on Owner-owned property versus the number estimated to be mounted on non-Owner owned property. The Bidder is responsible for providing a sufficient number of data collectors/repeaters so that 100% of all expected reads are obtained. Note in your design if meters might be read by more than one data collector. Describe the typical operating range of the data collector and conditions that might affect that range.
4. Mounting. Indicate options for mounting data collectors/repeaters, and recommended configuration. Indicate minimum required height.
5. Power supply. Describe how the data collector/repeater is powered. Describe the estimated one-time and continuing costs for powering data collector/repeaters. Describe how the system preserves data and backup data, and for how long, should power to a data collector/repeater be lost.
6. Programming. Describe any programmable features, such as reporting schedules, for data collectors/repeaters, and procedures for programming or configuring.
7. Electrical isolation. Indicate how the data collector/repeater is protected against electrical surges such as lightning.
8. System installation schedule. The Contractor will first furnish and install the necessary components of the AMI system within a small portion of each Owners' service area (i.e., Initial Deployment Phase, involving approximately 500 meters), so that each Owner may confirm that the installed system functions appropriately. Once accepted, the Bidder will be given notice to proceed with the remainder of the Scope of Work. In accordance with the implementation schedule to be developed as part of the contract, the Bidder will be paid only for the installed portions of the contract accepted by the Owners as being fully operational. The District's AMR/AMI system will be fully deployed and operational within 24 months of a Notice to Proceed. The City's AMI system will be fully deployed and operational within 12 months of a Notice to Proceed. Describe the proposed plan for achieving this schedule. Identify significant milestones in the system installation process. Identify any assistance that might be required from the Owners. Describe the plan for on-site testing the design and operation of the AMI communication system prior to its final acceptance (i.e., of the initial pilot phase and at the completion of the project) by the Owners.
9. Warranty. Attach warranty information in an appendix.

**Part D. Meter Data Management System and Data Analytics**

*Note that Part D applies only to AMI systems.*



## D.1 General Requirements

The Owners require implementation of a Meter Data Management System (MDMS) and data analytics capability for storing, managing, extracting, and analyzing water consumption data collected by the AMI system. This shall include a head-end through which the Owners will operate and manage the AMI system. Software licenses must be provided and maintained by the Contractor for the life of the meter reading system. The software and databases may be stored for the Owners on premise or hosted.

- A. Describe the user interface, and any differences in user experience between on premises and hosted. Provide example screen shots.
- B. Describe the functionality, with brief descriptions and screen shots or sample pages, of standard reports and analyses that address the following; state if such reports are not standard or not available at all:
  - 1. Standard consumption reports/analytics (including a listing of such reports and examples screen shots or sample pages).
  - 2. Group/zone consumption analysis.
  - 3. Leak detection analysis.
  - 4. Time-series trends analysis (e.g., to characterize customer usage characteristics, changes in meter accuracy, etc.).
  - 5. Predictive analytics (e.g., predicted water consumption or usage changes).
  - 6. Apparent water loss determination.
  - 7. Conservation effectiveness analysis.
  - 8. Comparative analysis with metered energy consumption data.
  - 9. Traps for questionable readings (i.e., validation of meter readings for reasonableness, unusually high or low readings, and potential meter rollovers).
  - 10. Additional analytic features not otherwise described above.
- C. Meter reading system performance assessment and diagnostic tools. Describe any tools available to assess the performance of the system and to diagnose problems (e.g., radio transmission strength / problems, battery life status, etc.).
- D. Software documentation. Documentation shall be provided with the system and shall include at a minimum: system overview, flow charts, file descriptions and record layouts, database structure diagrams, backup and recovery procedures, operating procedures,

screen layouts, data entry procedures, report descriptions, descriptions of all user options, and descriptions of all error messages.

- E. Third-party software: Third-party software required to access or export data is not desired. Confirm that third-party software is not required; or if it is, please describe and include any purchase and annual maintenance costs for the software in the Bid.
- F. Multiple users. The District requires simultaneous access by 18 concurrent users. The City requires simultaneous access by 10 concurrent users. Describe the licensing arrangement for concurrent users. Indicate if there are issues or additional charges associated with these quantities of users and include these charges in the Bid.
- G. Data encryption. Data subject to CJIS, PII, PCI or HIPAA must be backed up in an encrypted format. Data at rest must be stored in compliance with the prevailing standard (e.g. CJIS, PII, PCI, HIPAA), which may include data encryption at various levels. Data in transit must be protected in compliance with the prevailing standard (e.g. CJIS, PII, PCI, HIPAA) using Transport Layer Security (TLS) using Advanced Encryption Standard (AES) algorithms with a key size no less than 256-bits.

## **D.2 On Premise Solution**

If an on premise solution is proposed, the head-end functionality, data management, and reporting described in Section D.1 must operate within the Owners' existing information technology infrastructure environments including server, network, and storage environments. This head-end may also manage all reading collection devices and be used to control the AMR or AMI system installation. The on premises head-end must have sufficient capacity to handle all of the Owners' meter readings, including future expansion capability as the number of customers grow.

The Owners' technology standards are as follows and must be utilized by the Bidder:

Component	District	City
Server environments	Windows Server 2016	Windows Server 2019
Database management software	Microsoft SQL Server	Microsoft SQL Server
Reporting or BI software	Crystal Reports Enterprise 2016	Crystal Reports
Preferred browser	Chrome	Chrome, Internet Explorer
Virtualization	VMWare	VMWare
Microsoft Active Directory	Yes	Yes
Minimum client version of Microsoft Windows	Windows 2010	Windows 7
Server Hardware	Dell Rackmount	Virtualization enables using existing hardware
Switch Router Hardware	Cisco	Virtualization enables using existing switches & routers

Provide hardware meeting the Owners’ technical standard and provide software required for the solution and describe the proposed minimum and recommended hardware/software and operating system requirements of all the computer hardware needed for a complete and working stand-alone system – together with hardware and software licensing for a development environment – including the following:

- Recommended drive space requirements
- Recommended RAM (GigaBytes)
- Recommended quantity of Processors (and Speed if Physical)
- Server operating system
- Relational database management system

If a Bidder has any issues complying with the Owners’ technology standards, then these issues must be described in the Bidder’s submittal, including any limitations on the warranty/guarantee of the installed system.

Describe the proposed system architecture. Indicate which components can run in a virtual environment. Additional technology requirements include:

- Bidder’s proposed system must not require disabling of industry standard security components in order to function properly.
- The head-end must be capable of residing as a node on the Owners’ existing data communications networks.

- The head-end must be capable of operating in a normal office environment and be easily moveable. The system software and functions must be quickly and easily transferable to another computer/server in the event of failure on the primary unit.

### D.3 Data Hosting

The District and the City will both consider hosting of the head-end software, meter data management system, and customer portals. If you are proposing to host these, please describe the proposed hosting services by responding to the items below.

- A. Data storage. A minimum of five (5) years of hourly data are to be stored and readily accessible by the Owners from the data hosting server. At the end of each year, Contractor shall be able to export the data in a format acceptable to the Owners and provide the data to the Owners for their records. Describe options for increased storage time periods, up to twenty years of data.
- B. Access to information. Describe the user interface. Describe available internet-based presentations of the hosted information. Provide example screen shots.
- C. Reports. Provide a list, with brief descriptions and screen shots or sample pages, of the standard reports provided for system and component performance; missing or late data; errors, anomalies and alarm conditions; data transfer; management and administration; and other major report categories.
- D. Support. Provide hours of operation and level of support during Owners' normal business hours and on major US holidays and evenings and weekends.
- E. Software documentation. Documentation shall be provided with the software and shall include at a minimum: system overview, flow charts, file descriptions and record layouts, database structure diagrams, description of program function and logic, back-up and recovery procedures, operating procedures, screen layouts, data entry procedures, report descriptions, descriptions of all user options, and descriptions of all error messages.
- F. Third-party software. Third-party software required to export information from the data hosting server (e.g., to the City's billing system) is not desired. Confirm that third-party software is not required; or if it is, please describe.
- G. Data stored on behalf of the Owners shall be kept strictly segregated from that of other customers and shall not be available, even in anonymized format, for analysis, analytics, or any other use by the Contractor or any third party except as explicitly requested and approved in writing by the District and/or the City. Describe practices and safeguards to assure this outcome.

1. When the business relationship between the District and/or the City and the Contractor is terminated, the Contractor shall provide written testimony to the District and/or the City that all data generated has been deleted.
2. Contractor shall comply with all Federal and State statutes related to data privacy and breaches of data owned by a government agency such as the District or the City.
3. Contractor shall notify Owners of any breach that may affect utility customer data within no more than 30 days of incident identification, or sooner if required by Federal or State law. Describe procedures that the Bidder utilizes to identify data breaches and to notify customers.
4. Bidder shall demonstrate compliance with the System and Organization Controls and Service Organizations 2 (SOC 2) framework or explain what other data privacy controls are in place.

## **Part E. System Integration and Customer Portal**

### **E.1 General Requirements**

Contractor must provide all required software and interfaces necessary for Owners' staff to operate and manage the AMI system.

### **E.2 Interface with Owners' Information Systems**

Software must include interfaces to the Owners' enterprise utility billing systems, to enable transfer of meter readings, synchronization of databases, customer service functions, and measures to protect data security. It is highly desirable that interfaces with the Owners' geographic information systems (GIS), asset management systems, and the City's hydraulic model also be offered. Software must be provided with all licenses, and must be maintained by the AMI Contractor over the life of the system. The Owners will provide the record layouts for their CIS and GIS, and expects the Contractor to tailor interfaces from its AMI system software to these applications. The Owners' IT staffs will work closely with the Contractor to ensure that this is accomplished efficiently. However, the Contractor is solely responsible for ensuring that data from its system is being transferred properly to the Owners' CIS.

- A. Interface with billing system. The interface to the billing system must be the file format the Owners are currently using. The AMI system shall automatically provide data corresponding to all the accounts in a billing cycle, meter reading route or other grouping presented to it in the CIS, in a standard, nonproprietary format. For the District, each record provided to the CIS shall contain at a minimum: meter number, reading, account number, service, read type, and reading date for each meter reading. Indicate what information is required by the AMI system from the CIS so that the former may respond; indicate what information is provided to the meter reading database; describe record

layout, including field length and format. Describe any steps an operator must perform to initiate or schedule this process. The District's billing system is CIS Infinity from Advanced Utility Systems, Version 3. The City's billing system is Springbrook Version 7.16.0.0.

- B. Interface with GIS. Describe how data from the AMI system can be interfaced with the Owners' Esri GISs.
- C. Interface with hydraulic model. Describe how data from the AMI system can be interfaced with the City's hydraulic modeling software. The City uses Bentley WaterGEMS version 10.3.01.08 for its hydraulic model.
- D. Interface with asset management systems. Describe how data from the AMI system can be interfaced with the Owners' asset management systems. The District's asset management system is Lucity and the City's asset management system is Cartegraph OMS.
- D. Updating account data. Indicate arrangements for synchronizing data between the meter reading database and CIS.

### **E.3 Customer Portal**

The Owners desire a customer portal option (accessible to customers by Internet), including at least a display of historical consumption and leak detection information. The portal shall have the capability of providing a link to the Owners' separate websites where customer payments can be made. In addition, the Owners require an online tutorial or "how to" video about portal use that is suitable for their customers.

Describe the following for the proposed customer portal:

- A. Customer access options (e.g., internet access).
- B. Ability of customer portal to display water usage information in cubic feet, gallons, and dollars over historical time periods (days, months, years).
- C. Ability of customer portal to provide aggregated comparisons of users' consumptions against those defined areas such as a neighborhood or the service territory
- D. Ability of customer portal to integrate historical weather information from its own or third-party providers for users examining usage history.
- E. Ability to push out scheduled and ad hoc messages to customers on range of topics (e.g., useful tips, utility programs, outages). How would the system provide information to portions of the customer base (i.e., notifications to neighborhoods)?
- F. Ability for customers to schedule move-in/ move-out transactions.

- G. Ability for customers and utility to reset passwords.
- H. Languages supported by customer portal.
- I. Ability of customer portal to display leak detection information.
- J. Current and future capabilities to support access of information from other media devices (e.g., personal smartphones).
- K. Ability of portal to be branded by the Owners.
- L. Contractor support provided to customers who use the customer portal.

#### **E.4 Additional System Functionality**

- A. System enhancements. Describe what future system enhancements are anticipated to be developed or incorporated with respect to the proposed system in the next 20 years. Describe the system in place for developing and testing new products or enhancements. Describe or list partner entities offering solutions that currently or will in the future make use of the proposed AMI solution.
- B. Smart City functionality. Describe the ability of the proposed solution to support Smart City functionality, including indication of sensors or other devices that are compatible with the proposed communication network. In this description, address the following:
  1. Open standard protocol. State if the proposed solution will be delivered using a non-proprietary, open standard protocol, by which data transmitted from the MIUs may be collected via other non-AMI system communication networks, and/or by which the AMI system data collection network can receive data other than from the MIUs.
  2. Cross-system communications. Describe the ability of the AMI system to share data with other communications systems (e.g., sending or receiving of alerts and emergency messages to networks other than the AMI system). Indicate if any consensus standards are used in such cross-system communications.
  3. Examples. Indicate if the proposed AMI solution has been implemented as part of a broader Smart City strategy/approach. If it has, for which communities/utilities has it been deployed, what functions were involved, and for how long?

#### **Part F. Installation of Water Meters, Registers, and Meter Interface Units**

Installation services include replacement of a portion of the Owners' meters (per details provided previously), installation of the AMR or AMI system equipment (i.e., meter interface units, collectors, repeaters, control computer, etc.), project management and control by the

Contractor to ensure that all equipment is installed properly and all information about the system is correct, and field inspection of installers' work to ensure that it is performed properly.

Contractor staff shall comply with all relevant COVID-19 health and safety regulations and best practices including but not limited to the use of masks when indoors, social distancing, daily employee health questionnaires and/or temperature checks, and other measures to protect the health and safety of Owners' employees and customers, Contractor's employees, and the public at large. The Bidder shall describe its program of COVID-19 precautions, especially for its installation crews.

Indicate who will perform installation (i.e., Contractor staff or subcontractor).

Describe the steps used in the installation sequence for a new meter/meter interface unit, including the manner in which the existing meter reading on the meter register being replaced is logged.

Owners' requirements regarding system installation are outlined below. Narrative responses are not required for each item below. Bidders should indicate whether or not their installation approach complies with the following requirements by stating "**complies with the specification**" (as noted above in #4. SYSTEM REQUIREMENTS in these Technical Specifications). Also indicate if any exceptions are taken.

- A. Project duration. The project duration, including deployment of data collection and communications infrastructure, installation of meters and meter interface units, and software implementation, will be as follows:
1. District's AMR/AMI system will be fully deployed and operational within 24 months of a Notice to Proceed.
  2. City's AMI system will be fully deployed and operational within 12 months of a Notice to Proceed.
- B. Installation sequence. The Contractor shall conduct installations in sequence to be by determined by the Owners in discussion with Contractor. The Owners and Contractor shall establish an overall schedule for installation of the entire project, reflecting the Owners existing billing cycles and routes. On the first workday of each week, Contractor will provide the Owners an updated schedule of where work is planned for the next three weeks.
- C. Work hours. No installation work shall be done between 6:00 pm and 7:00 am except where required or authorized by the Owners. No work shall be done on Saturdays, Sundays, and legal holidays, unless authorized by the Owners. The Contractor shall provide 72 hour notification to the customer before replacing or working on the meter. Legal holidays shall be defined as those holidays annually observed by the Owners. These are as follows:



- District (9 days) – New Year’s Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving (2 days), Christmas Eve, and Christmas.
  - City (7 days) – New Year’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Eve, and Christmas.
- D. Daily reports. At the end of each day, Contractor shall transmit electronically to each Owner, information on completed work orders, as well as a listing all installation appointments to be visited by installers the next day.
- E. 24-hour customer access. The Owners will respond to calls from customers concerning leaks, loss of service and other problems associated with installations on a 24-hour per day basis. Those calls which are determined to pertain to the AMI project and require an after-hours site visit will be charged back to the Contractor at the Owners’ current after-hours rate.
- F. Owners’ Project Manager. Each Owner will designate an employee or agent who will manage the project on behalf of that Owner. The function of this Owner’s Project Manager is to coordinate with the Contractor and ensure compliance by the Contractor with the specifications. The designation of an Owner’s Project Manager shall not relieve the Contractor of its full responsibility to comply with the terms of the Contract and/or all plans and specifications.
- G. Installation acceptance. Each installation will be accepted by the Owners conditioned upon: (1) electronic submission of a list of completed installations containing for that installation the premise identification number, address, old and new meter ID numbers, old and new meter readings, MIU ID number, location of meter and MIU, Contractor name, inspector’s name, photos of old meter number and meter read, photos of new meter number and meter read, and all other information relevant to the installation; (2) satisfactory inspection by the Owner; and (3) successful capture of a confirming meter reading or sequence of meter readings from that meter and MIU by the Owner operating the AMI system in a normal way.
- H. Payments. The Contractor shall provide to the Owners on a weekly basis its list of newly completed installations and any itemized additional work. The Owners shall notify Contractor of any listed items that do not meet the conditions of Paragraph G above, so that Contractor may resolve any discrepancies. The Owners may at their discretion reject the entirety of any list on which there are discrepancies in more than 20% of the entries. Contractor shall indicate in its proposal any discount for prompt payment (amount of discount and applicable number of days).
- I. Automated project control system. The Contractor shall utilize an automated installation information management process, so that little or no information has to be captured or entered manually. The system shall have a redundant backup process, so that all information is preserved in the event of a breakdown in the primary system. The system

should enable the correction of any incorrect information pertaining to meter or service size, meter type, meter location, address, etc. Describe the project control system proposed, and how many times the Bidder has utilized said system in other AMR/AMI deployments.

- J. No solicitation. No Contractor, or its employees or agents, may solicit business from the Owners' water customers while engaged on any contract associated with this project.
- K. Contractor staff requirements.
  - 1. Contract Manager. The Contractor will designate a Contract Manager who is a direct employee of the selected firm for the duration of the contract, and who shall have the authority to handle and resolve any disputes or contract issues with the Owners. The Owners require a sole point of contact for the entire project that will have direct oversight over all elements to include installation. Indicate the amount of time (days or hours per month) the Contract Manager will be dedicated to this project, and how much of that will be spent on site. A change of Contract Manager may be made only formal notification and with the approval of the Owners.
  - 2. Installation Manager. The Contractor will designate an Installation Manager, who shall be responsible for managing the entire installation project on a day-to-day basis on behalf of the Contractor and for seeing that all installations are carried out in a professional manner and in compliance with the procedures required by the Contractor/manufacture, the Owners, and all other applicable local, state and federal regulations. The Installation Manager shall be on site continuously throughout the duration of the project, except for holidays and vacations, during which the Contractor shall provide a qualified substitute. The Installation Manager shall be experienced in supervising meter installation contracts, and familiar with applicable regulations and safe and proper installation procedures. Proof of formal training in waterworks operations (e.g., certifications) shall be provided. The Owners shall approve the Installation Manager or a change in the Installation Manager.
  - 3. Installers. All AMI installations, retrofitting AMI-compatible registers on meters of any size, and meter changeouts must be performed by Contractor's employees or subcontractors who are properly trained and experienced.
  - 4. Uniforms and identification. Contractor's field personnel shall wear easily recognizable uniforms containing the Contractor's name, as well as prominently displayed picture identification badges containing Contractor's name, employee name, title and signature, employee picture and employee I.D. number. Contractor's employees who are no longer employed by Contractor shall be required to return their uniforms and identification badges immediately upon

termination of employment and the Contractor shall immediately notify the Owners of all such terminations.

L. Items to be supplied by Contractor

1. General. Contractor will supply the following components and aspects of installation: overall project management; training and direct supervision of installers; appointment scheduling; problem solving and handling complaints; inspection, testing and quality control.
2. Tools and materials. The Contractor shall furnish all supplies, materials, tools and equipment necessary for the successful and timely completion of all meter and AMI installations under this contract as specified herein.
3. Meter box lids. The AMI system shall be configured to obtain the maximum signal strength from MIUs installed in meter pits or vaults. Contractor shall replace or retrofit all meter box lids and any other lids needed to obtain the performance requirements specified herein and the price of those lids shall be included in the price Bid. Under no circumstance will a meter pit or vault be left uncovered and unsupervised. Lids may be replaced, drilled or left alone, depending on Contractor's determination of what is required to ensure maximum signal output from MIUs installed in meter pits. Should a meter box lid need to be replaced, it must be replaced with like or equal type ensuring the lid is a secure fit. See Attachment 4 for detailed meter box lid requirements applicable to the District. Use the hyperlink in Section B1.L. (Page 33) for the City's meter box lid specification.
4. Pressure regulating valves. The District requires that pressure regulating valves with manufacture dates prior to January 1, 2014 be replaced at all service connections where one currently exists and return removed valves to the District.
  - A. Pressure Regulating Valve - Pressure regulating valve with strainer, without union (for 3/4" & 1"), maximum initial pressure 300 Lps, reduced pressure range up to 75 p.s.i. Wilkins model 600XL or approved equal (3/4" and 1").
  - B. High Range Pressure Regulating - Pressure regulating valve with strainer, without union (for 3/4" Valve & 1"), maximum initial pressure 300 Lps, reduced pressure range up to 125 p.s.i. Wilkins model 600HR or approved equal (3/4", 1", 1 1/2" and 2").
5. Vehicles. Contractor shall be responsible for all vehicles it uses on the project. Contractor shall provide service vehicles on site stocked with common fittings and supplies needed for normal service restoration and/or replacement. Contractor vehicles, including private vehicles used for the work, shall have the company logo prominently displayed on both sides of the vehicle. Any employee

of the Contractor or its subcontractors that drives a vehicle in connection with this project must have a valid driver's license for the class of vehicle being driven.

6. Parking. The Owners desire that Contractor deploy vehicles to minimize parking problems and avoid blocking any streets. Contractor shall be responsible for all parking violations.
7. Field communications. The Owners require that the Contractor's installers, plumbers, inspectors and supervisory personnel be equipped with cellular phones or radios so that problems or questions can be addressed immediately and that the Installation Manager can be contacted if needed.
8. Meter salvage. All District meters removed from service shall be returned to the District for testing and salvage, and 2,000 old transmitters shall be returned to the District for use as spares. All City meters removed from service shall be taken by the Contractor, but the nodes (i.e., Mueller MiNodes) shall be returned to the City for use as spares until the new system is operational, at which point the Contractor will take all of the City's old nodes. All other parts shall be taken by the Contractor, and the Bidder shall quote a credit that the District and the City will receive for their parts' salvage value.

M. Account data and installation scheduling

1. Account data file. Prior to the start of the installations, the Owners' Project Managers will provide the Contractor with an electronic file containing the information necessary to create work orders for meter/AMI installation. For each meter, the data file will indicate the account number, meter reading route number, meter size, make and serial number, map and parcel number, the location (if known), and access notes to the meter. Any unmetered accounts that may exist are not to be addressed.
2. The Owners will provide the Contractor with updates to these files for routes where the AMI system has not yet been installed every two weeks. For each meter in the City's service area, the data files will indicate whether the existing meter and register is to be retained, the meter register only is to be removed and an AMI-ready retrofit register installed, or whether the meter/register is to be completely replaced; the location of the meter (inside or outside) where information available; and any third-party (e.g., landlord) who is responsible for the account.
3. Contractor to provide data file with MIU product size and serial number that is importable to the Owners' Utility Billing systems.
4. Customer notification. The Owners will prepare materials to be used for customer notification regarding installation activities. At least two weeks prior to the

commencement of installations on a particular route, Contractor shall distribute such notifications (e.g., door hangers).

5. Appointment scheduling. Contractor shall be responsible for scheduling and handling all installation appointments. Whenever possible, Contractor shall notify customers of any changes in schedule at least one day in advance of the original appointment. The Owners reserve the right to impose liquidated damages of \$100 for each instance where the Contractor has failed to properly notify the customer if an appointment cannot be kept on time.
6. Non-accessible meter. In the event a meter is obstructed or is not accessible, the Contractor will make no less than two attempts at any reasonable time to contact the customer to gain access to the meter. These attempts must be documented within the Contractor's work order system. After two documented attempts to change the meter, Installation Manager may request the Owner's Project Manager to schedule the meter changeout. The Contractor shall only be paid for completed installations and is expected to provide all reasonable support in resolving installs that are difficult to schedule. Contractor will be responsible for installation if the Owner secures an appointment within 4-weeks of receiving written or electronic notice from Contractor.

#### N. Installation Procedures

1. Procedures approval. The Owners will provide the required route sequence for installation. The Contractor shall then propose detailed scheduling and installation procedures to the Owners for approval prior to commencing installations. Procedures shall include Contractor requirements and recommendations for the use of personnel protective equipment for building entry, including the Owners' facilities, and for customer in-person interactions. The procedures shall be designed to optimize the work of the Installers, the Owners' inspectors and all other staff working on the project.
2. Acceptance testing. Prior to the commencement of full-scale installation, the Contractor shall complete an Initial Deployment Phase, which shall include installation of the AMI system on premise network (or hosted data solution), and DCUs and MIUs needed to complete system deployment for the reading of approximately 500 meters, following the Contractor's proposed procedures. At the completion of the installation of the Initial Deployment Phase, the Owners and the Contractor shall evaluate the procedures for meter and MIU installation, data transfer to the Owners' billing systems, meter reading over the system, installation data management and project control, and problem resolution, to ensure they are working and effective. The Owners may require Contractor to modify any procedures that it deems are deficient or ineffective. No work will be started on other routes until the AMI system equipment is determined to be

working to performance requirements on the test routes, the project control procedures and systems are determined to be performing accurate, and the installation procedures have been approved by the Owners.

3. The Owners' IT staffs will be available to provide assistance in the development and testing of data transfer procedures during installation and to establish operational transfers.
4. Work order processing. Contractor shall be responsible for ensuring that all data transferred to and from the Owners' information systems is properly working before commencing any installations.
5. Work order data. The Installation Manager will provide work orders to Contractor. Each work order will include at a minimum, the customer's address, premises identification number, meter location, designation of replacement or retrofit, existing meter number, existing register number, meter make, model and size, and most recent meter reading. The Owners require that all work orders be electronic and downloaded to billing system.
6. Site conditions. A variety of site conditions will be encountered during installation, including meters submerged in water or surrounded by dirt. Before, or at the time of installation, the Contractor shall inspect the existing water meter setting, including piping, lid, and shut-off valves. If the Contractor determines that conditions are such that lid replacement is recommended or damage to the existing piping would result, the Installation Manager shall so inform the Owner, shall not attempt the installation until the site is inspected by an authorized Owner representative, and shall postpone installation at that site until the Owner's Project Manager authorizes the Contractor to proceed with the work.
7. Location of meters. Owners' personnel will be available to assist in locating meters in the field. Meter locations are not visually marked.
8. Location of MIU. On large meter boxes that may bear traffic loads or that are located in sidewalks, the MIU shall not be installed in the lid. Depending on the Contractor's specifications, the MIU may be installed on the sidewall of the vault, or in a small pit exterior to the vault and connected to the meter register(s) by shielded, weatherproof cable running through the wall of the vault.
9. Geopositioning coordinates.
  - a. For each District meter installed inside a building or an outside pit, box, or vault, Contractor shall capture GPS positioning with sub-meter accuracy, using a geopositioning device. For each meter installed inside a building, Contractor will capture this information in a format that can be uploaded with the meter information to the Owner's CIS so that the Owners can

track and identify all meters located inside buildings. Describe how Bidder intends to provide GPS data for each meter, whether the meter is inside or outside a building, and how that data will ultimately be transferred to the District's CIS system.

- b. For each City meter installed in an outside pit, box, or vault, Contractor shall capture GPS positioning with sub-meter accuracy, using a geopositioning device. Describe how Contractor intends to provide GPS data for each meter, and how that data will ultimately be transferred to the City's CIS system.
10. Digital photographs. The Owners require that digital photographs be taken before and after installation to document the service lines on both sides of the meter, and provide documentation of problematic pre-existing site conditions. Photographs shall be taken that depict the inside of the meter box, as well as the immediate area outside of the meter box. Problematic site conditions are defined, as any condition that the Contractor believes requires some repair or Owner investigation before installation should proceed. The photo should have an accurate date and time stamp and the file name of the photo shall include the applicable register number. Digital photographs should be available to the Owners in a database searchable by address, premises identification number, and meter number or account number.
11. Old meter reading disputes. Contractor shall provide procedures for ensuring that any dial meter is read properly and for providing evidence of the reading in the case of any customer disputes. Evidence of the reading is required at a minimum for any meter that fails a high/low audit check, or for any meter that shows any signs of a defect. The Owners require that evidence be in the form of a digital photo clearly showing the register face.
12. Repairs. The Owners authorize the Contractor to make any necessary repairs to service lines, valves, or piping, at the direction of Owners' staff. A freezing machine shall be used on all galvanized and copper piping; no crimping. Crimping is only allowed on black poly services as long as a full circle stainless steel repair band is placed over the crimped poly pipe when finished. All new curb stop and angle stops will be brass, ball valve type and have the locking ears on the valves. No glued fitting or PVC fittings are allowed. At any time the water main needs to be shut down to make an emergency repair, the Contractor will contact the Owner's Inspector who will call Owner's staff to do the shutdown.
  - a. Repairing old piping. Only when old piping is leaking or deteriorated to a point that damage to it could reasonably be expected by changing the meter will poor piping be accepted as a reason for not replacing the meter during the installation period. Unless the Owner's Project Manager



permanently remands the particular installation to the Owner, Contractor is still required to install the meter and AMI equipment after the piping has been repaired or replaced at any time during the installation period.

- b. Repairing meter shut off valves or replacement of complete meter setters. If the Contractor cannot shut off the water using the valve at the meter (details must be documented on a work order), the Contractor shall arrange to do the repair/replacement of the valve with the customer and the Owner using the above criteria. Any new meter setters will have double ball valves with locking ears.
  - c. Service line damage. The Contractor shall be responsible for the repair of any service lines it damages at its sole cost and expense, unless the Contractor's Installation Manager has reported (prior to commencement of installation) a condition of antiquated or inferior plumbing to the Owner and the Owner has authorized the Contractor to proceed with the work. In the event a service line fails during the installation procedure, the Contractor will make necessary repairs using the criteria cited above. If the Contractor cannot make the repairs using this criteria or the damage is of larger scope, the Contractor will immediately notify the Owner, who shall arrange for the repair to be made by the Owner. Reasonable direct labor and material costs for such repair will be deducted from Contractor's invoices for repair of service lines damaged by Contractor.
13. Meter replacement. Contractor's installer shall ensure they are at correct location and meter, and shall check for running water prior to commencing meter change-out. If water is running, Installer must notify the customer before commencing meter change out. Contractor shall then replace the meter, using new gaskets or washers approved by the Owner. Contractor shall put plastic caps on the inlet and outlet of the old meter and handle meter with care in the event of post-removal testing. All conversion bushings or other hardware necessary to install the new water meter in the customer's existing meter setup must be furnished by the Contractor.
14. Strainers. If the meter to be replaced has a strainer, Contractor shall be responsible for replacing the strainer along with the meter, unless conditions prevent such replacement. Contractor shall otherwise be responsible for repairing or cleaning the strainer to ensure that it is in good working order and will not adversely affect meter performance.
15. Verifying service working. Contractor shall flush the water line after installing a new meter to ensure the meter is registering properly and verify service restoration to the entire premise.



16. Plumbing irregularities. The Contractor shall report to the Owner's Project Manager, prior to the installation of a meter, any meter and/or plumbing irregularities including but not limited to meters installed backwards, registers are disconnected from meters, taps are located before a meter, unmetered connections of a customer's plumbing to a service lateral, fire pipe or water main or any other violations of the Owner's Regulations. In the event of plumbing irregularities, the Contractor shall not proceed with the installation of a meter until the Owner's Project Manager has authorized such installation.
17. Dirt or water around meter. Contractor shall be responsible for removing and properly disposing of any reasonable amount of dirt needed to access a meter in a meter pit or vault. Dirt shall be removed only as necessary to prevent dirt from entering the line during the installation. If a water meter box or vault is flooded so that the meter is fully or partially submerged, the Installer must pump out the box before changing the meter. The Installer must ensure that the water service is not in any way contaminated, even intermittently, by standing water in the meter vault or box. All waste resulting from cleaning the meter pit as well as replacing the ring and lid must be cleaned up and hauled off by the Contractor and disposed of in a legal manner. The existing ring and lid, if replaced, shall be disposed of by the Contractor. If grass or shrubbery is damaged by the installation process, the Contractor must repair the damage to original condition to the satisfaction of the customer by replanting, resodding or reseeding. Notwithstanding the warranties the Contractor is required to provide the Owners, and without waiving any rights thereunder, the Owners reserve the right to inspect any installation and clean-up work after payment is made to the Contractor for said work, and will require the Contractor to repair any noted deficiencies.
18. Returned work orders. Returned work orders shall include: meter size and meter type, verification or correction of existing meter and account information, old meter serial number, final reading on old meter, new meter number, new meter register number, premises identification number, MIU ID number, reading on new meter register, date and time of installation, name of installer, notice of any problems encountered or repairs made. All information requested on the work order must be completely filled out for the installation to be considered complete and eligible for payment. An electronic copy of all the work order information must be provided to the Owner's Project Manager on a daily basis.

O. Quality Control

1. The Contractor shall describe its quality control program for its installation crews, including the parameters and the numbers or percentages of installations to be inspected, minimum acceptable performance and provisions for dealing with unacceptable performance.

2. Response to complaints. Should the Contractor receive a call or complaint from a customer or the Owner regarding installation, the Contractor shall immediately log the call, including caller's name, address, account number if available, date and time of call, nature of problem and the action taken. Copies of all call logs shall be forwarded to the Owner's Project Manager Improper installations. The Contractor shall be responsible for replacing any meter, MIU or appurtenances improperly set by its Installer. The Contractor shall correct any damage to couplings, threads, unions or meters by use of improper tools or cross threading by an Installer.
3. Leaks after installation. The Contractor shall be responsible for correcting any leaks at the valves, couplings or service lines that could be attributed to the meter installation if reported by the Owners or customers within one (1) year of installation.
4. Regular meetings with the Owners. Contract Manager shall meet with Owners' personnel periodically and not less than monthly to update them on progress against the installation schedule.

## **Part G. Project Management, Training, and Support**

### **A. Documentation**

The Owners must be provided with all documentation needed to install, operate, and maintain the AMI system and all of its components. Documentation must serve both for training and reference, and must be kept up to date with any system or software upgrades or corrections.

1. System manuals. Contractor must provide manuals and customized written procedures sufficient for complete operation and maintenance – including installation, configuration, diagnostics and repair – of the system. Contractor must supply three (3) complete hard-copy sets as well as three (3) copies on CD-ROM/DVD ROM in Word format prior to the start of the Project, which will be defined at the Pre-Deployment meeting.
2. Updates and revisions. Contractor must promptly inform the Owners of updates and revisions and provide replacement pages and CDs or DVDs whenever there are any revisions or additions to the manuals.

### **B. Training**

The Owners require training of all appropriate staff sufficient to enable them to effectively operate and maintain the system. To be effective, the Owners require that training curriculum be provided in advance, that training be accompanied by course workbooks and materials, that training be provided by experienced instructors, and that all training

be accompanied by tests or hands-on evaluation to ensure that Owners' employees or agents have absorbed the content of the training. Each Owner will designate one or more of Owner's employees that the Contractor will train on all aspects of the AMI system and will become the lead trainer(s) for the Owners. Training shall occur prior to the system being fully installed, with follow-up training at periods of six months and 12 months after installation.

The Owners require that training occur both before and after AMI system installation.

1. Prerequisite for training. Training must be sufficient to prepare the Owners' staff to fully and completely administer and maintain the system without further reliance on Contractor staff beyond normal assistance covered by maintenance agreement. The Owners require that training occur once the system is fully operational, with the exception of MIU installation training, which is to occur prior to system installation.
2. Training on the AMI system equipment. The Contractor must provide training to Owners' staff on any and all AMI system equipment, whether provided by the Contractor or purchased by the Owners (including the control computer and database) after it is installed, tested and accepted by the Owners. Training must use real data from the Owners' own systems.
3. Location. All training shall be done at the Owners' offices and facilities, or in the field, at Owner specified hours.
4. Training curriculum. Describe the Bidder's training program, including how it addresses each of the following:
  - a. All aspects of the AMI system's operation, including obtaining reads and consumption data from the system, transferring reads and other information between the AMI system and the CIS, creating performance reports, diagnosing potential problems with system components, changing or adding customer accounts/MIUs/meter registers/meters to the system.
  - b. Meter reading database management.
  - c. Field diagnostics and maintenance.
  - d. Application software administration.
5. Training aids. User training will include detailed documentation and reference materials for each end-user. Contractor must provide trainees' workbooks, training aids (including software and CD/DVD), and system technical manuals prior to and during the training session.

6. Supplemental training. Bidder must provide a schedule of costs for additional training beyond the initial training proposed contained in the Cost Proposal.
7. Restore equipment. Contractor must restore, repair or replace any Owners' equipment damaged in training, and restore any hardware or software modified during training sessions.
8. Instructors. The Contractor must provide trained and experienced instructor(s), and ensure that they do not perform other duties during the training period that will interrupt instruction. The Contractor must provide resumes of trainers assigned to the Project for Owners' review and approval.
9. Evaluation. The Contractor must provide evaluation forms for each training session conducted to solicit feedback from participants regarding the training. At the Owners' sole discretion, training sessions that appear to be inadequate, as determined by the Owners, will be repeated at no additional cost to the Owners.
10. User group conferences. For the period from the effective date of the AMI System contract until two years after the date of final system acceptance, the Contractor will provide the Owners with complementary registrations for any User Group Conferences or similar training activities designed to increase the training and proficiency in the use of the Contractor's AMI system equipment and software. The Owners will be responsible for all other costs of attendance. The Contractor must provide the Owners with sixty (60) days prior written notice of such conferences.

#### C. Support

The Contractor must provide on-site, online, and telephone support as needed by the Owners over the 20-year life of the system to ensure its proper performance. As this support will be requested when software or equipment malfunctions, response must be rapid, accurate and efficient. Local, hands-on support for necessary repairs on warranty items is to be provided with a response time of within 24 hours.

1. Initial support periods. Contractor must provide telephone, online, and on-site support, as needed from the effective date of the AMI system contract until the date of Owners acceptance of the Initial Deployment Phase of installation, at no additional cost to the Owners. Until Owners acceptance has occurred, no maintenance or support contract/agreement will be made effective.
2. Extended support period. Contractor must provide telephone, online, and on-site support, as needed, for 20 years from the expiration of the initial support period.
3. Telephone and online support. Contractor must provide trained persons to answer technical questions and guide Owners' employees through the use or

diagnosis of the AMI and metering system through a toll-free number and online support system. The Owners must have unlimited access to a 24/7 technical support line. During normal business hours (defined as Monday through Friday 08:00 am – 5:00 pm Eastern Standard Time), response time (defined as a return call to the Owner) shall be within one hour of Owner reporting an inability to use the system. Outside of normal business hours, response time shall be within four hours of Owner reporting an inability to use the system. Indicate telephone support hours proposed. Indicate the types of problems that would be addressed via telephone and online support, and the response time the Owners will receive. Include problems that illustrate different severities, problem management, and escalation procedures. Indicate what company(ies) will be providing the support and where their office(s) are located.

4. On-site support. Contractor must provide on-site assistance when phone line technical support fails to timely address the issue or at the request of the Owners during the initial support period and extended support period noted above. Indicate the types of problems that would need to be addressed by on-site support and the response time the Owners will receive. Include problems that illustrate different severities, problem management, and escalation procedures. Indicate what company(ies) will be providing the support and where their office(s) are located.
5. Problem analysis and resolution. Contractor shall provide procedures to report on and deal with problem analysis and resolution based on extent and criticality of the problem using a systematic problem diagnosis and decision-making model or procedure, including root cause analysis. Problem resolution shall include immediate corrective measures and where appropriate, root cause analysis and long-term preventive measures to prevent reoccurrence. An interruption in services will be the highest priority. Owners will provide reasonable resources to assist Contractor in problem analysis. Initial problem will be reported to Owner's designated system manager. Contractor's findings will be shared with Owners.
6. Preventive maintenance provisions. Describe the Bidder's recommendations and requirements for AMI system preventive maintenance, back up, archiving, etc.
7. Loaner equipment. The Owners intend to procure additional AMI system equipment (i.e., spares), based on the recommendations of the Contractor. Given the critical nature of utility operations, the Contractor must make available loaner equipment in a timely manner to ensure continued, seamless utility operations of the meter reading, maintenance and billing functions affected by the AMI system. Indicate the AMI system equipment that is available to be loaned to the Owners and the response time in which the Owners will receive the equipment. The costs of any loaner equipment are to be included in the annual maintenance agreement.

8. User limits. Describe any limits to how many users can contact technical support.

D. Project Staffing

The success of this Project is critical to the Owners' operation. Describe the organization structure that the Bidder will provide to supplement the Owners' project team and support this project. Describe how the Bidder's staff will interact with the meter/MIU installation team. Name the personnel that are planned to be assigned to the Project, their roles and responsibilities. Provide a list of project staff's experience in delivering projects of similar size and scope. Provide resumes of key members of the bidder's team that will provide the services related to this contract including the Contract Manager, Installation Manager, field supervisors, lead technical support and lead training personnel.

Note: The Owners may interview implementation team members as part of the final selection and negotiation process.

E. Deployment Plan

The Owners, in conjunction with the Contractor, will develop a detailed deployment plan. Describe in general terms the process that the Bidder takes in deploying a project similar to the Owners' Projects. The Owners will conduct an Initial Deployment Phase of approximately 500 accounts in a concentrated area of the Owners' service areas to test the AMI system and installation services policies, procedures and control systems. The Contractor must be an integral part of this initial phase of work. The entire cost for participating in the initial deployment phase shall be included in the Cost Proposal. It is envisioned that this initial deployment phase would occur within the first three to four months after deployment has begun.

F. Quality Control

The Owners are expecting the Contractor to design and furnish an AMI system that has an operating life of 20 years requiring a minimum of repair, maintenance and replacement due to design, materials, and workmanship failures. Describe the quality control policies and procedures that the Bidder has adopted to ensure quality system design, manufacturing, component sourcing and any other aspect that affect the serviceability and useful life of the equipment and software that will be furnished for the Project. Describe the failure analysis process that is used when product is returned.

G. Project Administration

The Contractor will be required to participate in various on-site meetings from time to time, issue reports, establish and amend delivery schedules and other routine items to administer the Project. Describe the general plan that the Bidder will follow regarding

project administration issues. Describe the project management approach you take to organizing and managing your implementation services. The Owners at their sole discretion may revise the project schedule and timelines or suspend the project due to funding or unforeseen implementation issues.

H. System Performance Warranty

The Owners expect the Contractor to design and provide an AMI and metering system that reliably and accurately transmits the reading on the water meter along with other information contained in that transmission. The Contractor must warrant that the system will achieve a 99.5% reading rate, by comparing the number of actual reads received versus the number of reading attempts made at any time reading activity is performed, when the MIU is installed and the reading equipment is operated and maintained according to the Contractor's instructions. Provide the Bidder's plan for addressing equipment failures that result in a reading rate of less than 99.5%. Describe the support that is expected from the Owners to assist the Bidder in addressing such failures.

End of Section



## BID FORM INSTRUCTIONS

Bidder must provide prices for the equipment and services specified in Section 3 of this solicitation (Technical Specifications). All quantities are estimated, and the Owners may purchase more or less as indicated at the prices quoted, except for the data collectors and repeaters required to establish the communications network for a fixed network system, or any other ancillary equipment needed for a fully functional AMR or AMI system, whose quantities are to be furnished by the Contractor.

Bidder must complete each blank cell for each line item listed in the bid form tables; lump sum proposals will not be accepted. Indicate "NA" (Not Applicable) if the particular equipment described is not incorporated in the Bidder's proposed AMR/AMI system design. In addition, provide responses in the boxes provided for questions listed under the "Notes" section for each table. Bidder must include any additional equipment or service not listed in the tables that is required to provide a complete, fully operational and functional system.

### Additional Notes/Requirements

- A. Pricing is to be firm for the period of the system deployment, as well as for any additional period indicated in the Bid Form and the Contract Documents.
- B. Future purchases of services and equipment, including new equipment needed to extend AMR/AMI system service to Owners' new customers or an expanded service area, as well as replacement products (including those replacement purchases to which pro-rated warranty coverage applies), will be based on the lesser of the following:
  - 1. Contract prices listed in the Bid Form;
  - 2. Published list price of the equipment in effect for the year of purchase; or,
  - 3. Contract prices shown in this bid form, with inflation applied as calculated according to the published Consumer Price Index for All Urban Consumers (CPI-U) for the Cincinnati area.
- C. AMR/AMI system equipment purchased under this contract will be based upon orders placed by the Owners. Deliveries of ordered equipment will be shipped to the Owners. The Contractor will pay all freight charges for such deliveries, including return of equipment that the Owners are submitting for warranty replacement.
- D. The Owners will make payment on systems and equipment that meet the requirements of, and have been accepted by, the Owners. Acceptance will be based upon demonstration that the system components under consideration for payment have been placed into full operation to include meter reading data being successfully passed to the utility billing system/Customer Information System (CIS) in production mode and other



monitoring / trending / alerting / analysis functions being successfully used in production / operational mode.

- E. An invoicing format acceptable to the Owners will be determined during contract negotiations.
- F. After contract award, and prior to deployment, the Contractor shall submit a preliminary cost-loaded schedule (i.e., that depicts estimated invoice costs per month over the duration of the deployment period) to the Owners for review and comment. Prior to deployment, the Owners shall provide Contractor with comments on the preliminary cost-loaded schedule. The cost-loaded schedule will be finalized and will be used as the basis of partial payments during system deployment.
- G. The Unit Price Schedule, Parts 1 through 7, includes columns for price bids for both a non-SRF and SRF funding scenario.
  - 1. Bidders are strongly encouraged to provide pricing for both a non-SRF and SRF scenario. If a Bidder does not provide pricing for both scenarios, it must describe the reason.
  - 2. If Bidders are proposing both a non-SRF and SRF scenario, they must enter numbers in every box in both columns, even if the numbers are the same for the non-SRF and SRF scenarios.

**BID FORM**

PROJECT IDENTIFICATION: Meter Reading System Replacement (WX21117007)

THIS BID IS SUBMITTED TO:

Northern Kentucky Water District  
2835 Crescent Springs Rd.  
P.O. Box 18640  
Erlanger, Kentucky 41018

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the Owner in the form included in the Contract Documents to perform all services as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.
2. Bidder accepts all of the terms and conditions of the Invitation to Bid and the Instructions to Bidders. This Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.
3. In submitting this Bid, Bidder represents and covenants, as set forth in the Agreement, that:
  - a. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of all which is hereby acknowledged:
   
 No. \_\_\_\_\_ Dated \_\_\_\_\_
   
 No. \_\_\_\_\_ Dated \_\_\_\_\_
   
 No. \_\_\_\_\_ Dated \_\_\_\_\_
  - b. Bidder is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the services.
  - c. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the services at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.
  - d. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the services as indicated in the Contract Documents.

- e. Bidder has correlated the information known to Bidder, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
- f. Bidder has given Owner written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Contract Documents, and the written resolution thereof by Owner is acceptable to Bidder.
- g. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the services for which this Bid is submitted.

**h. [Check the one applies]**

\_\_\_\_\_ Bidder is a “resident bidder” as defined in KRS 45A.494(2) of Kentucky’s resident bidder reciprocal preference statute AND submits with this Bid a properly executed and notarized Affidavit that affirms that Bidder meets the resident bidder criteria, which Affidavit is hereby incorporated herein and made a part of this Bid.

OR

\_\_\_\_\_ Bidder is a “nonresident bidder” as defined in KRS 45A.494 (3) of Kentucky’s resident bidder reciprocal preference statute AND its principal place of business as identified its Certificate of Authority to transact business in Kentucky as filed with Kentucky’s Secretary of State or, if Bidder hereby represents and covenants that it is not required to obtain a Certificate of Authority to transact business in Kentucky, its mailing address, is:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- i. Bidder’s Organization Number from Kentucky’s Secretary of State is # \_\_\_\_\_ [if applicable] and Bidder is qualified to transact business in the Commonwealth of Kentucky or hereby covenants to obtain such qualifications prior to award of the Contract.

4. Bidder further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation; Bidder has not directly or indirectly

induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owners.

5. Bidder will complete the services for the following unit prices, in U.S. Dollars, computed in accordance with the General Conditions. Bidder acknowledges that estimated annual quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities provided, determined as provided in the Contract Documents. Bidders are required to submit a Bid for each line item listed in each Part being bid or insert the words "Not Applicable".

6. In the Price Schedules below, Bidders must specify all costs in 2020 dollars, with no inflation-based escalation for costs in future years.

7. Bidders must bid on the Base Bid and the Alternate Bid Items for each Part being bid, and provide a cost (or write zero dollars in words and/or figures if included at no additional cost) for each item set forth in the Bid Form for that Part. The Owners reserve the right to award multiple contracts for one or more of the bid part sections.

8. FOR PARTS NOT BEING BID, BIDDERS SHOULD WRITE "NO BID". OTHERWISE, BIDDERS DO NOT NEED TO FILL OUT THE FORMS FOR PARTS THEY ARE NOT BIDDING ON.

9. Communications concerning this Bid shall be sent to the Bidder at the following address. Please include email.

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10. The terms used in this Bid with initial capital letters have the meanings indicated in the Instructions to Bidders, the General Conditions, and the Special Conditions, if used.

(NOTE: Bidder must include any items required for operation of its system even if not listed in the Bid Form.)

Bids must be based on furnishing and delivering services and/or materials as specified for each Bid item. The unit prices bid shall be based on the inclusion by Bidder of all costs associated with the furnishing and delivery complete for the item bid.

**UNIT PRICE SCHEDULE**

**PART 1 – AUTOMATED METER READING (AMR) SYSTEM**

BASE BID – NORTHERN KENTUCKY WATER DISTRICT  
ALTERNATE BID 1-A – NKWD ITEMS

**PART 2 – ADVANCED METER INFRASTRUCTURE (AMI) SYSTEM – STANDARD POWER**

BASE BID – NORTHERN KENTUCKY WATER DISTRICT  
ALTERNATE BID 2-A – NKWD ITEMS

**PART 3 – ADVANCED METER INFRASTRUCTURE (AMI) SYSTEM – HIGH POWER**

BASE BID – NORTHERN KENTUCKY WATER DISTRICT  
ALTERNATE BID 3-A – NKWD ITEMS

**PART 4 – ADVANCED METER INFRASTRUCTURE (AMI) SYSTEM – CELLULAR**

BASE BID – NORTHERN KENTUCKY WATER DISTRICT  
ALTERNATE BID 4-A – NKWD ITEMS

**PART 5 – AMI/AMR HYBRID SYSTEM**

BASE BID – NORTHERN KENTUCKY WATER DISTRICT  
ALTERNATE BID 5-A – NKWD ITEMS

**PART 6 – AMI/CELLULAR HYBRID SYSTEM**

BASE BID – NORTHERN KENTUCKY WATER DISTRICT  
ALTERNATE BID 6-A – NKWD ITEMS

**PART 7 – AMI/OTHER COMMUNICATION TECHNOLOGY HYBRID SYSTEM**

BASE BID – NORTHERN KENTUCKY WATER DISTRICT  
ALTERNATE BID 7-A – NKWD ITEMS

**PART 8 – CITY OF FLORENCE AMI SYSTEM**

BASE BID – CITY OF FLORENCE  
ALTERNATE BID 8-A – CITY OF FLORENCE ITEMS

(REFER TO UNIT PRICE SCHEDULE TABLES BELOW)

**PART 1 – AUTOMATED METER READING SYSTEM (AMR) - NORTHERN KENTUCKY WATER DISTRICT  
BASE BID (24 MONTH DEPLOYMENT)**

No.	Item	Unit	NKWD Quantity (Estimated)	Non-SRF Cost		SRF Cost	
				Unit Cost	Total Cost	Unit Cost	Total Cost
1-1	Complete Initial Deployment Phase (reading an estimated 500 accounts)	Lump Sum	1				
1-2	Supply and Install Meter Interface Units (with minimum 6 ft of connecting wire)	Each	85,500				
1-3	Supply and Install Two-port MIUs (with minimum 6 ft of connecting wire)	Each	1,000				
1-4	Supply and Install Data Collection and Communication System	Lump Sum	1				
1-5	Supply Handheld Data Collection Devices/Field Programmers (including cradles, accessories, firmware and software) <sup>1</sup>	Each	18				
1-6	Provide System Integration with Customer Information (Billing) System	Lump Sum	1				
1-7	Provide Initial Training & Post-Implementation Follow-up Support and Training for 12 months (including travel)	Lump Sum	1				
1-8	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 1 through 5	Lump Sum	1				
1-9	Supply Material and Labor for Full Meter Box Replacement	Each	4,500				
1-10	Supply Material and Labor for Meter Lid Replacement	Each	1,500				
1-11	Allowance for Miscellaneous Meter Setting Repair Material (all material to be supplied by Bidder)	Lump Sum	\$30,000				
1-12	Hourly Labor Rate for Miscellaneous Meter Setting and Restoration Repair (all work to be pre-approved by Owner)	Hours	2,500				

1-13	Allowance for Materials for Restoration of Right-of-Way (i.e. shrubs, )	Lump Sum	\$20,000				
1-14	Supply and Install Foam covers for Freeze Protection	Each	20,000				
1-15	Credit for District's Salvaged Parts	Lump Sum	1		( )		( )
				TOTAL NON-SRF BASE BID PART 1		TOTAL SRF BASE BID: PART 1	

<sup>1</sup> Describe additional quantities of items recommended to be supplied for operating the AMR system if different than quantity in the Bid Form.

**PART 1 – AUTOMATED METER READING SYSTEM (AMR) – NORTHERN KENTUCKY WATER DISTRICT  
ALTERNATE BID 1-A – ALTERNATE ITEMS (24 MONTH DEPLOYMENT)**

No.	Item	Unit	NKWD Quantity (Estimated)	Non-SRF Cost		SRF Cost	
				Unit Cost	Total Cost	Unit Cost	Total Cost
METERS, TRANSMITTERS, AND VALVES							
1-A1	Supply Meters, 5/8" x 1/2" or 5/8" x 3/4" PD with bronze threads	Each	15,000				
1-A2	Supply Meters, 5/8" x 1/2" or 5/8" x 3/4" Ultrasonic	Each	3,000				
1-A3	Install 5/8" x 1/2" or 5/8" x 3/4" PD or Ultrasonic Meters	Each	18,000				
1-A4	Supply Pressure Regulating Valves	Each	5,000				
1-A5	Install Pressure Regulating Valves	Each	5,000				

INSTALLATION							
1-A6	Provide GPS location within sub-centimeter accuracy, as opposed to sub-meter accuracy (as required in Addendum #1 to this Bid Document)	Lump Sum	1				
1-A7	Expansion Wheels	Each	18,000				

**Present Value Analysis: AMR, Non-SRF Scenario**

If you are offering AMR technology and filled out Part 1 and Part 1-A, please fill out the following table with your Non-SRF cost data to provide the District with the Present Value cost over a 20-year life of the system. If you did not fill out Part 1 and Part 1-A, please skip this section.

Line	Present Value
Part 1 TOTAL Line	\$
Internal NKWD Costs (Labor, Vehicles, etc.)	\$10,384,388
<b>TOTAL 20 Year Present Value Cost: AMR</b>	<b>\$</b>

**Present Value Analysis: AMR, SRF Scenario**

If you are offering AMR technology and filled out Part 1 and Part 1-A, please fill out the following table with your SRF cost data to provide the District with the Present Value cost over a 20-year life of the system. If you did not fill out Part 1 and Part 1-A, please skip this section.

Line	Present Value
Part 1 TOTAL Line	\$
Internal NKWD Costs (Labor, Vehicles, etc.)	\$10,384,388
<b>TOTAL 20 Year Present Value Cost: AMR</b>	<b>\$</b>



**PART 2 – ADVANCED METER INFRASTRUCTURE (AMI) SYSTEM – NORTHERN KENTUCKY WATER DISTRICT**

**STANDARD POWER (UP TO 1 WATT OF MIU POWER)**

**BASE BID (24 MONTH DEPLOYMENT)**

No.	Item	Unit	NKWD Quantity (Estimated)	Non-SRF Cost		SRF Cost	
				Unit Cost	Total Cost	Unit Cost	Total Cost
2-1	Complete Initial Deployment Phase (reading an estimated 500 accounts)	Lump Sum	1				
2-2	Supply and Install Meter Interface Units (with minimum 6 ft of connecting wire)	Each	85,500				
2-3	Supply and Install Two-port MIUs (with minimum 6 ft of connecting wire)	Each	1,000				
2-4	Supply and Install Fixed Data Collection & Communication System including repeaters and firmware <sup>2</sup>	Lump Sum	1				
2-5	Supply Handheld Data Collection Devices/Field Programmers (including cradles, accessories, firmware and software) <sup>1</sup>	Each	18				
2-6	Provide System Integration with Customer Information (Billing) System	Lump Sum	1				
2-7	Provide Initial & Post-Implementation Follow-up Support and Training for 12 months (include travel)	Lump Sum	1				
2-8	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 1 through 5	Lump Sum	1				
2-9	Supply Material and Labor for Full Meter Box Replacement	Each	4,500				
2-10	Supply Material and Labor for Meter Lid Replacement	Each	1,500				
2-11	Allowance for Miscellaneous Meter Setting Repair Material (all material to be supplied by Bidder)	Lump Sum	\$30,000				
2-12	Hourly Labor Rate for Miscellaneous Meter Setting and Restoration Repair (all work pre-approved)	Hours	2,500				

2-13	Allowance for Materials for Restoration of Right-of-Way (i.e. shrubs, )	Lump Sum	\$20,000				
2-14	Provide Backhaul Communications Infrastructure including installation and fees for 20 years of operation <sup>3</sup>	Lump Sum	1				
2-15	Supply and Install Foam Covers for Freeze Protection	Each	20,000				
2-16	Credit for District's Salvaged Parts	Lump Sum	1		( )		( )
				TOTAL NON-SRF BASE BID PART 2		TOTAL SRF BASE BID PART 2	

<sup>1</sup> Describe additional quantities of items recommended to be supplied for operating the AMI system if different than the quantity indicated in the Bid Form.

<sup>2</sup> Describe the number of data collection units anticipated to be supplied. The Bidder shall supply the number of data collectors and repeaters required to achieve the reading performance and frequency requirements specified. If additional data collectors or repeaters are required to achieve the specified requirements that are more than originally estimated by Bidder, the Bidder shall be responsible for furnishing and installing all additional equipment at the Bidder's expense. The District will only pay for additional collectors and repeaters needed to expand the original service area, as needed. The Bidder shall include and describe all costs associated with leasing space on infrastructure not owned by the District that is required for installation of DCUs and/or repeaters for the 20-year life of the system.

<sup>3</sup> Describe the proposed backhaul communications methodology and basis for pricing.

**PART 2 – ADVANCED METER INFRASTRUCTURE (AMI) SYSTEM – NORTHERN KENTUCKY WATER DISTRICT**  
**STANDARD POWER (UP TO 1 WATT OF MIU POWER)**  
**ALTERNATE BID 2-A – ALTERNATE ITEMS (24 MONTH DEPLOYMENT)**

No.	Item	Unit	NKWD Quantity (Estimated)	Non-SRF Cost		SRF Cost	
				Unit Cost	Total Cost	Unit Cost	Total Cost
<b>METERS, TRANSMITTERS, AND VALVES</b>							
2-A1	Supply Meters, 5/8" x 1/2" or 5/8" x 3/4" PD with bronze threads	Each	15,000				
2-A2	Supply Meters, 5/8" x 1/2" or 5/8" x 3/4" Ultrasonic	Each	3,000				
2-A3	Install 5/8" x 1/2" or 5/8" x 3/4" PD or Ultrasonic Meters	Each	18,000				
2-A4	Supply and Install Capability for Remote Shutoff for Selected Accounts	Each	1,000				
2-A5	Supply Equipment for Remote Shutoff for Future Accounts Post-Deployment through Year 20	Each	200				
2-A6	Supply Pressure Regulating Valves	Each	5,000				
2-A7	Install Pressure Regulating Valves in Meter Settings	Each	5,000				
<b>CUSTOMER PORTAL</b>							
2-A8	Provide Customer Portal licensing, installation, and implementation	Lump Sum	1				
2-A9	Provide Customer Portal annual support costs for Years 1 - 5	1 Year	5				
2-A10	Provide Customer Portal annual support costs for Years 6 - 10	1 Year	5				
2-A11	Provide Customer Portal annual support costs for Years 11 - 15	1 Year	5				
2-A12	Provide Customer Portal annual support costs for Years 16 - 20	1 Year	5				
<b>INTEGRATION AND SOFTWARE HOSTING SERVICES</b>							

2-A13	Provide System Integration – Geographic Information System	Lump Sum	1				
2-A14	Provide System Integration – Work Order Management System	Lump Sum	1				
2-A15	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 6 through 10	1 Year	5				
2-A16	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 11 through 15	1 Year	5				
2-A17	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 16 through 20	1 Year	5				
2-A18	Store One Year of Additional Data starting in Year 6 through Year 20	1 Year	15				
SYSTEM MAINTENANCE SERVICES AND ADDITIONAL EQUIPMENT							
2-A19	Provide Full Communication System Maintenance Year 1 – Year 5	1 Year	5				
2-A20	Provide Full Communication System Maintenance Year 6 – Year 10	1 Year	5				
2-A21	Provide Full Communication System Maintenance Year 11 – Year 15	1 Year	5				
2-A22	Provide Full Communication System Maintenance Year 16 – Year 20	1 Year	5				
2-A23	Supply and Install Fixed Data Collectors, including firmware and installation (for expanded service areas) through Year 20	Each	1				
2-A24	Supply and Install Fixed Network System Repeaters (for expanded service areas) through Year 20	Each	1				
INSTALLATION							
2-A25	Provide GPS location within sub-centimeter accuracy, as opposed to sub-meter accuracy (as required in Addendum #1 to this Bid Document)	Lump Sum	1				
2-A26	Expansion Wheels	Each	18,000				

**Alternate Bid Item #2-A27: Shared Data Collection System with Northern Kentucky Water District and City of Florence**

Provide an Alternate Deduct Price to the District if the District contracts with the same Bidder as does the City of Florence. Deduct price is to account for: 1) potential savings in data collector/repeater mounting infrastructure (if such can be used for each utility); 2) savings in deployment/staging costs; and, 3) any additional savings available from the Bidder if contracting with both Owners: \$ \_\_\_\_\_ (in figures) and

\_\_\_\_\_ (written out in words)

Describe the basis for cost savings if both Owners enter into contracts with the same Bidder.

**Alternate Bid Item #2-A28: Creative Financing or Alternative Cash Flows for Northern Kentucky Water District**

If payment terms more advantageous to the District than those specified herein are being offered, fill in the Alternate Cash Flow table below to show the proposed cash flow for the Total Base Bid Part 2 and for the Alternative Bid Items specified from Part 2-A.

1. Total Base Bid (from Part 2): \$ \_\_\_\_\_

2. List Line Numbers from Part 2-A of Alternatives Included in this Offer: \_\_\_\_\_

\_\_\_\_\_

3. Total Cost of Alternatives Listed on Line 2 immediately above: \$ \_\_\_\_\_

**Alternate Cash Flow: Standard Power AMI**

	A Annual Payment for Base Bid	B Annual Payment for all Alternatives Included in this Offer	C Total of Annual Payment Columns (A+B)
Year 1 Payment	\$	\$	\$
Year 2 Payment	\$	\$	\$
Year 3 Payment	\$	\$	\$
Year 4 Payment	\$	\$	\$
Year 5 Payment	\$	\$	\$
Year 6 Payment	\$	\$	\$
Year 7 Payment	\$	\$	\$
Year 8 Payment	\$	\$	\$
Year 9 Payment	\$	\$	\$
Year 10 Payment	\$	\$	\$
Year 11 Payment	\$	\$	\$
Year 12 Payment	\$	\$	\$
Year 13 Payment	\$	\$	\$
Year 14 Payment	\$	\$	\$
Year 15 Payment	\$	\$	\$
Year 16 Payment	\$	\$	\$
Year 17 Payment	\$	\$	\$
Year 18 Payment	\$	\$	\$
Year 19 Payment	\$	\$	\$
Year 20 Payment	\$	\$	\$

**Present Value Analysis: STANDARD POWER (UP TO 1 WATT OF MIU POWER) AMI, NON-SRF SCENARIO**

If you are offering Standard Power (up to 1 Watt of MIU power) AMI technology and filled out Part 2 and Part 2-A, please fill out the following table with your Non-SRF cost data to provide the District with the Present Value cost over a 20-year life of the system. If you did not fill out Part 2 and Part 2-A, please skip this section.

Line #	Cost (from Part 2 or 2-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
Part 2 TOTAL Line	\$			
Subtotal – Year 1 Costs		\$	1	\$
2-A15 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 6-10 Costs		\$	1.3159	\$
2-A16 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 11-15 Costs		\$	1.6010	\$
2-A17 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 16-20 Costs		\$	1.9479	\$
Subtotal – External (Bid) Costs				\$
Internal NKWD Costs (Labor, Vehicles, etc.)				\$3,065,099
TOTAL 20 Year Present Value Cost: Standard Power AMI				\$

**Present Value Analysis: STANDARD POWER (UP TO 1 WATT OF MIU POWER) AMI, SRF Scenario**

If you are offering Standard Power (up to 1 Watt of MIU power) AMI technology and filled out Part 2 and Part 2-A, please fill out the following table with your SRF cost data to provide the District with the Present Value cost over a 20-year life of the system. If you did not fill out Part 2 and Part 2-A, please skip this section.

Line #	Cost (from Part 2 or 2-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
Part 2 TOTAL Line	\$			
Subtotal – Year 1 Costs		\$	1	\$
2-A15 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 6-10 Costs		\$	1.3159	\$
2-A16 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 11-15 Costs		\$	1.6010	\$
2-A17 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 16-20 Costs		\$	1.9479	\$
Subtotal – External (Bid) Costs				\$
Internal NKWD Costs (Labor, Vehicles, etc.)				\$3,065,099
TOTAL 20 Year Present Value Cost: Standard Power AMI				\$



**Present Value Analysis: Standard Power AMI with Remote Shutoff Valves, Non-SRF Scenario**

TOTAL 20 Year Present Value Cost: Standard Power AMI (from above)	\$
Line 2-A4 (Remote Shutoff Valve Cost)	\$
Reduction in Internal Costs Related to Remote Shutoff Valves (negative value)	(\$1,029,150)
TOTAL 20 Year Present Value Cost: Standard Power AMI with Remote Shutoff Valves	\$

**Present Value Analysis: Standard Power AMI with Remote Shutoff Valves, SRF Scenario**

TOTAL 20 Year Present Value Cost: Standard Power AMI (from above)	\$
Line 2-A4 (Remote Shutoff Valve Cost)	\$
Reduction in Internal Costs Related to Remote Shutoff Valves (negative value)	(\$1,029,150)
TOTAL 20 Year Present Value Cost: Standard Power AMI with Remote Shutoff Valves	\$

**Present Value Analysis: Standard Power AMI with Customer Portal, Non-SRF Scenario**

Line #	Cost (from Part 2 or 2-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
2-A8 (Portal)	\$			
2-A9 (Portal, Annual)	\$			
Subtotal – Year 1 Costs	\$		1	\$
2-A10 (Portal, Annual)	\$		1.3159	\$

2-A11 (Portal, Annual)	\$	1.6010	\$
2-A12 (Portal, Annual)	\$	1.9479	\$
Subtotal – Customer Portal Present Value Costs			\$
TOTAL 20 Year Present Value Cost: Standard Power AMI (from above)			\$
Reduction in Internal Costs Related to Customer Portal (negative value)			(\$494,869)
TOTAL 20 Year Present Value Cost: Standard Power AMI with Customer Portal			\$

**Present Value Analysis: Standard Power AMI with Customer Portal, SRF Scenario**

Line #	Cost (from Part 2 or 2-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
2-A8 (Portal)	\$			
2-A9 (Portal, Annual)	\$			
Subtotal – Year 1 Costs		\$	1	\$
2-A10 (Portal, Annual)	\$		1.3159	\$
2-A11 (Portal, Annual)	\$		1.6010	\$
2-A12 (Portal, Annual)	\$		1.9479	\$
Subtotal – Customer Portal Present Value Costs				\$
TOTAL 20 Year Present Value Cost: Standard Power AMI (from above)				\$
Reduction in Internal Costs Related to Customer Portal (negative value)				(\$494,869)
TOTAL 20 Year Present Value Cost: Standard Power AMI with Customer Portal				\$

**PART 3 – ADVANCED METER INFRASTRUCTURE (AMI) SYSTEM – NORTHERN KENTUCKY WATER DISTRICT**

**HIGH POWER (GREATER THAN 1 WATT OF MIU POWER)**

**BASE BID (24 MONTH DEPLOYMENT)**

No.	Item	Unit	NKWD Quantity (Estimated)	Non-SRF Cost		SRF Cost	
				Unit Cost	Total Cost	Unit Cost	Total Cost
3-1	Complete Initial Deployment Phase (reading an estimated 500 accounts)	Lump Sum	1				
3-2	Supply and Install Meter Interface Units (with minimum 6 ft of connecting wire)	Each	85,500				
3-3	Supply and Install Two-port MIUs (with minimum 6 ft of connecting wire)	Each	1,000				
3-4	Supply and Install Fixed Data Collection & Communication System including repeaters and firmware <sup>2</sup>	Lump Sum	1				
3-5	Supply Handheld Data Collection Devices/Field Programmers (including cradles, accessories, firmware and software) <sup>1</sup>	Each	18				
3-6	Provide System Integration with Customer Information (Billing) System	Lump Sum	1				
3-7	Provide Initial & Post-Implementation Follow-up Support and Training for 12 months (include travel)	Lump Sum	1				
3-8	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 1 through 5	Lump Sum	1				
3-9	Supply Material and Labor for Full Meter Box Replacement	Each	4,500				
3-10	Supply Material and Labor for Meter Lid Replacement	Each	1,500				
3-11	Allowance for Miscellaneous Meter Setting Repair Material (all material to be supplied by Bidder)	Lump Sum	\$30,000				
3-12	Hourly Labor Rate for Miscellaneous Meter Setting and Restoration Repair (all work pre-approved)	Hours	2,500				

3-13	Allowance for Materials for Restoration of Right-of-Way (i.e. shrubs, )	Lump Sum	\$20,000				
3-14	Provide Backhaul Communications Infrastructure including installation and fees for 20 years of operation <sup>3</sup>	Lump Sum	1				
3-15	Supply and Install Foam Covers for Freeze Protection	Each	20,000				
3-16	Credit for District's Salvaged Parts	Lump Sum	1		( )		( )
				TOTAL NON-SRF BASE BID PART 3		TOTAL SRF BASE BID PART 3	

<sup>1</sup> Describe additional quantities of items recommended to be supplied for operating the AMI system if different than the quantity indicated in the Bid Form.

<sup>2</sup> Describe the number of data collection units anticipated to be supplied. The Bidder shall supply the number of data collectors and repeaters required to achieve the reading performance and frequency requirements specified. If additional data collectors or repeaters are required to achieve the specified requirements that are more than originally estimated by Bidder, the Bidder shall be responsible for furnishing and installing all additional equipment at the Bidder's expense. The District will only pay for additional collectors and repeaters needed to expand the original service area, as needed. The Bidder shall include and describe all costs associated with leasing space on infrastructure not owned by the District that is required for installation of DCUs and/or repeaters for the 20-year life of the system.

<sup>3</sup> Describe the proposed backhaul communications methodology and basis for pricing.

**PART 3 – ADVANCED METER INFRASTRUCTURE (AMI) SYSTEM – NORTHERN KENTUCKY WATER DISTRICT**  
**HIGH POWER (GREATER THAN 1 WATT OF MIU POWER)**  
**ALTERNATE BID 3-A – ALTERNATE ITEMS (24 MONTH DEPLOYMENT)**

No.	Item	Unit	NKWD Quantity (Estimated)	Non-SRF Cost		SRF Cost	
				Unit Cost	Total Cost	Unit Cost	Total Cost
<b>METERS, TRANSMITTERS, AND VALVES</b>							
3-A1	Supply Meters, 5/8" x 1/2" or 5/8" x 3/4" PD with bronze threads	Each	15,000				
3-A2	Supply Meters, 5/8" x 1/2" or 5/8" x 3/4" Ultrasonic	Each	3,000				
3-A3	Install 5/8" x 1/2" or 5/8" x 3/4" PD or Ultrasonic Meters	Each	18,000				
3-A4	Supply and Install Capability for Remote Shutoff for Selected Accounts	Each	1,000				
3-A5	Supply Equipment for Remote Shutoff for Future Accounts Post-Deployment through Year 20	Each	200				
3-A6	Supply Pressure Regulating Valves	Each	5,000				
3-A7	Install Pressure Regulating Valves in Meter Settings	Each	5,000				
<b>CUSTOMER PORTAL</b>							
3-A8	Provide Customer Portal licensing, installation, and implementation	Lump Sum	1				
3-A9	Provide Customer Portal annual support costs for Years 1 - 5	1 Year	5				
3-A10	Provide Customer Portal annual support costs for Years 6 - 10	1 Year	5				
3-A11	Provide Customer Portal annual support costs for Years 11 - 15	1 Year	5				
3-A12	Provide Customer Portal annual support costs for Years 16 - 20	1 Year	5				
<b>INTEGRATION AND SOFTWARE HOSTING SERVICES</b>							

3-A13	Provide System Integration – Geographic Information System	Lump Sum	1				
3-A14	Provide System Integration – Work Order Management System	Lump Sum	1				
3-A15	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 6 through 10	1 Year	5				
3-A16	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 11 through 15	1 Year	5				
3-A17	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 16 through 20	1 Year	5				
3-A18	Store One Year of Additional Data starting in Year 6 through Year 20	1 Year	15				
SYSTEM MAINTENANCE SERVICES AND ADDITIONAL EQUIPMENT							
3-A19	Provide Full Communication System Maintenance Year 1 – Year 5	1 Year	5				
3-A20	Provide Full Communication System Maintenance Year 6 – Year 10	1 Year	5				
3-A21	Provide Full Communication System Maintenance Year 11 – Year 15	1 Year	5				
3-A22	Provide Full Communication System Maintenance Year 16 – Year 20	1 Year	5				
3-A23	Supply and Install Fixed Data Collectors, including firmware and installation (for expanded service areas) through Year 20	Each	1				
3-A24	Supply and Install Fixed Network System Repeaters (for expanded service areas) through Year 20	Each	1				
INSTALLATION							
3-A25	Provide GPS location within sub-centimeter accuracy, as opposed to sub-meter accuracy (as required in Addendum #1 to this Bid Document)	Lump Sum	1				
3-A26	Expansion Wheels	Each	18,000				

**Alternate Bid Item #3-A27: Shared Data Collection System with Northern Kentucky Water District and City of Florence**

Provide an Alternate Deduct Price to the District if the District contracts with the same Bidder as does the City of Florence. Deduct price is to account for: 1) potential savings in data collector/repeater mounting infrastructure (if such can be used for each utility); 2) savings in deployment/staging costs; and, 3) any additional savings available from the Bidder if contracting with both Owners: \$ \_\_\_\_\_ (in figures) and

\_\_\_\_\_ (written out in words)

Describe the basis for cost savings if both Owners enter into contracts with the same Bidder.

**Alternate Bid Item #3-A28: Creative Financing or Alternative Cash Flows for Northern Kentucky Water District**

If payment terms more advantageous to the District than those specified herein are being offered, fill in the Alternate Cash Flow table below to show the proposed cash flow for the Total Base Bid Part 3 and for the Alternative Bid Items specified from Part 3-A.

1. Total Base Bid (from Part 3): \$ \_\_\_\_\_

2. List Line Numbers from Part 3-A of Alternatives Included in this Offer: \_\_\_\_\_

---

3. Total Cost of Alternatives Listed on Line 2 immediately above: \$ \_\_\_\_\_

**Alternate Cash Flow – High Power AMI**

	A Annual Payment for Base Bid	B Annual Payment for all Alternatives Included in this Offer	C Total of Annual Payment Columns (A+B)
Year 1 Payment	\$	\$	\$
Year 2 Payment	\$	\$	\$
Year 3 Payment	\$	\$	\$
Year 4 Payment	\$	\$	\$
Year 5 Payment	\$	\$	\$
Year 6 Payment	\$	\$	\$
Year 7 Payment	\$	\$	\$
Year 8 Payment	\$	\$	\$
Year 9 Payment	\$	\$	\$
Year 10 Payment	\$	\$	\$
Year 11 Payment	\$	\$	\$
Year 12 Payment	\$	\$	\$
Year 13 Payment	\$	\$	\$
Year 14 Payment	\$	\$	\$
Year 15 Payment	\$	\$	\$
Year 16 Payment	\$	\$	\$
Year 17 Payment	\$	\$	\$
Year 18 Payment	\$	\$	\$
Year 19 Payment	\$	\$	\$
Year 20 Payment	\$	\$	\$



**Present Value Analysis: HIGH POWER (GREATER THAN 1 WATT OF MIU POWER) AMI, NON-SRF SCENARIO**

If you are offering High Power (greater than 1 Watt of MIU power) AMI technology and filled out Part 3 and Part 3-A, please fill out the following table [with your Non-SRF cost data](#) to provide the District with the Present Value cost over a 20-year life of the system. If you did not fill out Part 3 and Part 3-A, please skip this section.

Line #	Cost (from Part 3 or 3-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
Part 3 TOTAL Line	\$			
Subtotal – Year 1 Costs		\$	1	\$
3-A15 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 6-10 Costs		\$	1.3159	\$
3-A16 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 11-15 Costs		\$	1.6010	\$
3-A17 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 16-20 Costs		\$	1.9479	\$
Subtotal – External (Bid) Costs				\$
Internal NKWD Costs (Labor, Vehicles, etc.)				\$3,065,099
TOTAL 20 Year Present Value Cost: High Power AMI				\$

**Present Value Analysis: HIGH POWER (GREATER THAN 1 WATT OF MIU POWER) AMI, SRF SCENARIO**

If you are offering High Power (greater than 1 Watt of MIU power) AMI technology and filled out Part 3 and Part 3-A, please fill out the following table with your SRF cost data to provide the District with the Present Value cost over a 20-year life of the system. If you did not fill out Part 3 and Part 3-A, please skip this section.

Line #	Cost (from Part 3 or 3-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
Part 3 TOTAL Line	\$			
Subtotal – Year 1 Costs		\$	1	\$
3-A15 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 6-10 Costs		\$	1.3159	\$
3-A16 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 11-15 Costs		\$	1.6010	\$
3-A17 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 16-20 Costs		\$	1.9479	\$
Subtotal – External (Bid) Costs				\$
Internal NKWD Costs (Labor, Vehicles, etc.)				\$3,065,099
TOTAL 20 Year Present Value Cost: High Power AMI				\$

**Present Value Analysis: High Power AMI with Remote Shutoff Valves, Non-SRF Scenario**

TOTAL 20 Year Present Value Cost: High Power AMI (from above)	\$
Line 3-A4 (Remote Shutoff Valve Cost)	\$
Reduction in Internal Costs Related to Remote Shutoff Valves (negative value)	(\$1,029,150)
TOTAL 20 Year Present Value Cost: High Power AMI with Remote Shutoff Valves	\$

**Present Value Analysis: High Power AMI with Remote Shutoff Valves, SRF Scenario**

TOTAL 20 Year Present Value Cost: High Power AMI (from above)	\$
Line 3-A4 (Remote Shutoff Valve Cost)	\$
Reduction in Internal Costs Related to Remote Shutoff Valves (negative value)	(\$1,029,150)
TOTAL 20 Year Present Value Cost: High Power AMI with Remote Shutoff Valves	\$

**Present Value Analysis: High Power AMI with Customer Portal, Non-SRF Scenario**

Line #	Cost (from Part 3 or 3-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
3-A8 (Portal)	\$			
3-A9 (Portal, Annual)	\$			
Subtotal – Year 1 Costs	\$		1	\$
3-A10 (Portal, Annual)	\$		1.3159	\$

3-A11 (Portal, Annual)	\$	1.6010	\$
3-A12 (Portal, Annual)	\$	1.9479	\$
Subtotal – Customer Portal Present Value Costs			\$
TOTAL 20 Year Present Value Cost: High Power AMI (from above)			\$
Reduction in Internal Costs Related to Customer Portal (negative value)			(\$494,869)
TOTAL 20 Year Present Value Cost: High Power AMI with Customer Portal			\$

**Present Value Analysis: High Power AMI with Customer Portal, SRF Scenario**

Line #	Cost (from Part 3 or 3-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
3-A8 (Portal)	\$			
3-A9 (Portal, Annual)	\$			
Subtotal – Year 1 Costs		\$	1	\$
3-A10 (Portal, Annual)		\$	1.3159	\$
3-A11 (Portal, Annual)		\$	1.6010	\$
3-A12 (Portal, Annual)		\$	1.9479	\$
Subtotal – Customer Portal Present Value Costs				\$
TOTAL 20 Year Present Value Cost: High Power AMI (from above)				\$
Reduction in Internal Costs Related to Customer Portal (negative value)				(\$494,869)
TOTAL 20 Year Present Value Cost: High Power AMI with Customer Portal				\$

**PART 4 – ADVANCED METER INFRASTRUCTURE (AMI) SYSTEM – NORTHERN KENTUCKY WATER DISTRICT**

**CELLULAR AMI**

**BASE BID (24 MONTH DEPLOYMENT)**

No.	Item	Unit	NKWD Quantity (Estimated)	Non-SRF Cost		SRF Cost	
				Unit Cost	Total Cost	Unit Cost	Total Cost
4-1	Complete Initial Deployment Phase (reading an estimated 500 accounts)	Lump Sum	1				
4-2	Supply and Install Meter Interface Units (with minimum 6 ft of connecting wire)	Each	85,500				
4-3	Supply and Install Two-port MIUs (with minimum 6 ft of connecting wire)	Each	1,000				
4-4	Supply and Install Fixed Data Collection & Communication System including repeaters and firmware	Lump Sum	1				
4-5	Supply Handheld Data Collection Devices/Field Programmers (including cradles, accessories, firmware and software) <sup>1</sup>	Each	18				
4-6	Provide System Integration with Customer Information (Billing) System	Lump Sum	1				
4-7	Provide Initial & Post-Implementation Follow-up Support and Training for 12 months (include travel)	Lump Sum	1				
4-8	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 1 through 5	Lump Sum	1				
4-9	Supply Material and Labor for Full Meter Box Replacement	Each	4,500				
4-10	Supply Material and Labor for Meter Lid Replacement	Each	1,500				
4-11	Allowance for Miscellaneous Meter Setting Repair Material (all material to be supplied by Bidder)	Lump Sum	\$30,000				
4-12	Hourly Labor Rate for Miscellaneous Meter Setting and Restoration Repair (all work pre-approved)	Hours	2,500				

4-13	Allowance for Materials for Restoration of Right-of-Way (i.e. shrubs, )	Lump Sum	\$20,000				
4-14	Provide Backhaul Communications Infrastructure including installation and fees for 20 years of operation <sup>2</sup>	Lump Sum	1				
4-15	Supply and Install Foam Covers for Freeze Protection	Each	20,000				
4-16	Credit for District's Salvaged Parts	Lump Sum	1		( )		( )
				TOTAL NON-SRF BASE BID PART 4		TOTAL SRF BASE BID PART 4	

<sup>1</sup> Describe additional quantities of items recommended to be supplied for operating the AMI system if different than the quantity indicated in the Bid Form.

<sup>2</sup> Describe annual cellular costs.

**PART 4 – ADVANCED METER INFRASTRUCTURE (AMI) SYSTEM – NORTHERN KENTUCKY WATER DISTRICT**

**CELLULAR AMI**

**ALTERNATE BID 4-A – ALTERNATE ITEMS (24 MONTH DEPLOYMENT)**

No.	Item	Unit	NKWD Quantity (Estimated)	Non-SRF Cost		SRF Cost	
				Unit Cost	Total Cost	Unit Cost	Total Cost
<b>METERS, TRANSMITTERS, AND VALVES</b>							
4-A1	Supply Meters, 5/8" x 1/2" or 5/8" x 3/4" PD with bronze threads	Each	15,000				
4-A2	Supply Meters, 5/8" x 1/2" or 5/8" x 3/4" Ultrasonic	Each	3,000				
4-A3	Install 5/8" x 1/2" or 5/8" x 3/4" PD or Ultrasonic Meters	Each	18,000				
4-A4	Supply and Install Capability for Remote Shutoff for Selected Accounts	Each	1,000				
4-A5	Supply Equipment for Remote Shutoff for Future Accounts Post-Deployment through Year 20	Each	200				
4-A6	Supply Pressure Regulating Valves	Each	5,000				
4-A7	Install Pressure Regulating Valves in Meter Settings	Each	5,000				
<b>CUSTOMER PORTAL</b>							
4-A8	Provide Customer Portal licensing, installation, and implementation	Lump Sum	1				
4-A9	Provide Customer Portal annual support costs for Years 1 – 5	1 Year	5				
4-A10	Provide Customer Portal annual support costs for Years 6 – 10	1 Year	5				
4-A11	Provide Customer Portal annual support costs for Years 11 – 15	1 Year	5				
4-A12	Provide Customer Portal annual support costs for Years 16 – 20	1 Year	5				
<b>INTEGRATION AND SOFTWARE HOSTING SERVICES</b>							
4-A13	Provide System Integration – Geographic Information System	Lump Sum	1				



4-A14	Provide System Integration – Work Order Management System	Lump Sum	1				
4-A15	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 6 through 10	1 Year	5				
4-A16	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 11 through 15	1 Year	5				
4-A17	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 16 through 20	1 Year	5				
4-A18	Store One Year of Additional Data starting in Year 6 through Year 20	1 Year	15				
SYSTEM MAINTENANCE SERVICES AND ADDITIONAL EQUIPMENT							
4-A19	Provide Full Communication System Maintenance Year 1 – Year 5	1 Year	5				
4-A20	Provide Full Communication System Maintenance Year 6 – Year 10	1 Year	5				
4-A21	Provide Full Communication System Maintenance Year 11 – Year 15	1 Year	5				
4-A22	Provide Full Communication System Maintenance Year 16 – Year 20	1 Year	5				
4-A23	Supply and Install Fixed Data Collectors, including firmware and installation (for expanded service areas) through Year 20	Each	1				
4-A24	Supply and Install Fixed Network System Repeaters (for expanded service areas) through Year 20	Each	1				
INSTALLATION							
4-A25	Provide GPS location within sub-centimeter accuracy, as opposed to sub-meter accuracy (as required in Addendum #1 to this Bid Document)	Lump Sum	1				
4-A26	Expansion Wheels	Each	18,000				

**Alternate Bid Item #4-A27: Shared Data Collection System with Northern Kentucky Water District and City of Florence**

Provide an Alternate Deduct Price to the District if the District contracts with the same Bidder as does the City of Florence. Deduct price is to account for: 1) potential savings in data collector/repeater mounting infrastructure (if such can be used for each utility); 2) savings in deployment/staging costs; and, 3) any additional savings available from the Bidder if contracting with both Owners: \$\_\_\_\_\_ (in figures) and

\_\_\_\_\_ (written out in words)

Describe the basis for cost savings if both Owners enter into contracts with the same Bidder.

**Alternate Bid Item #4-A28: Creative Financing or Alternative Cash Flows for Northern Kentucky Water District**

If payment terms more advantageous to the District than those specified herein are being offered, fill in the Alternate Cash Flow table below to show the proposed cash flow for the Total Base Bid Part 4 and for the Alternative Bid Items specified from Part 4-A.

1. Total Base Bid (from Part 4): \$\_\_\_\_\_

2. List Line Numbers from Part 4-A of Alternatives Included in this Offer: \_\_\_\_\_

---

3. Total Cost of Alternatives Listed on Line 2 immediately above: \$\_\_\_\_\_

**Alternate Cash Flow – Cellular AMI**

	A Annual Payment for Base Bid	B Annual Payment for all Alternatives Included in this Offer	C Total of Annual Payment Columns (A+B)
Year 1 Payment	\$	\$	\$
Year 2 Payment	\$	\$	\$
Year 3 Payment	\$	\$	\$
Year 4 Payment	\$	\$	\$
Year 5 Payment	\$	\$	\$
Year 6 Payment	\$	\$	\$
Year 7 Payment	\$	\$	\$
Year 8 Payment	\$	\$	\$
Year 9 Payment	\$	\$	\$
Year 10 Payment	\$	\$	\$
Year 11 Payment	\$	\$	\$
Year 12 Payment	\$	\$	\$
Year 13 Payment	\$	\$	\$
Year 14 Payment	\$	\$	\$
Year 15 Payment	\$	\$	\$
Year 16 Payment	\$	\$	\$
Year 17 Payment	\$	\$	\$
Year 18 Payment	\$	\$	\$
Year 19 Payment	\$	\$	\$
Year 20 Payment	\$	\$	\$

**Present Value Analysis: CELLULAR AMI, Non-SRF Scenario**

If you are offering Cellular AMI technology and filled out Part 4 and Part 4-A, please fill out the following table [with your Non-SRF cost data](#) to provide the District with the Present Value cost over a 20-year life of the system. If you did not fill out Part 4 and Part 4-A, please skip this section.

Line #	Cost (from Part 4 or 4-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
Part 4 TOTAL Line	\$			
Subtotal – Year 1 Costs		\$	1	\$
4-A15 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 6-10 Costs		\$	1.3159	\$
4-A16 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 11-15 Costs		\$	1.6010	\$
4-A17 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 16-20 Costs		\$	1.9479	\$
Subtotal – External (Bid) Costs				\$
Internal NKWD Costs (Labor, Vehicles, etc.)				\$3,065,099
TOTAL 20 Year Present Value Cost: Cellular AMI				\$

**Present Value Analysis: CELLULAR AMI, SRF Scenario**

If you are offering Cellular AMI technology and filled out Part 4 and Part 4-A, please fill out the following table with your SRF cost data to provide the District with the Present Value cost over a 20-year life of the system. If you did not fill out Part 4 and Part 4-A, please skip this section.

<b>Line #</b>	<b>Cost (from Part 4 or 4-A)</b>	<b>Subtotals Column A</b>	<b>Discount Factor Column B</b>	<b>Present Value (A/B)</b>
Part 4 TOTAL Line	\$			
Subtotal – Year 1 Costs		\$	1	\$
4-A15 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 6-10 Costs		\$	1.3159	\$
4-A16 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 11-15 Costs		\$	1.6010	\$
4-A17 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 16-20 Costs		\$	1.9479	\$
Subtotal – External (Bid) Costs				\$
Internal NKWD Costs (Labor, Vehicles, etc.)				\$3,065,099
TOTAL 20 Year Present Value Cost: Cellular AMI				\$

**Present Value Analysis: Cellular AMI with Remote Shutoff Valves, Non-SFR Scenario**

TOTAL 20 Year Present Value Cost: Cellular AMI (from above)	\$
Line 4-A4 (Remote Shutoff Valve Cost)	\$
Reduction in Internal Costs Related to Remote Shutoff Valves (negative value)	(\$1,029,150)
TOTAL 20 Year Present Value Cost: Cellular AMI with Remote Shutoff Valves	\$

**Present Value Analysis: Cellular AMI with Remote Shutoff Valves, SFR Scenario**

TOTAL 20 Year Present Value Cost: Cellular AMI (from above)	\$
Line 4-A4 (Remote Shutoff Valve Cost)	\$
Reduction in Internal Costs Related to Remote Shutoff Valves (negative value)	(\$1,029,150)
TOTAL 20 Year Present Value Cost: Cellular AMI with Remote Shutoff Valves	\$

**Present Value Analysis: Cellular AMI with Customer Portal, Non-SRF Scenario**

Line #	Cost (from Part 4 or 4-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
4-A8 (Portal)	\$			
4-A9 (Portal, Annual)	\$			
Subtotal – Year 1 Costs	\$		1	\$

4-A10 (Portal, Annual)	\$	1.3159	\$
4-A11 (Portal, Annual)	\$	1.6010	\$
4-A12 (Portal, Annual)	\$	1.9479	\$
Subtotal – Customer Portal Present Value Costs			\$
TOTAL 20 Year Present Value Cost: Cellular AMI (from above)			\$
Reduction in Internal Costs Related to Customer Portal (negative value)			(\$494,869)
TOTAL 20 Year Present Value Cost: Cellular AMI with Customer Portal			\$

**Present Value Analysis: Cellular AMI with Customer Portal, SRF Scenario**

Line #	Cost (from Part 4 or 4-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
4-A8 (Portal)	\$			
4-A9 (Portal, Annual)	\$			
Subtotal – Year 1 Costs		\$	1	\$
4-A10 (Portal, Annual)	\$		1.3159	\$
4-A11 (Portal, Annual)	\$		1.6010	\$
4-A12 (Portal, Annual)	\$		1.9479	\$
Subtotal – Customer Portal Present Value Costs				\$
TOTAL 20 Year Present Value Cost: Cellular AMI (from above)				\$
Reduction in Internal Costs Related to Customer Portal (negative value)				(\$494,869)
TOTAL 20 Year Present Value Cost: Cellular AMI with Customer Portal				\$

**PART 5 – HYBRID (AMI PLUS AMR) SYSTEM – NORTHERN KENTUCKY WATER DISTRICT**

**BASE BID (24 MONTH DEPLOYMENT)**

[Note: For this hybrid AMI plus AMR bid, Bidder is responsible for proposing the most economical blend of AMI and AMR features (i.e., what portion of the District’s meters are most economically read via AMI versus AMR), based on the nature of the Bidder’s technological solution(s) and the Bidder’s propagation research. This blend is to be reflected in the quantities and costs depicted below.]

No.	Item	Unit	NKWD Quantity (Estimated)	Non-SRF Cost		SRF Cost	
				Unit Cost	Total Cost	Unit Cost	Total Cost
5-1	Complete Initial Deployment Phase (reading an estimated 500 accounts)	Lump Sum	1				
5-2	Supply and Install AMR Meter Interface Units (with minimum 6 ft of connecting wire)	Each	Bidder Determined <sup>4</sup>				
5-3	Supply and Install AMI Meter Interface Units (with minimum 6 ft of connecting wire)	Each	Bidder Determined <sup>4</sup>				
5-4	Supply and Install AMI Two-port MIUs (with minimum 6 ft of connecting wire)	Each	1,000				
5-5	Supply and Install Fixed Data Collection & Communication System including repeaters and firmware <sup>2</sup>	Lump Sum	1				
5-6	Supply Handheld Data Collection Devices/Field Programmers (including cradles, accessories, firmware and software) <sup>1</sup>	Each	18				
5-7	Provide System Integration with Customer Information (Billing) System	Lump Sum	1				
5-8	Provide Initial & Post-Implementation Follow-up Support and Training for 12 months (include travel)	Lump Sum	1				
5-9	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 1 through 5	Lump Sum	1				



5-10	Supply Material and Labor for Full Meter Box Replacement	Each	4,500				
5-11	Supply Material and Labor for Meter Lid Replacement	Each	1,500				
5-12	Allowance for Miscellaneous Meter Setting Repair Material (all material to be supplied by Bidder)	Lump Sum	\$30,000				
5-13	Hourly Labor Rate for Miscellaneous Meter Setting and Restoration Repair (all work pre-approved)	Hours	2,500				
5-14	Allowance for Materials for Restoration of Right-of-Way (i.e. shrubs, )	Lump Sum	\$20,000				
5-15	Provide Backhaul Communications Infrastructure including installation and fees for 20 years of operation <sup>3</sup>	Lump Sum	1				
5-16	Supply and Install Foam Covers for Freeze Protection	Each	20,000				
5-17	Credit for District's Salvaged Parts	Lump Sum	1		( )		( )
				TOTAL NON-SFR BASE BID  PART 5		TOTAL SFR BASE BID  PART 5	

<sup>1</sup> Describe additional quantities of items recommended to be supplied for operating the AMI system if different than the quantity indicated in the Bid Form.

<sup>2</sup> Describe the number of data collection units anticipated to be supplied. The Bidder shall supply the number of data collectors and repeaters required to achieve the reading performance and frequency requirements specified. If additional data collectors or repeaters are required to achieve the specified requirements that are more than originally estimated by Bidder, the Bidder shall be responsible for furnishing and installing all additional equipment at the Bidder's expense. The District will only pay for additional collectors and repeaters needed to expand the original service area, as needed. The Bidder shall include and describe all costs associated with leasing space on infrastructure not owned by the District that is required for installation of DCUs and/or repeaters for the 20-year life of the system.

<sup>3</sup> Describe the proposed backhaul communications methodology and basis for pricing.

<sup>4</sup> Describe the quantity of AMI and AMR transmitter units that in the Bidder's estimation provides the most economical meter reading solution for the District.

**PART 5 – HYBRID (AMI PLUS AMR) SYSTEM – NORTHERN KENTUCKY WATER DISTRICT**

**ALTERNATE BID 5-A – ALTERNATE ITEMS (24 MONTH DEPLOYMENT)**

No.	Item	Unit	NKWD Quantity (Estimated)	Non-SRF Cost		SRF Cost	
				Unit Cost	Total Cost	Unit Cost	Total Cost
<b>METERS, TRANSMITTERS, AND VALVES</b>							
5-A1	Supply Meters, 5/8" x 1/2" or 5/8" x 3/4" PD with bronze threads	Each	15,000				
5-A2	Supply Meters, 5/8" x 1/2" or 5/8" x 3/4" Ultrasonic	Each	3,000				
5-A3	Install 5/8" x 1/2" or 5/8" x 3/4" PD or Ultrasonic Meters	Each	18,000				
5-A4	Supply and Install Capability for Remote Shutoff for Selected Accounts	Each	1,000				
5-A5	Supply Equipment for Remote Shutoff for Future Accounts Post-Deployment through Year 20	Each	200				
5-A6	Supply Pressure Regulating Valves	Each	5,000				
5-A7	Install Pressure Regulating Valves in Meter Settings	Each	5,000				
<b>CUSTOMER PORTAL</b>							
5-A8	Provide Customer Portal licensing, installation, and implementation	Lump Sum	1				
5-A9	Provide Customer Portal annual support costs for Years 1 – 6	1 Year	5				
5-A10	Provide Customer Portal annual support costs for Years 6 – 10	1 Year	5				
5-A11	Provide Customer Portal annual support costs for Years 11 – 15	1 Year	5				
5-A12	Provide Customer Portal annual support costs for Years 16 – 20	1 Year	5				
<b>INTEGRATION AND SOFTWARE HOSTING SERVICES</b>							
5-A13	Provide System Integration – Geographic Information System	Lump Sum	1				

5-A14	Provide System Integration – Work Order Management System	Lump Sum	1				
3-A15	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 6 through 10	1 Year	5				
5-A16	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 11 through 15	1 Year	5				
5-A17	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 16 through 20	1 Year	5				
5-A18	Store One Year of Additional Data starting in Year 6 through Year 20	1 Year	15				
SYSTEM MAINTENANCE SERVICES AND ADDITIONAL EQUIPMENT							
5-A19	Provide Full Communication System Maintenance Year 1 – Year 5	1 Year	5				
5-A20	Provide Full Communication System Maintenance Year 6 – Year 10	1 Year	5				
5-A21	Provide Full Communication System Maintenance Year 11 – Year 15	1 Year	5				
5-A22	Provide Full Communication System Maintenance Year 16 – Year 20	1 Year	5				
5-A23	Supply and Install Fixed Data Collectors, including firmware and installation (for expanded service areas) through Year 20	Each	1				
5-A24	Supply and Install Fixed Network System Repeaters (for expanded service areas) through Year 20	Each	1				
INSTALLATION							
5-A25	Provide GPS location within sub-centimeter accuracy, as opposed to sub-meter accuracy (as required in Addendum #1 to this Bid Document)	Lump Sum	1				
5-A26	Expansion Wheels	Each	18,000				

**Alternate Bid Item #5-A27: Shared Data Collection System with Northern Kentucky Water District and City of Florence**

Provide an Alternate Deduct Price to the District if the District contracts with the same Bidder as does the City of Florence. Deduct price is to account for: 1) potential savings in data collector/repeater mounting infrastructure (if such can be used for each utility); 2) savings in deployment/staging costs; and, 3) any additional savings available from the Bidder if contracting with both Owners: \$\_\_\_\_\_ (in figures) and

\_\_\_\_\_ (written out in words)

Describe the basis for cost savings if both Owners enter into contracts with the same Bidder.

**Present Value Analysis: HYBRID AMI PLUS AMR, Non-SRF Scenario**

If you are offering a Hybrid solution combining AMI technology with AMR, and filled out Part 5 and Part 5-A, please fill out the following table with your Non-SRF cost data to provide the District with the Present Value cost over a 20-year life of the system. If you did not fill out Part 5 and Part 5-A, please skip this section.

Line #	Cost (from Part 5 or 5-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
Part 5 TOTAL Line	\$			
Subtotal – Year 1 Costs		\$	1	\$
5-A15 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 6-10 Costs		\$	1.3159	\$
5-A16 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 11-15 Costs		\$	1.6010	\$
5-A17 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 16-20 Costs		\$	1.9479	\$
Subtotal – External (Bid) Costs				\$
Internal NKWD Costs (Labor, Vehicles, etc.)				\$4,528,957
TOTAL 20 Year Present Value Cost: Hybrid AMI plus AMR				\$

**Present Value Analysis: HYBRID AMI PLUS AMR, SRF Scenario**

If you are offering a Hybrid solution combining AMI technology with AMR, and filled out Part 5 and Part 5-A, please fill out the following table with your SRF cost data to provide the District with the Present Value cost over a 20-year life of the system. If you did not fill out Part 5 and Part 5-A, please skip this section.

Line #	Cost (from Part 5 or 5-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
Part 5 TOTAL Line	\$			
Subtotal – Year 1 Costs		\$	1	\$
5-A15 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 6-10 Costs		\$	1.3159	\$
5-A16 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 11-15 Costs		\$	1.6010	\$
5-A17 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 16-20 Costs		\$	1.9479	\$
Subtotal – External (Bid) Costs				\$
Internal NKWD Costs (Labor, Vehicles, etc.)				\$4,528,957
TOTAL 20 Year Present Value Cost: Hybrid AMI plus AMR				\$

**Present Value Analysis: Hybrid AMI plus AMR with Remote Shutoff Valves, Non-SRF Scenario**

TOTAL 20 Year Present Value Cost: Hybrid AMI plus AMR (from above)	\$
Line 5-A4 (Remote Shutoff Valve Cost)	\$
Reduction in Internal Costs Related to Remote Shutoff Valves (negative value)	(\$1,029,150)
TOTAL 20 Year Present Value Cost: Hybrid AMI plus AMR with Remote Shutoff Valves	\$

**Present Value Analysis: Hybrid AMI plus AMR with Remote Shutoff Valves, SRF Scenario**

TOTAL 20 Year Present Value Cost: Hybrid AMI plus AMR (from above)	\$
Line 5-A4 (Remote Shutoff Valve Cost)	\$
Reduction in Internal Costs Related to Remote Shutoff Valves (negative value)	(\$1,029,150)
TOTAL 20 Year Present Value Cost: Hybrid AMI plus AMR with Remote Shutoff Valves	\$

**Present Value Analysis: Hybrid AMI plus AMR with Customer Portal, Non-SRF Scenario**

Line #	Cost (from Part 5 or 5-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
5-A8 (Portal)	\$			
5-A9 (Portal, Annual)	\$			
Subtotal – Year 1 Costs	\$		1	\$
5-A10 (Portal, Annual)	\$		1.3159	\$

5-A11 (Portal, Annual)	\$	1.6010	\$
5-A12 (Portal, Annual)	\$	1.9479	\$
Subtotal – Customer Portal Present Value Costs			\$
TOTAL 20 Year Present Value Cost: Hybrid AMI plus AMR (from above)			\$
Reduction in Internal Costs Related to Customer Portal (negative value)			(\$494,869)
TOTAL 20 Year Present Value Cost: Hybrid AMI plus AMR with Customer Portal			\$

**Present Value Analysis: Hybrid AMI plus AMR with Customer Portal, SRF Scenario**

Line #	Cost (from Part 5 or 5-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
5-A8 (Portal)	\$			
5-A9 (Portal, Annual)	\$			
Subtotal – Year 1 Costs		\$	1	\$
5-A10 (Portal, Annual)	\$		1.3159	\$
5-A11 (Portal, Annual)	\$		1.6010	\$
5-A12 (Portal, Annual)	\$		1.9479	\$
Subtotal – Customer Portal Present Value Costs				\$
TOTAL 20 Year Present Value Cost: Hybrid AMI plus AMR (from above)				\$
Reduction in Internal Costs Related to Customer Portal (negative value)				(\$494,869)
TOTAL 20 Year Present Value Cost: Hybrid AMI plus AMR with Customer Portal				\$



**PART 6 – HYBRID (AMI PLUS CELLULAR) SYSTEM – NORTHERN KENTUCKY WATER DISTRICT**

**BASE BID (24 MONTH DEPLOYMENT)**

[Note: For this hybrid AMI plus Cellular bid, Bidder is responsible for proposing the most economical blend of AMI and Cellular features (i.e., what portion of the District’s meters are most economically read via AMI versus Cellular technology), based on the nature of the Bidder’s technological solution(s) and the Bidder’s propagation research. This blend is to be reflected in the quantities and costs depicted below.]

No.	Item	Unit	NKWD Quantity (Estimated)	Non-SRF Cost		SRF Cost	
				Unit Cost	Total Cost	Unit Cost	Total Cost
6-1	Complete Initial Deployment Phase (reading an estimated 500 accounts)	Lump Sum	1				
6-2	Supply and Install Cellular Meter Interface Units (with minimum 6 ft of connecting wire)	Each	Bidder Determined <sup>4</sup>				
6-3	Supply and Install AMI Meter Interface Units (with minimum 6 ft of connecting wire)	Each	Bidder Determined <sup>4</sup>				
6-4	Supply and Install AMI Two-port MIUs (with minimum 6 ft of connecting wire)	Each	1,000				
6-5	Supply and Install Fixed Data Collection & Communication System including repeaters and firmware	Lump Sum	1				
6-6	Supply Handheld Data Collection Devices/Field Programmers (including cradles, accessories, firmware and software) <sup>1</sup>	Each	18				
6-7	Provide System Integration with Customer Information (Billing) System	Lump Sum	1				
6-8	Provide Initial & Post-Implementation Follow-up Support and Training for 12 months (include travel)	Lump Sum	1				
6-9	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 1 through 5	Lump Sum	1				

6-10	Supply Material and Labor for Full Meter Box Replacement	Each	4,500				
6-11	Supply Material and Labor for Meter Lid Replacement	Each	1,500				
6-12	Allowance for Miscellaneous Meter Setting Repair Material (all material to be supplied by Bidder)	Lump Sum	\$30,000				
6-13	Hourly Labor Rate for Miscellaneous Meter Setting and Restoration Repair (all work pre-approved)	Hours	2,500				
6-14	Allowance for Materials for Restoration of Right-of-Way (i.e. shrubs, )	Lump Sum	\$20,000				
6-15	Provide Backhaul Communications Infrastructure including installation and fees for 20 years of operation <sup>2</sup>	Lump Sum	1				
6-16	Supply and Install Foam Covers for Freeze Protection	Each	20,000				
6-17	Credit for District's Salvaged Parts	Lump Sum	1		( )		( )
				TOTAL NON-SRF BASE BID  PART 6		TOTAL SRF BASE BID  PART 6	

<sup>1</sup> Describe additional quantities of items recommended to be supplied for operating the AMI system if different than the quantity indicated in the Bid Form.

<sup>2</sup> Describe annual cellular costs.

<sup>3</sup> Describe the quantity of AMI and Cellular transmitter units that in the Bidder's estimation provides the most economical meter reading solution for the District.

<sup>4</sup> Describe the quantity of AMI and AMR transmitter units that in the Bidder's estimation provides the most economical meter reading solution for the District.

**PART 6 – HYBRID (AMI plus CELLULAR) SYSTEM – NORTHERN KENTUCKY WATER DISTRICT**

**ALTERNATE BID 6-A – ALTERNATE ITEMS (24 MONTH DEPLOYMENT)**

No.	Item	Unit	NKWD Quantity (Estimated)	Non-SRF Cost		SRF Cost	
				Unit Cost	Total Cost	Unit Cost	Total Cost
<b>METERS, TRANSMITTERS, AND VALVES</b>							
6-A1	Supply Meters, 5/8" x 1/2" or 5/8" x 3/4" PD with bronze threads	Each	15,000				
6-A2	Supply Meters, 5/8" x 1/2" or 5/8" x 3/4" Ultrasonic	Each	3,000				
6-A3	Install 5/8" x 1/2" or 5/8" x 3/4" PD or Ultrasonic Meters	Each	18,000				
6-A4	Supply and Install Capability for Remote Shutoff for Selected Accounts	Each	1,000				
6-A5	Supply Equipment for Remote Shutoff for Future Accounts Post-Deployment through Year 20	Each	200				
6-A6	Supply Pressure Regulating Valves	Each	5,000				
6-A7	Install Pressure Regulating Valves in Meter Settings	Each	5,000				
<b>CUSTOMER PORTAL</b>							
6-A8	Provide Customer Portal licensing, installation, and implementation	Lump Sum	1				
6-A9	Provide Customer Portal annual support costs for Years 1 – 6	1 Year	5				
6-A10	Provide Customer Portal annual support costs for Years 6 – 10	1 Year	5				
6-A11	Provide Customer Portal annual support costs for Years 11 – 15	1 Year	5				
6-A12	Provide Customer Portal annual support costs for Years 16 – 20	1 Year	5				

INTEGRATION AND SOFTWARE HOSTING SERVICES							
6-A13	Provide System Integration – Geographic Information System	Lump Sum	1				
6-A14	Provide System Integration – Work Order Management System	Lump Sum	1				
6-A15	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 6 through 10	1 Year	5				
6-A16	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 11 through 15	1 Year	5				
6-A17	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 16 through 20	1 Year	5				
6-A18	Store One Year of Additional Data starting in Year 6 through Year 20	1 Year	15				
SYSTEM MAINTENANCE SERVICES AND ADDITIONAL EQUIPMENT							
6-A19	Provide Full Communication System Maintenance Year 1 – Year 5	1 Year	5				
6-A20	Provide Full Communication System Maintenance Year 6 – Year 10	1 Year	5				
6-A21	Provide Full Communication System Maintenance Year 11 – Year 15	1 Year	5				
6-A22	Provide Full Communication System Maintenance Year 16 – Year 20	1 Year	5				
6-A23	Supply and Install Fixed Data Collectors, including firmware and installation (for expanded service areas) through Year 20	Each	1				
6-A24	Supply and Install Fixed Network System Repeaters (for expanded service areas) through Year 20	Each	1				
INSTALLATION							
6-A25	Provide GPS location within sub-centimeter accuracy, as opposed to sub-meter accuracy (as required in Addendum #1 to this Bid Document)	Lump Sum	1				
6-A26	Expansion Wheels	Each	18,000				

**Alternate Bid Item #6-A27: Shared Data Collection System with Northern Kentucky Water District and City of Florence**

Provide an Alternate Deduct Price to the District if the District contracts with the same Bidder as does the City of Florence. Deduct price is to account for: 1) potential savings in data collector/repeater mounting infrastructure (if such can be used for each utility); 2) savings in deployment/staging costs; and, 3) any additional savings available from the Bidder if contracting with both Owners: \$\_\_\_\_\_ (in figures) and

\_\_\_\_\_ (written out in words)

Describe the basis for cost savings if both Owners enter into contracts with the same Bidder.

**Present Value Analysis: HYBRID AMI PLUS CELLULAR, Non-SRF Scenario**

If you are offering a Hybrid solution combining AMI technology with Cellular, and filled out Part 6 and Part 6-A, please fill out the following table [with your Non-SRF cost data](#) to provide the District with the Present Value cost over a 20-year life of the system. If you did not fill out Part 6 and Part 6-A, please skip this section.

Line #	Cost (from Part 6 or 6-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
Part 6 TOTAL Line	\$			
Subtotal – Year 1 Costs		\$	1	\$
6-A15 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 6-10 Costs		\$	1.3159	\$
6-A16 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 11-15 Costs		\$	1.6010	\$
6-A17 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 16-20 Costs		\$	1.9479	\$
Subtotal – External (Bid) Costs				\$
Internal NKWD Costs (Labor, Vehicles, etc.)				\$3,027,310
TOTAL 20 Year Present Value Cost: Hybrid AMI plus Cellular				\$

**Present Value Analysis: HYBRID AMI PLUS CELLULAR, SRF Scenario**

If you are offering a Hybrid solution combining AMI technology with Cellular, and filled out Part 6 and Part 6-A, please fill out the following table with your SRF cost data to provide the District with the Present Value cost over a 20-year life of the system. If you did not fill out Part 6 and Part 6-A, please skip this section.

Line #	Cost (from Part 6 or 6-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
Part 6 TOTAL Line	\$			
Subtotal – Year 1 Costs		\$	1	\$
6-A15 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 6-10 Costs		\$	1.3159	\$
6-A16 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 11-15 Costs		\$	1.6010	\$
6-A17 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 16-20 Costs		\$	1.9479	\$
Subtotal – External (Bid) Costs				\$
Internal NKWD Costs (Labor, Vehicles, etc.)				\$3,027,310
TOTAL 20 Year Present Value Cost: Hybrid AMI plus Cellular				\$

**Present Value Analysis: Hybrid AMI plus Cellular with Remote Shutoff Valves, Non-SRF Scenario**

TOTAL 20 Year Present Value Cost: Hybrid AMI plus Cellular (from above)	\$
Line 6-A4 (Remote Shutoff Valve Cost)	\$

Reduction in Internal Costs Related to Remote Shutoff Valves (negative value)	(\$1,029,150)
TOTAL 20 Year Present Value Cost: Hybrid AMI plus Cellular with Remote Shutoff Valves	\$

**Present Value Analysis: Hybrid AMI plus Cellular with Remote Shutoff Valves, SRF Scenario**

TOTAL 20 Year Present Value Cost: Hybrid AMI plus Cellular (from above)	\$
Line 6-A4 (Remote Shutoff Valve Cost)	\$
Reduction in Internal Costs Related to Remote Shutoff Valves (negative value)	(\$1,029,150)
TOTAL 20 Year Present Value Cost: Hybrid AMI plus Cellular with Remote Shutoff Valves	\$

**Present Value Analysis: Hybrid AMI plus Cellular with Customer Portal, Non-SRF Scenario**

Line #	Cost (from Part 6 or 6-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
6-A8 (Portal)	\$			
6-A9 (Portal, Annual)	\$			
Subtotal – Year 1 Costs		\$	1	\$
6-A10 (Portal, Annual)		\$	1.3159	\$
6-A11 (Portal, Annual)		\$	1.6010	\$
6-A12 (Portal, Annual)		\$	1.9479	\$
Subtotal – Customer Portal Present Value Costs				\$
TOTAL 20 Year Present Value Cost: Hybrid AMI plus Cellular (from above)				\$



Reduction in Internal Costs Related to Customer Portal (negative value)	(\$494,869)
TOTAL 20 Year Present Value Cost: Hybrid AMI plus Cellular with Customer Portal	\$

**Present Value Analysis: Hybrid AMI plus Cellular with Customer Portal, SRF Scenario**

Line #	Cost (from Part 6 or 6-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
6-A8 (Portal)	\$			
6-A9 (Portal, Annual)	\$			
Subtotal – Year 1 Costs		\$	1	\$
6-A10 (Portal, Annual)	\$		1.3159	\$
6-A11 (Portal, Annual)	\$		1.6010	\$
6-A12 (Portal, Annual)	\$		1.9479	\$
Subtotal – Customer Portal Present Value Costs				\$
TOTAL 20 Year Present Value Cost: Hybrid AMI plus Cellular (from above)				\$
Reduction in Internal Costs Related to Customer Portal (negative value)				(\$494,869)
TOTAL 20 Year Present Value Cost: Hybrid AMI plus Cellular with Customer Portal				\$

**PART 7 – HYBRID (AMI plus Other Communications) SYSTEM – NORTHERN KENTUCKY WATER DISTRICT**

**BASE BID (24 MONTH DEPLOYMENT)**

[Note: For this hybrid AMI plus Other Communications (i.e., a technology other than AMR or Cellular, or another utility) bid, Bidder is responsible for proposing the most economical blend of AMI and Other Communications features (i.e., what portion of the District’s meters are most economically read via AMI versus another communications technology), based on the nature of the Bidder’s technological solution(s) and the Bidder’s propagation research. This blend is to be reflected in the quantities and costs depicted below.]

No.	Item	Unit	NKWD Quantity (Estimated)	Non-SRF Cost		SRF Cost	
				Unit Cost	Total Cost	Unit Cost	Total Cost
7-1	Complete Initial Deployment Phase (reading an estimated 500 accounts)	Lump Sum	1				
7-2	Supply and Install other communications technology Meter Interface Units (with minimum 6 ft of connecting wire)	Each	Bidder Determined <sup>4</sup>				
7-3	Supply and Install AMI Meter Interface Units (with minimum 6 ft of connecting wire)	Each	Bidder Determined <sup>4</sup>				
7-4	Supply and Install AMI Two-port MIUs (with minimum 6 ft of connecting wire)	Each	1,000				
7-5	Supply and Install Fixed Data Collection & Communication System including repeaters and firmware <sup>2</sup>	Lump Sum	1				
7-6	Supply Handheld Data Collection Devices/Field Programmers (including cradles, accessories, firmware and software) <sup>1</sup>	Each	18				
7-7	Provide System Integration with Customer Information (Billing) System	Lump Sum	1				
7-8	Provide Initial & Post-Implementation Follow-up Support and Training for 12 months (include travel)	Lump Sum	1				
7-9	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 1 through 5	Lump Sum	1				
7-10	Supply Material and Labor for Full Meter Box Replacement	Each	4,500				

7-11	Supply Material and Labor for Meter Lid Replacement	Each	1,500				
7-12	Allowance for Miscellaneous Meter Setting Repair Material (all material to be supplied by Bidder)	Lump Sum	\$30,000				
7-13	Hourly Labor Rate for Miscellaneous Meter Setting and Restoration Repair (all work pre-approved)	Hours	2,500				
7-14	Allowance for Materials for Restoration of Right-of-Way (i.e. shrubs, )	Lump Sum	\$20,000				
7-15	Provide Backhaul Communications Infrastructure including installation and fees for 20 years of operation <sup>3</sup>	Lump Sum	1				
7-16	Supply and Install Foam Covers for Freeze Protection	Each	20,000				
7-17	Credit for District's Salvaged Parts	Lump Sum	1		( )		( )
				TOTAL NON-SRF BASE BID PART 7		TOTAL SRF BASE BID PART 7	

<sup>1</sup> Describe additional quantities of items recommended to be supplied for operating the AMI system if different than the quantity indicated in the Bid Form.

<sup>2</sup> Describe the number of data collection units anticipated to be supplied. The Bidder shall supply the number of data collectors and repeaters required to achieve the reading performance and frequency requirements specified. If additional data collectors or repeaters are required to achieve the specified requirements that are more than originally estimated by Bidder, the Bidder shall be responsible for furnishing and installing all additional equipment at the Bidder's expense. The District will only pay for additional collectors and repeaters needed to expand the original service area, as needed. The Bidder shall include and describe all costs associated with leasing space on infrastructure not owned by the District that is required for installation of DCUs and/or repeaters for the 20-year life of the system.

<sup>3</sup> Describe the proposed backhaul communications methodology and basis for pricing.

<sup>4</sup> Describe the quantity of AMI and other communications technology transmitter units that in the Bidder's estimation provides the most economical meter reading solution for the District.

**PART 7 – HYBRID (AMI plus Other Communications) SYSTEM – NORTHERN KENTUCKY WATER DISTRICT**  
**ALTERNATE BID 7-A – ALTERNATE ITEMS (24 MONTH DEPLOYMENT)**

No.	Item	Unit	NKWD Quantity (Estimated)	Non-SRF Cost		SRF Cost	
				Unit Cost	Total Cost	Unit Cost	Total Cost
<b>METERS, TRANSMITTERS, AND VALVES</b>							
7-A1	Supply Meters, 5/8" x 1/2" or 5/8" x 3/4" PD with bronze threads	Each	15,000				
7-A2	Supply Meters, 5/8" x 1/2" or 5/8" x 3/4" Ultrasonic	Each	3,000				
7-A3	Install 5/8" x 1/2" or 5/8" x 3/4" PD or Ultrasonic Meters	Each	18,000				
7-A4	Supply and Install Capability for Remote Shutoff for Selected Accounts	Each	1,000				
7-A5	Supply Equipment for Remote Shutoff for Future Accounts Post-Deployment through Year 20	Each	200				
7-A6	Supply Pressure Regulating Valves	Each	5,000				
7-A7	Install Pressure Regulating Valves in Meter Settings	Each	5,000				
<b>CUSTOMER PORTAL</b>							
7-A8	Provide Customer Portal licensing, installation, and implementation	Lump Sum	1				
7-A9	Provide Customer Portal annual support costs for Years 1 – 6	1 Year	5				
7-A10	Provide Customer Portal annual support costs for Years 6 – 10	1 Year	5				
7-A11	Provide Customer Portal annual support costs for Years 11 – 15	1 Year	5				
7-A12	Provide Customer Portal annual support costs for Years 16 – 20	1 Year	5				
<b>INTEGRATION AND SOFTWARE HOSTING SERVICES</b>							
7-A13	Provide System Integration – Geographic Information System	Lump Sum	1				

7-A14	Provide System Integration – Work Order Management System	Lump Sum	1				
7-A15	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 6 through 10	1 Year	5				
7-A16	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 11 through 15	1 Year	5				
7-A17	Supply all hardware, licensing, software and data storage including Meter Data Management System & Data Analytics, and all fees, for Years 16 through 20	1 Year	5				
7-A18	Store One Year of Additional Data starting in Year 6 through Year 20	1 Year	15				
SYSTEM MAINTENANCE SERVICES AND ADDITIONAL EQUIPMENT							
7-A19	Provide Full Communication System Maintenance Year 1 – Year 5	1 Year	5				
7-A20	Provide Full Communication System Maintenance Year 6 – Year 10	1 Year	5				
7-A21	Provide Full Communication System Maintenance Year 11 – Year 15	1 Year	5				
7-A22	Provide Full Communication System Maintenance Year 16 – Year 20	1 Year	5				
7-A23	Supply and Install Fixed Data Collectors, including firmware and installation (for expanded service areas) through Year 20	Each	1				
7-A24	Supply and Install Fixed Network System Repeaters (for expanded service areas) through Year 20	Each	1				
INSTALLATION							
7-A25	Provide GPS location within sub-centimeter accuracy, as opposed to sub-meter accuracy (as required in Addendum #1 to this Bid Document)	Lump Sum	1				
7-A26	Expansion Wheels	Each	18,000				

**Alternate Bid Item #7-A27: Shared Data Collection System with Northern Kentucky Water District and City of Florence**

Provide an Alternate Deduct Price to the District if the District contracts with the same Bidder as does the City of Florence. Deduct price is to account for: 1) potential savings in data collector/repeater mounting infrastructure (if such can be used for each utility); 2) savings in deployment/staging costs; and, 3) any additional savings available from the Bidder if contracting with both Owners: \$ \_\_\_\_\_ (in figures) and

\_\_\_\_\_ (written out in words)

Describe the basis for cost savings if both Owners enter into contracts with the same Bidder.

**Present Value Analysis: HYBRID AMI PLUS OTHER COMMUNICATIONS TECHNOLOGY, Non-SRF Scenario**

If you are offering a Hybrid solution combining AMI technology with Other Communications Technology, and filled out Part 7 and Part 7-A, please fill out the following table [with your Non-SRF Scenario](#) to provide the District with the Present Value cost over a 20-year life of the system. If you did not fill out Part 7 and Part 7-A, please skip this section.

Line #	Cost (from Part 7 or 7-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
Part 7 TOTAL Line	\$			
Subtotal – Year 1 Costs		\$	1	\$
7-A15 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 6-10 Costs		\$	1.3159	\$
7-A16 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 11-15 Costs		\$	1.6010	\$
7-A17 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 16-20 Costs		\$	1.9479	\$
Subtotal – External (Bid) Costs				\$
Internal NKWD Costs (Labor, Vehicles, etc.)				\$2,858,505
TOTAL 20 Year Present Value Cost: Hybrid AMI plus Other Communications Technology				\$

**Present Value Analysis: HYBRID AMI PLUS OTHER COMMUNICATIONS TECHNOLOGY, SRF Scenario**

If you are offering a Hybrid solution combining AMI technology with Other Communications Technology, and filled out Part 7 and Part 7-A, please fill out the following table with your Non-SRF Scenario to provide the District with the Present Value cost over a 20-year life of the system. If you did not fill out Part 7 and Part 7-A, please skip this section.

Line #	Cost (from Part 7 or 7-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
Part 7 TOTAL Line	\$			
Subtotal – Year 1 Costs		\$	1	\$
7-A15 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 6-10 Costs		\$	1.3159	\$
7-A16 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 11-15 Costs		\$	1.6010	\$
7-A17 (Integration/Hosting Annual Costs)	\$			
Subtotal – Year 16-20 Costs		\$	1.9479	\$
Subtotal – External (Bid) Costs				\$
Internal NKWD Costs (Labor, Vehicles, etc.)				\$2,858,505
TOTAL 20 Year Present Value Cost: Hybrid AMI plus Other Communications Technology				\$

**Present Value Analysis: Hybrid AMI plus Other Communications Technology with Remote Shutoff Valves, Non-SRF Scenario**

TOTAL 20 Year Present Value Cost: Hybrid AMI plus Other Communications Technology (from above)	\$
Line 7-A4 (Remote Shutoff Valve Cost)	\$



Reduction in Internal Costs Related to Remote Shutoff Valves (negative value)	(\$1,029,150)
TOTAL 20 Year Present Value Cost: Hybrid AMI plus Other Communications Technology with Remote Shutoff Valves	\$

**Present Value Analysis: Hybrid AMI plus Other Communications Technology with Remote Shutoff Valves, SRF Scenario**

TOTAL 20 Year Present Value Cost: Hybrid AMI plus Other Communications Technology (from above)	\$
Line 7-A4 (Remote Shutoff Valve Cost)	\$
Reduction in Internal Costs Related to Remote Shutoff Valves (negative value)	(\$1,029,150)
TOTAL 20 Year Present Value Cost: Hybrid AMI plus Other Communications Technology with Remote Shutoff Valves	\$

**Present Value Analysis: Hybrid AMI plus Other Communications Technology with Customer Portal, Non-SRF Scenario**

Line #	Cost (from Part 7 or 7-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
7-A8 (Portal)	\$			
7-A9 (Portal, Annual)	\$			
Subtotal – Year 1 Costs	\$		1	\$
7-A10 (Portal, Annual)	\$		1.3159	\$
7-A11 (Portal, Annual)	\$		1.6010	\$
7-A12 (Portal, Annual)	\$		1.9479	\$
Subtotal – Customer Portal Present Value Costs				\$

TOTAL 20 Year Present Value Cost: Hybrid AMI plus Other Communications Technology (from above)	\$
Reduction in Internal Costs Related to Customer Portal (negative value)	(\$494,869)
TOTAL 20 Year Present Value Cost: Hybrid AMI plus Other Communications Technology with Customer Portal	\$

**Present Value Analysis: Hybrid AMI plus Other Communications Technology with Customer Portal, SRF Scenario**

Line #	Cost (from Part 7 or 7-A)	Subtotals Column A	Discount Factor Column B	Present Value (A/B)
7-A8 (Portal)	\$			
7-A9 (Portal, Annual)	\$			
Subtotal – Year 1 Costs		\$	1	\$
7-A10 (Portal, Annual)		\$	1.3159	\$
7-A11 (Portal, Annual)		\$	1.6010	\$
7-A12 (Portal, Annual)		\$	1.9479	\$
Subtotal – Customer Portal Present Value Costs				\$
TOTAL 20 Year Present Value Cost: Hybrid AMI plus Other Communications Technology (from above)				\$
Reduction in Internal Costs Related to Customer Portal (negative value)				(\$494,869)
TOTAL 20 Year Present Value Cost: Hybrid AMI plus Other Communications Technology with Customer Portal				\$

**PART 8 – ADVANCED METER INFRASTRUCTURE (AMI) SYSTEM – CITY OF FLORENCE**

**BASE BID (12 MONTH DEPLOYMENT)**

No.	Item	Unit	City Quantity (Estimated)	Unit Cost	Total Cost
METERS, TRANSMITTERS, AND VALVES					
8-1	Supply and Install Meters, 5/8" x 1/2" PD	Each	7,762		
8-2	Supply and Install Meters, 5/8" x 3/4"	Each	25		
8-3	Supply and Install Meters, 3/4"	Each	49		
8-4	Supply and Install Meters, 1"	Each	248		
8-5	Supply and Install Meters, 1-1/2"	Each	332		
8-6	Supply and Install Meters, 2"	Each	290		
8-7	Supply and Install Meters, 3"	Each	53		
8-8	Supply and Install Meters, 4"	Each	19		
8-9	Supply and Install Meters, 6"	Each	12		
8-10	Supply and Install Meters, 8"	Each	10		
8-11	Supply and Install Transmitting Units (with minimum 6 ft of connecting wire)	Each	8,775		
8-12	Supply and Install Data Collection & Communication System	Lump Sum	1		
8-13	Supply Handheld Data Collection Devices/Field Programmers (including cradles, accessories, firmware and software) <sup>1</sup>	Each	3		
8-14	Provide System Integration with Customer Information (Billing) System	Lump Sum	1		
8-15	Provide Initial & Post-Implementation Follow-up Support and Training for 12 months (include travel)	Lump Sum	1		
8-16	Supply all other hardware, software and all annual software support costs and maintenance fees including 5 years of data storage for Years 1 - 5	Lump Sum	1		
8-17	Supply and Install Capability for Remote Shutoff for Selected Accounts	Each	500		

8-18	5/8" Expansion Wheels	Each	2,500		
8-19	3/4" Expansion Wheels	Each	25		
8-20	1" Expansion Wheels	Each	50		
8-21	Credit for City's Salvaged Parts	Lump Sum	1		( )
				TOTAL BASE BID PART 8	

**PART 8 – ADVANCED METER INFRASTRUCTURE (AMI) SYSTEM – CITY OF FLORENCE**

**ALTERNATE BID 8-A– CITY OF FLORENCE (12 MONTH DEPLOYMENT)**

CUSTOMER PORTAL					
8-A1	Provide Customer Portal with annual support costs for Years 1 - 5	Lump Sum	1		
8-A2	Provide Customer Portal annual support costs for Years 6 – 10	1 Year	5		
8-A3	Provide Customer Portal annual support costs for Years 11 – 15	1 Year	5		
8-A4	Provide Customer Portal annual support costs for Years 16 - 20	1 Year	5		
INTEGRATION AND SOFTWARE HOSTING SERVICES					
8-A5	Provide System Integration – Geographic Information System	Lump Sum	1		
8-A6	Provide System Integration – Work Order Management System	Lump Sum	1		
8-A7	Provide System Integration – Hydraulic Modeling System	Lump Sum	1		
8-A8	Provide Annual Licensing & Software Hosting, including Meter Data Management System and Data Analytics, Years 6 - 10	1 Year	5		
8-A9	Provide Annual Licensing & Software Hosting, including Meter Data Management System and Data Analytics, Years 11 - 15	1 Year	5		
8-A10	Provide Annual Licensing & Software Hosting, including Meter Data Management System and Data Analytics, Years 15 - 20	1 Year	5		
8-A11	Store One Year of Additional Data starting in Years 6 through 20	1 Year	15		

SYSTEM MAINTENANCE SERVICES AND ADDITIONAL EQUIPMENT					
8-A12	Provide Full Communication System Maintenance Years 1 – 5	1 Year	5		
8-A13	Provide Full Communication System Maintenance Years 6 – 10	1 Year	5		
8-A14	Provide Full Communication System Maintenance Years 11 – 15	1 Year	5		
8-A15	Provide Full Communication System Maintenance Year 16s – 20	1 Year	5		
8-A16	Supply and Install Fixed Data Collectors, including firmware and installation (for expanded service areas) through Year 20	Each	1		
8-A17	Supply and Install Fixed Network System Repeaters (for expanded service areas) through Year 20	Each	1		
ULTRASONIC METERS					
8-A18	Supply and Install Meters, 5/8" x 1/2" PD or Ultrasonic	Each	7,762		
8-A19	Supply and Install Meters, 5/8" x 3/4"	Each	25		
8-A20	Supply and Install Meters, 3/4"	Each	49		
8-A21	Supply and Install Meters, 1"	Each	248		
8-A22	Supply and Install Meters, 1-1/2"	Each	332		
8-A23	Supply and Install Meters, 2"	Each	290		
8-A24	Supply and Install Meters, 3"	Each	53		
8-A25	Supply and Install Meters, 4"	Each	19		
8-A26	Supply and Install Meters, 6"	Each	12		

**Alternate Bid Item #8-A27: Shared Data Collection System with Northern Kentucky Water District and City of Florence**

Provide an Alternate Deduct Price to the City if the City contracts with the same Bidder as does the District. Deduct price is to account for: 1) potential savings in data collector/repeater mounting infrastructure (if such can be used for each utility); 2) savings in deployment/staging costs; and, 3) any additional savings available from the Bidder if contracting with

both Owners: \$ \_\_\_\_\_ (in figures) and

\_\_\_\_\_ (written out in words)

Describe the basis for cost savings if both Owners enter into contracts with the same Bidder

**SIGNATURE OF BIDDER**

**If an Individual**

Name (typed or printed): \_\_\_\_\_

By \_\_\_\_\_ (SEAL)

*(Individual's signature)*

doing business as \_\_\_\_\_

Business address \_\_\_\_\_

\_\_\_\_\_

Phone No.: \_\_\_\_\_ Fax No.: \_\_\_\_\_

Date \_\_\_\_\_

**If a Partnership**

Partnership Name: \_\_\_\_\_ (SEAL)

By \_\_\_\_\_

*(Signature of general partner - attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Business address \_\_\_\_\_

\_\_\_\_\_

Phone No. \_\_\_\_\_ Fax No.: \_\_\_\_\_

Date \_\_\_\_\_

**If a Corporation**

Corporation Name: \_\_\_\_\_ (SEAL)

State of Incorporation: \_\_\_\_\_

Type (General, Professional, Service, Limited Liability): \_\_\_\_\_

By \_\_\_\_\_

*(Signature - attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

(CORPORATE SEAL)

Attest \_\_\_\_\_

Business address \_\_\_\_\_

\_\_\_\_\_

Phone No. \_\_\_\_\_ Fax No.: \_\_\_\_\_

Date \_\_\_\_\_



**If a Limited Liability Company**

Company Name: \_\_\_\_\_ (SEAL)

State of Organization: \_\_\_\_\_

Type (General, Professional): \_\_\_\_\_

By \_\_\_\_\_

*Signature of Member or Manager (as applicable)- attach evidence of authority to sign*

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

(COMPANY SEAL)

Attest \_\_\_\_\_

Business address \_\_\_\_\_

\_\_\_\_\_

Phone No. \_\_\_\_\_ Fax No.: \_\_\_\_\_

Date \_\_\_\_\_

**If a Joint Venture**

(Each joint venturer must sign. The manner for signing for each individual, partnership, and corporation that is party to the joint venture should be in the manner indicated above.)

Joint Venturer Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_

*(Signature - attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

Business address: \_\_\_\_\_

\_\_\_\_\_

Phone No.: \_\_\_\_\_ Fax No.: \_\_\_\_\_

Date \_\_\_\_\_

Joint Venturer Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_

*(Signature - attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

Business address: \_\_\_\_\_

\_\_\_\_\_

Phone No.: \_\_\_\_\_ Fax No.: \_\_\_\_\_

Date \_\_\_\_\_

## ATTACHMENT BF-1 – SUPPLEMENTAL COST INFORMATION

### PART A - EQUIPMENT FAILURE RATES

Through routine maintenance and replacement of system components to keep the system fully functional, the Owners require 20 years of useful life from the system provided. Since it is assumed that replacement costs are fully covered by warranty for the first ten (10) years, the table begins at year eleven (11) for cost. The Owners still want to know the expected number of failures in the first 10 years as there is an impact for Owners to handle such events.

For the purposes of this Bidding Document, component failure means the inability to reliably complete the task for which the component was designed. This definition will apply to all components including but not limited to MIUs, connectors, collectors, repeaters, head end units or servers, and MDMS systems. These failures may include but are not limited to:

- Failure to reliably and accurately communicate with meters and other devices for which it was designed.
- Failure to accurately read, store, and transmit data such as meter reads, alarm codes, and other data for which it was designed to read.
- Failure to maintain adequate battery voltages adequate for normal operation.
- Failure to accept software firmware upgrades and settings.
- Failure to maintain physical integrity under the conditions it was designed to withstand.
- Failure to be immune to expected radio interference.
- Failure to maintain system security.

Bidder shall provide expected failure rates for various system components, and their associated warranty and repair costs, in Tables A1-A3 in Attachment BF-1. Bidder shall also provide (1) repair prices for MIUs, and (2) for a Utility-dedicated network, expected maintenance and repair costs for DCUs and repeaters in the case that Owner does not avail itself of annual maintenance agreements for these components, that will give Owner a true representation of expected operating and maintenance costs. Indicate battery change costs in the table including labor. These costs shall be included in Owner's evaluation of total system costs.

- Bidder shall indicate the expected life in service of the system components if other than 20 years. Bidder shall provide explanation of any underlying assumptions necessary to explain these numbers.
- If any proposed costs refer to a "list" price, or "retail" price, Bidder shall explicitly state the current "list" or "retail" price.

Bidder must complete each blank cell within the tables.

**Table A-1**  
**Meter Interface Unit Failures**

<b>Year After Unit Installed and Accepted</b>	<b>Expected Failure Rate (failures/100 units/year)</b>	<b>Warranty Pro-Rata Replacement Cost Percentage<sup>1</sup></b>	<b>Unit Repair or Replacement Cost</b>	<b>Guaranteed Maximum Failure Rates (failures/100 units/year)</b>
1		0%	\$0	
2		0%	\$0	
3		0%	\$0	
4		0%	\$0	
5		0%	\$0	
6		0%	\$0	
7		0%	\$0	
8		0%	\$0	
9		0%	\$0	
10		0%	\$0	
11		%		
12		%		
13		%		
14		%		
15		%		
16		%		
17		%		
18		%		
19		%		
20		%		

<sup>1</sup> For example, an MIU that Owner paid \$50.00 for that fails in the 11<sup>th</sup> year after being installed and accepted will be replaced at a cost to the Owner of \$5.00 if the percentage is 10.

**Table A-2**  
**Fixed Data Collection Unit Failures**

<b>Year After Unit Installed and Accepted</b>	<b>Expected Failure Rate (failures/100 units/year)</b>	<b>Pro-Rata Replacement Cost Percentage<sup>1</sup></b>	<b>Unit Repair or Replacement Cost</b>	<b>Guaranteed Maximum Failure Rates (failures/100 units/year)</b>
1		0%	\$0	
2		0%	\$0	
3		0%	\$0	
4		0%	\$0	
5		0%	\$0	
6		0%	\$0	
7		0%	\$0	
8		0%	\$0	
9		0%	\$0	
10		0%	\$0	
11		%		
12		%		
13		%		
14		%		
15		%		
16		%		
17		%		
18		%		
19		%		
20		%		

<sup>1</sup> For example, a fixed data collection unit that Owner paid \$5,000.00 for that fails in the 11<sup>th</sup> year after being installed and accepted will be replaced at a cost to the Owner of \$500.00 if the percentage is 10. These costs may be supplanted by an annual maintenance contract.

**Table A-3  
Repeaters Failures**

<b>Year After Unit Installed and Accepted</b>	<b>Expected Failure Rate (failures/100 units/year)</b>	<b>Pro-Rata Replacement Cost Percentage<sup>1</sup></b>	<b>Unit Repair or Replacement Cost</b>	<b>Guaranteed Maximum Failure Rates (failures/100 units/year)</b>
1		0%	\$0	
2		0%	\$0	
3		0%	\$0	
4		0%	\$0	
5		0%	\$0	
6		0%	\$0	
7		0%	\$0	
8		0%	\$0	
9		0%	\$0	
10		0%	\$0	
11		%		
12		%		
13		%		
14		%		
15		%		
16		%		
17		%		
18		%		
19		%		
20		%		

<sup>1</sup> For example, a repeater that Owner paid \$500.00 for that fails in the 11<sup>th</sup> year after being installed and accepted will be replaced at a cost to the Owner of \$50.00 if the percentage is 10. These costs may be supplanted by an annual maintenance contract.

## SUPPLEMENTS TO BID FORM

### 1. FORMS TO BE SUBMITTED WITH BID

- A. Certification Regarding Debarment, Suspension and Other Responsibility Matters - EPA Form 5700-49 (Attachment No. 9 – Section 00810)
- B. Certification Regarding Lobbying (Attachment No. 10 – Section 00810)
- C. Statement of Bidder's Qualifications (Attachment No. S-1)
- D. Bidder's Experience Record (Attachment No. S-2)
- E. Proposed Subcontractors (Attachment No. S-3)
- F. Bid Security (Specification Section 00410)
- G. Non-Collusion Affidavit (Specification Section 00460)
- H. Required Notarized Affidavit for Bidders, Offerors, and Contractors Claiming Kentucky Resident Bidder Status (Specification Section 00470)

*Note: Items A, B, C, D, & E are required for NKWD portion of the project only.*

### 2. FORMS TO BE SUBMITTED WITHIN 7 DAYS OF DISTRICT'S FORMAL REQUEST

Certain information and documentation is required by the funding agencies and other governing bodies prior to awarding a necessary approval for this project. The BIDDER acknowledges, through the act of submitting a Bid, a commitment to submit the following documentation or information within 7 days of the District's formal request to do so. Failure to produce any of this documentation or information within the prescribed period will serve as ground for rejection of the Bid. If the information is required from a subcontractor or vendor and is not produced within the prescribed time, it will serve as grounds to replace the subcontractor or vendor with another company or product.

Specific items to be submitted within 7 days of the District's formal request include:

- A. Disadvantage Enterprise Participation Policy (Attachment 11 – Section 00810)
- B. List of DBE Bidders of Subcontracts (Attachment 11 – Section 00810)

*Note: Items A & B are required for NKWD portion of the project only.*

## STATEMENT OF BIDDER'S QUALIFICATIONS

All questions shall be answered or the bid document will be incomplete. All data given shall be clear and comprehensive. This statement shall be notarized. If necessary, questions may be answered on separate sheets. The Bidder may submit any additional information it desires. If the Bidder is a joint venture, submit previous joint venture projects. If joint venture has not completed prior projects of this magnitude then submit projects completed by joint venture partners.

1. Name of Bidder:
2. Permanent main office address:
3. When organized:
4. If a corporation, where incorporated:
5. How many years have you been engaged in operation of your business under your present firm or trade name:
6. Contracts on hand. (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion.):
7. General character of work performed by your company:
8. Have you ever failed to complete any job awarded to you? If so, where and why?
9. Have you ever defaulted on a contract? If so, where and why?
10. List the more important projects completed by your firm, stating the approximate cost for each, and the month and year completed on attached sheet.
11. List your major equipment available for this work.
12. Experience in work similar in complexity, size and/or dollar value to this project. List and describe at least four on the table "Project References".
13. Background and experience of the principal members of your organization, including the officers in this type of work. (Attach)
14. Credit available: \$ \_\_\_\_\_
15. Give bank reference: \$ \_\_\_\_\_
16. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Owner?  Yes  No



17. The undersigned hereby authorizes and requests any person, firm or corporation to furnish any information required by the Owner in verification of the statements made comprising this Statement of Bidder's Qualifications:

Dated at \_\_\_\_\_ this \_\_\_\_\_ day of \_\_\_\_\_

\_\_\_\_\_  
NAME OF BIDDER

BY \_\_\_\_\_

TITLE \_\_\_\_\_

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

\_\_\_\_\_ being duly sworn deposes and says that he or she is

\_\_\_\_\_ of \_\_\_\_\_  
(NAME OF ORGANIZATION)

And that the answers to the foregoing questions and all statements contained therein are true and correct.

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, of this year \_\_\_\_\_.

\_\_\_\_\_  
(NOTARY PUBLIC)

My commission expires \_\_\_\_\_

**BIDDER'S EXPERIENCE RECORD**  
**(Projects need to be of similar size and nature)**

Change Order Value				
Contract Value				
Size of Project (Length, Contract Duration)				
Project Type, Year of Completion				
Engineer Contact Name, Telephone #				
Project Name, Owner, Address, Telephone #				

**PROPOSED SUBCONTRACTORS**

The BIDDER's proposed subcontractors shall be listed below for the various branches of work included in the proposed contract. All subcontractors are subject to the approval of the OWNER.

**Unless rejected or otherwise permitted by the OWNER, no substitutions or changes to the listing of the entities proposed to perform that branch of the work will be allowed following opening of the Bids.**

Where the BIDDER proposes to perform the work with its own forces, the phrase "Prime Contractor" shall be entered in the box provided

Failure to submit a completed list shall be cause for rejection of the Bid.

Branch of Work	Name of Subcontractor
1. Endpoint Changeout	
2. Meter Changeout	
3. Installation of Data Collectors	
4. Other:	
5. Other:	
6. Other:	
7. Other:	

**NON-COLLUSION AFFIDAVIT**

STATE OF: \_\_\_\_\_ )

COUNTY OF: \_\_\_\_\_ ) SS

\_\_\_\_\_, being first duly sworn, deposes

and says that he/she is the \_\_\_\_\_ of

(sole owner, a partner, president, secretary, etc.)

\_\_\_\_\_, the party making the foregoing bid; that such bid is genuine and not collusive or sham; that said bidder is not financially interested in, or otherwise affiliated in a business way with any other bidder on the same contract; that said bidder has not colluded, conspired, connived, or agreed, directly or indirectly, with any bidder or person, to put in a sham bid, or that such other person shall refrain from bidding, and has not in any manner directly or indirectly sought by agreement or collusion, or communication or conference, with any person, to fix the price or affidavit of any other bidder, or that of any other bidder, or to secure any advantage against Owner, or any person or persons interested in the proposed Contract; and that all statements contained in said bid are true; and further, that such bidder has not, directly or indirectly submitted this bid, or the contents thereof, or divulged information of data relative thereto to any association or to any member or agent thereof.

\_\_\_\_\_

AFFIANT

Sworn to and subscribed before me, a Notary Public in and for the above named

State and County, this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_.

\_\_\_\_\_

NOTARY PUBLIC

Bid Description: Meter Reading System Replacement

**REQUIRED NOTARIZED AFFIDAVIT FOR BIDDERS, OFFERORS AND CONTRACTORS  
CLAIMING KENTUCKY RESIDENT BIDDER STATUS**

**FOR BIDS AND CONTRACTS IN GENERAL:**

The bidder or offeror hereby swears and affirms under penalty of perjury that, in accordance with KRS 45A.494(2), the entity bidding is an individual, partnership, association, corporation, or other business entity that, on the date the contract was first advertised or announced as available for bidding:

1. Is authorized to transact business in the Commonwealth of Kentucky; AND
2. Has for one year prior to and through the date this contract was first advertised or announced as available for bidding:
  - a. Filed Kentucky corporate income taxes;
  - b. Made payments to the Kentucky unemployment insurance fund established in KRS 341.490; and
  - c. Maintained a Kentucky workers' compensation policy in effect.

The undersigned acknowledges that the District reserves the right to request documentation supporting a bidder's claim of resident bidder status. Failure to provide such documentation upon request shall result in disqualification of the bidder or contract termination.

_____	_____
Signature	Printed Name

_____	_____
Title (if signing on behalf of an entity)Date	

State of \_\_\_\_\_ )  
 )ss.  
 County of \_\_\_\_\_ )

Subscribed and sworn to before me by \_\_\_\_\_, as the  
\_\_\_\_\_, of \_\_\_\_\_, this \_\_\_\_\_ day of  
\_\_\_\_\_, 2020.

\_\_\_\_\_  
Notary-at-Large

My comm. exp.: \_\_\_\_\_

EMPLOYMENT REQUIREMENTS AND WAGE RATES  
**\*\*Applies to the NKWD Portion of the Project Only\*\***

R-1. GENERAL. The successful bidder will be required to conform to all provisions of the federal Davis-Bacon and Related Acts (The Act) which requires that all laborers and mechanics employed by contractors and subcontractors performing on federal contracts (and contractors and subcontractors performing on federally assisted contracts under the related ACTS) in excess of \$2,000 pay their laborers and mechanics not less than the prevailing wage rates and fringe benefits, as determined by the Department of Labor, for corresponding classes of laborers and mechanics employed on similar projects in the area.

This Contract shall be based upon payment by the Contractor and his Subcontractors of wage rates not less than the prevailing hourly wage rate for each craft or type of workman engaged on the Work as determined by the Department of Labor.

The Contractor and each Subcontractor shall keep accurate records indicating the hours worked each day by each employee in each classification of work and the amount paid each employee for his work in each classification. Such records shall be open to the inspection and transcript of the Commissioner of Labor or his duly authorized representatives at any reasonable time. These payroll records shall not be destroyed or removed from the state for one year following completion of the improvement.

The Contractor and each Subcontractor shall post and keep posted in a conspicuous place or places at the construction site a copy or copies of prevailing rates of wages and working hours as prescribed in these Contract Documents.

If, during the life of this Contract, the prevailing hourly rate of wages is changed by the Department of Labor, such change shall not be the basis of any claim by the Contractor against the Owner, nor will deductions be made by the Owner against sums due the Contractor by reason of any such change.

The prevailing wage law does not prohibit payment of more than the prevailing rate of wages.

R-2. PREVAILING WAGES.

The Contractor shall note that where a contract is not awarded within 90 days from the date of establishment of the prevailing wages, there shall be a redetermination of the prevailing rate of wage before the contract is awarded.

Davis Bacon wages can be obtained from the Wage Determinations Online website. Use this link to find the Davis Bacon wages: <https://beta.sam.gov/search?index=wd> . Use the pull-down menus to enter:

- Wage Determination Type = “Davis-Bacon Act (DBA)”
- State = “Kentucky”

- County = "Boone", "Campbell", & "Kenton"
  - DBA: Construction Type = "Heavy"
- to find the Davis Bacon Wages.

"General Decision Number: KY20200062 08/28/2020

Superseded General Decision Number: KY20190062

State: Kentucky

Construction Type: Heavy

County: Boone County in Kentucky.

HEAVY CONSTRUCTION PROJECTS (including sewer/water construction).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Modification Number	Publication Date
0	01/03/2020
1	08/14/2020
2	08/28/2020



ASBE0008-007 07/01/2019

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR.....	\$ 30.32	18.50

-----  
ELEC0369-008 05/28/2019

	Rates	Fringes
ELECTRICIAN.....	\$ 32.44	17.22

-----  
ENGI0018-016 05/01/2019

	Rates	Fringes
POWER EQUIPMENT OPERATOR (Backhoe/Excavator/Trackhoe).....	\$ 37.39	14.95

-----  
\* ENGI0181-016 07/01/2020

	Rates	Fringes
POWER EQUIPMENT OPERATOR GROUP 1.....	\$ 35.14	17.25

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - Crane; Forklift

Operators on cranes with boom 150 feet and over, including jib, shall receive \$0.75 above Group 1. All cranes with piling leads will receive \$0.50 above Group 1 rate regardless of boom length. Combination rate shall mean \$0.50 per hour above the basic hourly rate of pay.

Employees assigned to work below ground level are to be paid 10% above basic wage rate. This does not apply to open cut work.

-----  
\* ENGI0181-019 07/01/2020

	Rates	Fringes
POWER EQUIPMENT OPERATOR GROUP 1.....	\$ 33.95	17.25
GROUP 2.....	\$ 31.09	17.25

GROUP 3.....	\$ 31.54	17.25
GROUP 4.....	\$ 30.77	17.25

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - Drill; Pumpcrete; Roller (Bituminous)

GROUP 2 - Bobcat/Skid Steer/Skid Loader; Concrete Pump;  
Roller (Rock)

GROUP 3 - Articulating Truck Operator

GROUP 4 - Pump; Roller (Earth)

Operators on cranes with booms 150 feet and over (including jib) shall receive \$1.00 above Group 1 rate; 250 feet and over including jib shall receive \$1.50 above Class 1 rate. Combination Rate: All crane operators operating cranes, where the length of the boom in combination with the length of the piling leads equal or exceeds 150 feet, shall receive \$1.00 above the Group 1 rate.

Employees assigned to work below ground level are to be paid 10% above basic wage rate. This does not apply to open cut work.

-----  
IRON0044-005 06/01/2020

	Rates	Fringes
IRONWORKER (STRUCTURAL AND REINFORCING).....	\$ 30.47	21.20

-----  
IRON0070-011 06/01/2020

	Rates	Fringes
IRONWORKER, ORNAMENTAL.....	\$ 30.42	23.15

-----  
LABO0189-016 07/01/2018

	Rates	Fringes
LABORER		
Concrete Worker & Grade Checker.....	\$ 23.07	14.21
Tamper(Hand Held/Walk Behind).....	\$ 23.32	14.21

-----  
LABO0265-005 05/01/2015

	Rates	Fringes
LABORER		
Concrete Saw (Hand Held/Walk Behind) & Pipelayer.....	\$ 28.89	9.85
Flagger & Landscape.....	\$ 28.72	9.85

-----  
SUKY2011-018 06/25/2014

	Rates	Fringes
CARPENTER (Form Work Only).....	\$ 24.80	8.76
LABORER: Common or General.....	\$ 22.94	10.00
LABORER: Concrete Finishing.....	\$ 25.75	8.60
OPERATOR: Bulldozer.....	\$ 29.37	11.16
OPERATOR: Loader.....	\$ 26.68	13.00
OPERATOR: Mechanic.....	\$ 29.74	11.16
OPERATOR: Oiler.....	\$ 24.34	13.00
OPERATOR: Trencher.....	\$ 26.27	12.37
TRUCK DRIVER: Dump Truck.....	\$ 17.82	3.26

-----  
WELDERS - Receive rate prescribed for craft performing  
operation to which welding is incidental.

=====  
Note: Executive Order (EO) 13706, Establishing Paid Sick Leave  
for Federal Contractors applies to all contracts subject to the  
Davis-Bacon Act for which the contract is awarded (and any  
solicitation was issued) on or after January 1, 2017. If this  
contract is covered by the EO, the contractor must provide  
employees with 1 hour of paid sick leave for every 30 hours  
they work, up to 56 hours of paid sick leave each year.  
Employees must be permitted to use paid sick leave for their  
own illness, injury or other health-related needs, including  
preventive care; to assist a family member (or person who is

like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

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The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

#### Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

#### Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that

no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

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#### Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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#### WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

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Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

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U.S. Department of Labor  
200 Constitution Avenue, N.W.  
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The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====

END OF GENERAL DECISION"

"General Decision Number: KY20200065 08/28/2020

Superseded General Decision Number: KY20190065

State: Kentucky

Construction Type: Heavy

County: Campbell County in Kentucky.

HEAVY CONSTRUCTION PROJECTS (including sewer/water construction).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Modification Number	Publication Date
0	01/03/2020
1	08/14/2020
2	08/28/2020

ASBE0008-007 07/01/2019

Rates

Fringes

ASBESTOS WORKER/HEAT & FROST INSULATOR.....	\$ 30.32	18.50
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 ELEC0369-008 05/28/2019

	Rates	Fringes
ELECTRICIAN.....	\$ 32.44	17.22

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 ENGI0018-016 05/01/2019

	Rates	Fringes
POWER EQUIPMENT OPERATOR (Backhoe/Excavator/Trackhoe).....	\$ 37.39	14.95

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 \* ENGI0181-016 07/01/2020

	Rates	Fringes
POWER EQUIPMENT OPERATOR GROUP 1.....	\$ 35.14	17.25

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - Crane; Forklift

Operators on cranes with boom 150 feet and over, including jib, shall receive \$0.75 above Group 1. All cranes with piling leads will receive \$0.50 above Group 1 rate regardless of boom length. Combination rate shall mean \$0.50 per hour above the basic hourly rate of pay.

Employees assigned to work below ground level are to be paid 10% above basic wage rate. This does not apply to open cut work.

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 \* ENGI0181-019 07/01/2020

	Rates	Fringes
POWER EQUIPMENT OPERATOR GROUP 1.....	\$ 33.95	17.25
GROUP 2.....	\$ 31.09	17.25
GROUP 3.....	\$ 31.54	17.25
GROUP 4.....	\$ 30.77	17.25

OPERATING ENGINEER CLASSIFICATIONS



GROUP 1 - Drill; Pumpcrete; Roller (Bituminous)

GROUP 2 - Bobcat/Skid Steer/Skid Loader; Concrete Pump;  
Roller (Rock)

GROUP 3 - Articulating Truck Operator

GROUP 4 - Pump; Roller (Earth)

Operators on cranes with booms 150 feet and over (including jib) shall receive \$1.00 above Group 1 rate; 250 feet and over including jib shall receive \$1.50 above Class 1 rate. Combination Rate: All crane operators operating cranes, where the length of the boom in combination with the length of the piling leads equal or exceeds 150 feet, shall receive \$1.00 above the Group 1 rate.

Employees assigned to work below ground level are to be paid 10% above basic wage rate. This does not apply to open cut work.

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IRON0044-005 06/01/2020		
	Rates	Fringes
IRONWORKER (STRUCTURAL AND REINFORCING).....	\$ 30.47	21.20
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IRON0070-011 06/01/2020		
	Rates	Fringes
IRONWORKER, ORNAMENTAL.....	\$ 30.42	23.15
<hr/>		
LABO0189-016 07/01/2018		
	Rates	Fringes
LABORER		
Concrete Worker & Grade Checker.....	\$ 23.07	14.21
Tamper(Hand Held/Walk Behind).....	\$ 23.32	14.21
<hr/>		
LABO0265-005 05/01/2015		
	Rates	Fringes

LABORER

Concrete Saw (Hand Held/Walk Behind) & Pipelayer.....	\$ 28.89	9.85
Flagger & Landscape.....	\$ 28.72	9.85

-----  
SUKY2011-021 06/25/2014

	Rates	Fringes
CARPENTER (Form Work Only).....	\$ 24.80	8.76
LABORER: Common or General.....	\$ 22.24	9.63
LABORER: Concrete Finishing.....	\$ 25.75	8.60
OPERATOR: Bulldozer.....	\$ 28.04	13.00
OPERATOR: Loader.....	\$ 26.68	13.00
OPERATOR: Mechanic.....	\$ 28.60	11.83
OPERATOR: Oiler.....	\$ 24.34	13.00
OPERATOR: Trencher.....	\$ 26.27	12.37
TRUCK DRIVER: Dump Truck.....	\$ 17.82	3.26

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WELDERS - Receive rate prescribed for craft performing  
operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic

violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

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The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

#### Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

#### Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all

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A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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#### WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

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Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====

END OF GENERAL DECISION"

"General Decision Number: KY20200073 08/28/2020

Superseded General Decision Number: KY20190073

State: Kentucky

Construction Type: Heavy

County: Kenton County in Kentucky.

HEAVY CONSTRUCTION PROJECTS (including sewer/water construction).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Modification Number	Publication Date
0	01/03/2020
1	08/14/2020
2	08/28/2020

ASBE0008-007 07/01/2019

Rates

Fringes

ASBESTOS WORKER/HEAT & FROST

INSULATOR.....\$ 30.32 18.50

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ELEC0369-008 05/28/2019

Rates Fringes

ELECTRICIAN.....\$ 32.44 17.22

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ENGI0018-016 05/01/2019

Rates Fringes

POWER EQUIPMENT OPERATOR  
(Backhoe/Excavator/Trackhoe).....\$ 37.39 14.95

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\* ENGI0181-016 07/01/2020

Rates Fringes

POWER EQUIPMENT OPERATOR  
GROUP 1.....\$ 35.14 17.25

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\* ENGI0181-019 07/01/2020

Rates Fringes

POWER EQUIPMENT OPERATOR  
GROUP 1.....\$ 33.95 17.25  
GROUP 2.....\$ 31.09 17.25  
GROUP 3.....\$ 31.54 17.25  
GROUP 4.....\$ 30.77 17.25

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IRON0044-005 06/01/2020

	Rates	Fringes
IRONWORKER (STRUCTURAL AND REINFORCING).....	\$ 30.47	21.20

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	Rates	Fringes
LABORER		
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-----  
LABO0265-005 05/01/2015

	Rates	Fringes
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LABORER

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Flagger & Landscape.....	\$ 28.72	9.85

-----  
SUKY2011-029 06/25/2014

	Rates	Fringes
CARPENTER (Form Work Only).....	\$ 24.80	8.76
LABORER: Common or General.....	\$ 25.27	8.34
LABORER: Concrete Finishing.....	\$ 25.75	8.60
OPERATOR: Bulldozer.....	\$ 28.04	13.00
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own illness, injury or other health-related needs, including  
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like family to the employee) who is ill, injured, or has other  
health-related needs, including preventive care; or for reasons  
resulting from, or to assist a family member (or person who is  
like family to the employee) who is a victim of, domestic  
violence, sexual assault, or stalking. Additional information

on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

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A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

---

#### WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

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Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

## ATTACHMENT 1 – DISTRICT’S STANDARD FORM FOR AGREEMENT

*(Note: The following standard form will be used for preparation of the Agreement after award of contract. This form assumes the award will be made by both Owners. In the event the award is made by only one of the Owners, it will be modified accordingly.)*

Section 00500

### AGREEMENT

THIS AGREEMENT is made and entered by and between the Northern Kentucky Water District and the City of Florence (herein individually called Owner and collectively called Owners) and \_\_\_\_\_ (herein called Contractor).

WHEREAS, the Contractor can provide services for implementation of a meter reading system to replace the Owners’ existing systems;

NOW, THEREFORE, Owners and Contractor, in consideration of the mutual covenants herein set forth, agree as follows:

#### Article 1. SCOPE OF SERVICES.

Contractor shall complete all services as specified or indicated in the Contract Documents and as required by Owners.

Owners reserve the right to assign the sequence of and to schedule the services.

This Agreement is not a commitment or guarantee by Owners to Contractor to purchase any particular amount of services from Contractor.

#### Article 2. ENGINEER

The project has been designed with the assistance of HDR Engineering, Inc., who is referred to in the Contract Documents as Engineer. Engineer, and its duly authorized agents, are to act as Owners’ representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with completion of the services in the accordance with the Contract Documents.

#### Article 3. CONTRACT TIMES, LIQUIDATED DAMAGES, DELAYS, AND DAMAGES.

All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

3.1. Contract Times. The Base Bid Work inclusive of any alternates selected will be substantially completed within \_\_\_\_ months after the Contract Times commence to run as provided in paragraph 3 of the General Conditions, and completed and ready for final payment in accordance with paragraph 15.5 of the General Conditions within \_\_\_\_ months after the date required for substantial completion.

3.2. Liquidated Damages. Owners and Contractor recognize that time is of the essence of this Agreement and that Owners will suffer financial loss if the services are not completed within the times specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 11 of the General Conditions. The parties also recognize the delays, expenses, and difficulties involved in proving in a legal proceeding the actual loss suffered by Owners if the services are not completed on time. Accordingly, instead of requiring any such proof, Owners and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owners \$ 750.00 for each day that expires after the time specified in paragraph 3.1 for Substantial Completion until the services are substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining services within the Contract Times or any proper extension thereof granted by Owners, Contractor shall pay Owners as liquidated damages (but not as a penalty) \$ 500.00 for each day that expires after the time specified in paragraph 3.1 for completion and readiness for final payment until the services are completed and ready for final payment.

Owners shall have the right to deduct the liquidated damages from any money in its hands, otherwise due, or to become due, to Contractor, or to initiate action to recover liquidated damages for nonperformance of this Contract within the time stipulated.

3.3. Delays and Damages. In the event Contractor is delayed in the prosecution and completion of the services because of any delays caused by Owners or Engineer, Contractor shall have no claim against Owners or Engineer for damages (including but not limited to acceleration costs or damages) or contract adjustment other than an extension of the Contract Times and the waiving of liquidated damages during the period occasioned by the delay.

Contractor shall provide advance written notice to Owners and Engineer of Contractor's intention to accelerate the services prior to commencing any acceleration. Such written notice shall include a detailed explanation of the nature and scope of the acceleration, the reason for the acceleration, the anticipated duration of the acceleration, and the estimated additional costs to Contractor, if any, related to the acceleration. This requirement shall not in any way affect or alter the agreement of Owners and Contractor with respect to delays and damages as set forth above and in the General Conditions.

#### Article 4. CONTRACT PRICE.

Owners shall pay Contractor for the services completed in accordance with the Contract Documents an amount in current funds equal to the sum of all the bid items as indicated in the Contractor's Bid, attached hereto as an exhibit, for the total amount of:

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(words)	(figures)
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As provided the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made as provided in the General Conditions. Unit Prices have been computed as provided in the General Conditions.

#### Article 5. PAYMENT PROCEDURES.

Contractor shall submit Applications for Payment in accordance with paragraph 15 of the General Conditions. Applications for Payment will be processed by Owners as provided in the General Conditions and as modified by the Supplementary Conditions.

5.1. Progress Payments. Owners shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 25th day of each month during performance of the services. All such payments will be measured by the schedule of values established in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.

5.2. Retainage. In addition to any amounts withheld from payment in accordance with the General Conditions, Owners shall retain from progress payments amounts equal to the following percentages:

- a. Ten percent (10%) of the amount of the services completed. This amount may be reduced by the Owner in its sole and absolute discretion, if the services are substantially completed; and
- b. Ten percent (10%) of the value of materials and equipment that are not installed but are delivered, suitably stored, and accompanied by documentation satisfactory to Owner as provided in the General Conditions. Retainage for stored materials and equipment will be released when the materials and equipment are installed.

All retainage will be paid to Contractor when the services are completed and ready for final payment in accordance with the General Conditions. Consent of the Surety shall be obtained before retainage is paid by Owner. Consent of the Surety, signed by an agent, must be accompanied by a certified copy of such agent's authority to act for the Surety.

5.3. Final Payment. Upon final completion and acceptance of the services in accordance with the General Conditions, Owner shall pay the remainder of the Contract Price as provided in the General Conditions.

#### Article 6. CONTRACTOR'S REPRESENTATION

In order to induce Owners to enter into this Agreement, Contractor makes the following representations:

- a. Contractor has examined and carefully studied the Contract Documents and the other related and referenced data identified in the Contract Documents
- b. Contractor has visited the site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the services.
- c. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the services.
- d. Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the services at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- e. Contractor is aware of the general nature of work to be performed by Owners and others that relate to the services as indicated in the Contract Documents.
- f. Contractor has given Owners written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Owners is acceptable to Contractor.
- g. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the services.

#### Article 7. CONTRACT DOCUMENTS.

The Contract Documents consist of the following:

- A. This Agreement;
- B. Performance Bond;
- C. Payment Bond
- D. General Conditions;
- E. Special Conditions, if used;
- F. Measurement and Payment
- G. Specifications and all exhibits and figures attached thereto;
- H. Addenda (numbers \_\_\_ to \_\_\_, inclusive);



- I. Exhibits to this Agreement (enumerated as follows):
  - 1. Notice to Proceed;
  - 2. Contractor's Bid;
  - 3. Documentation submitted by Contractor prior to Notice of Award;
  
- J. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
  - 1. Written Amendments;
  - 2. Work Change Directives;
  - 3. Change Orders.

There are no Contract Documents other than those listed above in this Article 7. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

#### Article 8. MISCELLANEOUS.

- a. Terms used in this Agreement will have the meanings indicated in the General Conditions.
  
- b. No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.
  
- c. Owners and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect of all covenants, agreements, and obligations contained in the Contract Documents.
  
- d. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part

thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

#### Article 9. COMPLIANCE WITH KENTUCKY LAW.

Contractor represents and warrants that it has revealed to Owners any and all final determinations of a violation of KRS Chapters 136, 139, 141, 337, 338, 341, and 342 within the previous five years. Contractor further represents and warrants that it will remain in continuous compliance with the provisions of KRS Chapters 136, 139, 141, 337, 338, 341 and 342 for the duration of this Agreement. Contractor understands that its failure to reveal a final determination of a violation or to comply with the above statutory requirements constitutes grounds for cancellation of the Agreement and for disqualification of Contractor from eligibility for any contracts for a period of two years.

#### Article 10. EQUAL OPPORTUNITY.

Unless exempted under KRS 45.590, during the performance of this Agreement, Contractor agrees as follows:

1. Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age forty (40) and over, disability, veteran status, or national origin;
2. Contractor will take affirmative action in regard to employment, upgrading, demotion, transfer, recruitment, recruitment advertising, layoff, termination, rates of pay or other forms of compensation, and selection for training, so as to ensure that applicants are employed and that employees during employment are treated without regard to their race, color, religion, sex, age forty (40) and over, disability, veteran status, or national origin;
3. Contractor will state in all solicitations or advertisements for employees placed by or on behalf of Contractor that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age forty (40) or over, disability, veteran status, or national origin;
4. Contractor will post notices in conspicuous places, available to employees and applicants for employment, setting forth the provisions of the nondiscrimination clauses required by this section; and
5. Contractor will send a notice to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding advising the labor union or workers' representative of Contractor's commitments under the nondiscrimination clauses.

6. The contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 40 CFR part 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract. (Appendix A to Part 33—Term and Condition)

Article 11. MISCELLANEOUS.

- a. Terms used in this Agreement will have the meanings indicated in the General Conditions.
- b. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.
- c. Owners and Contractor each binds itself, its partners, successors, assigns, and representatives to the other party hereto, its partners, successors, assigns, and representatives in respect of all covenants, agreements, and obligations contained in the Contract Documents.
- d. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. One counterpart each has been delivered to Owner and Contractor.

This Agreement will be effective on \_\_\_\_\_ (which is the Effective Date of the Agreement).

**OWNERS:**

Northern Kentucky Water District

By: \_\_\_\_\_

Title: \_\_\_\_\_

Address for giving notices:

2835 Crescent Springs Road  
P.O. Box 18640  
Erlanger, KY 41018

City of Florence

By: \_\_\_\_\_

Title: \_\_\_\_\_

Address for giving notices:

8100 Ewing Boulevard  
Florence, KY 41042

**CONTRACTOR:**

By: \_\_\_\_\_

Title: \_\_\_\_\_

Address for giving notices:

## GENERAL CONDITIONS

1. **DEFINITIONS.** Wherever used in these General Conditions or in the other Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

**Addenda** – Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the Contract Documents.

**Agreement** – The written instrument which is evidence of the agreement between Owner and Contractor covering the services. The Agreement includes and incorporates all of the Contract Documents.

**Application for Payment** – The form acceptable to Owner which is to be used by Contractor during the course of the services in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

**Bid** - The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the services to be performed.

**Bidder** - Any person, firm, or corporation submitting a Bid for the services.

**Bidding Documents** – The Bidding Requirements and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

**Bidding Requirements** – The Advertisement or Invitation to Bid, Instructions to Bidders, Bid security form, if any, and the Bid Form with any supplements.

**Change Order** – A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the services or an adjustment in the Contract Price, issued on or after the Effective Date of the Agreement.

**City or Florence** – City or Florence shall mean the City of Florence.

**Claim** – A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

**Contract** – The entire and integrated written agreement between the Owner and the Contractor concerning the services. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

**Contract Documents** – The Contract Documents establish the rights and obligations of the parties and include the documents identified and listed in Article 7 of the Agreement. Only

printed or hard copies of the items listed in this paragraph are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by Owner to Contractor are not Contract Documents.

**Contract Price** – The moneys payable by Owner to Contractor for completion of the services in accordance with the Contract Documents as stated in the Agreement.

**Contract Times** - The number of days or the dates stated in the Agreement to: (i) achieve Substantial Completion; and (ii) complete the services so that it is ready for final payment as evidenced by the Engineer's written recommendation of final payment.

**Contractor** – The individual or entity with whom Owner has entered into the Agreement.

**Day** - A calendar day of twenty-four (24) hours measured from midnight to the next midnight.

**District** – Shall mean the Northern Kentucky Water District.

**Engineer** – The individual or entity named as such in the Agreement.

**Field Order** – A written order issued by Owner which requires minor changes in the services but which does not involve a change in the Contract Price.

**Laws and Regulations** – Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

**NKWD or District** – NKWD or District shall mean the Northern Kentucky Water District.

**Notice of Award** – The written notice by Owner to the apparent successful bidder stating that upon timely compliance by the apparent successful bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

**Notice to Proceed** – A written notice given by Owner to Contractor fixing the date on which the Contractor shall start to perform the services under the Contract Documents.

**Owner** – The individual, entity, public body, or authority with whom Contractor has entered into the Agreement and for whom the services are to be performed.

**Partial Utilization** – Use by Owner of a substantially completed part of the services for the purposes for which it is intended (or a related purpose) prior to Substantial Completion of all the services.

**Services or Project** - Any and all obligations, duties and responsibilities assigned to or undertaken by Contractor under the Contract Documents.

**Site** – The location or locations where Contractor will perform the services.

**Specifications** – That part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the services and certain administrative details applicable thereto.

**Subcontractor** - An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the services at the Site.

**Substantial Completion** – The time at which the services have progressed to the point where, in the opinion of the Engineer, the services (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the services (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the services refer to Substantial Completion thereof.

**Successful Bidder** – The Bidder submitting a responsive Bid to whom an Owner (on the basis of Owner’s evaluation as hereinafter provided) makes an award.

**Work Change Directive** – A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner ordering an addition, deletion, or revision in the services, or responding to differing or unforeseen conditions under which the services are to be performed or in emergencies. A Work Change Directive will not change the Contract Price but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price.

**Written Amendment** – A written statement modifying the Contract Documents, signed by Owner and Contractor on or after the Effective Date of the Agreement.

**As ordered, as directed as required, as permitted, as allowed** - The order, directions, requirement, permission, or allowance of Owner is intended only to the extent of judging compliance with the Contract Documents. The terms do not imply that Owner has any authority or responsibility for supervision of Contractor's forces or operations, such supervision and the sole responsibility therefore being strictly reserved for Contractor.

**Reasonable, suitable, acceptable, proper, satisfactory** - The terms reasonable, suitable, acceptable, proper, and satisfactory mean such to District and are intended only to the extent of judging compliance with Contract Documents.

**Understood and agreed** - Whenever in these Contract Documents the expression "it is understood and agreed" or an expression of like import is used, such expression means the mutual understanding and agreement of the parties executing the Agreement.

2. COPIES OF DOCUMENTS. Owner shall furnish to Contractor up to three (3) copies of the Contract Documents. Additional copies will be furnished upon request at the cost of reproduction.

3. COMMENCEMENT OF CONTRACT TIMES AND NOTICE TO PROCEED. The Contract Times will commence to run on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at a time within thirty days after the Effective Date of the Agreement or on a different date which is mutually agreed upon by Owner and Contractor.

4. INTENT, AMENDING, AND REUSE OF CONTRACT DOCUMENTS. It is the intent of the Contract Documents to describe services to be performed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to Owner.

The Contract Documents may be amended to provide for additions, deletions, and revisions in the services or to modify the terms and conditions thereof in one or more of the following ways: (i) a Written Amendment; (ii) a Change Order; or (iii) a Work Change Directive.

Contractor and any Subcontractor or Supplier or other individual or entity performing or furnishing any of the services under a direct or indirect contract with Owner: (i) shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by Owner, including electronic media editions; and (ii) shall not reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner. This prohibition will survive final payment, completion, and acceptance of the services, or termination or completion of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

5. BONDS AND INSURANCE. [Per SRF requirements, 100% Performance Bond and 100% Payment Bond for contracts over \\$100,000. Single Payment and Performance Bonds may be used for contracts under \\$100,000. Performance Bond must be valid for one year beyond date of acceptance of the completed project.](#) Contractor shall furnish performance and payment Bonds each in the amount at least equal to the Contract Price as security for faithful performance and payment of all Contractor's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other Bonds as are required by the Contract Documents. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named on the current list of Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies as published in Circular



570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

The surety company shall be rated "A" by AM BEST.

If the surety on any Bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the project is located, or it ceases to meet the requirements above, Contractor shall within 20 days thereafter substitute another Bond and surety both of which shall comply with the requirements above.

Contractor shall purchase and maintain such liability and other insurance as is appropriate for the services being performed and provide protection from claims under worker's compensation laws, disability benefit laws or other similar employee benefit acts; and from claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees; and claims for damages, other than the service itself, because of injury to or destruction of tangible property wherever located, including loss of using resulting therefrom – any or all of which may arise out of or result from Contractor's operations under the Contract Documents whether such operations be by Contractor or by anyone directly or indirectly employed by Contractor or by anyone for whose acts Contractor may be liable.

The insurance shall include at least the specific coverages and be written for not less than any limits of liability and maximum deductibles specified hereinafter or required by law, whichever is greater, and shall include contractual liability insurance. The Owner shall be included as additional insureds on the General Liability, Automotive Liability and Umbrella Excess Liability Policies. The insurance shall contain a cross liability or severability of interest clause or endorsement. Insurance covering the specified additional insureds shall be primary insurance, and all other insurance carried by the additional insureds shall be excess insurance. With respect to worker's compensation and employer's liability, comprehensive automobile liability, commercial general liability, and umbrella liability insurance, Contractor shall require its insurance carriers to waive all rights of subrogation against Owners, Engineer, and their respective officers, directors, partners, employees, and agents.

The limits of liability for the insurance required shall provide coverage for not less than the following amounts but shall provide coverage in greater amounts where required by Laws and Regulations. This coverage may be primary or a combination of primary and umbrella excess liability.

1. Workers' Compensation, and related coverage under paragraphs 5.04.A.1 and 5.04.A.2 of the General Conditions:
  - a. State Statutory
  - b. Applicable Federal (e.g., Longshoreman's) Statutory
  - b. Employer's Liability \$1,000,000 each occurrence

2. Commercial General Liability shall be occurrence type, written in comprehensive form, and shall protect Contractor, Owners, and Engineer as additional insureds, against claims arising from injuries, sickness, disease, or death of any person or damage to property arising out of performance of the Work. The policy shall also include a per work aggregate limit endorsement, personal injury liability coverage, contractual liability coverage for blasting, explosion, collapse of buildings, and damage to underground property.
  - a. General Aggregate \$1,000,000
  - b. Products – Completed Operations \$1,000,000  
Aggregate
  - c. Personal and Advertising Injury \$1,000,000
  - d. Each Occurrence (Bodily Injury \$1,000,000  
and Property Damage)
  - e. Property Damage liability insurance will provide Explosion,  
Collapse and Underground coverage's where applicable.
  
3. Automobile Liability under paragraph 5.04.A.6 of the General Conditions shall be occurrence type, written in comprehensive form, and shall protect Contractor, Owners, and Engineer as additional insureds, against all claims for injuries to members of the public and damage to property of others arising from the use of motor vehicles, either on or off the work site whether they are owned, nonowned, or hired. The liability limit shall be not less than:
  - a. Bodily Injury
 

Each Person	\$1,000,000
Each Accident	\$1,000,000
  - b. Property Damage
 

Each Accident	\$1,000,000
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  - c. Combined Single Limit \$1,000,000
  
4. Umbrella Liability Insurance shall protect Contractor, Owners, and Engineer as additional insureds, against claims in excess of the limits provided under

workers' compensation and employers' liability, comprehensive automobile liability, and commercial general liability policies. The umbrella policy shall follow the forms of the primary insurance, including the application of the primary limits. The liability limits shall be not less than:

Bodily injury and Property damage	\$4,000,000 combined single limit for each occurrence
	\$4,000,000 general Aggregate

5. *Owner's Liability Insurance.* This insurance shall be obtained by Contractor and issued in the name of Owners, and shall protect and defend Owner against claims arising as a result of the operations of Contractor or Contractor's Subcontractors. The liability limits shall be not less than:

a. Bodily Injury

Each Occurrence	\$1,000,000
General Aggregate	\$1,000,000

b. Property Damage

Each Occurrence	\$1,000,000
General Aggregate	\$1,000,000

6. Property Insurance.

- A. Contractor shall purchase and maintain property insurance coverage in the amount of the full replacement cost thereof. This insurance shall:

1. include the interests of Owners, Contractor, Subcontractors, Engineer, Engineer's Consultants, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an additional insured;
2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the work, temporary buildings, false work, and materials and equipment, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and

Regulations, water damage, flood, damage caused by frost and freezing, and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the work, provided that such materials and equipment have been included in an Application for Payment accepted by Owner;
4. include expenses incurred in the repair or replacement of any insured property (including, but not limited to, fees and charges of engineers and architects);
5. allow for partial utilization of the work by Owners;
6. include testing and startup; and
7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owners, Contractor, and Engineer, with 30 days' written notice to each other additional insured to whom a certificate of insurance has been issued.

B. Contractor shall be responsible for any deductible or self-insured retention.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained shall contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owners and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions.

D. If Owners request in writing that other special insurance be included in the property insurance policies provided, Contractor shall, if possible, include such insurance, and the cost thereof will be charged to Owners by appropriate Change Order or Written Amendment. Prior to commencement of the work at the Site, Contractor shall in writing advise Owner whether or not Contractor has procured such other special insurance.

## 6. CONTRACTOR'S RESPONSIBILITIES.

6.1 Labor, Materials, and Equipment. Contractor shall furnish all material, equipment, labor, transportation, tools, appliance, fuel, power, and all other facilities and incidentals necessary for completion of the services

6.2. Independent Contractor Relationship. Contractor is and shall be in the performance of all services an independent contractor and not an employee, agent, or servant of Owners. All

persons engaged in any services performed pursuant to these Contract Documents shall at all times and in all places be subject to the sole direction, supervision, and control of Contractor. The relationship between Owners and Contractor (including Contractor's employees) shall in all respects be an independent contractor relationship and not an employer/employee or principal/agent relationship.

6.3. Taxes. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the law of the place where the services are to be performed.

6.4. Indemnification. The Contractor agrees to defend, indemnify and hold Owners, and their respective commissioners, officers, directors, agents, and employees, harmless, against any third-party claim, and any resulting liability, penalty, fine, forfeiture, and costs and expenses (including attorneys' fees, costs of investigation and expert witness and consultation fees), to the extent caused by or resulting from (i) any act or omissions of the Contractor or its agents, employees, contractors, subcontractors or representatives in connection with this Agreement, including but not limited to any bodily injury, death, sickness or property damage caused by such negligence or willful misconduct or omission, or (ii) a violation of law or legal requirements or other breach by the Contractor or its agents, employees, contractors, subcontractors or representatives of any of the representations, warranties, duties or obligations of the Contractor set forth in this Agreement, or (iii) the product and/or service or use of the product and/or service supplied pursuant to this contract. In any and all claims against any indemnified party by any employee of Contractor, anyone directly or indirectly employed by Contractor or anyone for whose acts Contractor may be liable, the indemnification obligations under this Section shall not be limited in any way by the amount or type of damages, compensation, or benefits payable by or for Contractor under worker's compensation acts, disability benefit acts or other employee benefit acts or constitutional provisions, and Contractor hereby expressly waives the benefit of all such acts and constitutional provisions with respect to its obligations under this Section. Nothing contained in this Section or any other provision of this Agreement is intended to authorize the Contractor to subcontract any or all of its duties or obligations under this Agreement without the consent of Owner.

6.5. Patents and Royalties. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the services and shall defend all suits or claims for infringement of any patent rights and, to the fullest extent permitted by Laws and Regulations, shall indemnify and hold the Owners harmless from and against all claims, losses, costs, and damages arising out of or relating to any infringement.

6.6 Warranty and Guarantee. Contractor warrants and guarantees to Owners that all services will be in accordance with the Contract Documents and will not be defective.

6.7. Supervision and Superintendence. Contractor shall supervise, inspect, and direct the services competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the services in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, and procedures of construction. Contractor shall be responsible to see that the completed services comply accurately with the Contract Documents.

6.8. Laws and Regulations. Contractor shall give all notices and comply with all Laws and Regulations applicable to performance of the services. Except where otherwise expressly required by applicable Laws and Regulations, the Owners shall not be responsible for monitoring Contractor's compliance with any Laws or Regulations.

6.9. Accident Protection. Contractor shall exercise proper precaution at all times for the protection of persons and property. The safety provisions of applicable law shall be observed, and Contractor shall take or cause to be taken such additional safety measure as Owners may determine to be reasonably necessary. [Such laws include but are not limited to compliance with OSHA \(P.L. 91-596\) and the Contract Work Hours and Safety Standards Act \(P.L. 91-54\).](#)

7. OWNERS' RESPONSIBILITIES AND STATUS. Owners shall furnish the information required of Owners under the Contract Documents promptly and shall make payments to Contractor promptly after they are due.

Owners shall have general inspection and direction of the services. It shall have authority to stop the services whenever such action may be necessary to ensure the proper execution of the services. It shall also have authority to reject services and materials which do not conform to the Contract Documents, and to direct the place or places where services shall be prosecuted. It will decide all questions which arise in the execution of the services.

Owners shall make decisions on all claims of the Contractor and on all other matters relating to the services in the interpretation of the Contract Documents. All such decisions of the Owners shall be final.

8. ENGINEER'S RESPONSIBILITIES AND STATUS. Engineer will be Owners' representative during completion of the work. The duties and responsibilities and the limitations of authority of Engineer as Owners' representative are set forth in the Contract Documents and will not be changed without written consent of Owners and Engineer. Engineer will make visits to the site at intervals Engineer deems necessary in order to observe the progress that has been made and the quality of the various aspect of Contractor's executed services. Based on information obtained during such visits and observations, Engineer, for the benefit of the Owner, will determine, in general, if the services are proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections to check the quality or quantity of the services.

Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of implementation, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performances of the services.

Engineer will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as Engineer may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Documents. Such written clarifications and interpretations will be binding on Owners and Contractor.

Engineer may authorize minor variations in the services from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and or compatible with the concept of the completed services as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owners and also on Contractor, who shall perform the services involved promptly.

Engineer will have authority to disapprove or reject work which Engineer believes to be defective, or that Engineer believes will not produce a completed project that conforms to the Contract Documents or that will prejudice the integrity of the concept of the completed project as a functioning whole as indicated by the Contract Documents.

Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any supplier, or of any other individual or entity performing any of the services.

9. CLAIMS. Written notice stating the general nature of each Claim, dispute, or other matter shall be delivered by Contractor to Owners promptly but in no case later than thirty (30) days after the start of the event giving rise thereto. Notice of the amount or extent of the Claim, dispute, or other matter with supporting data shall be delivered to Owners within sixty (60) days after the start of such event (unless Owners allow additional time for claimant to submit additional or more accurate data in support of such Claim, dispute, or other matter). Each Claim shall be accompanied by Contractor's written statement that the adjustment claimed is the entire adjustment to which claimant believes it is entitled as a result of said event. Owners will render a formal decision in writing within sixty (60) days after receipt of the last submittal of Contractor.

10. CHANGES IN THE SERVICES. Without invalidating the Agreement, Owners may, at any time or from time to time, order additions, deletions, or revisions in the services by a Written Amendment, a Change Order, or a Work Change Directive.

Except in an emergency endangering life or property, no change shall be made by Contractor unless in pursuance of a written order from Owner authorizing the change and no claim for an adjustment of the contract price or time shall be valid unless so ordered.



11. CHANGES OF CONTRACT PRICE OR CONTRACT TIME. The Contract Price or Contract Times may only be changed by a Change Order or by a Written Amendment. Where Contractor is prevented from completing any part of the services within the specified time due to delay beyond the control of Contractor, the times will be extended in an amount equal to the time lost due to such delay. This extension shall be Contractor's sole and exclusive remedy for such delay. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owners, fires, floods, epidemics, abnormal weather conditions, or acts of God. The time will not be extended due to delays within the control of Contractor.

Except as set forth in the Agreement, in no event shall Owners be liable to Contractor, any Subcontractor, any supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from any delay.

12. DEFECTIVE MATERIALS OR WORKMANSHIP. Materials which are not in accordance with the Specifications shall be replaced by Contractor at its own expense, and so disposed that there will be no probability of their being used. Upon notice from Owner, all defective workmanship shall be immediately remedied by the Contractor at the Contractor's own expense. If Contractor fails to remove defective materials or to correct defective workmanship within a reasonable time fixed in the notice from Owner, Owner may remove them and/or correct the work and charge all of the expense in connection therewith to Contractor.

13. PAYMENTS TO CONTRACTOR. Contractor shall submit to Owner for review an Application for Payment filled out and signed by Contractor covering the Services completed as of the date of the application and accompanied by such supporting documentation as is required by the Contract Documents. Thirty (30) days after presentation of the Application for Payment to Owner, the amount requested will become due and will be paid by Owner to Contractor

An Owner may refuse to make payment of the full amount because claims have been made against the Owner on account of Contractor; liens have been filed in connection with the services and Contractor has failed to have liens discharged in accordance with the Agreement; services delivered are defective, or there are other items entitling the Owner to an off-set against the amount requested.

14. CORRECTION PERIOD. If within two years after the date of Substantial Completion or such longer period of time as may be prescribed by the terms of any applicable special guarantee, any services are found to be defective, Contractor shall promptly, without cost to the Owner, correct such defective services to the satisfaction of the Owner. If Contractor does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective items corrected or repaired or may have the rejected services removed and replaced. All claims, losses, and damages including but not limited to all fees and charges of engineers, attorneys, and other professionals arising out of or relating to such correction or repair or such removal and replacement will be paid by Contractor.



## 15. PAYMENTS TO CONTRACTOR AND COMPLETION.

15.1. Unit Price Work. Where Contract Documents provide that all or part of the services are to be Unit Price, initially the Contract Price will be deemed to include for all Unit Price items an amount equal to the sum of the unit price for each separately identified item of Unit Price times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price items performed by Contractor will be made by Engineer and Owners. Each unit price will be deemed to include an amount considered to be adequate to cover Contractor's overhead and profit for each separately identified item.

15.2. Applications for Payment. Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the services completed as of the data of the application and accompanied by such supporting documentation as is required by the Contract Documents. The amount of retainage with respect to progress payments will be made as stipulated in the Agreement. The Engineer will within 10 days after receipt of each Application for Payment either indicate in writing a recommendation of payment and present to the Owner or return the Application to Contractor indicating the reasons for refusing payment. Thirty (30) days after presentation of the Application for Payment to Owner, the amount due and payable will be paid by Owner to Contractor.

Owner may refuse to make payment of the full amount recommended by Engineer because claims have been made against Owner on account of Contractor; liens have been filed in connection with the services and Contractor has failed to have liens discharged in accordance with the Agreement; or there are other items entitling Owner to a set-off against the amount recommended.

15.3. Substantial Completion. When Contractor considers the entire services completed and ready for its intended use, Contractor shall notify Owner and Engineer in writing that the entire project is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion. Promptly thereafter, Owner, Engineer and Contractor shall make an inspection of the project to determine the status of completion. If Engineer does not consider the project substantially complete, Engineer will notify the Contractor in writing giving the reasons therefore. If Engineer considers the project substantially complete, Engineer will within 14 days after the inspection execute and deliver to Contractor a certificate of Substantial Completion. At the time of delivery of a certificate of Substantial Completion, Engineer will deliver to Contractor a statement as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety and protection, maintenance, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor subsequently agree otherwise in writing, Engineer's aforesaid statement will be binding on Owner and Contractor until final payment.

“Substantial Completion” means that the meter reading system and training are completed to the point that 98 percent or more of all customer meter readings can be recorded and transmitted by the Owner’s representatives on a regular basis in a manner that is satisfactory with the Owner. Substantial Completion shall also include the functional integration with existing customer billing system with the ability to transmit meter reading information to Sanitation District No. 1. All performance testing and training need not have been completed prior to the date of Substantial Completion.

15.4. Partial Utilization. Use by Owner at Owner’s option of any substantially completed part of the project which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the project that can be used by Owner for its intended purpose without significant interference with Contractor’s performance of the remaining services, may be accomplished prior to substantial completion of all of the services. Owner may at any time request in writing to Contractor to permit Owner to use any such part of the project which Owner believes to be ready for its intended use and substantially complete. If Contractor agrees that such part of the project is substantially complete, Contractor will certify to Owner that such part of the project is substantially complete and request Owner to issue a certificate of Substantial Completion for that part of the project. Within a reasonable time after either such request, Owner, Engineer, and Contractor shall make an inspection of that part of the project to determine its status of completion. If the parties are in agreement that the applicable part of the project is substantially complete, the Engineer will issue a certificate of Substantial Completion of that part of the project and the division of responsibility in respect thereof and access thereto.

15.5. Final Payment. After Contractor has, in the opinion of the Engineer, satisfactorily completed all corrections and has delivered all maintenance and operating instructions, guarantees, certificates or other documents, Contractor may make application for final payment. If, on the basis of Engineer’s observation during the project and final inspection, and Engineer’s review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the services have been completed and the Contractor’s other obligations under the Contract Documents have been fulfilled, Engineer will indicate in writing recommendation of payment and present to the Owner for payment. Thirty days after presentation to the Owner, the amount due will be paid by Owner to Contractor. Otherwise, Engineer will return the Application for Payment to the Contractor, indicating in writing the reasons for refusing to process the final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

15.6. Final Completion Delayed. If, through no fault of Contractor, final completion of the services are significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor’s final Application for Payment, and without terminating the Agreement, make payment of the balance due for that portion of the services fully completed and accepted.

16. TERMINATION. IF Contractor is judged as bankrupt or insolvent, or makes a general assignment for the benefit of its creditors, or if a trustee or receiver is appointed for Contractor

or for any of its property, or if Contractor files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or similar laws, or if Contractor fails to supply suitable materials or equipment, or disregards laws, ordinances, rules, regulations, or orders of any public body having jurisdiction, or if Contractor otherwise violates any provision of the Contract Documents, then Owner may, without prejudice to any other right or remedy and after giving Contractor seven days written notice, may terminate the services of the Contractor.

Where Contractor's services have been so terminated by Owner, said termination shall not affect any rights of Owner against Contractor then existing or which may thereafter accrue. Any retention of payment of monies by Owner due Contractor will not release Contractor from liability.

If, through no act of fault of Contractor, Owner fails to pay Contractor any sum within thirty days of its approval and presentation, then Contractor may, upon seven days written notice to Owner, stop the services until Contractor has been paid all amounts then due.

If a breach of this Agreement by the Contractor is identified by the Owner, or the Contractor fails to meet a deadline set forth by this Agreement or set by the Owner in writing, the Owner reserves the exclusive right to cancel this agreement with 30 days written notice to the Contractor. Contractor shall have the opportunity to attempt to cure the breach within this 30 day notice period, which may be extended at the sole discretion of the Owner.

17. GIVING NOTICE. Whenever any provision of the Contract Documents requires the giving of written notice it shall be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to him who gave the notice.

18. COMPUTATION OF TIME. When any period of time is referred to in the Contract Documents by days, it shall be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day shall be omitted from the computation.

19. LIMITATIONS. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon Contractor and the right and remedies available to Owner hereunder shall be in addition to, and shall not be construed in any way as a limitation of, any rights and remedies available by law, by special guarantee or by other provisions of the Contract Documents.

20. LEGAL ADDRESSES. The business address of Contractor given in the Bid Form is hereby designated as the place to which all notices, letters, and other communication to Contractor will

be mailed or delivered. The address of Owner appearing below is hereby designated as the place to which all notices, letters, and other communication to District shall be mailed or delivered. Either party may change his address at any time by an instrument in writing delivered to the other party.

Northern Kentucky Water District  
2835 Crescent Springs Road  
Erlanger, KY 41018

21. MECHANICS' AND OTHER LIENS. Contractor agrees to pay and satisfy all bills and liens which Contractor may incur in connection with the performance of the services. In the event liens are filed against any property on which the services are performed, or in the event that any claim is asserted against the Owner as a result of the acts or omissions of the Contractor, the Contractor shall, at its sole expense and within ten calendar days from the date on which the Owner notifies the Contractor of such filing or assertion, promptly take action to cause the same to be discharged or withdrawn.

22. PERMITS AND CODES. Unless otherwise set out in the specifications, Contractor shall make application for, obtain and pay for all licenses and permits and shall pay all fees and charges in connection therewith. Contractor shall be required to comply with all state or municipal ordinances, laws and/or coded insofar as the same are binding upon Owner. [Contractor shall obtain a Section 404 permit from the Corps of Engineers if applicable.](#)

23. STANDARD SPECIFICATIONS. Where standard specifications such as the standard specifications of the American Society of Testing Materials, the American Standard Association, the American Association of State Highway Officials, the Civil Aeronautics Administration, the Federal Specifications, etc. are referred to in the specifications and Contract Documents and on the plans, said references shall be construed to mean the latest amended and/or revised versions of the said standard or tentative specifications.

24. SEPARATE CONTRACTS. Owner reserves the right to let other contracts in connection with the services. Contractor shall afford other contractors reasonable opportunity for ingress and egress and storage of their materials and the execution of their work and shall properly connect and coordinate his work with theirs. The respective right of various interests involved shall be established by Owner to secure proper completion of the various portions of the services.

25. FORCE MAJEURE. Contractor's failure to make, or Owners' failure to take, any delivery or deliveries when due, if caused by force majeure as hereinafter defined shall not constitute a default hereunder nor subject the party so failing to any liability to the other; provided however, that the party affected by such force majeure shall promptly notify the other of the existence thereof and of its expected duration and the estimated effect thereof upon its ability to perform its obligations hereunder.

Such party shall promptly notify the other party when such force majeure circumstances have ceased to affect its ability to perform its obligations hereunder.

As used herein, the term “force majeure” shall mean and include any act of God or the public enemy; accident; exposure; fire; storm, earthquake, flood, drought, war (whether or not declared and whether or not the United States is a participant); federal, state or municipal law, regulation, order, license, priority, seizure, requisition, or allocation; or any other circumstance of a similar or different nature beyond the reasonable control of the party so failing.

26. CHANGE IN SCOPE OF SERVICES. A change in the scope of services of this agreement shall occur when and as a result of the following:

- (a) Owner adds or deletes basic service requirements specified in the Contract Documents. Prices for services to be added or deleted from the Contract will be mutually agreed to by the Owner and the Contractor. A Contract Amendment or Change Order will be issued for each addition and/or deletion.
- (b) Changes in law or occurrence of circumstances beyond the control of any party to the Agreement. Owner shall negotiate an increase or decrease in the Contractor’s payment for changes in scope based upon this sub-paragraph.

27. OWNER'S RIGHT TO REMEDY SERVICES. If Contractor should neglect or fail to prosecute the services properly or fail or refuse to perform any provision of the Contract Documents, Owner, after ten days written notice to Contractor, may without prejudice to any other remedy make good such deficiencies and may deduct the cost thereof from any monies due or which may thereafter become due to Contractor.

28. SUSPENSION OF SERVICES. Owner shall have the authority to suspend the services in whole or in part by giving five days’ written notice to Contractor in writing. Owner shall reimburse Contractor for the expenses incurred by Contractor in connection with the services as a result of such suspension of the services if caused through no fault of Contractor.

29. CREDIT. All services furnished must be in conformity with the Contract Documents and will be subject to approval of the Owner. A credit shall be provided to Owner for any services for which payment has been made that are not satisfactory or consistent with the Contract Documents.

30. DISPUTE RESOLUTION. Arbitration will not be acceptable as a means for settling claims, disputes, and other matters.

31. SUBSTITUTES AND “OR-EQUALS”<sup>1</sup>

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the

specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or “or equal” item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. “Or Equal” Items: If in Engineer’s sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an “or equal” item, in which case review and approval of the proposed item may, in Engineer’s sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 31.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and

3) it has a proven record of performance and availability of responsive service.

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items:

a. If in Engineer’s sole discretion an item of material or equipment proposed by Contractor does not qualify as an “or-equal” item under Paragraph 31.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 31.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,

b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified, and

b) available engineering, sales, maintenance, repair, and replacement services; and

4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the



substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 31.A.2.

C. Engineer's Evaluation: Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 31.A and 31.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. Special Guarantee: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. Engineer's Cost Reimbursement: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 31.A.2 and 31.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. Contractor's Expense: Contractor shall provide all data in support of any proposed substitute or "or equal" at Contractor's expense.

<sup>1</sup> Section 31 is from Section 6.05 of the Standard General Conditions of the Construction Contract (C-700, 2007 Edition) Prepared by the Engineers Joint Contract Document Committee. The only modifications made were to the section numbers (changed from 6.05 to 31).

#### Supplementary Conditions to amend or supplement Section 31

SC-31. Substitutes and "Or-Equals". Amend paragraph 31, including paragraphs 31.A, 31.A.1, 31.A.1.a, 31.A.1.b, 31.A.2, 31.A.2.a, 31.A.2.b, 31.A.2.c, 31.A.2.d, 31.B, 31.C, 31.D, and 31.E by striking out the words "Engineer" and "Engineer's" in all locations where they appear in the paragraph and inserting the words "Owner" and "Owner's", respectively, in their place.

Add the following new paragraph after paragraph 31.A.2.d:

e. "If a proposed substitute item is accepted, all incidental costs associated with the use of the substitute including, but not limited to, redesign, claims of other Contractors, changes to electrical supply equipment, additional equipment or material required for the installation, etc., shall be at the expense of the Contractor proposing the substitute unless otherwise agreed to by the Owner."

End of Section



**SUPPLEMENTAL GENERAL CONDITIONS**

**FOR**

**CLEAN WATER STATE REVOLVING FUND**

**DRINKING WATER STATE REVOLVING FUND**

**(Drinking Water and Wastewater)**

**Project Name:** Meter Reading System Replacement

**Project Number:** WX21117007

**\*\*This section applies to the NKWD portion of the project only\*\***

The attached instructions and regulations as listed below shall be incorporated into the Specifications and comprise Special Conditions.

	<u>Attachment No.</u>
<b>SRF Special Provisions</b>	<b>1</b>
<b>KRS Chapter 45A Kentucky Model Procurement Code</b>	<b>2</b>
<b>Equal Employment Opportunity (EEO) Documents:</b>	
<b>Notice of Requirement for Affirmative Action</b>	<b>3</b>
<b>Construction Contract Specifications</b>	<b>4</b>
<b>EEO Goals for Region 4 Economic Areas</b>	<b>5</b>
<b>Check List of EEO Documentation for Bidders</b>	<b>6</b>
<b>Employer Information Report EEO-1 (SF 100)</b>	<b>7</b>
<b>Labor Standards Provisions for Federally Assisted Construction</b>	<b>8</b>
<b>Certifications:</b>	
<b>Debarment, Suspension and Other Responsibility Matters</b>	<b>9</b>
<b>Anti-lobbying</b>	<b>10</b>
<b>Disadvantaged Business Enterprise (DBE) Program</b>	<b>11</b>
<b>Bonds and Insurance</b>	<b>12</b>
<b>Storm Water General Permit</b>	<b>13</b>
<b>Davis-Bacon Wage Rate Requirements</b>	<b>14</b>
<b>American Iron and Steel Requirement</b>	<b>15</b>

**SRF SPECIAL PROVISIONS**

- (a) Line crossings of all roads and streets shall be done in accordance with the Kentucky Transportation Cabinet requirements as may be set forth in the Special Conditions.
- (b) Construction is to be carried out so as to prevent by-passing of flows during construction unless a schedule has been approved by the State or EPA, whichever is applicable. Siltation and soil erosion must be minimized during construction. All construction projects with surface disturbance of more than 1 acre during the period of construction must have a KPDES Storm Water General Permit. The permit can be found at this [webpage](#).  
  
If you have any questions regarding the completion of this form call the Surface Water Permits Branch at (502) 564-3410.
- (c) Restore disturbed areas to original or better condition.
- (d) Use of Chemicals: All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of either DOW or EPA. Use of all such chemicals and disposal of residues shall be in conformance with instructions on the manufacturer's label.
- (e) The construction of the project, including the letting of contracts in connection therewith, shall conform to the applicable requirements of state, territorial, and local laws and ordinances to the extent that such requirements do not conflict with Federal laws and this subchapter.
- (f) The owner shall provide and maintain competent and adequate supervision and inspection.
- (g) The Kentucky Infrastructure Authority and Kentucky Division of Water shall have access to the site and the project work at all times.
- (h) In the event Archaeological materials (arrowheads, stone tools, stone axes, prehistoric and historic pottery, bottles, foundations, Civil War artifacts, and other types of artifacts) are uncovered during the construction of this project, work is to immediately cease at the location and the Kentucky Heritage Council shall be contacted. The telephone number is (502) 564-7005. Construction shall commence at this location until a written release is received from the Kentucky Heritage Council. Failure to report a find could result in legal action.
- (i) This procurement will be subject to DOW Procurement Guidance including the Davis-Bacon Act.
- (j) Reasonable care shall be taken during construction to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees which receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing.
- (k) No wastewater bypassing will occur during construction unless a schedule has been approved by the Kentucky Division of Water.
- (l) Change orders to the construction contract (if required) must be negotiated pursuant to DOW/KIA Procurement Guidance for Construction and Equipment Contracts.

**KRS CHAPTER 45A**  
**KENTUCKY MODEL PROCUREMENT CODE**

**45A.075 Methods of awarding state contracts.**

Except as otherwise authorized by law, all state contracts shall be awarded by:

- (1) Competitive sealed bidding, pursuant to KRS 45A.080; or
- (2) Competitive negotiation, pursuant to KRS 45A.085 and 45A.090 or 45A.180; or
- (3) Noncompetitive negotiation, pursuant to KRS 45A.095; or
- (4) Small purchase procedures, pursuant to KRS 45A.100.

**Effective:** June 24, 2003

**History:** Amended 2003 Ky. Acts ch. 98, sec. 4, effective June 24, 2003. -- Created 1978 Ky. Acts ch. 110, sec. 16, effective January 1, 1979.

**45A.080 Competitive sealed bidding.**

(1) Contracts exceeding the amount provided by KRS 45A.100 shall be awarded by competitive sealed bidding, which may include the use of a reverse auction, unless it is determined in writing that this method is not practicable. Factors to be considered in determining whether competitive sealed bidding is not practicable shall include:

- (a) Whether specifications can be prepared that permit award on the basis of best value; and
- (b) The available sources, the time and place of performance, and other relevant circumstances as are appropriate for the use of competitive sealed bidding.

(2) The invitation for bids shall state that awards shall be made on the basis of best value. In any contract which is awarded under an invitation to bid which requires delivery by a specified date and imposes a penalty for late delivery, if the delivery is late, the contractor shall be given the opportunity to present evidence that the cause of the delay was beyond his control. If it is the opinion of the purchasing officer that there is sufficient justification for delayed delivery, the purchasing officer may adjust or waive any penalty that is provided for in the contract.

(3) Adequate public notice of the invitation for bids and any reverse auction shall be given a sufficient time prior to the date set forth for the opening of bids or beginning of the reverse auction. The notice may include posting on the Internet or publication in a newspaper or newspapers of general circulation in the state as determined by the secretary of the Finance and Administration Cabinet not less than seven (7) days before the date set for the opening of the bids and any reverse auction. The provisions of this subsection shall also apply to price contracts and purchase contracts of state institutions of higher education.

(4) Bids shall be opened publicly or entered through a reverse auction at the time and place designated in the invitation for bids. At the time the bids are opened, or the reverse auction has ended, the purchasing agency shall announce the agency's engineer's estimate, if applicable, and make it a part of the agency records pertaining to the letting of any contract for which bids were received. Each written or reverse auction bid, together with the name of the bidder and the agency's engineer's estimate, shall be recorded and be open to public inspection. Electronic bid opening and posting of the required information for public viewing shall satisfy the requirements of this subsection.

(5) The contract shall be awarded by written notice to the responsive and responsible bidder whose bid offers the best value.

(6) Correction or withdrawal of written or reverse auction bids shall be allowed only to the extent permitted by regulations issued by the secretary.

**Effective:** July 15, 2010

**History:** Amended 2010 Ky. Acts ch. 63, sec. 3, effective July 15, 2010. -- Amended 2000 Ky. Acts ch. 509, sec. 1, effective July 14, 2000. -- Amended 1998 Ky. Acts ch. 120, sec. 10, effective July 15, 1998. -- Amended 1997 (1<sup>st</sup> Extra. Sess.) Ky. Acts ch. 4, sec. 27, effective May 30, 1997. -- Amended 1996 Ky. Acts ch. 60, sec. 2, effective July 15, 1996. -- Amended 1994 Ky. Acts ch. 278, sec. 1, effective July 15, 1994. -- Amended 1982 Ky. Acts ch. 282, sec. 1, effective July 15, 1982. -- Amended 1979 (1<sup>st</sup> Extra. Sess.) Ky. Acts ch. 9, sec. 1, effective February 10, 1979. -- Created 1978 Ky. Acts ch. 110, sec. 17, effective January 1, 1979.

#### **45A.085 Competitive negotiation.**

(1) When, under administrative regulations promulgated by the secretary or under KRS 45A.180, the purchasing officer determines in writing that the use of competitive sealed bidding is not practicable, and except as provided in KRS 45A.095 and 45A.100, a contract may be awarded by competitive negotiation, which may include the use of a reverse auction.

(2) Adequate public notice of the request for proposals and any reverse auction shall be given in the same manner and circumstances as provided in KRS 45A.080(3).

(3) Contracts other than contracts for projects utilizing an alternative project delivery method under KRS 45A.180 may be competitively negotiated when it is determined in writing by the purchasing officer that the bids received by competitive sealed bidding either are unreasonable as to all or part of the requirements, or were not independently reached in open competition, and for which each competitive bidder has been notified of the intention to negotiate and is given reasonable opportunity to negotiate.

(4) Contracts for projects utilizing an alternative project delivery method shall be processed in accordance with KRS 45A.180.

(5) The request for proposals shall indicate the relative importance of price and other evaluation factors, and any reverse auction procedures.

(6) Award shall be made to the responsible and responsive offeror whose proposal is determined in writing to be the most advantageous to the Commonwealth, taking into consideration price and the evaluation factors set forth in the request for proposals and the reciprocal preference for resident bidders required under KRS 45A.494.

(7) Written or oral discussions shall be conducted with all responsible offerors who submit proposals determined in writing to be reasonably susceptible of being selected for award. Discussions shall not disclose any information derived from proposals submitted by competing offerors. Discussions need not be conducted:

(a) With respect to prices, where the prices are fixed by law, reverse auction, or administrative regulation, except that consideration shall be given to competitive terms and conditions;

(b) Where time of delivery or performance will not permit discussions; or

(c) Where it can be clearly demonstrated and documented from the existence of adequate competition or prior experience with the particular supply, service, or construction item, that acceptance of an initial offer without discussion would result in fair and reasonable best value procurement, and the request for proposals notifies all offerors of the possibility that award may be made on the basis of the initial offers.

**Effective:** July 15, 2010

**History:** Amended 2010 Ky. Acts ch. 63, sec. 4, effective July 15, 2010; and ch. 162, sec. 8, effective July 15, 2010. -- Amended 2003 Ky. Acts ch. 98, sec. 5, effective June 24, 2003. -- Amended 1997 (1<sup>st</sup> Extra. Sess.) Ky. Acts ch. 4, sec. 28, effective May 30, 1997. -- Amended 1979 (1<sup>st</sup> Extra. Sess.) Ky. Acts ch. 9, sec. 2, effective February 10, 1979. -- Created 1978 Ky. Acts ch. 110, sec. 18, effective January 1, 1979.

#### **45A.090 Negotiation after competitive sealed bidding when all bids exceed available funds.**

(1) In the event that all bids submitted pursuant to competitive sealed bidding under KRS 45A.080 result in bid prices in excess of the funds available for the purchase, and the chief purchasing officer determines in writing:

(a) That there are no additional funds available from any source so as to permit an award to the responsive and responsible bidder whose bid offers the best value; and

(b) The best interest of the state will not permit the delay attendant to a resolicitation under revised specifications, or for revised quantities, under competitive sealed bidding as provided in KRS 45A.080, then a negotiated award may be made as set forth in subsections (2) or (3) of this section.

(2) Where there is more than one (1) bidder, competitive negotiations pursuant to KRS 45A.085(3) shall be conducted with the three (3) (two (2) if there are only two (2)) bidders determined in writing to be the most responsive and responsible bidders, based on criteria contained in the bid invitation and the reciprocal preference for resident bidders under KRS 45A.494. Such competitive negotiations shall be conducted under the following restrictions:

(a) If discussions pertaining to the revision of the specifications or quantities are held with any potential offeror, all other potential offerors shall be afforded an opportunity to take part in such discussions; and

(b) A request for proposals, based upon revised specifications or quantities, shall be issued as promptly as possible, shall provide for an expeditious response to the revised requirements, and shall be awarded upon the basis of best value.

(3) Where, after competitive sealed bidding, it is determined in writing that there is only one (1) responsive and responsible bidder, a noncompetitive negotiated award may be made with such bidder in accordance with KRS 45A.095.

**Effective:** July 15, 2010

**History:** Amended 2010 Ky. Acts ch. 162, sec. 9, effective July 15, 2010. -- Amended 2003 Ky. Acts ch. 98, sec. 6, effective June 24, 2003. -- Amended 1997 (1<sup>st</sup> Extra. Sess.) Ky. Acts ch. 4, sec. 29, effective May 30, 1997. -- Created 1978 Ky. Acts ch. 110, sec. 19, effective January 1, 1979.

#### **45A.095 Noncompetitive negotiation.**

(1) A contract may be made by noncompetitive negotiation only for sole source purchases, or when competition is not feasible, as determined by the purchasing officer in writing prior to award, under administrative regulations promulgated by the secretary of the Finance and Administration Cabinet or the governing boards of universities operating under KRS Chapter 164A, or when emergency conditions exist. Sole source is a situation in which there is only one (1) known capable supplier of a commodity or service, occasioned by the unique nature of the requirement, the supplier, or market conditions. Insofar as it is practical, no less than three (3) suppliers shall be solicited to submit written or oral quotations whenever it is determined that competitive sealed bidding is not feasible. Award shall be made to the supplier offering the best value. The names of the suppliers submitting quotations and the date and amount of each quotation shall be placed in the procurement file and maintained as a public record. Competitive bids may not be required:

(a) For contractual services where no competition exists, such as telephone service, electrical energy, and other public utility services;

(b) Where rates are fixed by law or ordinance;

(c) For library books;

(d) For commercial items that are purchased for resale;

(e) For interests in real property;

(f) For visiting speakers, professors, expert witnesses, and performing artists;

(g) For personal service contracts executed pursuant to KRS 45A.690 to 45A.725; and

(h) For agricultural products in accordance with KRS 45A.645.

(2) The chief procurement officer, the head of a using agency, or a person authorized in writing as the designee of either officer may make or authorize others to make emergency procurements when an emergency condition exists.

(3) An emergency condition is a situation which creates a threat or impending threat to public health, welfare, or safety such as may arise by reason of fires, floods, tornadoes, other natural or man-caused disasters, epidemics, riots, enemy attack, sabotage, explosion, power failure, energy shortages, transportation emergencies, equipment failures, state or federal legislative mandates, or similar events. The existence of the emergency condition creates an immediate and serious need for services, construction, or items of tangible personal property that cannot be met through normal procurement methods and the lack of which would seriously threaten the functioning of government, the preservation or protection of property, or the health or safety of any person.

(4) The Finance and Administration Cabinet may negotiate directly for the purchase of contractual services, supplies, materials, or equipment in bona fide emergencies regardless of estimated costs. The existence of the emergency shall be fully explained, in writing, by the head of the agency for which the purchase is to be made. The explanation shall be approved by the secretary of the Finance and Administration Cabinet and shall include the name of the vendor receiving the contract along with any other price quotations and a written determination for selection of the vendor receiving the contract. This information shall be filed with the record of all such purchases and made available to the public. Where practical, standard specifications shall be followed in making emergency purchases. In any event, every effort should be made to effect a competitively established price for purchases made by the state.

**Effective:** July 15, 2002

**History:** Amended 2002 Ky. Acts ch. 344, sec. 9, effective July 15, 2002. -- Amended 1997 (1<sup>st</sup> Extra. Sess.) Ky. Acts ch. 4, sec. 30, effective May 30, 1997. -- Amended 1990 Ky. Acts ch. 496, sec. 4, effective July 13, 1990. -- Created 1978 Ky. Acts ch. 110, sec. 20, effective January 1, 1979

**45A.100 Small purchases by state governmental bodies.**

(1) Procurements may be made in accordance with small purchase administrative regulations promulgated by the secretary of the Finance and Administration Cabinet, pursuant to KRS Chapter 13A, as follows:

(a) Up to ten thousand dollars (\$10,000) per project for construction and one thousand dollars (\$1,000) for purchases by any state governmental body, except for those state administrative bodies specified in paragraph (b) of this subsection; and

(b) Up to forty thousand dollars (\$40,000) per project for construction or purchases by the Finance and Administration Cabinet, state institutions of higher education, and the legislative branch of government.

(2) Procurement requirements shall not be artificially divided so as to constitute a small purchase under this section. Reverse auctions may be used for small purchase procurements. At least every two (2) years, the secretary shall review the prevailing costs of labor and materials and may make recommendations to the next regular session of the General Assembly for the revision of the then current maximum small purchase amount as justified by intervening changes in the cost of labor and materials.

(3) The secretary of the Finance and Administration Cabinet may grant to any state agency with a justifiable need a delegation of small purchasing authority which exceeds the agency's small purchase limit provided in subsection (1) of this section. Delegations of small purchasing authority shall be granted or revoked by the secretary of the Finance and Administration Cabinet, in accordance with administrative regulations promulgated by the cabinet pursuant to KRS Chapter 13A. These administrative regulations shall establish, at a minimum, the criteria for granting and revoking delegations of small purchasing authority, including the requesting agency's past compliance with purchasing regulations, the level of training of the agency's purchasing staff, and the extent to which the agency utilizes the Kentucky Automated Purchasing System. The administrative regulations may permit the secretary of the Finance and Administration Cabinet to delegate small purchase procurements up to the maximum amount specified in subsection (1)(b) of this section.

**Effective:** July 15, 2010

**History:** Amended 2010 Ky. Acts ch. 63, sec. 5, effective July 15, 2010. -- Amended 2002 Ky. Acts ch. 320, sec. 2, effective July 15, 2002. -- Amended 2000 Ky. Acts ch. 225, sec. 1, effective July 14, 2000. -- Amended 1996 Ky. Acts ch. 60, sec. 1, effective July 15, 1996. -- Amended 1994 Ky. Acts ch. 323, sec. 1, effective July 15, 1994. -- Amended 1990 Ky. Acts ch. 496, sec. 5, effective July 13, 1990. -- Amended 1986 Ky. Acts ch. 384, sec. 1, effective July 15, 1986. -- Amended 1984 Ky. Acts ch. 384, sec. 1, effective July 13, 1984. -- Amended 1982 Ky. Acts ch. 282, sec. 2, effective July 15, 1982. -- Amended 1980 Ky. Acts ch. 242, sec. 1, effective July 15, 1980; and ch. 250, sec. 19, effective April 9, 1980. -- Created 1978 Ky. Acts ch. 110, sec. 21, effective January 1, 1979.

**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)**

The following excerpts are from 45 FR 65984 (October 3, 1980):

The minority and female goals apply to Federal and federally assisted construction contractors and subcontractors which have covered contracts. The goals are expressed as a percentage of the total hours worked by such a covered or subcontractor’s entire onsite construction workforce, which is working on any construction site within a relevant area. The goal applies to each construction craft and trade in the contractor’s entire workforce in the relevant area including those employees working on private non-federally involved projects.

Until further notice, the following goals for minority utilization in each construction craft and trade shall be included in all Federal or federally assisted construction contracts and subcontracts in excess of \$10,000 to be performed in the respective geographic area. The goals are applicable to each nonexempt contractor’s total onsite construction workforce, regardless of whether or not part of that workforce is performing work on a Federal, federally assisted or non-federally related project, contract or subcontract.

Construction contractors which are participating in an approved Hometown Plan (see 41 CFR 60-4.5) are required to comply with the goals of the Hometown Plan with regard to construction work they perform in the area covered by the Hometown Plan. With regard to all their other covered construction work, such contractors are required to comply as follows:

- Goals for female participation in each trade.....6.9%
- Goals for minority participation in each trade.....Insert goals for each year  
(see Attachment Number 5)

These goals are applicable to all the Contractor’s construction work (whether or not it is Federal or Federally assisted) performed in the covered area.

The following excerpts are from 45 FR 65977 (October 3, 1980):

The Contractor’s compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor’s goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

As used in this Notice, and in the contract resulting from this solicitation, the covered area is (insert description of the geographical areas where the contract is to be performed giving the state, country, and city, if any).



**STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY  
CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)**

EEO Specifications

Following is the standard language, which must be incorporated into all solicitations for offers and bids on all Federal and Federally assisted construction contracts or subcontracts in excess of \$10,000 to be performed in designated geographical areas:

1. As used in these specifications:
  - (a) Covered Area means the geographical area described in the solicitation from which this contract resulted.
  - (b) Director means Director, Office of Federal Contract Compliance Program, United States Department of Labor, or any person to whom the Director delegates authority;
  - (c) Employer identification number means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
  - (d) Minority includes:
    - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
    - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
    - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
    - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the Contractor or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take a good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7-a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.
5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.
7. The Contractor shall take specific affirmative action to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensively as the following:
  - a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
  - b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations responses.
  - c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the contractor may have taken.
  - d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligation.
  - e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources complied under 7-b above.

- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
- g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, lay-off, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.
- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
- l. Conduct, at least annually, an inventory and evaluation of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that EEO policy and the Contractor's obligations under these specifications are being carried out.
- n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations, which assist in fulfilling one or more of their affirmative actions obligations (7 a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant may be asserted as fulfilling any one or more of its obligations under 7 a through p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be defense for the Contractor's noncompliance.
9. A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example: even though the Contractor has achieved its goal for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).
10. The Contractor shall not use the goals and timetables for affirmative action standards to discriminate against any person because of race, color, religion, sex or national origin.
11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and executive Order 11246, as amended.
13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.
14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

**EEO GOALS FOR ECONOMIC AREAS IN REGION 4  
SOURCE: APPENDIX B-80 IN 45 FR 65984 (OCTOBER 3, 1980)**

**Kentucky:**

053 Knoxville, TN  
 SMSA Counties:  
 3840 Knoxville, TN..... 6.6  
 TN Anderson; TN Blount; TN Knox; TN Union.  
 Non-SMSA Counties ..... 4.5  
 KY Bell; KY Harlan; KY Knox; KY Laurel; KY McCreary; KY Wayne; KY  
 Whitley; TN Campbell; TN Claiborne; TN Cocke; TN Cumberland; TN Fentress;  
 TN Grainger, TN Hamblen; TN Jefferson; TN Loudon; TN Morgan; TN Roane;  
 TN Scott; TN Sevier.

054 Nashville, TN:  
 SMSA Counties:  
 1660 Clarksville - Hopkinsville, TN - KY ..... 18.2  
 KY Christian; TN Montgomery.  
 5360 Nashville - Davidson, TN..... 15.8  
 TN Cheatham, TN Davidson; TN Dickson; TN Robertson; TN Rutherford; TN  
 Sumner; TN Williamson; TN Wilson.  
 Non-SMSA Counties ..... 12.0  
 KY Allen; KY Barren; KY Butler; KY Clinton; KY Cumberland; KY Edmonson;  
 KY Logan; KY Metcalfe; KY Monroe; KY Simpson; KY Todd; KY Trigg; KY  
 Warren; TN Bedford; TN Cannon; TN Clay; TN Coffee; TN DeKalb; TN Franklin;  
 TN Giles; TN Hickman; TN Houston; TN Humphreys; TN Jackson; TN Lawrence;  
 TN Lewis; TN Macon; TN Marshall; TN Maury; TN Moore; TN Overton; TN  
 Perry; TN Pickett; TN Putnam; TN Smith; TN Stewart; TN Trousdale; TN Van  
 Buren; TN Warren; TN Wayne; TN White.

056 Paducah, KY:  
 Non-SMSA Counties ..... 5.2  
 IL Hardin; IL Massac; IL Pope; KY Ballard; KY Caldwell; KY Calloway. KY  
 Carlisle; KY Crittenden; KY Fulton; KY Graves; KY Hickman; KY Livingston;  
 KY Lyon. KY McCracken; KY Marshall.

057 Louisville, KY:  
 SMSA Counties:  
 4520 Louisville, KY-IN ..... 11.2  
 IN Clark; IN Floyd; KY Bullitt; KY Jefferson; KY Oldham.  
 Non-SMSA Counties ..... 9.6  
 IN Crawford; IN Harrison; IN Jefferson; IN Orange; IN Scott; IN Washington; KY  
 Breckinridge; KY Grayson; KY Hardin; KY Hart; KY Henry; KY Larue; KY  
 Marion; KY Meade; KY Nelson; KY Shelby; KY Spencer; KY Trimble; KY  
 Washington.

058 Lexington, KY	
SMSA Counties	
4280 Lexington-Fayette, KY .....	10.8
KY Bourbon; KY Clark; KY Fayette; KY Jessamine; KY Scott; KY Woodford.	
Non-SMSA Counties .....	7.0
KY Adair KY Anderson; KY Bath; KY Boyle; KY Breathitt; KY Casey; KY Clay;	
KY Estill; KY Franklin; KY Garrard; KY Green; KY Harrison; KY Jackson; KY	
Knott; KY Lee; KY Leslie; KY Letcher; KY Lincoln; KY Madison; KY Magoffin;	
KY Menifee; KY Mercer; KY Montgomery; KY Morgan. KY Nicholas; KY	
Owsley; KY Perry; KY Powell; KY Pulaski; KY Rockcastle; KY Russell; KY	
Taylor; KY Wolfe.	
059 Huntington, WV:	
SMSA Counties:	
3400 Huntington - Ashland, WV-KY-OH .....	2.9
KY Boyd; KY Greenup; OH Lawrence; WV Cabell; WV Wayne.	
Non-SMSA Counties .....	2.5
KY Carter; KY Elliott; KY Floyd; KY Johnson; KY Lawrence; KY Martin; KY	
Pike; KY Rowan; OH Gallia; WV Lincoln; WV Logan; WV Mason; WV Mingo.	
067 Cincinnati, OH:	
SMSA Counties:	
1640 Cincinnati, OH-KY-IN .....	11.0
IN Dearborn; KY Boone; KY Campbell; KY Kenton; OH Clermont; OH Hamilton;	
OH Warren.	
3200 Hamilton - Middletown, OH .....	5.0
OH Butler.	
Non-SMSA Counties .....	9.2
IN Franklin; IN Ohio; IN Ripley; IN Switzerland; KY Bracken; KY Carroll; KY	
Fleming; KY Gallatin; KY Grant; KY Lewis; KY Mason; KY Owen; KY	
Pendleton; KY Robertson; OH Adams; OH Brown; OH Clinton; OH Highland.	
080 Evansville, IN:	
SMSA Counties	
2440 Evansville, IN-KY .....	4.8
IN Gibson; IN Posey; IN Vanderburgh; IN Warrick; KY Henderson.	
5990 Owensboro, KY .....	4.7
KY Daviess.	
Non-SMSA Counties .....	3.5
IL Edwards; IL Gallatin; IL Hamilton; IL Lawrence; IL Saline; IL Wabash; IL	
White; IN Dubois; IN Knox; IN Perry; IN Pike; IN Spencer; KY Hancock; KY	
Hopkins; KY McLean; KY Muhlenberg; KY Ohio; KY Union; KY Webster.	

**CHECK LIST OF EEO DOCUMENTATION FOR BIDDERS ON  
GRANT/LOAN CONSTRUCTION (EXECUTIVE ORDER 11246 AS AMENDED)**

The low, responsive responsible bidder must forward the following items, in duplicate, to the owner no later than ten (10) days after bid opening. The owner shall have one (1) copy available for inspection by the Office of Federal Contracts Compliance (OFCC) within 14 days after the bid opening. More information can be found on the [OFCC](#) webpage.

1. Project Number. Project Location. Type of Construction.
2. Proof of registration with the Joint Reporting Commission. (See Attachment Number 7.)
3. Copy of Affirmative Action Plan of contractor. Indicate company official responsible for EEO.
4. List of current construction contracts, with dollar amount. List contracting Federal Agency, if applicable.
5. Statistics concerning company percent workforce, permanent and temporary, by sex, race, trade, handicapped, and age. 40 CFR Part 7.
6. List of employment sources for project in question. If union sources are utilized, indicate percentage of minority membership within the union crafts.
7. Anticipated employment needs for this project, by sex, race and trade, with estimate of minority participation in specific trades.
8. List of subcontractors (name, address and telephone) with dollar amount and duration of subcontract. Subcontractor contracts over \$10,000 must submit items 1- 7. The following information must be provided for all supplier contracts regardless of contract size: name of company, contact person, address, telephone number, dollar value of the contract, and a list of the materials to be supplied to the prime contractor.
9. List of any subcontract work yet to be committed with estimate of dollar amount and duration of contract.
10. Contract Price. Duration of prime contract.
11. DBE Documents - See special instructions regarding use of Minority, and Women Owned, and Small Businesses.

## EMPLOYER INFORMATION REPORT EEO-1

Under the direction of the US Equal Employment Opportunity Commission, the Joint Reporting Committee is responsible for the full-length, multi-phase processing of employment statistics collected on the Employer Information Report EEO-1. This report, also termed Standard Form 100, details the sex and race/ethnic composition of an employer's work force by job category.

The Employer Information EEO-1 survey is conducted annually under the authority of Public Law 88-352, Title VII of the Civil Rights Act of 1964, as amended by the Equal Employment Opportunity Act of 1972. All employers with 15 or more employees are covered by Public Law 88-352 and are required to keep employment records as specified by Commission regulations. Based on the number of employees and federal contract activities, certain large employers are required to file an EEO-1 Report on an annual basis.

The EEO-1 Report must be filed by:

- (A) All private employers who are: (1) subject to Title VII of the Civil Rights Act of 1964 (as amended by the Equal Employment Opportunity Act of 1972) with 100 or more employees EXCLUDING State and local governments, primary and secondary school systems, institutions of higher education, Indian tribes and tax-exempt private memberships clubs other than labor organizations; OR (2) subject to Title VII who have fewer than 100 employees if the company is owned or affiliated with another company, or there is centralized ownership, control or management (such as central control of personnel policies and labor relations) so that the group legally constitutes a single enterprise and the entire enterprise employs a total of 100 or more employees.
- (B) All federal contractors (private employers), who: (1) are not exempt as provided for by 41 CFR 60-1.5, (2) have 50 or more employees, and (a) are prime contractors or first-tier subcontractors, and have a contract, subcontract, or purchase order amounting to \$50,000 or more; or (b) serve as depository of Government funds in any amount, or (c) is a financial institution which is an issuing an paying agent for U.S. Savings Bonds and Notes.

Only those establishments located in the District of Columbia and the 50 states are required to submit the EEO-1 Report. No Reports should be filed for establishments in Puerto Rico, the Virgin Islands or other American Protectorates.

When filing for the EEO-1 Report for the first time, go to the [U.S. Equal Employment Opportunity Commission](#) webpage and select "First Time Filers". Fill out the electronic questionnaire to enter your company into Joint Reporting Committee (JRC) system. Once you have completed the registration process, you will be contacted on how to proceed with the EEO-1 Report. If you have previously registered with the JRC, follow their instructions to update your information.



**LABOR STANDARDS PROVISIONS FOR  
FEDERALLY ASSISTED CONSTRUCTION**

Labor standards provisions applicable to contracts covering federally financed and assisted construction (29 CFR 5.5, Contract Provisions and Related Matters) that apply to EPA State Revolving Fund loans are:

(a)(4)(iii) *Equal employment opportunity.* The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

(a)(5) *Compliance with Copeland Act requirements.* The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

(a)(6) *Subcontracts.* The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5 (a)(1) through (10) and such other clauses as the U.S. Environmental Protection Agency may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(a)(7) *Contract termination: debarment.* A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(b) *Contractor Work Hours and Safety Standards Act.* The Administrator, EPA, shall cause or require the contracting officer to insert the following clauses set forth in paragraphs (b)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by §5.5(a) or §4.6 of part 4 of this title. As used in this paragraph, the terms *laborers* and *mechanics* include watchmen and guards.

(b)(1) *Overtime requirements.* No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(b)(2) *Violation; liability for unpaid wages; liquidated damages.* In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for unliquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of \$27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) *Withholding for unpaid wages and liquidated damages.* The U.S. Environmental Protection Agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime

contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) *Subcontracts.* The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

(c) In addition to the clauses contained in paragraph (b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in section §5.1, the Administrator of EPA shall cause or require the contracting officer to insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Administrator of EPA shall cause or require the contracting officer to insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the U.S. Environmental Protection Agency and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job. (Approved by the Office of Management and Budget under OMB control numbers 1215-0140 and 1215-0017.)

## **CERTIFICATIONS**

### **Debarred Firms**

All prime Construction Contractors shall certify that Subcontractors have not and will not be awarded to any firm that is currently on the EPA Master List of Debarred, Suspended and Voluntarily Excluded Persons in accordance with the provisions of 40 CFR 32.500(c). Debarment action is taken against a firm for noncompliance with Federal Law.

All bidders shall complete the attached certification (Attachment Number 9) and submit to the owner with the bid proposal.

### **Anti-lobbying Certification**

All prime Construction Contractors must certify (Attachment Number 10) that no appropriated funds were or will be expended for the purpose of lobbying the Executive or Legislative Branches of the Federal Government or Federal Agency concerning this contract (contract in excess of \$100,000). If the Contractor has made or agreed to make payment to influence any member of Congress in regard to award of this contract, a Disclosure Form must be completed and submitted to the owner with the bid proposal.

All prime Contractors must require all Subcontractors to submit the certification, which must also be submitted to the owner.

**CERTIFICATION REGARDING DEBARMENT,  
SUSPENSION AND OTHER RESPONSIBILITY MATTERS**

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- (b) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or Local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
- (d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to \$10,000 or imprisonment for up to 5 years, or both.

\_\_\_\_\_  
Typed Name & Title of Authorized Representative

\_\_\_\_\_  
Signature of Authorized Representative

\_\_\_\_\_  
Date

\_\_\_\_\_ I am unable to certify to the above statements. My explanation is attached.

**CERTIFICATION REGARDING LOBBYING  
CERTIFICATION FOR CONTRACTS,  
GRANTS, LOANS, AND COOPERATIVE AGREEMENTS**

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

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Typed Name & Title of Authorized Representative

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Signature of Authorized Representative

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Date

\_\_\_\_\_ I am unable to certify to the above statements. My explanation is attached.

## EPA DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

EPA's Disadvantaged Business Enterprise Program rule applies to contract procurement actions funded in part by EPA assistance agreements awarded after May 27, 2008. The rule is found at Federal regulation Title 40, Part 33. Specific responsibilities are highlighted below.

### Loan recipient responsibilities:

- Include in each contract with a primary contractor the following term and condition:
 

“The contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 40 CFR part 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract.” (*Appendix A to Part 33—Term and Condition*)
- Employ the six Good Faith Efforts during prime contractor procurement (§33.301).
- Require the prime contractor to comply with the following prime contractor requirements of Title 40 Part 33:
  - To pay its subcontractor for satisfactory performance no more than 30 days from the prime contractor's receipt of payment from the recipient (§33.302(a)).
  - To notify recipient in writing prior to any termination of a DBE subcontractor for convenience by the prime contractor (§33.302(b)).
  - To employ the six Good Faith Efforts described in §33.301 if soliciting a replacement subcontractor after a DBE subcontractor fails to complete work under the subcontract for any reason (§33.302(c)).
  - To employ the six Good Faith Efforts described in §33.301 even if the prime contractor has achieved its fair share objectives under subpart D of Part 33 (§33.302(d)).
  - To provide EPA Form 6100-2 – *DBE Program Subcontractor Participation Form* to all DBE subcontractors (§33.302(e)). **NOTE: this requirement has been suspended.**
  - To submit EPA Forms 6100-3 – *DBE Program Subcontractor Performance Form* and 6100-4 *DBE Program Subcontractor Utilization Form* as part of the bid package or proposal (§33.302(f) and (g)). **NOTE: this requirement has been suspended.**
  - To employ the six Good Faith Efforts steps in paragraphs (a) through (f) of §33.301 while procuring any subcontracts (§33.302(i)).
- Conduct an Availability Analysis and negotiate fair share objectives with EPA (§33.401), or adopt the fair share objectives of the oversight state agency revolving loan fund for comparable infrastructure (§33.405(b)(3)).
- Maintain all records documenting its compliance with the requirements of Title 40 Part 33, including documentation of its, and its prime contractors', good faith efforts (§33.501(a)).

- Create and maintain a bidders list and require the prime contractor to create and maintain a bidders list (§33.501(b)). This list must include all firms that bid or quote on prime contracts, or bid or quote subcontracts, including both MBE/WBEs and non-MBE/WBEs. This list must be kept until the project period for the identified loan has ended. The following information must be obtained from all prime and subcontractors:
  - (a) Entity's name with point of contact,
  - (b) Entity's mailing address, telephone number, and email address,
  - (c) The procurement on which the entity bid or quoted, and when, and,
  - (d) Entity's status as an MBE/WBE or non-MBE/WBE.

### **Prime Contractor Responsibilities:**

- Include in each contract with a subcontractor the following term and condition:
 

“The contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 40 CFR part 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract.” (*Appendix A to Part 33—Term and Condition*)
- Employ the six Good Faith Efforts during subcontractor procurement (§33.301).
- Pay subcontractors for satisfactory performance no more than 30 days from receipt of payment from the recipient (§33.302(a)).
- Notify recipient in writing prior to termination of a DBE subcontractor for convenience (§33.302(b)).
- Employ the six Good Faith Efforts described in §33.301 if soliciting a replacement subcontractor after a DBE subcontractor fails to complete work under the subcontract for any reason. (§33.302(c)).
- Employ the six Good Faith Efforts described in §33.301 even if the fair share objectives have been achieved under subpart D of Part 33 (§33.302(d)).
- Provide EPA Forms 6100-2 – *DBE Program Subcontractor Participation Form* and 6100-3 – *DBE Program Subcontractor Performance Form* to each DBE subcontractor prior to opening of the subcontractor's bid or proposal (§33.302(e) and (f)). **NOTE: this requirement has been suspended.**
- Complete EPA Form 6100-4 – *DBE Program Subcontractor Utilization Form* (§33.302(g)). **NOTE: this requirement has been suspended.**
- Submit to recipient with the bid package or proposal the completed EPA Form 6100-4, plus an EPA Form 6100-3 for each DBE subcontractor used in the bid or proposal (§33.302(f) and (g)). **NOTE: this requirement has been suspended.**
- Maintain all records documenting its compliance with the requirements of Title 40 Part 33, including documentation of its, and its subcontractors', good faith efforts (§33.501(a)).
- Create and maintain a bidders list and require the subcontractor to create and maintain a bidders list (§33.501(b)). This list must include all firms that bid or quote on subcontracts, including both

MBE/WBEs and non-MBE/WBEs. This list must be kept until the project period for the identified loan has ended. The following information must be obtained from all subcontractors:

- (a) Entity's name with point of contact,
- (b) Entity's mailing address, telephone number, and email address,
- (c) The procurement on which the entity bid or quoted, and when, and,
- (d) Entity's status as an MBE/WBE or non-MBE/WBE.

**Subcontractor Responsibilities:**

- May submit EPA Form 6100-2 – *DBE Program Subcontractor Participation Form* directly to DOW Project Manager (§33.302(e)). **NOTE: this requirement has been suspended.**
- Must complete EPA Form 6100-3 – *DBE Program Subcontractor Performance Form* and submit it to the prime contractor soliciting services prior to the prime contractor opening bids or quotes. **NOTE: this requirement has been suspended.**



# DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION POLICY

**PROJECT NAME:** \_\_\_\_\_ **BID DATE:** \_\_\_\_\_

**1. Name, address and telephone number of contact person on all DBE matters:**

Prime Contractor's Name: \_\_\_\_\_  
Contact Person: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Cell Phone: \_\_\_\_\_  
Email: \_\_\_\_\_  
Total Contract Amount: \_\_\_\_\_

**2. Total dollar amount/percent of contract of MBE participation:** \_\_\_\_\_

**3. Total dollar amount/percent of contract of WBE participation:** \_\_\_\_\_

**4. Are certifications\* for each MBE/WBE/DBE subcontractor enclosed; if no, please explain:**  Yes  No \_\_\_\_\_

**5. Are MBE/WBE/DBE subcontracts or letters of intent signed by both parties enclosed; if no, please explain:**  Yes  No \_\_\_\_\_

**6. List of MBE Subcontractors:**

Name: \_\_\_\_\_  
Contact Person: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Cell Phone: \_\_\_\_\_  
Email: \_\_\_\_\_  
Type of Contract: \_\_\_\_\_  
Work to be Done: \_\_\_\_\_  
Amount: \_\_\_\_\_

**7. List of WBE Subcontractors:**

Name: \_\_\_\_\_  
Contact Person: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Cell Phone: \_\_\_\_\_  
Email: \_\_\_\_\_  
Type of Contract: \_\_\_\_\_  
Work to be Done: \_\_\_\_\_  
Amount: \_\_\_\_\_

Attach Additional Sheets, If Necessary

\*Self-certification: Self certification of MBE/WBE/DBE firms will NOT be accepted as a valid form of certification of MBE/WBE/DBE status.

**8. Information and documentation concerning efforts taken to comply with EPA’s “six good faith efforts”**

(i). Ensure DBE construction firms or material suppliers are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities; including placing DBEs on solicitation lists and soliciting them whenever they are potential sources. A good source for a list of DBEs is the Kentucky Transportation’s [Certified DBE Directory](#) webpage.

The prime contractor certifies that a solicitation list of qualified DBE vendors was developed for current and future solicitations. *Submit a copy of the list as documentation.*

(ii). Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process; including, whenever possible, posting solicitation for bids or proposals for a sufficient amount of time as to receive a competitive bid or proposal pool.

The prime contractor certifies that every opportunity was provided to a number of DBEs to encourage their participation in the competitive process and that an adequate amount of time was provided for response. Must do at least one of the below.

a. List each DBE construction firm or material supplier to which a solicitation was attempted. *Submit copies of letters, emails, faxes, telecommunication logs, certified mail receipts, returned envelopes, certified mail return receipts, etc. as documentation.*

Company name and phone number: \_\_\_\_\_

Area of work expertise: \_\_\_\_\_

Date of any follow-ups and person spoke to: \_\_\_\_\_

b. Advertisements, if applicable: List each publication in which an announcement or notification was placed. *Submit original advertisement or a copy of the advertisement with an affidavit of publication for each announcement as documentation.*

Name of publication: \_\_\_\_\_

Date(s) of advertisement: \_\_\_\_\_

Specific subcontract areas announced: \_\_\_\_\_

c. Other, if applicable: List each notification method in which an announcement or outreach was used; list serve, public meeting, etc. *Submit applicable information to document effort.*

Method of notification: \_\_\_\_\_

Date(s) of notification: \_\_\_\_\_

(iii). Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs; including dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.

The prime contractor certifies that the project was broken into its basic elements (i.e., dirt hauling, landscaping, painting, pipe installation, material supplies, etc.) and that a determination was made whether it’s economically feasible to bid the elements separately and that the analysis of this effort was documented with a short memo to the project file.

- (iv). Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority business, and women’s business enterprises.
  - The prime contractor certifies that they established delivery schedules which would allow DBEs to participate in the project and the effort was documented with a short memo to the project file.
  
- (v). Use the services and assistance of the Small Business Administration (SBA). The easiest way to utilize their services is to visit the [SBA](#) webpage and use the electronic tools available there or you may send the nearest SBA office a certified letter that generally describes the solicitation, the dates it will be open, the types of vendors you are seeking and applicable Standard Industrial Classification (SIC) or North American Industry Classification System (NAIC) codes if known. Or, you may use the services and assistance of the Kentucky Procurement Technical Assistance Center (PTAC) **and** the Kentucky Department of Transportation (KDOT). The easiest way to utilize the services of Kentucky PTAC and KDOT is to send an email to [kyptacinfo@kstc.com](mailto:kyptacinfo@kstc.com) and [Melvin.Bynes2@ky.gov](mailto:Melvin.Bynes2@ky.gov) and generally describe the solicitation, the dates it will be open, the types of vendors you are seeking and applicable SIC or NAIC codes if known.
  - The prime contractor certifies that the assistance of the SBA or PTAC **and** KDOT was utilized. *Submit pages printed off the SBA websites which evidence efforts to register a solicitation on the site or submit copies of the letter sent and certified mail receipt as documentation; or submit copies of emails sent to PTAC and DOT as documentation.*
  
- (vi). If a Prime contractor awards any subcontracts, require the subcontractor to take the steps in numbers (i) through (v) above.
  - The prime contractor certifies that subcontractors used for this project will be required to follow the steps of the “six good faith efforts” as listed above.

**9. Signature and date:**

To the best of my knowledge and belief, all “six good faith efforts” have been met and the information contained in this document is true and correct; the document has been duly authorized by the legal representative.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Print name and title

\_\_\_\_\_  
Date



## BONDS AND INSURANCE

The minimum requirements shall be as follows:

Bonding requirements for contracts of \$100,000 or less are contained in 40 CFR 31.36(h).

Bond requirements for contracts in excess of \$100,000 are:

- Bid guarantee equivalent to five percent of the bid price. The bid guarantee shall consist of a firm commitment such as a certified check or bid bond submitted with the bid;
- Performance bond equal to 100 percent of the contract price, and
- Payment bond equal to 100 percent of the contract price. Bonds must be obtained from companies holding Certificates of Authority as acceptable sureties, issued by the U.S. Treasury.

Insurance requirements are contained in the General Conditions of the contract. In addition to the other required insurance, the owner or the contractor, as appropriate, must acquire any flood insurance made available by the Federal Emergency Management Agency as required by 44 CFR Parts 59-79, if construction will take place in a flood hazard area identified by the Federal Emergency Management Agency. The owner's requirements on Flood Insurance are contained in the Special Conditions Section of the Contracts Documents.

**STORM WATER GENERAL PERMIT**

All construction projects with surface disturbance of more than 1 acre during the period of construction must have a KPDES Storm Water General Permit. The permit can be found at this [webpage](#).

If you have any questions regarding the completion of this form call the Surface Water Permits Branch, at (502) 564-3410.

## DAVIS-BACON WAGE RATE REQUIREMENTS

CWSRF: The recipient agrees to include in all agreements to provide assistance for the construction of treatment works carried out in whole or in part with such assistance made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.), or with such assistance made available under section 205(m) of that Act (33 U.S.C. 1285(m)), or both, a term and condition requiring compliance with the requirements of section 513 of that Act (33 U.S.C. 1372) in all procurement contracts and sub-grants, and require that loan recipients, procurement contractors and sub-grantees include such a term and condition in subcontracts and other lower tiered transactions. All contracts and subcontracts for the construction of treatment works carried out in whole or in part with assistance made available as stated herein shall insert in full in any contract in excess of \$2,000 the contract clauses as set forth below titled “Wage Rate Requirements Under The Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6)”. This term and condition applies to all agreements to provide assistance under the authorities referenced herein, whether in the form of a loan, bond purchase, grant, or any other vehicle to provide financing for a project, where such agreements are executed on or after October 30, 2009.

DWSRF: The recipient agrees to include in all agreements to provide assistance for any construction project carried out in whole or in part with such assistance made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12), a term and condition requiring compliance with the requirements of section 1450(e) of the Safe Drinking Water Act (42 U.S.C.300j-9(e)) in all procurement contracts and sub-grants, and require that loan recipients, procurement contractors and sub-grantees include such a term and condition in subcontracts and other lower tiered transactions. All contracts and subcontracts for any construction project carried out in whole or in part with assistance made available as stated herein shall insert in full in any contract in excess of \$2,000 the contract clauses as set forth below entitled “Wage Rate Requirements Under The Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6)”. This term and condition applies to all agreements to provide assistance under the authorities referenced herein, whether in the form of a loan, bond purchase, grant, or any other vehicle to provide financing for a project, where such agreements are executed on or after October 30, 2009.

### **Wage Rate Requirements under the Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6)**

#### **Preamble**

With respect to the Clean Water and Safe Drinking Water State Revolving Funds, EPA provides capitalization grants to each State which in turn provides subgrants or loans to eligible entities within the State. Typically, the subrecipients are municipal or other local governmental entities that manage the funds. For these types of recipients, the provisions set forth under Roman Numeral I, below, shall apply. Although EPA and the State remain responsible for ensuring subrecipients’ compliance with the wage rate requirements set forth herein, those subrecipients shall have the primary responsibility to maintain payroll records as described in Section 3(ii)(A), below and for compliance as described in Section I-5.

Occasionally, the subrecipient may be a private for profit or not for profit entity. For these types of recipients, the provisions set forth in Roman Numeral II, below, shall apply. Although EPA and the State remain responsible for ensuring subrecipients’ compliance with the wage rate requirements set forth herein, those subrecipients shall have the primary responsibility to maintain payroll records as described in Section II-3(ii)(A), below and for compliance as described in Section II-5.

## **I. Requirements under the Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6) for Subrecipients that are Governmental Entities:**

The following terms and conditions specify how recipients will assist EPA in meeting its Davis-Bacon (DB) responsibilities when DB applies to EPA awards of financial assistance under the FY 2013 Continuing Resolution with respect to State recipients and subrecipients that are governmental entities. If a subrecipient has questions regarding when DB applies, obtaining the correct DB wage determinations, DB provisions, or compliance monitoring, it may contact the State recipient. The recipient or subrecipient may also obtain additional guidance from [Department of Labor's](#) webpage.

### **1. Applicability of the Davis- Bacon (DB) prevailing wage requirements.**

Under the FY 2013 Continuing Resolution, DB prevailing wage requirements apply to the construction, alteration, and repair of treatment works carried out in whole or in part with assistance made available by a State water pollution control revolving fund and to any construction project carried out in whole or in part by assistance made available by a drinking water treatment revolving loan fund. If a subrecipient encounters a unique situation at a site that presents uncertainties regarding DB applicability, the subrecipient must discuss the situation with the recipient State before authorizing work on that site.

### **2. Obtaining Wage Determinations.**

(a) Subrecipients shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

(i) While the solicitation remains open, the subrecipient shall monitor the [General Services Administration](#) website weekly to ensure that the wage determination contained in the solicitation remains current. The subrecipients shall amend the solicitation if DOL issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the subrecipients may request a finding from the State recipient that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The State recipient will provide a report of its findings to the subrecipient.

(ii) If the subrecipient does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the State recipient, at the request of the subrecipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The subrecipient shall monitor the [General Services Administration](#) website on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

(b) If the subrecipient carries out activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the subrecipient shall insert the appropriate DOL wage determination from the [General Services Administration](#) website into the ordering instrument.

(c) Subrecipients shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(d) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a subrecipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the subrecipient has failed to incorporate a wage determination or has used a wage



determination that clearly does not apply to the contract or ordering instrument. If this occurs, the subrecipient shall either terminate the contract or ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract or ordering instrument by change order. The subrecipient's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

### **3. Contract and Subcontract provisions.**

(a) The Recipient shall insure that the subrecipient(s) shall insert in full in any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the CWSRF or a construction project under the DWSRF financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 or the FY 2013 Continuing Resolution, the following clauses:

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

Subrecipients may obtain wage determinations from the U.S. Department of Labor's [General Services Administration](#) website.

(ii)(A) The subrecipient(s), on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The State award official shall approve a request for an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the subrecipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the subrecipient (s) to the State award official. The State award official will transmit the request, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the subrecipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall be sent to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The subrecipient(s), shall upon written request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the subrecipient, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the subrecipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the [Wage and Hour Division's](#) webpage or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the subrecipient(s) for transmission to the State or EPA if requested by EPA, the State, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the subrecipient(s).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under §5.5(a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5(a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the “Statement of Compliance” required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the State, EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

#### (4) Apprentices and trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman’s hourly rate) specified in the contractor’s or subcontractor’s registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice’s level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for

the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may be appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and Subrecipient(s), State, EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

#### **4. Contract Provision for Contracts in Excess of \$100,000.**

(a) Contract Work Hours and Safety Standards Act. The subrecipient shall insert the following clauses set forth in paragraphs (a)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Item 3, above or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (a)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (a)(1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (a)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The subrecipient, upon written request of the EPA Award Official or an authorized representative of the Department of Labor, shall withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (a)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (a)(1) through (4) of this section.

(b) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Subrecipient shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Subrecipient shall insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

## 5. Compliance Verification.

(a) The subrecipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. The subrecipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.

(b) The subrecipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. Subrecipients must conduct more frequent interviews if the initial interviews or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. Subrecipients shall immediately conduct necessary interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

(c) The subrecipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The subrecipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable, the subrecipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. Subrecipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. In addition, during the examinations the subrecipient shall verify evidence of fringe benefit plans and payments thereunder by contractors and subcontractors who claim credit for fringe benefit contributions.

(d) The subrecipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

(e) Subrecipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour [District Office](#).

## II. Requirements under the Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6) for Subrecipients that are not Governmental Agencies

The following terms and conditions specify how recipients will assist EPA in meeting its DB responsibilities when DB applies to EPA awards of financial assistance under the FY2013 Continuing Resolution with respect to subrecipients that are not governmental entities. If a subrecipient has questions regarding when DB applies, obtaining the correct DB wage determinations, DB provisions, or compliance monitoring, it may contact the State recipient for guidance. The recipient or subrecipient may also obtain additional guidance from [DOL's](#) webpage.

**Under these terms and conditions, the subrecipient must submit its proposed DB wage determinations to the State recipient for approval prior to including the wage determination in any solicitation, contract task orders, work assignments, or similar instruments to existing contractors.**

### 1. Applicability of the Davis- Bacon (DB) prevailing wage requirements.



Under the FY 2013 Continuing Resolution, Davis-Bacon prevailing wage requirements apply to the construction, alteration, and repair of treatment works carried out in whole or in part with assistance made available by a State water pollution control revolving fund and to any construction project carried out in whole or in part by assistance made available by a drinking water treatment revolving loan fund. If a subrecipient encounters a unique situation at a site that presents uncertainties regarding DB applicability, the subrecipient must discuss the situation with the recipient State before authorizing work on that site.

## **2. Obtaining Wage Determinations.**

(a) Subrecipients must obtain proposed wage determinations for specific localities from the U.S. Department of Labor's [General Services Administration](#) website. After the Subrecipient obtains its proposed wage determination, it must submit the wage determination to (insert contact information for State recipient DB point of contact for wage determination) for approval prior to inserting the wage determination into a solicitation, contract or issuing task orders, work assignments or similar instruments to existing contractors (ordering instruments unless subsequently directed otherwise by the State recipient Award Official).

(b) Subrecipients shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

(i) While the solicitation remains open, the subrecipient shall monitor the U.S. Department of Labor's [General Services Administration](#) website on a weekly basis to ensure that the wage determination contained in the solicitation remains current. The subrecipients shall amend the solicitation if DOL issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the subrecipients may request a finding from the State recipient that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The State recipient will provide a report of its findings to the subrecipient.

(ii) If the subrecipient does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the State recipient, at the request of the subrecipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The subrecipient shall monitor the U.S. Department of Labor's [General Services Administration](#) website on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

(c) If the subrecipient carries out activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the subrecipient shall insert the appropriate DOL wage determination from the U.S. Department of Labor's [General Services Administration](#) website into the ordering instrument.

(c) Subrecipients shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(d) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a subrecipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the subrecipient has failed to incorporate a wage determination or has used a wage determination that clearly does not apply to the contract or ordering instrument. If this occurs, the subrecipient shall either terminate the contract or ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract



or ordering instrument by change order. The subrecipient's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

### **3. Contract and Subcontract provisions.**

(a) The Recipient shall insure that the subrecipient(s) shall insert in full in any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the CWSRF or a construction project under the DWSRF financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 or the FY 2013 Continuing Resolution, the following clauses:

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3) ), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

Subrecipients may obtain wage determinations from the U.S. Department of Labor's [General Services Administration](#) website.

(ii)(A) The subrecipient(s), on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The State award official shall approve a request for an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the subrecipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the subrecipient(s) to the State award official. The State award official will transmit the report, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the and the subrecipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request, and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall be sent to the EPA Regional Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The subrecipient(s) shall upon written request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the

site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the subrecipient, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the subrecipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the [Wage and Hour Division's](#) webpage or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the subrecipient(s) for transmission to the State or EPA if requested by EPA, the State, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the subrecipient(s).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under § 5.5(a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5(a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the State, EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

#### (4) Apprentices and trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and

Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may be appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and Subrecipient(s), State, EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

#### **4. Contract Provision for Contracts in Excess of \$100,000.**

(a) Contract Work Hours and Safety Standards Act. The subrecipient shall insert the following clauses set forth in paragraphs (a)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act.

These clauses shall be inserted in addition to the clauses required by Item 3, above or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The subrecipient shall upon the request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (a)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

(c) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Subrecipient shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Subrecipient shall insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

## **5. Compliance Verification.**

(a) The subrecipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. The subrecipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.

(b) The subrecipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. Subrecipients must conduct more frequent interviews if the initial interviews or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. Subrecipients shall immediately conduct necessary interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

(c) The subrecipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The subrecipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable the subrecipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. Subrecipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. In addition, during the examinations the subrecipient shall verify evidence of fringe benefit plans and payments thereunder by contractors and subcontractors who claim credit for fringe benefit contributions.

(d) The subrecipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

(e) Subrecipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour [District Office](#) or its successor site.

## AMERICAN IRON AND STEEL REQUIREMENT

The Contractor acknowledges to and for the benefit of the \_\_\_\_\_ (“Purchaser”) and the State of Kentucky (the “State”) that it understands the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund and/or Drinking Water State Revolving Fund that have statutory requirements commonly known as “American Iron and Steel;” that requires all of the iron and steel products used in the project to be produced in the United States (“American Iron and Steel Requirement”) including iron and steel products provided by the Contractor pursuant to this Agreement.

The Contractor hereby represents and warrants to and for the benefit of the Purchaser and the State that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the State.

Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney’s fees) incurred by the Purchaser or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser).

While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.



## Sample Certification

The following information is provided as a sample letter of step certification for AIS compliance. Documentation must be provided on company letterhead.

Date

Company Name  
Company Address  
City, State Zip

Subject: American Iron and Steel Step Certification for Project (XXXXXXXXXX)

I, (company representative), certify that the (melting, bending, coating, galvanizing, cutting, etc.) process for (manufacturing or fabricating) the following products and/or materials shipped or provided for the subject project is in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. XXXX
2. XXXX
3. XXXX

Such process took place at the following location:

\_\_\_\_\_

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

## MEASUREMENT AND PAYMENT

1. SCOPE. This section covers methods of measurement and payment for items in the Bid Form.
2. GENERAL. All costs in connection with the proper and successful completion of the services, including furnishing all materials, equipment, supplies, and appurtenances and performing all necessary labor and supervision to fully complete the services, shall be included in the unit price bids. All services not specifically set forth as a pay item in the Bid Form shall be considered a subsidiary obligation of the Contractor and all costs in connection therewith shall be included in the prices bid.
3. ESTIMATED QUANTITIES. All estimated quantities stipulated in the Bid Form or other Contract Documents are approximate and are to be used only as a basis for estimating the probable cost of the services over a one-year period and for the purpose of comparing the bids submitted for the services. The actual amounts of services purchased may differ from the estimated quantities. The basis of payment for services and materials furnished by the Contractor will be the actual amount of services performed and materials furnished. Contractor agrees to make no claims for damages, loss of anticipated profits, or otherwise on account of any difference between the amounts actually performed and furnished and the estimated amounts therefore.
4. DESCRIPTION OF BASE BID ITEMS.

INITIAL DEPLOYMENT PHASE. Payment for the initial deployment phase will be made on a lump sum basis when the initial system elements are installed, functioning, and providing system performance that has reached or exceeded a reading rate of 99.5% for a three-day billing period. The reading rate is defined as the number of meter interface units installed on the system that successfully provide a reading during the defined reading period, divided by the total number of meter interface units installed at that time. A meter interface unit will not be included in the reading rate calculation if the unit is adversely affected by a Force Majeure event or the unit is removed from service during the reading period for a documented and Owner-approved reason. The initial deployment phase system elements are anticipated to include all items necessary to provide a fully functioning system to obtain meter readings from approximately 500 water service meters located within a concentrated region of the service area. The City of Florence will identify approximately 500 water service meters within the City. The District will identify approximately 500 water service meters within the District.

By accepting the initial deployment phase, the Owner and Contractor will be acknowledging, with regard to all initial elements (including meter interface units), that the system elements have been installed in compliance with the Contract Documents and that the performance or functioning has not been adversely affected by a failure of the Owner to perform its obligations or tasks for which it is responsible relative to the initial deployment phase.

SUPPLY AND INSTALL AMR/AMI METER INTERFACE UNITS/TRANSMITTERS. Payment for each meter interface unit/transmitter will be based on removing and disposing any existing

equipment and installing the new unit and providing all necessary cabling, wiring (minimum 6 feet of connecting wire), splice kits, meter lid replacement, and all equipment and materials necessary to connect the unit to the meter register so that the unit is fully operational. Meters may be located inside or outside the building.

SUPPLY AND INSTALL TWO-PORT METER INTERFACE UNITS/TRANSMITTERS.

Payment for each two-port meter interface unit/transmitter will be based on removing and disposing of any existing equipment and installing the new unit and providing all necessary cabling, wiring (minimum 6 feet of connecting wire), splice kits, meter lid replacement, and all equipment and materials necessary to connect the unit to the meter register so that the unit is fully operational. Meters may be located inside or outside the building.

DATA COLLECTION AND COMMUNICATION SYSTEM. Payment for data collection and communication system will be made on a lump sum basis and requires obtaining all permits and approvals required for installation and operation of the system and installing all equipment (including data collectors and repeaters, for AMI systems) and completing all work required to make the system fully operational. This includes the communication or data transfer (“backhaul” system capable of transferring data from the system to the Owner’s network or to a hosted site), and the data analytics software that provides the ability to obtain, analyze, and utilize data stored in the system.

SUPPLY HANDHELD DATA COLLECTION DEVICES/FIELD PROGRAMMERS. Payment for the supply of handheld data collection devices/field programmers will be made based on supplying the devices and all cradles, accessories, firmware, and software as well as provided instruction manuals and training of the Owner’s staff such that the devices can be used to collect data as specified.

PROVIDE SYSTEM INTEGRATION WITH CUSTOMER INFORMATION (BILLING) SYSTEM.

Payment for customer information/billing system integration will be made on a lump sum basis and will be paid based following complete integration of the meter reading system with the Owner’s customer information and billing system.

PROVIDE INITIAL TRAINING AND POST-IMPLEMENTATION FOLLOW-UP SUPPORT.

Payment for training and post-implementation follow-up support for 12 months will be made on a lump sum basis upon completion all of the training required to enable Owner’s personnel to configure, implement, and properly operate and maintain the system prior to going live, with the expectation that on-going support consisting of on-site and telephone support, patches and upgrades will be provided through-out the first 12 months to ensure the system continues to perform as specified. This payment shall include all travel related expenses.

SUPPLY ALL HARDWARE, LICENSING, SOFTWARE AND DATA STORAGE INCLUDING METER DATA MANAGEMENT SYSTEM & DATA ANALYTICS AND ALL FEES FOR YEARS

1 - 5. Payment to supply all hardware, licensing, and data storage will be made on a lump sum basis once per year and includes all licensing costs, fees, hardware maintenance, support, and software costs for five years following Substantial Completion.

PROVIDE LABOR AND MATERIAL FOR FULL METER BOX REPLACEMENT. Payment for providing labor and material for each full meter box replacement includes the labor, material, equipment, excavation, bedding, backfill, yard restoration with top soil, seed and straw, testing, and disinfection to install a new meter vault and yoke setting at the location directed by Owner, in accordance with the specifications and standard drawings complete and ready for use. Restoration involving asphalt, concrete and above-ground structures such plantings that cannot be salvaged will be paid under separate item for restoration.

PROVIDE LABOR AND MATERIAL FOR METER LID REPLACEMENT. Payment for providing labor and material for each meter lid replacement includes the labor, material, and equipment to install a new meter lid to replace a broken meter lid as directed by the Owner, in accordance with the specifications and standard drawings complete and ready for use. This item only applies to an existing meter lid that is suitable for use with the new meter reading system and is only being replaced because it is broken and not reusable or is missing.

ALLOWANCE FOR MISCELLANEOUS METER SETTING REPAIR MATERIAL. Payment for using the allowance for miscellaneous meter setting repair material will be made based on furnishing materials and equipment for completing miscellaneous repairs within the meter setting as pre-approved by the Owner. Material must be itemized on the payment application and may be requested on a monthly basis or other frequency requested by Contractor and agreed to by Owner.

HOURLY RATE FOR MISCELLANEOUS METER SETTING REPAIR AND RESTORATION REPAIR. Payment for hourly rate for miscellaneous meter setting repair and restoration repair will be made based on furnishing labor and equipment for completing miscellaneous repairs within the meter setting or for providing asphalt, concrete, plants, or other items as part of restoring items that were removed and cannot be salvaged and is pre-approved by Owner. Labor hours must be itemized on the payment application and may be requested on a monthly basis or other frequency requested by Contractor and agreed to by Owner.

ALLOWANCE FOR MATERIAL FOR RESTORATION OF RIGHT-OF-WAY. Payment for using the allowance for restoration of right-of-way will be made based on furnishing materials and equipment for completing miscellaneous repairs within the meter setting or for providing asphalt, concrete, plants, or other items as part of restoring items that were removed and cannot be salvaged, which must be pre-approved by the Owner. Material must be itemized on the payment application and may be requested on a monthly basis or other frequency requested by Contractor and agreed to by Owner.

SUPPLY AND INSTALL FOAM COVERS FOR FREEZE PROTECTION. Payment for each freeze protection foam unit will be based on installing new freeze protection foam material in meter vaults in concrete and/or asphalt which do not presently have any freeze protection. The foam covers shall be made of a material, such as closed cell poly foam, that has insulating properties and resists moisture absorption. The material shall be approximately two inches in thickness to support installation in various meter box enclosures.

CREDIT FOR DISTRICT'S SALVAGED PARTS. Salvage value for existing District equipment, such as those existing MIUs not returned to the District. Approximately 2,000 MIUs are to be returned to the District; the remainder salvaged. This salvage value shall be deducted from the Contractor's payment application as depicted as a negative value in the bid form.

#### 5. DESCRIPTION OF ALTERNATE BID ITEMS.

SUPPLY METERS (PD AND ULTRASONIC). Payment for supplying meters and meter registers will be based on installing the two components as one assembly and that each assembly is fully operational. The existing meter removed by the Contractor shall be returned to the District. All City meters removed from by the Contractor shall become the property of the Contractor and a credit applied to this pay item for salvage value of each meter.

SUPPLY PRESSURE REGULATING VALVE. Payment for supplying pressure regulating valves will be based on providing each pressure regulating valve.

INSTALL PRESSURE REGULATING VALVE. Payment for installing pressure regulating valves will be based on removing the existing pressure regulating valve and installing each new valve in its place and the valve is fully operational. The existing valve removed by the Contractor shall be returned to the District.

PROVIDE CUSTOMER PORTAL. Payment for providing a customer portal will be made on a lump sum basis once per year upon providing a means of allowing customers to look at consumption history and leak detection information and other information that may be available through the portal and includes all annual support costs, software, hardware, licenses, and fees.

SUPPLY ALL HARDWARE, LICENSING, SOFTWARE AND DATA STORAGE INCLUDING METER DATA MANAGEMENT SYSTEM AND DATA ANALYTICS AND ALL FEES. Payment for supplying all hardware, licensing, software and data storage to support the meter data management system and data analytics will be made on a lump sum basis once per year upon providing a means of allowing Owners to manage the meter and other information that may be available and includes supplying and maintaining all hardware, software, licenses, and fees.

STORE ONE YEAR OF ADDITIONAL DATA STARTING IN YEAR 6 THROUGH YEAR 20. Payment to store one year of additional data will be made on a lump sum basis once per year and includes all licenses, costs, fees, hardware, maintenance, support, and software costs and includes storing one additional year of data starting in the sixth year.

PROVIDE SUPPLEMENTAL TRAINING, 8 HOUR DAYS INCLUDING TRAVEL FOR YEARS 2 THROUGH 5. Payment for supplemental 8-hour days of training will be made on a lump sum basis upon completion of each day of supplemental training requested by Owner, including travel expenses, to configure, implement, and properly operate and maintain the system prior to going live, with the expectation that on-going support consisting of on-site and telephone

support, patches and upgrades will be provided through-out the contract period to ensure the system continues to perform as specified.

**PROVIDING GPS LOCATION WITHIN SUB-CENTIMETER ACCURACY, AS OPPOSED TO SUB-METER ACCURACY.** Payment for providing GPS location information during installation within sub-centimeter accuracy, as opposed to sub-meter accuracy as required in the technical specifications. Payment will be based on each meter interface unit being fully operational and the locations reported at sub-centimeter accuracy to the CIS.

**SUPPLY AND INSTALL CAPABILITY FOR REMOTE SHUTOFF FOR SELECTED ACCOUNTS.** Payment for supply and install capability for each account selected for remote shutoff valves will be based on removing existing meter equipment and providing and installing each new meter and valve and related equipment and materials so that it is fully operational and contained within a new or existing meter box. The existing meter removed by the Contractor shall be returned to the District. All City meters removed from by the Contractor shall become the property of the Contractor and a credit applied to this pay item for salvage value of each meter.

**SUPPLY EQUIPMENT FOR REMOTE SHUTOFF FOR FUTURE ACCOUNTS POST-DEPLOYMENT THROUGH YEAR 20.** Payment for supply of equipment for remote shutoff capability for future accounts will be based on providing all metering and valve equipment to the Owner for the Owner to install in meter settings in the future following Substantial Completion through year 20.

**PROVIDE FULL COMMUNICATION SYSTEM MAINTENANCE.** Payment for a maintenance contract will be made on a lump sum basis once per year and includes all costs for maintaining all meter reading system components consisting of the meter interface units and data collection and communication system components. This excludes maintenance on meters and meter registers.

**SUPPLY AND INSTALL FIXED DATA COLLECTORS, INCLUDING FIRMWARE AND INSTALLATION, FOR EXPANDED SERVICE AREAS.** Payment for supplying and installing fixed data collectors in expanded service areas will be made on a lump sum basis for providing and installing each collector including firmware, other fees or costs, licenses, and maintenance so that it is fully operational through year 20.

**SUPPLY AND INSTALL FIXED NETWORK SYSTEM REPEATERS, INCLUDING FIRMWARE AND INSTALLATION, FOR EXPANDED SERVICE AREAS.** Payment for supplying and installing fixed network system repeaters in expanded service areas will be based on providing and installing each repeater including all costs and maintenance so that it is fully operational through year 20.

## **ATTACHMENT 2 – CITY OF FLORENCE SOLICITATION AND CONTRACT TERMS**

### Selection

The City will make its selection from those responding to this RFP. If deemed necessary by the City, interviews with the firms deemed most qualified, may be conducted. Once a selection is made, the chosen firm will be requested to submit a detailed scope of work and introduction and background cost estimate to perform the services.

The City anticipates entering into a contract with the proposer who submits the proposal judged by the City to be most advantageous. The City also reserves the right to interview and/or negotiate with any and all proposers.

This RFP does not constitute an offer or a contract with the proposer. A contract or agreement shall not be deemed to exist and is not binding until approved by the appropriate level of authority within the City and executed by all parties. A contract acceptable to the City Attorney shall be executed by both parties.

### Certificate of Insurance

Each proposer must submit a valid Certificate of Insurance naming the City of Florence as additionally insured upon contract acceptance.

### Insurance, Public Liability, Professional Liability

The Respondent must provide proof of Comprehensive General Liability and Workman's Compensation insurance that will be in effect throughout the term of the contract with the City. The Respondent shall also be required to provide a statement indemnifying and holding the City and its officers harmless from all claims, demands, payments, suits, actions, recoveries, and judgments of every kind brought against it by reason of act, error or omission of the Respondent

### MINIMUM REQUIRED INSURANCE

1. Workers Compensation Statutory
  - Employer's Liability
  - \$1,000,000 per occurrence
2. Commercial General
  - Bodily Injury \$1,000,000 per occurrence

- \$1,000,000 in the aggregate
  - Property Damage \$1,000,000 per occurrence
  - \$1,000,000 in the aggregate
  - Personal Injury \$1,000,000 in the aggregate
3. Commercial Automobile Liability Coverage for all owned (Private and others), hired and nonowned vehicles
- Bodily Injury \$1,000,000 per occurrence
  - \$1,000,000 in the aggregate
  - Property Damage \$1,000,000 per occurrence
  - \$1,000,000 in the aggregate
4. Professional Liability (If Necessary)  
\$500,000 per claim
- \$1,000,000 in the aggregate

5. Insurance, Proof of Carriage

Contract Awards

The City reserves the right to reject all proposals, to abandon the project or to solicit and re-advertise for other proposals. The City may in its discretion waive any formalities and irregularities contained in a proposal or in the manner of its submittal and award a contract thereafter. Right to Reject Proposals - This RFP does not commit the City of Florence to award a contract, pay any cost incurred in the preparation of a proposal in response to this RFP, or procure or contract for services. The City of Florence intends to award a contract on the basis of the best interest of and advantage to the City of Florence and reserves the right to accept or reject any or all proposals received as a result of this request. The City of Florence reserves the right to negotiate with all qualified proposers or to cancel this RFP in part or in its entirety, if it is in the best interest of the City of Florence to do so.

General

Depending on the circumstances, the City of Florence may require information related to the qualifications and experience of persons who are proposed or available to provide services. This may include, but is not limited to, resumes, documentation of accreditation, and/or letters of reference. The Respondent should not submit as part of its Response any information related to the qualifications, experience of persons who are proposed or available to provide



services unless specifically requested. Unless specifically requested, any such information, whether in the form of resumes or other documentation, will be returned immediately to the Respondent.

#### Requested Personal Information

Any personal information that is requested from each Respondent by the City of Florence shall only be used to consider the qualified individuals to undertake the project/services and to confirm that the work performed is consistent with these qualifications. It is the responsibility of each Respondent to obtain the consent of such individuals prior to providing the information to the City of Florence. City of Florence will consider that the appropriate consents have been obtained for the disclosure to and use by City of Florence of the requested information for the purposes described.

#### Costs

The RFP does not obligate the City of Florence to pay for any costs, of any kind whatsoever, which may be incurred by a Respondent or any third parties, in connection with the Response. All Responses and supporting documentation shall become the property of the City of Florence, subject to claims of confidentiality in respect of the Response and supporting documentation.

#### Intellectual Property

The Respondent should not use any intellectual property of City of Florence including, but not limited to, all logos, registered trademarks, or trade names of City of Florence, at any time without the prior written approval of City of Florence, as appropriate.

#### Respondent's Responses

All accepted Responses shall become the property of City of Florence and will not be returned.

#### Governing Law

This RFP and the Respondent's Response shall be governed by the laws of the State of Kentucky.

#### No Liability

The City of Florence shall not be liable to any Respondent, person, or entity for any losses, expenses, costs, claims, or damages of any kind:

- Arising out of, by reason of, or attributable to, the Respondent responding to this RFP; or

- As a result of the use of any information, error, or omission contained in this RFP document or provided during the RFP process.

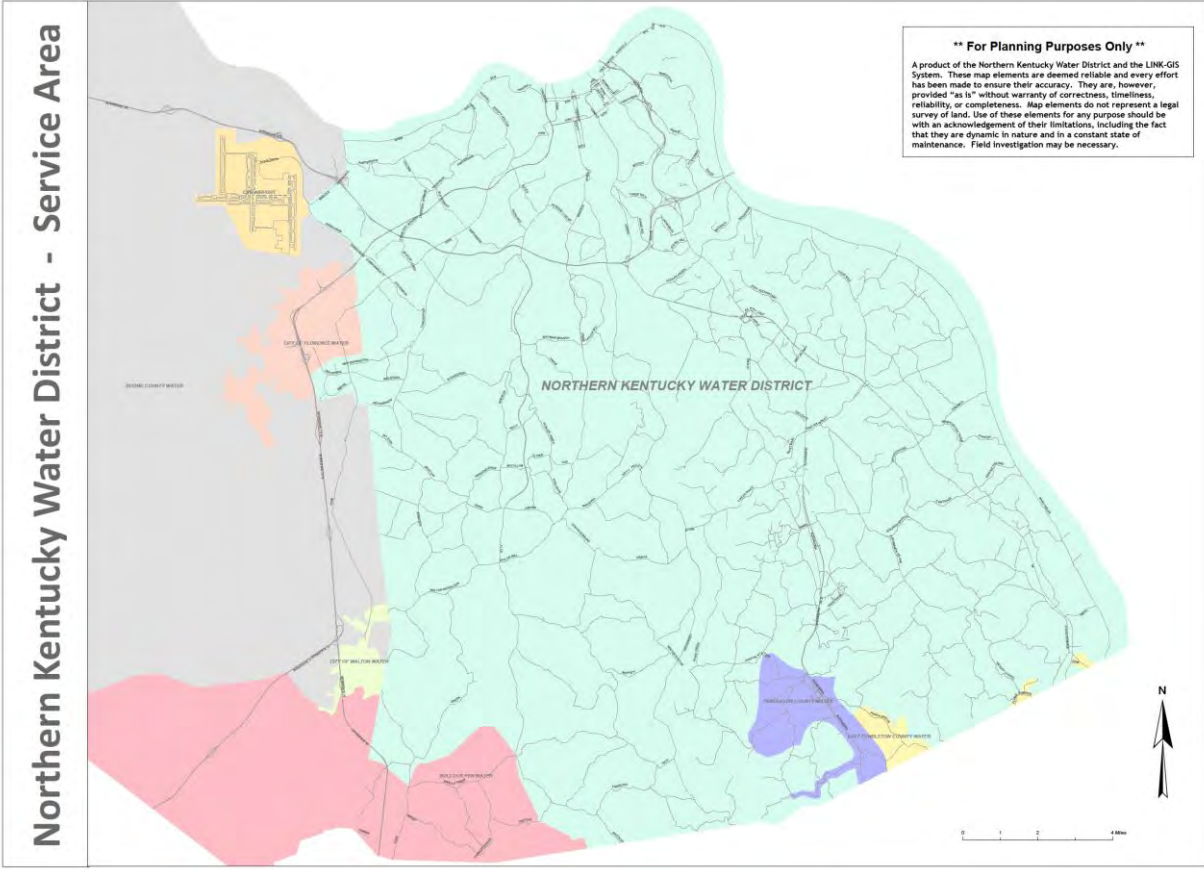
#### Nondiscrimination of Contractors

A bidder, vendor, or contractor shall not be discriminated against in the solicitation or award of this contract because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment.

#### Tax Exempt Status

Sales of goods to City of Florence are normally exempt from State sales tax. State sales and use tax certificates of exemption, Form 51A126, will be issued upon request.

**ATTACHMENT 3 – DISTRICT AND CITY WATER SYSTEM SERVICE AREA BOUNDARIES**



## ATTACHMENT 4 – DISTRICT AND CITY WATER METER AND LID SPECIFICATIONS

### 4.1 Meter Specifications

#### 4.1.1 District

The meters furnished shall be new, of the latest model which has been catalogued for one or more years, and fabricated in a first-class manner from good quality material. Meters shall be first line quality, new and of current design. Meters must meet or exceed the American Water Works Association (AWWA) Current Standards, Class II, as explained in publications C700, C702, & C703 and the 2018 AWWA Manual M6 Standards for testing. Encoder-Type Remote Registration Systems shall meet AWWA's current Standard C707. Meters must conform to all standards plus any additional standards contained within these specifications.

#### PERFORMANCE WARRANTIES

All meters shall have the following minimum warranty period:

<b>Encoder registers</b>	10 years for all meter sizes. 10 years pro-rated.
<b>New Meter Standards</b>	10 years full warranty and 10 years pro-rated for 5/8" -1" 1 year for 1 1/2" and larger meters
<b>All other parts &amp; components and workmanship</b>	1 year for all meter sizes
<b>Casings shall have a minimum</b>	Twenty-five (25) year warranty for 5/8" thru 1" and 1 year for 1 1/2" and larger meters

The Contractor shall fully replace meter, free of charge to the Owner, for any meter that fails to meet standards as outlined in these specifications for the life of the warranty period. All warranty work shall be completed by the Contractor within 45 days of shipping. There shall be no cleaning charge to the Owners. Warranty work re-test results shall be provided to the Owners for all repaired meters with the return shipment. There shall be no shipping cost to the Owners.

Failure to honor and fully comply with the warranty requirements shall be grounds for immediate termination of the contract by the Owners, notice of which will be provided in writing by the Owners.

## METER PERFORMANCE TESTS

All meters shall be factory tested by the Contractor in accordance with the Kentucky Public Service Commission Requirements. The factory shall be Kentucky Public Service Commission certified for testing meters. The Owners will independently test 5 percent of meters randomly from each shipment. If two (2) or more meters fail to meet new meter standards, the entire shipment will not be accepted by the Owners and will be returned to the Vendor at Vendor's expense. The Contractor has 30 days to replace the returned shipment of meters after written notification from the Owners. 10% of the replacement shipment will be randomly tested. Failure of one (1) or more meters to meet new meter standards shall be grounds for immediate termination of the contract by the Owners, notice of which will be provided in writing by the Owners.

After one (1) year of service and every year thereafter up to five (5) years, 5% of the meters (only 5/8" & 1" meters) installed under this contract will be randomly tested by the Owners per the new meter standards. Any meter which fails to meet new meter standards will be returned to the Bidder for a free new replacement per warranty. All costs incurred in testing the failed meter and meter shipping shall be borne by the Bidder.

## SHIPMENTS

All regular and replacement orders shall be shipped complete. All meters shall be shipped properly programmed with Register ID # (eight or ten-digit depending on location) and Meter #. Orders for 2" & smaller meters shall be shipped within 30 calendar days after order is placed by the Owner. Wrong or partial shipments will not be accepted by the District and the Contractor will be responsible for all costs incurred for return shipping unless the error in shipment was caused by the Owner.

A hard copy and electronic copy (Microsoft Excel Version 5.0, .XLS format via email or USB) shall be provided to the Owners for each completed shipment which shall contain the following information: an entire list of factory meter test results along with meter number, size, & ID numbers. The email or USB shall be sent within 14 days from the meter shipment.

## NOISE

The Owners shall be the sole judges of any meter's noise allowance and reserve the right to return meters to the Contractor that are deemed noisy, at the Contractor's cost.

## CASINGS

Meter casings can be cast-bronze, composite plastics, high grade bronze or brass alloy meeting the current ASTM Standards. All threads shall be metal/bronze type for PD

meters 5/8" – 1". All materials shall meet ANSI/NSF 61 and ANSI/NSF 372 Regulations. Castings shall meet or exceed current AWWA Standards. All casings shall have cast on them, in raised characters, the meter size and direction of water flow. Serialized numbers, in unmistakable digits, shall be embossed on each casing. Each serial number shall be unique to each meter. The Owners reserve the right to specify the leading digits of all meter numbers. All meters shall be shipped with a removable adhesive decal displaying the meter number for the ability to attach to Owner's paperwork.

#### FROST PLATE

All 1" and smaller bronze meters shall have a frost protection device which shall break or yield under freezing conditions before damage is done to the casing or other meter parts. Frost plates shall be cast iron.

#### PRESSURE CAPABILITY

Meters shall operate up to a working pressure of 150 pounds per square inch (psi) without leakage or damage to any parts. Meter accuracy shall not be affected by any variations in pressures up to 150 psi.

#### CHAMBERS

Chambers shall meet AWWA standards for disc-rotation or oscillations piston type chamber, turbine per cubic-foot. A rubberized division plate or approved equal system shall be provided for meters 1" and smaller for oscillations piston type chamber meters. Chambers shall be full size and exchangeable within meters of equal size and design. Meters (only 5/8" & 1" meters) shall have a warranty for new meter accuracy for ten (10) years and ten (10) years pro-rated, for a total of twenty (20) years.

#### REGISTERS-ENCODER-TYPE

All meters shall be encoder type and all related accessories included.

Registers shall be absolute read or permanently sealed electronic LCD. The display will contain a minimum of eight digits and display consumption, units of measure, rate of flow and meter model. All registers shall read down to the sub cubic foot. However the meter reading software shall only send readings to the billing software of hundred cubic feet. Batteries must have a 20 year life.

Registers must be highly tamper resistant and suitable for wet or dry environments.

The permanent seal between the lens non-corrosive plastic housing of the encoder enclosure shall meet or exceed all applicable requirements of AWWA Standards C706

and C707 and shall be permanently sealed without the use of gaskets. The encoder shall remain fog-free of moisture.

The connecting cable shall be three wire conductor type in sheath which will be abrasion and water resistant. Each conductor shall be color coded. All meters and equipment shall be programmable and compatible to be read by the proposed metering reading system.

### FIRE SERVICE METERS

Fire service meters shall be constructed of ductile iron, cast iron, stainless steel, brass and/or bronze materials only. Any cast iron parts shall be epoxy coated.

### URETHANE FOAM METER COVER

Meter covers shall be made of urethane foam, shall be off white in color, water resistant, have a density greater than 1.00PCF, a minimum tensile strength of 14PSI, compressibility of 32-38ILD, and a resilience of 45-65%. Diameter sizes shall be 18 ¼", 20 ¼", and 24 ¼". Municipal & Contractors Sealing Products, Inc. or approved equal.

## **4.1.2 City**

### **1.1 General Meter Requirements**

- Quality Control Statement

Utility expects the manufacturer of meters submitted as part of the proposal to submit its meters to a vigorous quality control and testing procedure before shipping. If any shipment of meters exceeds a 0.5% failure rate, or if a manufacturer's meters exceed a 0.35% failure rate in aggregate, Utility reserves the right, in addition to any legal remedies, to default the contract for a certain size meter or for all sizes of meters, and require the Proposer to obtain meters from another manufacturer.

### **Meter Styles/Types**

Utility requests proposals to include information and pricing for Positive Displacement/Multi-Jet style meters and Ultrasonic/Mag style meters for 5/8" through 2". Proposals should also include information and pricing for Ultrasonic/Mag style and Mechanical (turbine/compound) style meters for 2"- 12"

- Latest Models

Meters shall be new, of the latest production model, with the latest standard equipment and register firmware (if applicable), including items specified.

- Applicable Documents

The following documents of the issue in effect on the date of this RFP, form a part of these requirements to the extent specified herein:

- American National Standards Institute (ANSI) B1.20.1 “Pipe Threads”
- ANSI B 16.1 “Cast Iron Flanges”
- AWWA C7xx series, as applicable

- Unproven Designs

Parts or components not proven in service for a period of two (2) years, and experimental or untried equipment, will be acceptable only with the identification of such parts and a written guarantee that such parts are totally replaceable by the meter vendor, including all labor incurred by Utility, for a period of four (4) years from the date of purchase. Utility requests that Proposers who wish to propose meters that are unproven and/or do not conform to existing AWWA standards clearly identify the proposal as an alternate to its primary proposal which incorporates proven, AWWA-compliant meters.

- Lead in Meters

All meters must conform to NSF 61 standard

- Tools

Meter manufacturer shall furnish, at no cost, within ninety (90) days from the date of Notice to Proceed, all specialty tools required for meter maintenance, in reasonable quantities to be negotiated with Utility.

- Meter Serial Numbers and Labeling

The manufacturer's serial number shall be stamped on the main case of all meters, and shall be clearly visible when viewed from above. The serial number shall consist of all numeric digits. All meters shall have stamped or cast on them the size and model. The direction of the flow through the meter shall be properly indicated. The serial number should also be provided on two bar code labels attached to the meter, one of which shall be removed for transfer to a paper record. Utility prefers that the serial number include digits representing the year of manufacture.

If the serial number on the register and/or programmed into the register to be transmitted electronically can be distinct from the serial number on the meter body (even though it may be



same when shipped as part of the meter), Utility would prefer additional bar code labeling for the register. Indicate if this can be provided.

- Parts

A complete parts catalog, and pricing sheets showing list prices and discounts from list, must be supplied with the proposal for all meter models incorporated in the proposal. For each item, the proposal must include the appropriate literature, data sheets, and specifications or direct the reader to on-line reference. All parts or interchangeable equivalent parts should be readily available from the meter manufacturer for a period of twenty (20) years from the date of purchase. Indicate the manufacturer's policy for parts availability.

- Shipping Container Marking

Individual containers (if applicable) shall be marked to identify contents and quantity. Utility desires that this information also be in the form of bar codes for scanning. Meter shipments shall be accompanied by a computer file of the meter serial numbers for Utility's database.

- Technical Data

Proposer shall provide all manuals, diagrams, tolerance charts, exploded views with parts numbers, electronic diagrams, and any Safety Data Sheets (SDS) within thirty (30) days of the Notice to Proceed.

- Tamper Resistance

Meter and register should be equipped with drilled holes for the installation of a security seal and wire to secure register, plumbing connections, bottom plate and cabling. Split case meters shall have 3/32" seal wire holes through two (2) aligned case bolts or one (1) 3/32" seal wire hole through both halves of case.

- Strainers

All mechanical meters shall contain removable non-corrosive strainer screens.

- External Case Bolts

All external case bolts, cap bolts, washers, and nuts shall be of sufficient strength for the purpose and must be of non-corrosive material designed for easy removal after long service.

- Installation Supplies

Proposer must supply the necessary bolts, nuts, washers and gaskets for all meters 1-1/2 through 12".

- Updates

Manufacturer shall provide technical updates to Utility and changes of technical information within thirty (30) days of publication.

- New Design Approval

Proposer shall notify Utility in advance of all changes in design or material for meters that have been selected and approved by Utility, and must submit these changes for Utility approval prior to any shipments of meters involving these changes.

- Interchangeability

All meters of the same size or capability shall be manufactured so as to permit complete interchangeability of all parts (e.g., discs, pistons, chamber tops, chamber bottoms, registers, etc.).

- Factory Accuracy Tests

All meter accuracy tests shall be conducted in accordance with AWWA test methods and meter standards. The manufacturer shall furnish to Utility an electronic copy of the test results for each meter shipped. Specific information contained within the test results shall include the manufacturer serial number, flow rates, results of each flow rate test, the size of the meters being tested, the model number, the date, and the tester. Utility also desires the test results be provided on a tag attached to the meter. Vendor shall indicate if test results obtained through the use of any register other than the actual register shipped with the meter.

- Lay Lengths

Fire protection meters, compound, and turbine meters should include an external strainer if replacing existing installation with an external strainer. Provide diagrams indicating the position of the strainer. Proposers having meters of a lesser lay length shall provide a steel spacer, no greater than four (4) inches long, or a flanged spool. Spools must be constructed of class 55 cement lined ductile iron pipe with welded or threaded on flanges, or cast bronze. Spools must be no shorter than four (4) inches face to face, and guaranteed not to leak. Flanges shall be made of no less than 125-pound class material. Proposals shall include the cost of spacers or spools needed to meet the required laying length and any necessary bolts, nuts or other appurtenances.

- Inspections

Equipment shall be subjected to inspection to ensure compliance with the specifications. Shipments of equipment shall be subject to sampling (according to ANSI/ASQ Z1.4) and

testing for compliance with specifications. Shipments failing the sampling and testing protocol shall be rejected in their entirety and returned to the supplier. Any individual pieces of material which fail inspection shall also be rejected and returned to the supplier. All freight costs and any other costs incurred by the rejection will be borne by the supplier.

- Testing by Utility

Proposer shall provide an opportunity for Utility to remove a sample of the meters from each shipment for its own testing. All meters tested will be tested as a unit (i.e. meter and any attached register or attached reading device). If any part or portion of a unit does not function properly the entire unit will be considered defective.

- Rejection

Water meters that do not meet the requirements of this specification shall be rejected by Utility, removed by the manufacturer at its own expense and replaced within the delivery date specified.

## **1.2 Meter Registers**

- Encoder

All meters shall be equipped with dial-position or electronic encoder registers that conform to the latest AWWA standards except as amended herein.

- Manual Readability

The meter-reading and other information must be readable without the need for any special equipment.

- Cap

Meter registers should have a flip cap to prevent dirt from interfering with the visual inspection of the register, its ID number, its indicators and other information.

- Resolution

Indicate the number of transmitted digits. Registers shall be capable of reporting not less than 10 gallon [or 1 cubic foot] increments through the reading system. Utility prefers 1 gallon [or 0.1 cubic foot] transmitted resolution for all meters less than 3.”

- Leak Detector

The meter register shall have a visible leak detector.

- Connectors

The register and wire connection shall be waterproof and corrosion proof. Meters shall be provided with waterproof connectors on a 5-foot three-conductor 18 gauge cable potted to the meter register. Longer cables up to 100 feet should be available on request for a separate charge.

- Environmental Tolerance

Meter registers shall be sealed to withstand long-term and repeated submersion in water and wide variations in ambient temperature.

- Tamper Resistance

The meter registers as well as the terminals or wire connections, must be tamper resistant. Indicate how this is accomplished.

- ID Number

Each encoder register shall have a unique identification number with a minimum of 8 digits that will be transmitted electronically when the meter is interrogated. For new meters, this number shall be the same as the number stamped into the meter base. This register number shall also be visually readable on the register display or the cap. Utility prefers that this number be permanently stamped into the cap. The register should be shipped with an attached bar code corresponding to the register number.

- Registration Display

The register(s) on the meter shall be odometer-style or digital display, with at least six recording dial wheels or digits, the information from which is transmitted to the meter interface unit. Static or non-transmitting digits shall be a different color. A visual leak detector indicator shall be included on sizes 5/8" through 2" registers.

- Register Battery

Indicate if meter uses a battery and whether or not battery can be changed to extend life of meter. Provide costs for this in the pricing proposal. If meter has a battery, indicate if low battery alarm can be transmitted through the MIU and how long is this alarm available before meter fails to fully function.

- Interoperability

Proposer shall not restrict the information available from the meter/register/encoder. All information, including low battery alert, water temperature, leak or continuous flow, pressure,

flow in excess of maximum, extended no usage, etc., that can be produced by the meter shall be made available to Utility and any meter-reading technology of its choosing. Proposer shall provide documentation of the data output of the meter (fields, codes, etc.) sufficient to enable a third party to interpret the output.

### **1.3 Small (5/8"-2") Meters**

All meters shall conform to AWWA C700 or C 715 except as amended herein.

- Metrology

Utility prefers meters of either positive displacement or no moving part design. Proposals shall include both types of meters, Proposer shall provide responses and prices for each type separately.

- Longevity

Indicate expected life of the meter. Indicate if register can be replaced separately from measurement assembly. Indicate if meter uses a battery and whether or not battery can be changed to extend life of meter. Provide costs for this in the pricing proposal.

- Pressure Loss

The maximum pressure loss at safe maximum operating capacity shall be 10 psi.

- Meter Cases

All positive displacement meters shall have an outer case with a separate removable measuring chamber in which the disc or piston operates.

- Pipe Connections

If a fully composite meter is proposed describe the approach to minimize the risk of cross threading.

Connections shall be meter casing spuds having external straight threads conforming to ANSI B1.20.1. Couplings shall conform to NSF 61 and ASTM B-62 specifications.

#### **1.4 Ultrasonic Meters**

- Standard

All meters shall conform to the latest ANSI/AWWA Standard C715-18.

#### **1.5 Compound Meters**

- Standard

All meters shall conform to the latest AWWA Standard C-702 for Cold Water Meters except as amended herein.

- Meters – Interior Parts Removal

Meters shall be designed for easy removal of all interior parts without disturbing any connections to the pipeline.

- Flanges

All meters shall be furnished with flanges on both ends. Flanges shall be of round type, faced and drilled, and shall conform to the American National Standards Institute case iron pipe flange, class 125, ANSI B 16.1 for diameter, drilling and thickness. All companion flanges shall be tapped American Standard internal taper pipe thread, ANSI B2.1.

- Pressure

Meters shall be guaranteed to operate under a working pressure of 150 psi without leakage or damage to any part.

- Strainers

Strainers shall be either an integral part of the meter or a separate flanged casting and shall be easily accessible for cleaning. Strainers shall be rigid, easily removed, and have an effective straining area at least double that of the main meter case inlet.

#### **1.6 Turbine Meters**

- Standard

All meters shall conform to the latest AWWA Standards C-701 for Cold Water Turbine Type, except as amended herein. Indicate whether proposed meters are Class I or Class II.

- Flanges

All meters shall be furnished with round flanges on both ends. Oval flanges shall be furnished on 2" meters.

- Strainers

Strainers on 3" through 6" meters where required to replace an existing strainer shall be companion to meters and shall have all bronze cases, cover plates and screens. Strainers on 8" and 10" meters where required to replace an existing strainer shall be companion to meters and shall have cast iron (or bronze) cases and cover plates and bronze screens. Except for fire meters, the external strainer screen shall have a minimum net opening area of two (2) times the pipe diameter and shall be made of stainless steel. All strainers must provide a plug at the bottom area for the draining off of debris.

- Warranty

The manufacturers shall guarantee the entire meter, including the register for a period of 15 years from the date of shipment against all defects in material and workmanship. Any other guarantee by the manufacturer shall be stated in its proposal.

### **1.7 Fire Flow Meters**

- Standards

All meters shall conform to the latest AWWA Standard C-703 for Cold Water Meters - Fire Service Type, except as amended herein. Fire Service meters and strainers shall have the Underwriter's Laboratories, Inc. (UL), and Factory Mutual (FM) approval for use on fire lines.

- Flanges

All meters shall be furnished with round flanges at both ends. Companion flanges are not required.

- Side Arm Meter

The side arm meter shall conform to the appropriate Utility specification for that size.

- Warranty

The manufacturer shall guarantee the entire meter, including the register, for a period of fifteen (15) years from the date of shipment against all defects in material and workmanship. Any other guarantee by the manufacturer shall be stated in its proposal.

- Strainers

Fire service strainers where specified shall be companion to meters and shall have cast iron cases and cover plates and stainless steel screens.

## 4.2 Meter Box Lid Specifications

### 4.2.1 District

All non-ferrous lids must have sufficient weight or a locking mechanism that prevents them from being dislodged or from floating. All non-ferrous lids must have a ferrous element (e.g. section of rebar) that enables them to be discovered by a metal detector when buried.

If any replacement lids are needed, the replacement lid shall not rest higher than the existing one. The cost of any lid replacements or modifications, mounting hardware or remote antennas must be included in Contractor's pricing with meter interface units.

In the case of Bilco-style vault doors or steel plates, Contractor shall provide a proven option that does not compromise the integrity and safety of the door or plate. The Contractor shall submit for approval a diagram indicating vault lid mounting configuration, with dimensions, including any mounting brackets or lid assemblies, and indicating any protrusion of any part of the MIU above the top plane of the lid.

Any replacement lid or remote antenna mounted above the lid or otherwise exposed in a paved area where there is a reasonable chance that it could be subject to vehicular traffic or parked on by a heavy vehicle must be rated heavy duty AASHTO H-20/HS-20. Any replacement lid or remote antenna mounted above the lid or otherwise exposed and installed in residential sidewalks separated by a parkway from the street must be rated as least medium duty.

All lid configurations must be submitted to and approved by the Owner before installation.

Meter Lid (One & Two-Hole)	Ford C3L-T and Ford C3L-TT or approved equals.
Meter Lid (Plastic, One Hole)	DFW12AFOX-1/WF Small-lid, 12", Black solid polymer lid with plastic worm lock & knockout drilled center, 3 1/4" x 3/8" deep recess for AMR pad with 1 7/8" knockout for endpoint. O.D. 12 9/16", I.D. 11 1/16", thickness 1 9/16". Lid material HDPE or approved equal.
Ring & Lid Sets	Ford C32-T and C4-T or approved equals
Composite Ring & Lid Sets	Ford C32-T and C4-T or approved equals



Ring Only	Ford SC 32 and SC 4 or approved equals
18" Meter Cover (Heavy Duty, Touch Read)	Shall be two part set with cast iron with black dip-coat protection frame and locking recessed lid. Standard 27/32 nut only, must be 18" I.D., and weigh between 32 and 36 lbs. or approved equal, Drilled single 2" hole in center of lid with a 4" recess surrounding it at 1/4" deep. Bingham and Taylor AWEHHVA32TR, AY McDonald 74 I32 or approved equal.
18" Meter Cover (Touch Read)	Shall be two part set with cast iron with black dip-coat protection frame and locking recessed lid. Standard 27/32 nut, must be 18" I.D., Drilled single 2" hole in center of lid with a 4" recess surrounding it at 1/4" deep. AY McDonald 74 Q32 or approved equal.
Monitor Lid & Ring	Standard 27/32 nut, must be 18" I.D., Drilled single 2" hole in center of lid with a 4" recess surrounding it at 1/4" deep. AY McDonald 74MRL or approved equal.
18" x 24" Extension Ring	Ford type No. 1 extension ring or AY McDonald 74MX1 or Vestal No. ER-1824
18" x 30" Extension Ring	Ford type No. 3 extension ring or AY McDonald 74MX3 or Vestal No. ER-1830
20" x 24" Extension Ring	Ford type FL-24 monitor cover flange for 24" I.D. tile or AY McDonald 74MF1000 or Vestal No. ER-2024
20" x 30" Extension Ring	Ford type FL-30 monitor cover flange for 30" I.D. tile or AY McDonald 74MF1010 or Vestal No. ER-2030

NORTHERN KENTUCKY  
WATER DISTRICT

**Project**

**Meter Reading System Replacement**

184-4015

CERTIFIED STATEMENTS

Affidavit (B.1)

Franchises (B.2)

Plan Review and Permit Status (B.3)

Easements and Right-of-Way Status (B.4)

Construction Dates and Proposed Date In Service (B.5)

Plant Retirements (B.6)

State Debt Officer Notification (B.7)

NORTHERN KENTUCKY  
WATER DISTRICT

*Project*

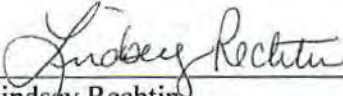
*Meter Reading System Replacement*

184-4015

Affidavit

**AFFIDAVIT**  
**Meter Reading System Replacement**

Affiant, Lindsey Rechten, being the first duly sworn, deposes and says that she is the Vice President of Finance and Support Services of the Northern Kentucky Water District, which she is the Applicant in the proceeding styled above; that she has read the foregoing "Meter Reading System Replacement" Application and knows the contents thereof, and that the same is true of her own knowledge, except as to matters which are therein stated on information or belief, and that as to those matters she believes them to be true.

  
\_\_\_\_\_  
Lindsey Rechten  
Vice President of Finance & Support Services  
Northern Kentucky Water District

Subscribed and sworn to before me in said County to be her act and deed by  
Lindsey Rechten, Vice President of Finance and Support Services of the Northern  
Kentucky Water District, this

25<sup>th</sup> day of February 2021.

  
\_\_\_\_\_  
NOTARY PUBLIC KYNP17828  
Campbell County, Kentucky  
My commission expires 12/21/24

NORTHERN KENTUCKY  
WATER DISTRICT

**Project**

**Meter Reading System Replacement**

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Franchises (B.2)

Plan Review and Permit Status (B.3)

Easements and Right-of-Way Status (B.4)

Construction Dates and Proposed Date In Service (B.5)

Plant Retirements (B.6)

Franchises required – None

Plan Review and Permit Status – None since not using State Revolving Fund Loan

The District has reviewed and approved the specifications prepared by HDR Engineering, Inc., titled “Meter Reading System Replacement” dated October 2020.

Easements and Right-of-Way Status – No easements will be needed for this project.

Start date of construction – May 2021

Proposed date in service – May 2023

Plant retirements – The existing AMR reading system will be retired after the completion of the new system.

NORTHERN KENTUCKY  
WATER DISTRICT

**Project**

**Meter Reading System Replacement**

184-4015

State Debt Officer Notification



February 26, 2021

Mr. Dennis Keene  
Commissioner and State Local Debt Officer  
1024 Capital Center Drive, Suite 340  
Frankfort, Kentucky 40601

Re: Northern Kentucky Water District, PSC Case No. 2021-00095  
Notice of Intent to Issue Securities

Dear Mr. Keene:

Pursuant to the regulations of the Kentucky Public Service Commission, specifically 807 KAR 5:001: Section 18(1)(g), please be advised that the Northern Kentucky Water District (the "District") hereby notifies the State Local Debt Officer that the District intends on issuing securities in the form of a bond anticipation note (a "BAN") in 2021 for the purpose of funding several projects necessary for the District, including the Meter Reading System Replacement with an estimated total budget of \$13,500,000, with \$11,000,000 issued as part of the BAN.

We will file the appropriate documents with your office in accordance with the requirements of KRS 65.117 once the securities are issued.

Very truly yours,

The Northern Kentucky Water District

A handwritten signature in black ink that reads "Lindsey Rechten".

By: Lindsey Rechten



NORTHERN KENTUCKY  
WATER DISTRICT

*Project*

*Meter Reading System Replacement*

184-4015

BID INFORMATION

Bid Tabulation (C.1)

Engineer's Recommendation of Award (C.2)

Board Resolution (C.3)

NORTHERN KENTUCKY  
WATER DISTRICT

**Project**

**Meter Reading System Replacement**

184-4015

Bid Tabulation



NORTHERN KENTUCKY  
WATER DISTRICT

*Project*

*Meter Reading System Replacement*

184-4015

Engineer's Recommendation of Award



# Technical Memo

Date: Thursday, February 11, 2021

Project: Meter Reading System Selection

To: Lindsey Rechtin, Northern Kentucky Water District

From: Jeff Hansen, HDR

Subject: Evaluation of Meter Reading System Selection

## Scope of Work

The focus of this project is the Northern Kentucky Water District (“NKWD” or “the District”), Kentucky’s procurement of an Advanced Metering Infrastructure (“AMI”) system and related services, which will replace an existing Automated Meter Reading (AMR) system with a solution that delivers more reliability and functionality. The purpose of this Technical Memorandum (“TM”) is to provide an Engineer’s opinion of the District’s selection of the preferred replacement meter reading system. HDR (the “Engineer”) assists water utilities throughout the U.S. in defining requirements for, selecting, and implementing AMI technology. HDR developed the solicitation documents for the District’s AMI procurement.

## Background

The District has approximately 85,500 water meters, which are currently read using a Badger mobile AMR system. Meter readings are imported into the District’s CIS Infinity utility billing system, from which utility billing statements are generated. Water consumption data is also provided to Sanitation District No. 1 of Northern Kentucky (“SD1”), which sends separate wastewater bills to its customers based on those customers’ water consumption. The primary issue with the existing AMR system is that the current transmitter units are no longer manufactured or supported by Badger. As a result, the District cannot obtain repair parts when meter/transmitter failures occur. To meet the District’s future requirements, a significant modification to the existing system or implementation of a new meter reading system is required.

Through this procurement, the District intends to implement an AMI system which will provide enhanced dependability and functionality which benefits the utility and its customers. The products and services being obtained through this procurement include the following major components:

- Meter Interface Units (“MIUs”) capable of measuring water usage and other data, and transmitting that data.
- A working communication network to collect and convey meter reading data from the meters to the District’s head-end computer system or a cloud-based service.



- Head-end computer hardware and software, or a cloud-based service, to collect, store, manage, and analyze the data delivered through the network.
- A customer web portal to display consumption data and other customer-specific information.
- Installation and testing of the MIUs, communication network components, and all information system components.
- Documentation and training for District staff on all components.
- Maintenance support for all software, communications network, and other hardware for 20 years.

The District's detailed technical specifications, solicitation terms, bid forms, and other procurement documentation were published in a document titled "Bidding Documents for Meter Reading System Replacement" issued jointly with the City of Florence ("Florence") in September 2020.

Seven bidders provided responses for the District. Although the procurement was designated a "bid", the Bidding Documents state that the Owners reserve the right to:

- Select a bid that is deemed the most desirable and advantageous from the standpoint of customer value and service and concept of operations, even though such bid may not, on its face, appear to be the lowest price.
- Negotiate with the apparent Successful Bidder to such an extent as may be determined by the Owner.

The District's selection of the bid which is most advantageous considered a number of objective and subjective factors, including the 20 year present value cost.

## **Evaluation**

The District's Selection Committee read the submittals and graded them on a scale of 1 (lowest) through 5 (best) on each of the following evaluation criteria:

- Qualifications
  - Business experience
  - References and past performance
  - Past cost performance
  - Staff
  - Bonding and insurance
- Response to Technical Specifications
  - Meters (for consideration of potential future meter options)
  - Meter interface units
  - Data collection and communications system
  - Meter data management system and data analytics
  - System integration and customer portal
  - Installation
  - Project administration, training, and support



- 20 year total cost and 20 year present value cost

The Engineer reviewed the evaluation performed by the District and found it to be consistent with the criteria described in the Bidding Documents and equal in its treatment of the bidders. The Engineer reviewed the scoring of the two highest ranking bids. The assessment reflected the submittal content provided by the bidders, as well as industry knowledge and local experience. The Engineer concurs with the scores that the District's Selection Committee applied and the resulting ranking of vendors.

The Engineer reviewed the submittal of the highest ranked bidder to confirm its compliance with the Bidding Documents' technical specifications and identify any deficiencies or concerns. No material flaws were identified, and the Engineer provided the District with suggestions of minor clarifications to be considered during contract negotiations with the Selected Bidder. The Engineer found that the highest ranked bidder's submittal complies with the technical specifications and other procurement documentation published in the "Bidding Documents for Meter Reading System Replacement".

### **Conclusion**

The Engineer concurs that the proposal submitted by Citco Water provides the solution that is most responsive to the District's meter reading system needs. Strong elements of the proposed solution include the following:

- 20 year warranty (15 years full and 5 years pro-rated) on meter interface units.
- 98.17% read rate.
- On-demand reading functionality.
- Less infrastructure than other radio frequency communications based bids, while providing a high proportion of meter locations that can be read through more than one communication path.

It is the Engineer's recommendation that the Northern Kentucky Water District proceed with Citco Water as its Selected Bidder.

NORTHERN KENTUCKY  
WATER DISTRICT

**Project**

**Meter Reading System Replacement**

184-4015

Board Resolution



**Northern Kentucky Water District  
Board of Commissioners  
Regular Meeting  
February 18, 2021**

A regular meeting of the Board of Commissioners of the Northern Kentucky Water District was held on February 18, 2021 via video teleconference, as permitted by KRS 61.826, due to the COVID-19 pandemic restrictions and in compliance with recommendations from federal, state, and local governmental authorities. All Commissioners were present, except for Commissioner Patricia Sommerkamp. Also present were Ron Lovan, Lindsey Rehtin, Amy Kramer, Tom Edge, Kim Clemons, Mike Flynn, Jason Miller, Aaron Smith, Barry Miller, Stacey Kampsen, Brad Murphy, Chris Bryant, Mark Raffenberg, Mike Crawford and representatives of KEMI Jeff Floyd and Thomas Wong.

Commissioner Wagner called the meeting to order at 12:00 p.m. and led the pledge of allegiance.

KEMI Representative Jeff Floyd presented the District the KEMI Destiny Award. Mr. Floyd announced this was the ninth consecutive year the District had garnered the award, a feat accomplished by only two other entities.

The Commissioners reviewed correspondence received and articles published since the last regular Board meeting on January 21, 2021.

On motion of Commissioner Lange, seconded by Commissioner Cunningham, the Board unanimously approved the minutes for the regular Board meeting held on January 21, 2021.

The Board was provided a copy of the District's check registers, which included the check number, check date, payee, check amount and description of the reason for each payment, detailing the District's expenditures for the period January 1, 2021 through January 31, 2021. On motion of Commissioner Koester, seconded by Commissioner Lange, and after discussion, the Board unanimously approved the expenditures of the District for the month of January 2021.

On motion of Commissioner Koester, seconded by Commissioner Lange, the Board unanimously accepted the bid from Merkle Lawncare Company and awarded the contract, with the option to extend the contract for one additional year at staff's discretion, and authorized staff to execute the applicable contract documents.

On motion of Commissioner Cunningham, seconded by Commissioner Lange, the Board unanimously accepted the bid of Ideal Supplies, Inc. and awarded a contract for the purchase of flowable fill and concrete for a one-year term, with an optional additional one-year contract extension, and authorized staff to execute all applicable contract documents.

On motion of Commissioner Cunningham, seconded by Commissioner Lange, the Board unanimously authorized the purchase of distribution inventory materials from the applicable vendors listed in the bid summary.

On motion of Commissioner Kloester, seconded by Commissioner Cunningham, the Board unanimously accepted the bid of \$441,707 from Welsh Excavation and awarded a contract for the Lexington Drive & Woodward Street Water Main Replacement Project with a total project budget of \$510,000, and authorized staff to execute the applicable contract documents.

On motion of Commissioner Koester, seconded by Commissioner Cunningham, the Board unanimously accepted the bid of \$114,484.00 from JNT Excavating, LLC and awarded a contract for the Robin Lane Water Main Replacement Project with a total project budget of \$140,000, and authorized staff to execute the applicable contract documents.

On motion of Commissioner Lange, seconded by Commissioner Cunningham, the Board unanimously accepted the bid of \$362,029.85 from JNT Excavating and awarded a contract for the Sagebrush Lane & Shadyside Drive Water Main Replacement Project with a total project budget of \$420,000, and authorized staff to execute the applicable contract documents.

On motion of Commissioner Lange, seconded by Commissioner Koester, the Board unanimously accepted the bid of CITCO Water and awarded a contract for the Meter Reading System Replacement, and authorized staff to negotiate and execute the appropriate contract with all necessary performance terms, and any related agreements or documents, with the option to award alternative items if deemed by staff to be in the interest of the District.

On motion of Commissioner Koester, seconded by Commissioner Lange, the Board unanimously adopted a resolution authorizing the issuance of a Revenue Bond Anticipation Note (BAN), Series 2021, for up to \$25,000,000, in order to fund projects that are necessary for the District to continue to maintain and improve infrastructure.

On motion of Commissioner Lange, seconded by Commissioner Cunningham, the Board unanimously adopted a resolution authorizing the issuance of a Revenue Bond, Series 2023, for up to \$27,000,000 to provide moneys to retire the Notes.

The Board reviewed the District's financial reports and Department reports.

Vice President of Finance and Support Services Lindsey Rehtin updated the Board on revenues and expenses and on the status of the 2020 audit.

Director of Human Resources, Safety, Facilities & Fleet Kim Clemons provided the Board with an update on employee appreciation actions taken.

Vice President of Engineering, Distribution, and Production Amy Kramer updated the Board on a change order for one ongoing project and the 2020 water loss percentage.

Legal Counsel, Manager of Legal, Compliance, and Regulatory Affairs Tom Edge provided the Board an update on the payment dispute with the contractor on the cancelled Fort Thomas Treatment Plant Reservoir Sediment Removal Contract.

Other matters of a general nature were discussed.

On a motion by Commissioner Lange, seconded by Commissioner Cunningham, the meeting was adjourned at 1:10 p.m.

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CHAIRMAN

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SECRETARY

NORTHERN KENTUCKY  
WATER DISTRICT

**Project**

**Meter Reading System Replacement**

184-4015

PROJECT FINANCE INFORMATION

Customers Added and Revenue Effect

Debt Issuance and Source of Debt

Additional Costs for Operating and Maintenance

USoA Plant Account

Depreciation Cost and Debt Service After Construction

# Northern Kentucky Water District

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Customers Added and Revenue Effect: There will be zero new customers added and no revenue effect as a result of the Meter Reading System Replacement project.

Debt Issuance and Source of Debt: This project will be paid from the District's Five-Year Capital Budget, PSC No. 267 "Automated Meter System" with a budget of \$13,500,000 which includes construction cost, engineering, and contingencies. A summary of the project costs is provided below:

○ Design Engineering	\$ 116,150
○ Construction Engineering	\$ 102,550
○ Contractor's Bid	\$ 12,881,300
○ Misc. & Contingencies	<u>\$ 400,000</u>
Total Project Cost	\$ 13,500,000

The project will be funded using \$11,000,000 from a future Bond Anticipation Note and \$2,500,000 from cash.

USoA Accounts: The anticipated amounts for the project cost of \$13,500,000 will fall under the following Uniform System of Accounts Codes:

Code 334 "Meters and Meter Installation"      \$13,500,000

Additional Costs and O&M: Additional annual operating and maintenance costs incurred for the project are as follows:

Power/Cellular	\$ 5,000
Software Support	\$132,404
Maintenance	<u>\$ 35,258</u>
	\$172,662

Depreciation and Debt Service: Annual depreciation and debt service after construction are as follows:

Depreciation: \$900,000/year over 15 years for Code 334 "Meters and Meter Installation"

Annual Debt Service: \$1,050,643.88 over 15 years for 2% conventional loan.

NORTHERN KENTUCKY  
WATER DISTRICT

**Project**

**Meter Reading System Replacement**

184-4015

SCHEDULE OF MORTGAGES, BONDS, NOTES, AND  
OTHER INDEBTEDNESS

<b>Northern Kentucky Water District</b>		
<b>Bonds &amp; Notes</b>		
<b>11/30/2020</b>		
<b>Bonds</b>		
USDA 2000		\$0
Series 2003C		\$0
Series 2004A		\$0
Series 2006		\$0
Series 2009		\$0
Series 2011		\$0
Series 2012		\$33,675,000
Series 2013A		\$21,685,000
Series 2013B		\$12,840,000
Series 2014A		\$1,706,500
Series 2014B		\$4,650,000
Series 2016		\$33,155,000
Series 2019		\$17,310,000
Series 2020		\$22,325,000
		<b>\$147,346,500</b>
<b>KIA Notes Currently Servicing</b>		
F08-07		\$2,592,667
F9-02		\$16,661,797
F13-012		\$4,523,000
F-14-015		\$3,244,297
F-15-011		\$3,234,401
B-15-003		\$1,230,717
F16-027		\$1,304,928
<b>Total KIA</b>		<b>\$32,791,807</b>
<b>Other Notes</b>		
Deferred Note Kenton County		\$100,000

NORTHERN KENTUCKY  
WATER DISTRICT

**Project**

**Meter Reading System Replacement**

184-4015

CURRENT BALANCE SHEET AND  
INCOME STATEMENT



**NORTHERN KENTUCKY WATER DISTRICT  
STATEMENT OF NET POSITION  
NOVEMBER 30, 2020**

**ASSETS AND DEFERRED OUTFLOWS OF RESOURCES**

**Current Assets**

Cash and Cash Equivalents	\$ 37,463,043
Investments	4,381,307
Accounts Receivable	
Customers, Net	6,079,625
Unbilled Customers	6,500,000
Others	55,545
Assessments Receivable	155,813
Inventory Supplies for New Installation and Maintenance, at Cost	1,727,317
Prepaid Items	1,151,170
Restricted Assets - Cash and Cash Equivalents	
Bond Proceeds Fund	150,848
Debt Service Account	2,209,076
Improvement, Repair & Replacement	<u>291,495</u>
Total Current Assets	<u>60,165,239</u>

**Noncurrent Assets**

Restricted Assets - Cash and Cash Equivalents	
Bond Proceeds Fund	711,486
Debt Service Account	18,510,282
Improvement, Repair and Replacement	732,700
Customer Deposits Fund	878,045
Restricted Assets - Investments	
Debt Service Reserve Account	19,083,189
Miscellaneous Deferred Charges	<u>4,303,753</u>
Capital Assets	
Land, System, Buildings and Equipment	508,687,471
Construction in Progress	<u>16,511,406</u>
Total Capital Assets	525,198,877
Less Accumulated Depreciation	<u>184,519,894</u>
Total Capital Assets, Net of Accumulated Depreciation	<u>340,678,983</u>
Total Noncurrent Assets	<u>384,898,438</u>
Total Assets	<u>445,063,676</u>

**Deferred Outflows of Resources**

Deferred Outflows Related to Pension	4,558,221
Deferred Outflows Related to OPEB	2,110,885
Deferred Loss on Refundings	<u>3,728,435</u>
Total Deferred Outflows of Resources	<u>10,397,541</u>
<b>Total Assets and Deferred Outflows of Resources</b>	<b>\$ <u>455,461,217</u></b>

**NORTHERN KENTUCKY WATER DISTRICT  
STATEMENT OF NET POSITION  
NOVEMBER 30, 2020**

**LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION**

**Liabilities and Deferred Inflows of Resources**

**Current Liabilities**

Bonded Indebtedness	\$ 12,245,628
Notes Payable	1,705,186
Accounts Payable	578,710
Accrued Payroll and Taxes	457,039
Other Accrued Liabilities	156,593
Liabilities Payable-Restricted Assets	
Accrued Interest Payable	2,209,076
Accounts Payable	442,343
	<hr/>
Total Current Liabilities	17,794,575

**Long-Term Liabilities (Net of Current Portion)**

Liabilities Payable-Restricted Assets	
Accounts Payable	142,457
Customer Deposits	878,045
Compensated Absences	1,257,041
Arbitrage Liability	322,268
Bond Indebtedness	149,233,577
Notes Payable	31,186,622
Net Pension Liability	23,269,110
Net Unfunded OPEB Liability	5,563,369
	<hr/>
Total Long-Term Liabilities	211,852,489
	<hr/>
Total Liabilities	229,647,065

**Deferred Inflows of Resources**

Deferred Inflows Related to Pension	726,617
Deferred Inflows Related to OPEB	2,058,313
	<hr/>
Total Deferred Inflows of Resources	2,784,930

Total Liabilities and Deferred Inflows of Resources	<hr/> <hr/> 232,431,995
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**Net Position**

Net Investment in Capital Assets	150,036,405
Restricted For	
Debt Service Funds	37,593,471
Capital Improvement Projects	1,301,728
Unrestricted	34,097,618
	<hr/>
Total Net Position	223,029,222

<b>Total Liabilities, Deferred Inflows of Resources, and Net Position</b>	<hr/> <hr/> <hr/> \$ 455,461,217
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**NORTHERN KENTUCKY WATER DISTRICT  
STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET POSITION  
12 MONTH PERIOD ENDED NOVEMBER 30, 2020**

<b>Operating Revenues</b>	
Water Sales	\$ 59,025,217
Forfeited Discounts	323,989
Rents From Property	557,983
Other Water Revenues	<u>254,523</u>
 Total Operating Revenues	 <u>60,161,712</u>
<b>Operating Expenses</b>	
Operating and Maintenance Expense	28,650,343
Depreciation Expense	<u>12,275,138</u>
 Total Operating Expenses	 <u>40,925,481</u>
 Net Operating Income	 <u>19,236,231</u>
<b>Non-Operating Income (Expense)</b>	
Investment Income	785,929
Miscellaneous Non-Operating Income/(Expense)	107,695
Loss on Abandonment of Mains	(670,860)
Gain/(Loss) on Disposal of Fixed Assets	104,561
Interest on Long Term Debt and Customer Deposits	(6,609,108)
Pension Expense	(2,476,972)
Other Post Employment Benefit Expense	(97,596)
Arbitrage Expense	(178,770)
Amortization of Debt Premiums and Defeasance Costs	839,173
Bond Issuance Costs	<u>(226,605)</u>
 Total Non-Operating Income (Expenses)	 <u>(8,422,553)</u>
 Change in Net Position Before Capital Contributions	 10,813,678
<b>Capital Contributions</b>	<u>1,695,839</u>
 Change in Net Position	 12,509,517
<b>Net Position - Beginning of Year</b>	<u>210,519,705</u>
 <b>Net Position - End of Year</b>	 <u>\$ <u>223,029,222</u></u>