

MEMORANDUM

To: Howard Poston

From: Ron Volkerding

Date: July 20, 2011

Re: 5-Year Sewer & Water Capital Improvement Program
2012-2016

This document details recommended sewer and water capital improvement projects for years 2012 through 2016. Each project is described and justification of need is provided in the attached document.

Water Projects

All water projects for this period are for the Northwest Regional Water System and are necessary increase system water supply, address distribution system deficiencies, and maintain facility control and instrumentation systems. Basis of need is from the various studies, including the Northwest Regional Water Master Plan (2005), draft Northwest Regional Water Supply Feasibility Study, Greene County Production Wells Assessment, and upgrade facility control and instrumentation systems as recommended by the SCADA Master Plan Update. Total estimated cost is \$9,295,500.

Sewer Projects

The focus of sewer projects for this period is a sewer collection capacity study for lines tributary to the Beaver creek WRRF, an update to the Solids Master Plan to evaluate alternatives process and disposal methods of sludge generated at the Beaver creek and Sugar creek wastewater facilities, sewer lining throughout the collection system, and upgrade facility control and instrumentation systems as recommended by the SCADA Master Plan Update. Total estimated cost is \$1,495,000.

C: Jim Fox
Debra Eisnaugle

Greene County Sanitary Engineering Department 5-Year Capital Improvement Program (2012-2016)

WATER CAPITAL PROJECTS

2012

- **Acquire Well Field Properties**
Acquire properties for development of well fields for Northwest Regional source water supply. Estimated cost \$500,000.
- **Replacement Well PW-4 at North Well Field (Design)**
Engineering services associated with well site acceptance and design of new well at the North Well Field (adjacent to Rotary Park). Estimated cost \$150,000.
- **Northwest Regional Project No. 5 Water Line Extension (Design)**
Engineering services associated with an extension of a 12-inch water line on Upper Bellbrook Road from Shepherd Road to the Upper Bellbrook Elevated Water Storage Tank near South Alpha Bellbrook Road. This line will interconnect the two largest single feed areas totaling approximately 95,000'. The area served by the Upper Bellbrook tank has historically been the first area to experience problems during high water usage periods. Estimated cost \$200,000.
- **Upgrade Instrument and Control System**
Continued upgrade and replace obsolete instrumentation system components to reduce risk of system failure identified by SCADA Master Plan. This includes development of a detailed implementation plan and performing several pilot studies/ updates. Estimated cost \$72,500.

2013

- **Replacement Well PW-4 at North Well Field (Construction)**
Construction of new well at the North Well Field (adjacent to Rotary Park). Estimated cost \$810,000.
- **Northwest Regional Project No. 5 Water Line Extension (Construction)**
Construction of Project No. 5. Estimated cost \$800,000.
- **Water Line Rehabilitation or Replacement (Design and Construction)**
Replace or rehabilitate existing cast iron water lines in areas that are experiencing frequent breaks due to age and corrosion. Area includes Tara Estates adjacent to South Alpha Bellbrook Road in Beavercreek. Estimated cost \$1,500,000.

- **Water Line Projects No. 22, No. 30 and No. 46 (Design)**
 - Project No. 22, engineering services for 2,100' of 12-inch water line along Darst Road from Maple Grove to Redwood.
 - Project No. 30, engineering services for water line connection from Walden Way north to Wagner Road. The connection will eliminate one small area currently receiving water purchased from Montgomery County.
 - Project No. 46, engineering services for 8-inch water line connection between Stonecastle Drive and dead end on Wakefield Road to eliminate single feed connection support serving areas north of Feedwire Road which are currently receiving water purchased from Montgomery County.

Estimated cost \$35,000.

- **Upgrade Instrument and Control System**
Continued upgrade and replace obsolete instrumentation system components to reduce risk of system failure identified by SCADA Master Plan. Estimated cost \$128,000.

2014

- **Water Line Project No. 22, No. 30 and No. 46 (Construction)**
Construction of Projects No. 22, No. 30 and No. 46. Estimated cost \$255,000.
- **Indian Ripple Tank Recoating (Design)**
Engineering services associated with recoating and repair of Indian Ripple Elevated Water Tank. Estimated cost \$50,000.
- **Replacement Well PW-8 (Design)**
Engineering services associated with replacement of PW-8. This well has lost production capacity due to extensive overuse which cannot be recovered by cleaning. The well casing is severely corroded and in potential danger of collapse. Estimated cost \$120,000.
- **Upgrade Instrument and Control System**
Continued upgrade and replace obsolete instrumentation system components to reduce risk of system failure identified by SCADA Master Plan. Estimated cost \$128,000.

2015

- **Replacement Well PW-8 (Construction)**
Construction of replacement well PW-8. Estimated cost \$750,000.

- **New Wells on Acquired Well Field Properties (Design)**
Engineering services associated with well site acceptance and design of new wells on well field properties. Estimated cost \$150,000.
- **Indian Ripple Tank Recoating (Construction)**
Construction of recoating and repair of Indian Ripple Elevation Tank. Recommend Project No. 5 be in operation prior to taking tank out of service. Estimated cost \$300,000.
- **Water Line Projects No. 33, and No. 34 (Design)**
 - Project No. 33, engineering services for 1,265' of 12-inch water line along Sunbeam Drive from Tanglewood west to Wayside Drive.
 - Project No. 34, engineering services for 755' of 8-inch water line connection along Grange Hall Road from Danern Drive southeast to Liebherr Drive.

Estimated cost \$30,000.
- **Upgrade Instrument and Control System**
Continued upgrade and replace obsolete instrumentation system components to reduce risk of system failure identified by SCADA Master Plan. Estimated cost \$128,000.

2016

- **New Wells on Acquired Well Field Properties (Construction)**
Construction of new wells on acquired well field properties. Estimated cost \$2,000,000.
- **Water Line Projects No. 33, and No. 34 (Construction)**
Construction of Projects No. 22, No. 30 and No. 46. Estimated cost \$241,000.

SEWER CAPITAL PROJECTS

2012

- **Beavercreek Sewer System Capacity Analysis**
Study to evaluate the capacity of the sanitary sewer shed tributary to the Beavercreek WRRF. Study will include flow monitoring and development of a dynamic, calibrated model of existing sewer lines under existing and future growth conditions. The final report will identify capacity issues, recommended improvements with estimated project costs, and prioritize improvements. Estimated cost \$330,000.
- **Rehabilitation of Sewer Lines**
Continued rehabilitate existing sewer lines using cured-in place pipe (CIPP) technology. Estimated cost \$217,000.
- **Upgrade Instrument and Control System**
Continued upgrade and replace obsolete instrumentation system components to reduce risk of system failure identified by SCADA Master Plan. Estimated cost \$52,500.

2013

- **Rehabilitation of Sewer Lines**
Continued rehabilitate existing sewer lines using cured-in place pipe (CIPP) technology. Estimated cost \$200,000.
- **Upgrade Instrument and Control System**
Continued upgrade and replace obsolete instrumentation system components to reduce risk of system failure identified by SCADA Master Plan. Estimated cost \$32,000.
- **Solids Master Plan Update**
Update Solids Master Plan to identify the most cost effective means to treat and dispose of wastewater sludge generated at Greene County facilities. Currently wastewater sludge is dewatered at the Beavercreek WRRF and Sugarcreek WRRF and hauled to landfill for disposal. It is anticipated both transportation and landfill disposal costs will increase. Availability of future landfill space is limited and there is a potential landfill operators will prohibit or place limits on the quantity of municipal sludge they will accept. Estimated cost \$70,000.

2014

- **Rehabilitation of Sewer Lines**
Continued rehabilitate existing sewer lines using cured-in place pipe (CIPP) technology. Estimated cost \$200,000.
- **Upgrade Instrument and Control System**
Continued upgrade and replace obsolete instrumentation system components to reduce risk of system failure identified by SCADA Master Plan. Estimated cost \$32,000.

2015

- **Rehabilitation of Sewer Lines**
Continued rehabilitate existing sewer lines using cured-in place pipe (CIPP) technology. Estimated cost \$200,000.
- **Upgrade Instrument and Control System**
Continued upgrade and replace obsolete instrumentation system components to reduce risk of system failure identified by SCADA Master Plan. Estimated cost \$32,000.

2016

- **Rehabilitation of Sewer Lines**
Continued rehabilitate existing sewer lines using cured-in place pipe (CIPP) technology. Estimated cost \$200,000.

GREENE COUNTY SANITARY ENGINEERING DEPARTMENT

Five Year Capital Improvement Plan-WATER 2012-2016

FIGURES REPRESENT ANTICIPATED ENCUMBURENCES FOR GIVEN YEAR

Project Name/Description	Total Cost	2012	2013	2014	2015	2016
Acquire NWR Well Field Properties	\$ 500,000	\$ 500,000				
Replacement NWR Well #4	\$ 960,000	\$ 150,000	\$ 810,000			
NWR Water Line Project #5	\$ 1,000,000	\$ 200,000	\$ 800,000			
Upgrade Instrumentation & Control System	\$ 584,500	\$ 72,500	\$ 128,000	\$ 128,000	\$ 128,000	
Water Line Rehabilitation or Replacement	\$ 1,500,000		\$ 1,500,000			
NWR Water Line Project #22, #30 & #46	\$ 260,000		\$ 35,000	\$ 225,000		
Indian Ripple Tank Recoating	\$ 350,000			\$ 50,000	\$ 300,000	
Replacement NWR Well #8	\$ 1,720,000			\$ 120,000	\$ 750,000	\$ 850,000
NWR Well Field Improvements on Acquired Properties	\$ 2,150,000				\$ 150,000	\$ 2,000,000
NWR Water Line Project #33 & #34	\$ 271,000				\$ 30,000	\$ 241,000
TOTALS	\$ 9,295,500	\$ 922,500	\$ 3,273,000	\$ 523,000	\$ 1,358,000	\$ 3,091,000

GREENE COUNTY SANITARY ENGINEERING DEPARTMENT

Five Year Capital Improvement Plan-SEWER - 2012-2016

FIGURES REPRESENT ANTICIPATED ENCUMBURENCES FOR GIVEN YEAR

Project Name/Description	Total Cost	2012	2013	2014	2015	2016
Beavercreek Sewer System Capacity Study	\$ 330,000	\$ 330,000				
Rehabilitation of Sewer Lines (Lining)	\$ 1,017,000	\$ 217,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000
Upgrade Instrumentation & Control System	\$ 148,500	\$ 52,500	\$ 32,000	\$ 32,000	\$ 32,000	
Solids Master Plan Update	\$ 70,000		\$ 70,000			
TOTALS	\$ 1,495,500	\$ 599,500	\$ 232,000	\$ 232,000	\$ 232,000	\$ 200,000