

Capital Improvement Plan

Town of Yountville, California

'16/'17 thru '20/'21

Project # WW-0005
Project Name Dredge Wastewater Ponds



Type Improvement **Department** Wastewater Treatment & Rec
Useful Life **Contact**
Category Project **Priority** 2 Medium
GL Account
Object Code
Status Active

Description

This is a project that is performed periodically as necessary to dredge the sludge and solids from the existing wastewater ponds so as to maintain pond storage capacity.

Dredging of the ponds is necessary to remove the usual and regular deposits of sludge and other materials that build up over time on the bottom of the wastewater holding ponds. Since the buildup of sludge reduces the volume of the pond, it is necessary to remove the material in order to restore the ponds to full capacity.

Place rip-rap to help prevent grilling along the banks.

There are two ponds in use at the Joint Wastewater Treatment Plant (JTP). The first pond is known as the Effluent Holding Pond and stores the treated effluent for distribution to recycled water users or discharge to the Napa River. It has a capacity of 2.7 million gallons.

The second pond is known as the Excess Pond and holds backwash wastewater generated from the fuzzy filter that must be retreated at the JTP, flows that exceed the capacity of the JTP, and excess flow if pumps fail. It has a capacity of 3.8 million gallons.

The ponds should be dredged on a 20 to 25 year cycle in order to maintain both storage capacity and effluent quality, but this has not been done. Current estimates indicate that the ponds may need to be dredged in 2016/17. The process should be similar to how vineyard managers dredge holding ponds. It is anticipated that the new Holding Pond Bypass Structure can be used to divert effluent from going into the pond, so the Effluent Holding Pond can be pumped dry. If the groundwater level is not above the bottom of the pond and the pond can be dried, then it is less expensive to remove and haul away the dredged material. This project will take place after the "Recycled Water Expansion Project" is completed so that the holding pond bypass structure and new pumping arrangement can be fully utilized.

JTP efficiency, as well as system demand and other factors can increase or decrease the need for dredging the ponds. Failure to remove this buildup can cause water quality problems, which can require additional treatment of the water leaving the ponds

Justification

The following Strategic Plan goals apply:
 1.1.2 Protecting Community Health and Safety.
 2.1 Environmental Sustainability
 6.2.1 Implement Key Sanitary Sewer Service CIP Projects

Funding Sources	'16/'17	'17/'18	'18/'19	'19/'20	'20/'21	Total
Wastewater Treatment (63)		100,000				100,000
Total		100,000				100,000

Capital Improvement Plan
Town of Yountville, California

'16/'17 thru '20/'21

Project # WW-0011
Project Name Wastewater Building Remodel



Type Improvement **Department** Wastewater Treatment & Rec
Useful Life **Contact**
Category Project **Priority** 2 Medium
GL Account
Object Code

Status Active

Description

In the mid-1970's, the Joint Wastewater Treatment Plant (JTP) at the Veterans Home was modified and upgraded to serve the Town and Veterans Home. Since the original treatment plant expansion there has been no significant remodel to the treatment plant office and work station. The remodel for the wastewater building will include new ADA compliant spaces and restrooms (and locker room) which are required under current law. There will also be expansion of the original building to accommodate the equipment and staff. In the past year the division has been re-organized and now includes an additional staff member. This makes for a very tight and inefficient workspace. The plans also call for an upgrade to the lab spaces. The current lab was designed in the 19070's as well and with the new regulations also needs upgrades to meet the current standards and equipment requirements. The expansion will also include Design which is proposed for FY 2019/2020 and construction to follow in FY 2020/2021.

Justification

The following Strategic Plan goals apply:
 1.1.2 Protecting Community Health and Safety.
 2.1 Environmental Sustainability
 6.2.1 Implement Key Sanitary Sewer Service CIP Projects

Funding Sources	'16/'17	'17/'18	'18/'19	'19/'20	'20/'21	Total
Wastewater Treatment (63)				30,000	350,000	380,000
Total				30,000	350,000	380,000

Capital Improvement Plan
Town of Yountville, California

'16/'17 thru '20/'21

Project # WW-0012
Project Name SCADA Controls



Type Improvement **Department** Wastewater Treatment & Rec
Useful Life **Contact**
Category Project **Priority** 2 Medium
GL Account 63-4518-5500
Object Code 5500-Utility Systems
Status Active

Description

The recent Recycled Water Project included SCADA implementation to some of the newly installed pumps and motors for that project. This technology helps the wastewater operators to view and operate some functions of the plant remotely. This allows staff to respond to conditions that if left for any length of time could result in violations of the National Pollutant Discharge Elimination System (NPDES) Permit. Prior to this technology the staff would carry a beeper and get an alarm via that device but would need to go to the plant to view and make adjustments. This provides a level of safety and risk management that have not been available before this project. However the equipment, pumps, and motors that were not included in that project will need to be eventually brought in to the SCADA infrastructure. This program begins that process.

Justification

The following Strategic Plan goals apply:
 Protecting Community Health and Safety.
 Environmental Sustainability
 Implement Key Sanitary Sewer Service CIP Projects
 Implement Maintenance Measures
 Maintain Compliance with Current and Evolving Regulations

Funding Sources	'16/'17	'17/'18	'18/'19	'19/'20	'20/'21	Total
Wastewater Treatment (63)					75,000	75,000
Total					75,000	75,000

Capital Improvement Plan

Town of Yountville, California

'16/'17 thru '20/'21

Project # WW-2017
Project Name Inflow and Infiltration Reduction Program



Type Maintenance **Department** Wastewater Collection
Useful Life **Contact**
Category Program **Priority** 3 Low
GL Account 64-4519-5500
Object Code 5500-Utility Systems
Status Active

Description

This is the Town's ongoing program for reducing the infiltration of groundwater into the sewer collection system. Reductions of infiltration results in reduced need for pumping of sewage, reduced maintenance and electrical costs, and reduced flow volumes to and from the treatment plant, which improve system operations. Reducing infiltration sources into the wastewater collection systems helps to reduce the risk of system overflow and the release of untreated sewage in winter months.

Projects are prioritized by video survey results, smoke testing of the system, assessment of local pipe conditions, other utility replacement projects, and known system needs.

PROJECT:

In 2013 the program focused on video camera work as a critical portion of a system wide Inflow/Infiltration Study to assess the condition of the remaining sewer mains that have not been replaced in the last few years. Staff can now prioritize the areas in need of additional repairs and/or replacement. By using video information to prioritize collection system repairs, the Town can properly plan and budget for future repairs and/or replacement. In 2015, GIS added the ability for staff to locate, identify, and manage assets.

This program is paid for by the Sewer Fund (64)

Ongoing Projects: Based on video survey conducted in Fiscal Year 2013/14

- Slip lining and point repairs of leaking sewer mains
- Lining, repair, or replacement of leaking manholes

Justification

The following Strategic Plan goals apply:

- 1.1.2 Protecting Community Health and Safety.
- 2.1 Environmental Sustainability
- 6.2.1 Implement Key Sanitary Sewer Service CIP Projects

Prior	Funding Sources	'16/'17	'17/'18	'18/'19	'19/'20	'20/'21	Total	Future
38,945	Wastewater Collection (64)	67,863	71,256	74,819	78,560	82,488	374,986	273,045
Total	Total	67,863	71,256	74,819	78,560	82,488	374,986	Total

Capital Improvement Plan

Town of Yountville, California

'16/'17 thru '20/'21

Project # WW-3017
Project Name Sewer Main Replacement and Repair Program



Type Maintenance
Department Wastewater Collection
Useful Life
Contact
Category Program
Priority 3 Low
GL Account
Object Code
Status Active

Description

This is part of the Town's ongoing program for the routine replacement of its nearly 45,000 feet of sewer mains throughout Town on an annual basis. Replacing the existing sewer collection system will reduce the potential for clogged pipes and/or system overflow, and will reduce maintenance demands associated with these issues. Sewer main lines need to be repaired or replaced in order to ensure the wastewater collection system remains in good working order, does not leak, and is in compliance with state and federal regulations. It also reduces the need for emergency repairs due to plugged mains, which can generate sewage backing up homes, onto streets, and flowing into storm drains and waterways.

Sewer main lines generally have a 40-50 year cycle of useful life. Replacing the Town's 45,000 linear feet of pipe every 40-50 years results in an average of 1,100 feet of main needing replacement annually. There are many sanitary sewer lines that were built in the "Old Town" portion of Yountville in the mid-1950's. Many of these lines have sagged and have gaps in between the sections of pipe. This causes the infiltration of groundwater especially during rain storms, which increases the load on the treatment plant. Pipes with gaps can be slip lined with a flexible pipe that fits inside the existing pipe. Pipes with sags must be removed and replaced at a much higher expense.

The Town includes the following information in assessing which sections of sewer main lines are replaced:

- age of the pipe line section (at end of useful life cycle),
- erosion of the pipe bottom, often necessitated by soil conditions,
- cracks in the pipe,
- tree root intrusion,
- leaks at joints and connections which require replacement of the main.
- coordination with other utility projects such as water, undergrounding of utility lines, and street repaving projects.

Video surveys are an important tool for inspecting sewer mains, and are combined with age and lifespan assessment of the system to evaluate and prioritize the mains to be replaced.

For cost effective and efficiency reasons the Town attempts to do a larger sewer main project every two years or so rather than a few small projects each year. This approach reduces the administrative costs associated with project design, bid and award process, and construction management costs.

Future projects include the replacement of the following pipes :

- F line - Champagne to Oak Circle 1956 - Slip line This is a future project that will require additional evaluation/survey.
- A line - East of Town Limits 1956. This would be a candidate for the "slip line" process. Gravity out fall from WWTP to river 1956 The pipe has a sag in it which allows water to back up. This is a future project that will require additional evaluation/survey.

The following projects will be evaluated and prioritized as funding allows:

- O line - Webber 1956 the main has had some point repairs completed. The laterals will need to be evaluated in the I&I Study.
- E line - Finnell, Humboldt, and Webber 1956, Evaluate in the I&I Study, with focus on the laterals.
- M line - Mulberry, Heather, and Ivy Ct. 1958, Evaluate in the I&I Study, with focus on the laterals.

Capital Improvement Plan

'16/'17 thru '20/'21

Town of Yountville, California

Justification

The following Strategic Plan goals apply:
 1.1.2 Protecting Community Health and Safety.
 2.1 Environmental Sustainability
 6.2.1 Implement Key Sanitary Sewer Service CIP Projects

Prior	Funding Sources	'16/'17	'17/'18	'18/'19	'19/'20	'20/'21	Total	Future
62,290	Wastewater Collection (64)	65,825	68,116	72,572	76,200	80,010	362,723	264,843
Total	Total	65,825	68,116	72,572	76,200	80,010	362,723	Total

Capital Improvement Plan

Town of Yountville, California

'16/'17 thru '20/'21

Project #	WW-4017
Project Name	Plant Equipment Replacement Program



Type	Equipment	Department	Wastewater Treatment & Rec
Useful Life		Contact	
Category	Program	Priority	2 Medium
GL Account	63-4518-5500		
Object Code	5500-Utility Systems		
		Status	Active

Description

In the late 1930's, a wastewater treatment plant was built at the Veterans Home. In the mid-1970's, the Town upgraded the Joint Wastewater Treatment Plant (JTP) at the Veterans Home to serve the Town and Veterans Home. In 2010, the \$1.2 million Wastewater Treatment Plant Title 22 Upgrade Project (WW-27) was completed. Several pumps, motors and other equipment were replaced with more energy efficient equipment in 2011 (WW-4011). These include the Final Tank Pumps and Plant Water Pumps as well as several inefficient motors associated with the Trickling Filter Rotary Distributors.

The Town and Veterans Home has invested millions of dollars in infrastructure at the JTP. It is proposed that a fund be established to set money aside each year for the eventual replacement of equipment at the JTP, instead of making major investments of funds when equipment fails or needs to be replaced.

This is the Town's ongoing program for equipment replacement used at the wastewater treatment plant. Examples of equipment include approximately 20 pumps, four blowers, two digester mixers, digester heating system, sludge collectors, trickling filter rotating distributors, the grit screw and motor, the grinder, and the auger.

Some of the replacement projects are the result of routine maintenance, other projects are designed to increase and extend the useful life of the treatment plant. Some projects are also done in conjunction with mandated changes which are necessary for meeting current state and federal regulations or are in preparation for upcoming regulations.

These improvements are paid for equally by the Town and the Veterans Home through annual contributions to the Joint Recovery Fund (63).

Justification

The following Strategic Plan goals apply:
 Protecting Community Health and Safety.
 Environmental Sustainability
 Implement Key Sanitary Sewer Service CIP Projects
 Implement Maintenance Measures
 Maintain Compliance with Current and Evolving Regulations

Prior	Funding Sources	'16/'17	'17/'18	'18/'19	'19/'20	'20/'21	Total	Future
110,380	Wastewater Treatment (63)	60,774	63,813	67,003	70,354	73,872	335,816	244,525
Total	Total	60,774	63,813	67,003	70,354	73,872	335,816	Total

Capital Improvement Plan
Town of Yountville, California

'16/'17 thru '20/'21

Project # WW-5017
Project Name Town Pump Station Equipment Replacement Program



Type Equipment **Department** Wastewater Collection
Useful Life **Contact**
Category Program **Priority** 3 Low
GL Account 64-4519-5500
Object Code 5500-Utility Systems
Status Active

Description

In the late 1930's, a wastewater treatment plant was built at the Veterans Home. In the mid-1970's, this wastewater treatment plant (JTP) was upgraded and modified to serve both the residents of the Town and Veterans Home. In 1977, the Town's wastewater treatment plant was modified to serve as a wastewater pump station to convey the flow generated by the residents of Yountville uphill from the low point in Town to the JTP. The Pump Station utilizes two (2) large pumps that remain in service at all times and are called to run based on the incoming flow conditions. The third pump is not connected and serves as a spare or stand-by in the event that one pump fails. There are also other motors, variable frequency drives, and an elaborate control system associated with the operation of the pumps which require maintenance and periodic replacement.

In 2014/15 several modifications were made at the wastewater pump station. The two existing variable frequency drives (VFD's) were replaced with larger units allowing for larger capacity pumps should they be needed in the future. The entire level measurement system was also modified from the original air bubbler system. At this point, the Town should continue to allocate funds to this program for eventual pump replacement in the coming years.

Justification

The following Strategic Plan goals apply:
 1.1.2 Protecting Community Health and Safety.
 2.1 Environmental Sustainability
 6.2.1 Implement Key Sanitary Sewer Service CIP Projects

Prior	Funding Sources	'16/'17	'17/'18	'18/'19	'19/'20	'20/'21	Total	Future
88,300	Wastewater Collection (64)	10,000	10,500	11,025	11,576	12,155	55,256	40,235
Total	Total	10,000	10,500	11,025	11,576	12,155	55,256	Total