

# WASTEWATER UTILITY (ABBREVIATED) REVIEW

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Utilities Commission – December 16, 2020

# How wastewater gets to the treatment plant:

## Components of the system

The City's wastewater collection system serves a population of about **70,717** people in Davis' 10.5 square mile service area. The system serves 15,238 residential connections, and 560 commercial, industrial and institutional customers (as of 2019).

### Components of the Collection System:

- 164 miles of gravity sewers (approximately 3,300 line segments) ranging in size from 6 to 42 inches in diameter – to transport the wastewater to the pump stations
- 3,237 manholes
- 6 pump stations
- 2.63 miles of force mains ranging in size from 4 to 14 inches – to transport the wastewater from the pump stations
- Roughly 123 miles of sewer laterals

# Who keeps it all moving: The Wastewater Division

The Wastewater Division is housed in the Public Works Utilities & Operations Department and has one division manager. The division employees represent two areas of focus within Wastewater:

## Collections Team (6 team members)

- The Collections team performs preventative and reactive maintenance on the city's sanitary sewer system, performs maintenance responsibility checks for sewer laterals, and responds to sewage system overflows on public and private property.

## Wastewater Treatment Plant Team (13 team members)

- Maintenance (5)
- Operations (5)
- Laboratory (3)
- The team also includes Utility and Supervisory Control and Data Acquisition (SCADA) controls system technicians and an electrician

A city in itself:

# The Wastewater Treatment Plant

- The City's Wastewater Treatment Plant is located near the Yolo County Landfill and is owned and operated by the City of Davis.
- The facility is permitted to treat 7.5 mgd (million gallons per day) of wastewater.
- The existing treatment system design capacity is 6 mgd based on average dry weather flow.
- There are two permitted discharge points from the plant. Treated effluent is discharged to the Willow Slough Bypass and the Conaway Ranch Toe Drain.
- The Wastewater Treatment Plant team complies with the final discharge requirements of the NPDES permit which is accomplished by operational, maintenance, electrical, and instrumentation tasks.

# Who keeps an eye out for the rules and regulations : **Regulatory Compliance**

While the Wastewater Treatment Plant laboratory staff conducts all manner of in-house analytical and microbiological testing for regulatory compliance and monitoring, assisting with the Wastewater Division is the Environmental Resources Division, which includes staff dedicated to the other aspects of regulatory side of wastewater treatment. The division employees include:

- A water quality coordinator (focused on wastewater regulatory compliance)
- An environmental program specialist (focused on source control)
- The city's Wildlife Resource Specialist works with the team on the Wetlands habitat areas.

# How clean can wastewater get (hint-really clean!): **Wastewater Quality**

- Wastewater quality is regulated through the City's NPDES permit, which includes monitoring and reporting requirements for the City under the authority of the Central Valley Regional Water Quality Control Board (CVRWQCB).
- Routine monitoring is performed by the City's onsite environment laboratory
- Technical reports and special studies are also required per the City's NPDES permit
- Monitoring all around the Plant is required to ensure that treatment processes under normal operating conditions meet wastewater quality objectives in order to comply with the effluent limits (i.e. treated water quality), for the protection of aquatic life and the environment at both discharge locations.

# How to prevent messy sewer overflows:

## Source Control/Pretreatment

- The term pretreatment refers to the reduction of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties, in wastewater prior to discharging or introducing such pollutants into a treatment plant.
- The City's program was established in 1995 (required by the EPA).
- Pretreatment programs provide outreach, education, and enforcement of the City's ordinances and permit requirements, related to the residential, commercial and industrial sources of wastewater, and identifying issues or concerns at the site of discharge.
- Pretreatment includes:
  - Pollution prevention programs that focus on education and enforcement to prevent conditions that lead to sanitary sewer overflows
  - A focus on food service establishments as well as industrial pretreatment. Of chief concern with food establishments is the fats, oil and grease that can cause issues with the system.

# Keeping everything moving: Capital Improvement Projects

For the financial plan, city staff have developed a 20-year projection for capital improvement projects. Projects on the horizon include:

Project Description		FY 20/21 Budget	FY 21/22 Estimate	FY 22/23 Estimate	FY 23/24 Estimate	FY 24/25 Estimate
CIP 8275	Sewer Lift Station 4 , 1 , 3	\$ 9,031,427				
CIP 8312	Phase 1 Recycled Water Facilities	\$ 1,453,280				
CIP 8291	WWTP Biofilter		\$ 2,000,000			
CIP 8324	WWTP Storage Building			\$ 1,000,000		
CIP 8334	WWTP Access Rd Repair	\$ 60,000	\$ 1,200,000	\$ 1,200,000		
CIP 8166	Sewer Trunk Rehabilitation	\$ 750,000	\$ 750,000	\$ 850,000	\$ 850,000	\$ 850,000
	Primary Sedimentation tank 3 (1997) (Complete Overhaul)		\$ 150,000	\$ 150,000	\$ 200,000	
	WWTP Levee Improvement?					
	WWTP MC-60 Device Net Replacement		\$ 715,000			
	Grit Basin Rehab/Coating/Equipment (1970)			\$ 250,000	\$ 250,000	\$ 250,000
	Sed Tank 1 Rehab Coating/Equipment				\$ 100,000	\$ 100,000
	Sed Tank 2 Rehab Coating/Equipment					
	Primary/Scum Equipment Replacement (1997)					\$ 100,000
	Digester Improvement (Coating, Mixing system (1.2M)				\$ 125,000	\$ 125,000
	Influent barscreen Structure (5M)					
<b>Wastewater Resiliency</b>						
	Equipment Replacement Schedule			\$ 215,000	\$ 215,000	\$ 215,000
	Additional Aeration Basin/WWTP Future		\$ 625,000	\$ 625,000	\$ 625,000	\$ 625,000
	Lift 1 Force main		\$ 50,000			
	<b>Total</b>	<b>\$ 11,294,707</b>	<b>\$ 5,490,000</b>	<b>\$ 4,290,000</b>	<b>\$ 2,365,000</b>	<b>\$ 2,265,000</b>



What's on the horizon:

# Upcoming Projects and Updates

- Updates to cyber security
- Recycled water pump station
- Lift station replacements
- Environmental laboratory accreditation program regulations
- Updated connection fees for new developments