

## Facilities Overview

**Agency Description:** The Hilton Creek Community Services District (CSD) was established in 1963 to provide sewage collection and disposal for Crowley Lake (Hilton Creek). The district boundaries include approximately 460 acres of land in the community of Crowley Lake, 440 acres of privately owned land and 20 acres of public land managed by the US Forest Service.

**Sewage Collection System:** The Hilton Creek CSD sewage collection system consists of 12 miles of pipes (10-inch collection pipes, 8-inch interceptor pipes), one pump station and a treatment facility. Sewage is pumped to the treatment facility by two 40-horsepower pumps located within a single pump station. The pump station pumps 80-85% of the district's daily sewage flow to the treatment facility. The remaining 15-20% of the daily sewage flow reaches the treatment plant via a gravity fed system. At the treatment plant, sewage is pumped into an extended aeration tank, then into a secondary clarifier and finally to percolation/evaporation ponds. During the winter months, sludge must be stored in an aeration tank until the percolation/evaporation ponds are clear of snow and ice.

The district manager estimates that the district's daily waste flow is approximately 60,000 gallons per day (gpd). The collection system's capacity is 176,000 gpd.

The district currently has 310 sewer connections within its district boundaries and anticipates adding another 50-100 connections. The district estimates it serves approximately 1,000 to 1,200 residents.

**Wastewater Treatment Plant (WWTP):** The wastewater treatment plant collects, treats, and disposes of domestic wastewater from the communities of Hilton Creek and Lake Crowley. The facility is designed for daily flows of 0.176 million gallons per day (mgd) and peak instantaneous flow of 0.403 mgd. The facility has measured daily flows of 0.045 mgd and peak flows of 0.175 mgd. Treatment is provided by a barminutor, extended aeration activated sludge tanks, a secondary clarifier and sludge drying beds. Treated wastewater is disposed of in four percolation ponds connected in parallel.

Sludge is periodically removed from the secondary clarifier to drying beds. Dried sludge is disposed of at the Benton Crossing Class III solid waste disposal site. The activated sludge tanks have three (3) process air blowers for aeration, two (2) RAS pumps, one (1) WAS pump, and one (1) circulation pump with two (2) new (1998) clarifiers.



*Figure 1: Aerial view of the wastewater treatment plant*

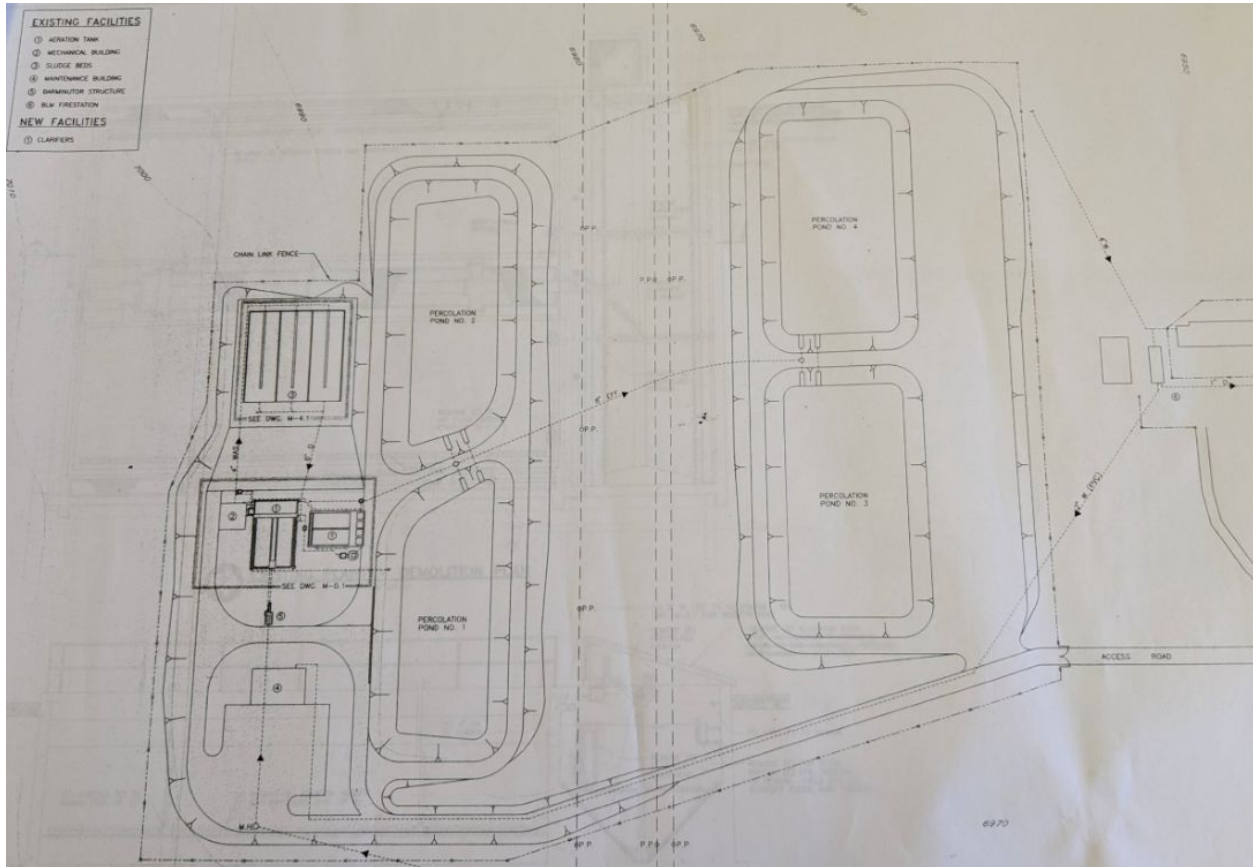


Figure 2: Wastewater treatment plant plan drawings

## Energy Benchmarking

Utility bills of 2018-2020 of Hilton Creek CSD accounts were shared. There are 2 service addresses covering a wastewater (WW) pump station and WWTP. HCCSD WWTP and the pump station consumes 219,552 kWh. An estimated energy benchmark has been developed using available utility data, wastewater pump station and treatment plant equipment data. Energy consumption distribution is created using industry standard practice and standard assumptions.

### Hilton Creek CSD - Benchmarking

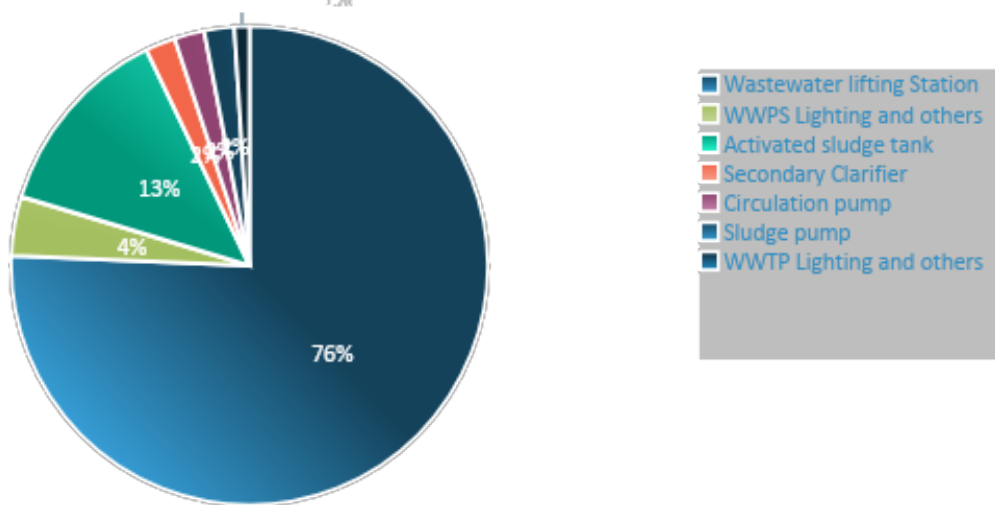


Figure 3: Energy use profile

### Savings Estimate

Actual equipment data were not available during this estimation. Estimation is calculated based on available information from Hilton Creek CSD, quarterly reports, Google maps, and utility bills. It is assumed that the facility is operating with original equipment with minimal replacement. All savings are mutually exclusive. All savings are only for estimation purposes. An estimated 23% kWh savings is expected from the possible measures.

Facility	Breakdown	High Level Measures	Energy Reduction	Annual Savings (kWh)	Annual Savings (\$)
WW Pump Station	Wastewater Lifting Station	Improve pumping technology	15%	24,920	\$2,939
	WWPS Lighting and others	Install energy efficient lighting and control	60%	5,246	\$619
WWTP	Activated Sludge Tank	Implement non-buoyant oxygenation	60%	17,423	\$2,055
	Secondary Clarifier	Install energy efficient equipment, drive and control	10%	447	\$53
	Circulation Pump	Install energy efficient equipment, drive and control	15%	670	\$79
	Sludge Pump	Install energy efficient equipment, drive and control	15%	670	\$79
	WWTP Lighting and Others	Install energy efficient lighting and control	60%	1,340	\$158
<b>Total</b>				<b>50,716</b>	<b>\$5,982</b>

The Southern California Regional Energy Network is administered by the County of Los Angeles and funded by California utility ratepayers under the auspices of the California Public Utilities Commission.

## Energy Efficiency Measures

1. Install high efficiency pumps for lifting wastewater
2. Install premium efficiency motors with wastewater lift pumps
3. Install variable speed drive with wastewater lift pumps
4. Install SCADA operating system for all pumping stations and treatment facilities
5. Install non-buoyant oxygenation in collection system
6. Install Ammonia Based Nitrification and De-Nitrification
7. Install non-buoyant oxygenation in replacing surface aeration in aeration pond
8. Install high efficiency clarifier
9. Replace circulation pumps with high efficiency pumps
10. Install high efficiency motors on circulation pumps
11. Install variable speed drive on circulation pumps
12. Replace sludge pumps with high efficiency pumps
13. Install high efficiency motors on sludge pumps
14. Install variable speed drive on sludge pumps
15. Install dual DO monitoring system to optimize system operation
16. Install energy efficient lights and controls in offices and premises

### Reference:

REVISED WASTE DISCHARGE REQUIREMENTS FOR HILTON CREEK COMMUNITY SERVICES DISTRICT

Electric Utility Bills

HCCSD – Quarterly Reports

Process Flow Diagram