

## BOARD MEETING AGENDA SUBMITTAL

TO: GCSD Board of Directors

FROM: Peter Kampa, General Manager

DATE: November 14, 2023

SUBJECT: Agenda Item 6D: Adoption of a Resolution Accepting the 2023 Integrated Water and Wastewater Master Plan

#### **RECOMMENDED ACTION:**

Staff recommends the following action: I move to Adopt Resolution 49-2023 Accepting the 2023 Integrated Water and Wastewater Master Plan.

### **BACKGROUND:**

The district completed its first water and sewer master plans in 2001 primarily to evaluate capacities and improvements necessary to serve a proposed large master planned community. The 2001 plans also identified a number of necessary water and sewer system improvements that were subsequently completed with bond funds. The master plan residential community never materialized.

The District entered into agreement with Wood Rodgers, Inc on August 7, 2019 for the preparation of an updated water and sewer master plan. The purpose of the master plan update was to focus less on future growth and document the condition of our existing major infrastructure, system deficiencies and areas for future improvement; evaluate options and recommend a capital improvement plan. This planning document is then used to plan major infrastructure improvements, identify priorities and establish financial and financing plans for these expensive projects.

The master plan took more than double the expected time for completion, partially due to the lack of data and the lack of accurate documentation regarding our water and sewer systems. We discovered that much of the engineering documentation had been lost in the cyber-attack that occurred nearly a decade ago. In order for the master plan to identify any deficiencies and the capacities of our systems, a hydraulic model had to be developed by the consultant and since there was not complete accurate data available, many assumptions have to be made. Since we did not have digital files of our infrastructure that could be used to produce figures and graphics for the plan, the consultant had to pull what they could from paper copies of our 2001 master plan and incomplete digital files provided by our district engineer. We also believe that changes in the engineering team and the COVID-19 pandemic also resulted in the lengthy delays.

District staff and our engineering firm have worked diligently for the past 18 months pouring through the draft master plans in detail and providing hundreds of comments and suggested changes. After commenting on five major draft revisions, we have come to the consensus that the master plan is complete and that additional corrections and revisions will be completed by the district engineer and District staff, with a final capital improvement program presented to the board for approval before the first of the year.

Due to the 277 page size of the master plan, an entire copy was not provided in the printed materials and a link to the document is provided below. Included in the printed materials with this agenda packet is the master plan executive summary which provides an overview of the evaluation conducted and the resulting water and sewer capital improvement projects. Also included in the agenda materials is the Master Plan table of contents. Please note that we are asking the consultant to provide additional background information on some of the recommendations such as lift station replacement and upsizing the 2G pipeline. The full master plan details the schedule for the recommended capital improvements, which we expect to also adjust in the coming months. The condition assessment and recommended improvements start on page 129 of the full master plan.

## FINANCIAL IMPACT

There is no direct fiscal impact for adoption of this plan however, the recommendations outlined in the plan will drive future financial plans, budgets, fees, rates and charges.

#### **ATTACHMENTS:**

- 1. Master Plan Executive Summary
- 2. (Link) Water and Wastewater Masterplan
- 3. Resolution 49-2023



Creek

Hells Hollow e Centar Creek Holiow

Indian Creek

Guich

Sprague Rd-E

WOOD RODGERS

Prepared by





# Groveland Community Services District

# Integrated Water and Wastewater Master Plan

# FINAL

October 2023

**Prepared By:** 





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CIP – Project Cost Detail Sheets

Water Projects Sewer Projects





## **PREPARED BY:**

Wood Rodgers, Inc. Team:

Kevin J. Gustorf, PE Karl F. Meier, PE Eddie Gosse, PE Simon Gray, PE Megan Shaw, EIT Luke Philbert, PE Megan Kurtz, PE Ron Craig

Project Manager Project Engineer – Condition Assessment Project Engineer – Water Treatment Project Engineer – Wastewater Treatment Assistant Engineer – Wastewater Treatment Assistant Engineer – Water System Analysis Assistant Engineer – Wastewater System Analysis Quality Assurance / Quality Control



## **ACKNOWLEDGEMENTS:**

Wood Rodgers would like to acknowledge the following District staff for their support during the course of the preparation of the IWWMP:

District Board of Directors

Nancy Mora	President
Janice Kwiatkowski	Vice President
John Armstrong	Director
Spencer Edwards	Director
Robert Swan	Director

## District Staff

Peter Kampa Alfonso Manrique, PE Brandon Cauble Luis Melchor Greg Dunn General Manager District Engineer (contract) Assistant Engineer (contract) Operations Manager Chief Plant Operator





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## LIST OF ABBREVIATIONS

2G	Second Garrote
AC	Acre
ACP	Asbestos Cement Pipe
ADD	Average Day Demand
ADWF	Average Dry Weather Flow
AWS	Alternative Water Supply
AWWA	American Water Works Association
BC	Big Creek
BOD	Biological Oxygen Demand
BOF	Big Oak Flat
CalOES	California Governor's Office of Emergency Services
CFC	California Fire Code
CF	Cubic Feet
CFS	Cubic Feet per Second
CIP	Capital Improvement Plan
CML&C	Cement Mortar Line & Coated
DDW	Division of Drinking Water
DIP	Ductile Iron Pipe
DU	Dwelling Unit
DWR	California Department of Water Resources
FM	Force Main
FPS	Feet per Second
FT	Feet
GAL	Gallons
GCSD	Groveland Community Services District
GPM	Gallons per Minute
HP	Horsepower
I/I	Inflow and Infiltration
IWWMP	Integrated Water and Wastewater Master Plan
IRWM	Integrated Regional Water Management
KFT	Thousand Feet
kW	Kilowatt
LF	Linear Feet
LS	Lift Station
MDD	Maximum Day Demand
MG	Million Gallons
MGD	Million Gallons per Day
MH	Manhole
MI	Mile(s)
NPDES	National Pollutant Discharge Elimination System





PDWF	Peak Dry Weather Flow
PHD	Peak Hour Demand
PML	Pine Mountain Lake
PRS	Pressure Reducing Station
PRV	Pressure Reducing Valve
PS	Pump Station
PVC	Polyvinyl Chloride
PWWF	Peak Wet Weather Flow
RWQCB	Regional Water Quality Control Board
SFPUC	San Francisco Public Utilities Commission
SS	Sanitary Sewer
STL	Steel
SWRCB	State Water Resources Control Board
TDH	Total Dynamic Head
USGS	United States Geological Survey
UV	Ultra-violet
VCP	Vitrified Clay Pipe
WDR	Waste Discharge Requirements
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant





## **EXECUTIVE SUMMARY**

The Groveland Community Services District (GCSD or the District) was established in 1953 to serve the communities of Groveland and Big Oak Flat in Tuolumne County, California. In the 1970s, the Boise Cascade Company developed the area to the immediate northeast of Groveland, known as Pine Mountain Lake (PML), which significantly increased the customers within the District's service area. The PML community includes a golf course, airport and approximately 5,000 residential lots. GCSD provides potable water, recycled water, wastewater collection and fire protection services to its customers.

GCSD last prepared a Water Master Plan and Sewer Master Plan in 2001. Since 2001, the amount of development within the District boundary has not changed significantly. However, there have been significant changes with respect to water consumption, regulations and the age/condition of its water and wastewater assets.

The purpose of this project is to prepare an Integrated Water and Wastewater Master Plan (IWWMP, Master Plan or Project) that provides the District with a current snapshot of the potable water and wastewater collection system facilities and develops a roadmap for the required system improvements. The IWWMP includes discussions to identify operational efficiencies and compliance with existing and future regulatory requirements.

Included in this Master Plan is the establishment of the minimum performance criteria and planning criteria to be utilized in the water system and wastewater system analysis and evaluation. The criteria identified herein was used to determine if existing deficiencies exist within each system and will be used to determine and size the recommended improvements.

The District comprises approximately 9,371 acres within Tuolumne County (County). An analysis of the parcel data within the District boundary concluded that approximately 2,006 acres (approximately 21% of the District boundary) are currently developed. The population within the District boundary is estimated to be 3,500 persons.

During the preparation of this Master Plan, significant socio-economic events occurred, and policies implemented that have affected housing and land use conditions in California. Specifically, the Covid-19 pandemic has resulted in a migration from urban to rural settings, inflation has resulted in significantly higher housing costs, which is resulting in an increase in higher-density land use. These items, as well as others, have impacted the current and potential future population within the District's service area. Land use and housing is a dynamic and changing condition, it is prudent for the District to plan infrastructure improvements conservatively to account for changing conditions, and to be diligent in evaluating the impacts of all potential development projects within the service area.





With the anticipated and known development the population growth within the District is summarized in **Table ES-1**.

	2020	2025	2030	2035	2040
Persons	3,500	4,307	4,432	4,557	6,880

The existing and future water demand projections are summarized in **Table ES-2** and **Table ES-3**.

Demand	Production		Consumption			
Condition	Condition (gpd) (gpm)		(gpd)	(gpm)		
ADD	340,839	237	265,168	185		
MDD	944,124	656	734,515	510		
PHD	1,888,248	1,311	1,469,030	1,020		

#### Table ES-2: Existing Water Demand Summary

#### Table ES-3: Total Future Water Demand Projections (gpm)

Demand Condition	2020	2025	2030	2035	2040
ADD	185	193	197	210	223
MDD	510	532	543	578	613
PHD	1,020	1,064	1,086	1,156	1,226

The existing and future water demand projections are summarized in **Table ES-4** and **Table ES-5**.

Table ES-4:	Existing	Wastewater	Generation	(gpd)

Demand	Wastewater Generation				
Condition	(gpd)	(gpm)			
ADWF	119,000	82			
PDWF	178,500	123			
PWWF	416,500	287			





Demand	2020	2025	2030	2035	2040
Condition					
ADWF	119,000	129,294	134,510	151,126	167,743
PDWF	178,500	193,940	201,765	226,689	251,614
PWWF	416,500	452,527	470,785	528,942	587,099

### Table ES-5: Total Future Wastewater Generation Projections (gpd)

A hydraulic model of the District's water distribution system was developed using the Innovyze InfoWater Pro hydraulic modeling platform. The hydraulic model was used to evaluate the capacity of the distribution system, including fire flow availability and system operating pressures. A site visit and visual inspection was performed for each of the major water facilities, including the tanks, pumps stations and water treatment plants. Some of these recommendations will be folded into capital improvement projects, while many of the recommendations, such as are minor repairs, considerations and further observations are not implemented as CIP projects. Recommended projects for the District's water system include projects to accommodate growth, repair and rehabilitate aging facilities, modernize the system, and increase system reliability and redundancy. A summary of the recommended CIP-Water projects is shown in **Table ES-6**.





<b>Fable ES-</b>	6: Water	CIP	Summary
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Project No.	Project Name	Total Cost	
W01	Close Loop on Upper Sky Ridge Drive (PML-C)	\$ 115,000	
W02	Close Loop on Old State Route 120 (GL-SE)	\$ 629,000	
W03	Upsize 2G PS Conveyance Pipeline	\$ 8,113,000	
W04	Provide Redundant Pipeline from 2G Supply to PML	\$ 1,970,000	
W05	Tank 4 / PML-NE PS Storage and Pumping Project for PML-zones	\$ 9,337,000	
W06	WTP - Conversion to Packaged Filtration System - Conceptual Study	\$ 150,000	
W07	Fire Hydrant Replacement Program	\$ 7,410,000	
W08	GL-S Zone Small Diameter Pipe Replacement	\$ 753,000	
W09	PRV Replacement Program	\$ 2,630,000	
W10	Tank 1 Recoating	\$ 163,000	
W11	ACP Replacement Program	\$ 10,104,000	
W12	Boitano Road Pipeline and PRV	\$ 718,000	
W13	Second Garotte PS Upgrades	\$ 3,249,000	
W14	Service Line Replacement Program	\$ 4,114,000	
W15	Generator Replacement Program	\$ 447,000	
W16	Complete SCADA System Upgrades	\$ 150,000	
W17	Water System GIS and Hydraulic Model Updates	\$ 50,000	
W18	Valve and ARV Replacement Program	\$ 1,410,000	
W19	Tank 5 Recoating and Repairs	\$ 42,000	
W20	Dunn Court PS Improvements	\$ 477,000	
W21	Smart Meter / Data Logger Install	\$ 50,000	
W22	Implement Leak Detection / Pipeline Condition Assessment	\$ 159,000	
W23a	Drought Improvement Project - New Groundwater Well (at Tank 5)	\$ 1,105,000	
W23b	Drought Improvement Project - New 140,000 Gal Tank at Tank 5 Site	\$ 2,710,000	
W24	Small Diameter Pipe Replacement Program	\$ 6,757,000	
	TOTAL	\$ 62,812,000	

A hydraulic model of the sewer collection system was developed using the Innovyze InfoSewer hydraulic modeling platform to evaluate various operating scenarios and system capacity. An evaluation and assessment of the WWTP was performed with District staff to identify potential deficiencies. A summary of the immediate short-term and longer-term remedies to current issues and problems are included herein. An evaluation and assessment of the lift stations was performed with District staff to identify potential deficiencies. Recommended projects for the District's sewer system include prioritizing projects to identify and mitigate the inflow and infiltration (I/I) in the system. By mitigating the system I/I, any capacity issues within the collection system and at the WWTP will likely be resolved. A summary of the recommended CIP-Sewer projects is shown in **Table ES-7**.





Project No.	Project Name	Total Cost	
SS01	Flow Monitoring & I/I Study	\$	144,000
SS02	CCTV Inspection Program	\$	1,598,000
SS03	Pipeline and MH Rehabilitation Program	\$	10,453,000
SS04	Lift Station Inspection Program	\$	134,000
SS05	Lift Station Rehabilitation Program	\$	2,109,000
SS06	Implement Odor Control Measures at LS 5, 7, 10, 11, 13, 15, 16	\$	2,367,000
SS07	Replace Lift Station 5	\$	1,335,000
SS08	Install Generator and Pump at Lift Station 4	\$	525,000
SS09	WWTP - Short Term Actions	\$	1,539,000
SS10	WWTP & Recycled Water Master Plan	\$	270,000
SS11	Force Main Cleaning & Inspection Program	\$	651,000
SS12	Replace Lift Station 2	\$	1,448,000
SS13	Replace Lift Station 8	\$	1,493,000
SS14	Replace Lift Station 7	\$	1,380,000
SS15	Replace Lift Station 13	\$	1,515,000
SS16	Reconfigure LS 6 to Bypass LS 7 in an Emergency	\$	276,000
SS17	Install Permanent Effluent PS	\$	415,000
SS18	Septic to Sewer Feasibility Study	\$	164,000
SS19	Odor Control Study	\$	52,000
	TOTAL	\$	27,868,000

## Table ES-7: Sewer CIP Summary



#### **RESOLUTION 49-2023**

#### A RESOLUTION OF THE BOARD OF DIRECTORS OF THE GROVELAND COMMUNITY SERVICES DISTRICT ACCEPTING THE 2023 INTEGRATED WATER AND WASTEWATER MASTER PLAN

**WHEREAS**, the Groveland Community Services District (herein referred to as District) is a local government agency formed and operating in accordance with Section §61000 et seq. of the California Government Code; and

**WHEREAS**, the District contracted for the preparation of its first master water and sewer plan in 2001, to evaluate water and wastewater system capacities and identify improvement needs in advance of anticipated new residential developments; and

**WHEREAS**, the life expectancy of most water and sewer infrastructure is fifty years and the majority of the District's water and sewer system is between fifty and seventy years old, and the number of system failures is increasing; and

WHEREAS, the District issued a request for proposals to secure a firm qualified to conduct a thorough engineering evaluation of its water and wastewater systems, identify deficiencies, plan for operating efficiencies, develop a plan and prioritize replacement and upgrade of critical infrastructure; and

**WHEREAS**, the District entered into agreement with professional engineering firm Wood Rodgers on August 7, 2019 for the preparation of an Integrated Water and Wastewater Master Plan, and

**WHEREAS**, the District has determined that the Integrated Water and Wastewater Master Plan prepared by Wood Rodgers, Inc. is substantially complete.

**NOW THEREFORE BE IT RESOLVED THAT THE BOARD OF DIRECTORS OF THE GROVELAND COMMUNITY SERVICES DISTRICT DOES** hereby approve Resolution 49-2023 accepting the 2023 Integrated Water and Wastewater Master Plan Prepared by Wood Rogers, Inc.

**BE IT FURTHER RESOLVED** that District staff using the analysis contained in the Master Plans is hereby directed to prepare and present for Board consideration:

- 1. A final prioritized Water and Sewer Capital Improvement Plan/Program scheduled over a ten-year period
- 2. Technical memoranda supporting the capital projects and schedule if such recommendation is not contained in the accepted Master Plan

Resolution 49-2023 Page 2

**WHEREFORE,** this Resolution is passed and adopted by the Board of Directors of the Groveland Community Services District on November 14, 2023, by the following vote:

AYES: NOES: ABSTAIN: ABSENT

APPROVE:

Nancy Mora, Board President

ATTEST:

Rachel Pearlman, Board Secretary

## **CERTIFICATE OF SECRETARY**

I, Rachel Pearlman, the duly appointed and acting Secretary of the Board of Directors of the Groveland Community Services District, do hereby declare that the foregoing Resolution was duly passed and adopted at a Regular Meeting of the Board of Directors of the Groveland Community Services District, duly called and held on November 14, 2023. DATED: \_\_\_\_\_