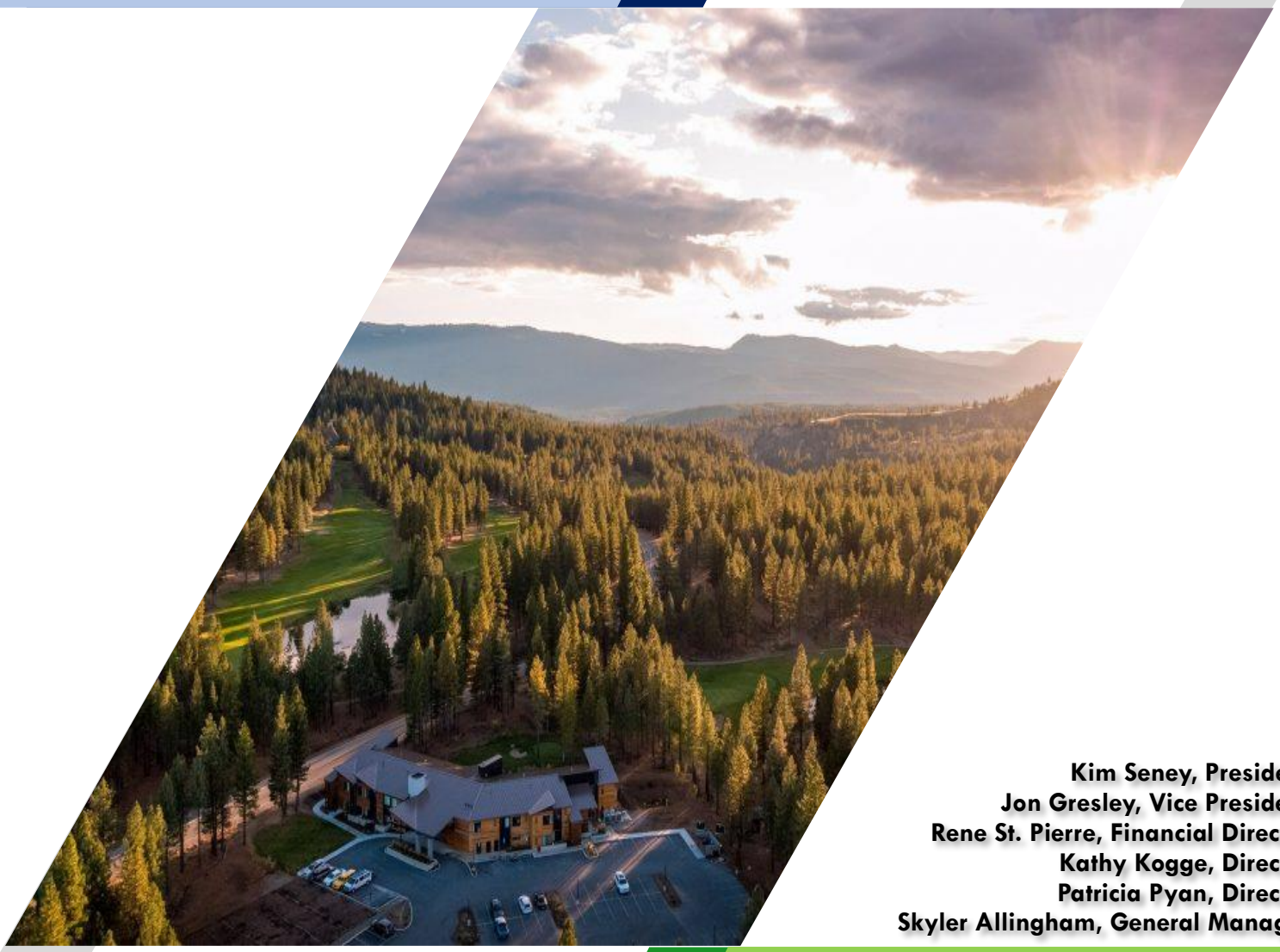
Gold Mountain CSD Master Plan Update

September, 2025



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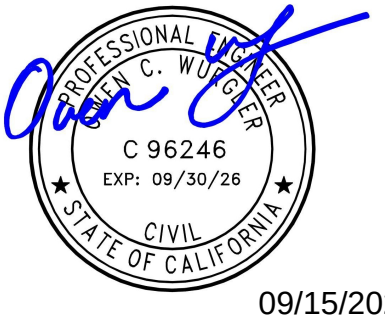

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2025 MASTER PLAN UPDATE

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1.0 INTRODUCTION

The purpose of this 2025 Master Plan Update is to provide the Gold Mountain Community Services District (District) Board members, employees, and all others concerned, with a comprehensive update to the 2017 Master Plan Update (2017 Update) including impacts to water supply and wastewater disposal capacity from recent commercial development; and an updated assessment of the capability of current infrastructure to service its customers and provide demands from potential future growth.

The Update specifically includes the following:

1. A review and update of water demands.
2. A review/update of wastewater loading and capacity of the leachfields.
3. A review and update of improvements to the Fire and Emergency Division.
4. A review of the impacts on water and sewer systems from new residential development.
5. A review of existing and available system capacity to serve current requirements and future projected residential and commercial growth.
6. An updated review of water storage capacity.
7. An update on the status and progress of capital projects identified in the 2017 Update.
8. Recommend 5-year capital improvement projects and planning efforts.
9. A discussion of buildout service conditions and long-term service capacity requirements.

The District has continued to improve its data collection methods regarding water usage and wastewater loading rates. More data and increased record-keeping have improved the District's ability to estimate unit water demands and wastewater loading rates accurately. Updated unit demands and their impact on current and future service responsibilities are reviewed in more detail in this update. This Update also reviews the reliability of the system's ability to sustain and provide quality service.

Since 2017, several capital improvement projects have been completed to increase the redundancy and capacity of the system. These projects include the construction of a new storage tank, drilling and equipping Well 37, and the expansion of the Falling Water leachfield.

Future capital projects are discussed herein. The District will need to continue to invest in capital improvements in the future to address concerns with wastewater disposal, water service reliability and fire protection. A wastewater treatment facility will be required in the near future to manage wastewater disposal, especially if the community enters an era of increased residential construction.

After an increase in growth in recent years, an improving economy, and a real estate market, the District will need to be proactive with infrastructure planning. Developers must work closely with the District to ensure the demands and capacity of new commercial and residential growth are accommodated without impacting service to existing customers.

Seasonal weather patterns in the past decade have revealed that the intermittent annual drought continues to be a persistent issue that plagues the West Coast, including California and Plumas County. In some years, the area sees as much as 70 inches of precipitation as in 2017, and in other years, it sees as low as 20 inches of rainfall as in 2020. Although natural weather variability is dominating, there has been a significant increase in the likelihood of extreme California droughts. Over the past five years, the District's water supply has remained relatively stable. Regardless, the District needs to be aware of the potential for swings in weather patterns that could remove wet winter storms over several years. The District implemented a Groundwater Management Plan in 2010 to help anticipate and mitigate these potential impacts.

The District is a member of the Upper Feather River Regional Water Management Group (RWMG). The RWMG is responsible for developing and updating the Integrated Regional Watershed Management (IRWM) Plan. IRWM was first established in 2002 to encourage agencies and organizations to work cooperatively to manage water supplies and improve the quality, quantity, and reliability of those supplies. It was updated in December 2016. In 2014, California voters approved four bond acts (Propositions 50, 84, 1E, and 1) that provided financial incentives and specific direction for implementing IRWM.

Proposition 1 awarded $510 million to California IRWM's. These bonds created a dedicated funding stream for developing IRWM planning documents and projects focused on water supply, water quality, water use efficiency, operational flexibility, and stewardship of the land and natural resources. The District has developed and submitted two projects that have been adopted into the Upper Feather River IRWN Plan, including a Water Reclamation Facility for wastewater treatment and disposal and a high-elevation water storage tank project. Once adopted into the IRWM Plan, projects are eligible for IRWM Plan-specific funds through the California Department of Water Resources (DWR). However, adopting a project in the IRWM Plan does not mean the project will be automatically funded or included in any future proposal for DWR grant funds. Numerous projects are competing for limited grant funding, including more than 70 projects within the Upper Feather River IRWM Plan. The likelihood is that any single project funding need will far exceed the availability of DWR funding in any given funding period.

2.0 CUSTOMERS, WATER USE AND WASTEWATER LOADING

The District has seen modest growth in residential construction over the past ten years with five new homes constructed since 2017. Residential construction is anticipated to occur at a rate of 2-4 new homes per year for the foreseeable future. Table 2-1 provides a summary of residential growth.

Table 2-1 Residential Customers	
Year	**# of Residences**
2014	96
2019	100
2024	108
2030 Projected	126
2030 Undeveloped	301
Future Buildout	427

Commercial growth within the GMCSD system has not increased since the 2017 update and the inclusion of the Nakoma Lodge and Altitude Recreation Center. Table 2-2 provides a summary of commercial services in the District.

Table 2-2 Commercial Customers	
Year	**# of EDUs**
Nakoma Clubhouse	10
Inn at Nakoma	10
Altitude Rec Center	4
Nakoma Maintenance Yard	25
Total Active (2024)	49
Future Buildout	125[1]

1. Based on 427 Residential EDUs and 552 EDUs at Buildout (GMCSD PDP, Condition 9, Dwelling Units)

The unit water demand in the District is estimated at 576 GPD per equivalent dwelling unit (EDU) (Maximum Day Demand).

The unit wastewater loading in the District is estimated at 107 GPD per EDU (Maximum Monthly Flow).

Unit water demands are for the maximum day demand (MDD) in the system. The MDD typically occurs from May through August. The MDD has been adjusted to account for residential occupancy of 75% during higher-demand months. The District currently delivers approximately 78,132 GPD of water during maximum demand periods. It concurrently discharges approximately 17,865 GPD of wastewater to the leachfields during these periods.

Tables 2-3 through 2-6 summarize the District's water and wastewater service demands for residential and commercial customers.

Table 2-3 Water Service Summary

Use		Residential Homes	Nakoma Clubhouse-Lodge	Inn at Nakoma	Altitude Rec Center	Nakoma Maintenance Yard	Totals
2014	**ADD (GPD)**	13,110	1,970	-[1]	-[1]	233	15,314
	MDD[2] (GPD)	36,364	3,786			760	40,910
	PHD[3] (GPD)	65,456	6,814			1,367	73,638
2019	**ADD (GPD)**	12,872	944	1,878	764	1,484	17,943
	MDD[2] (GPD)	42,744	2,428	6,059	1,652	4,906	57,789
	PHD[3] (GPD)	76,938	4,370	10,906	2,973	8,832	104,020
2024	**ADD (GPD)**	17,953	1,616	1,844	618	1,046	23,076
	MDD[2] (GPD)	62,256	6,219	5,737	2,415	1,505	78,132
	PHD[3] (GPD)	112,061	11,194	10,327	4,347	2,709	140,637

1. Was not yet constructed.
2. Maximum Day Demand (GPD) = (Maximum Month Demand * 1.5) / 30 days (22 CCR § 64554.b.2)
3. Peak Hour Demand (GPD) = Maximum Day Demand * 1.8 Peak Factor (AWWA)

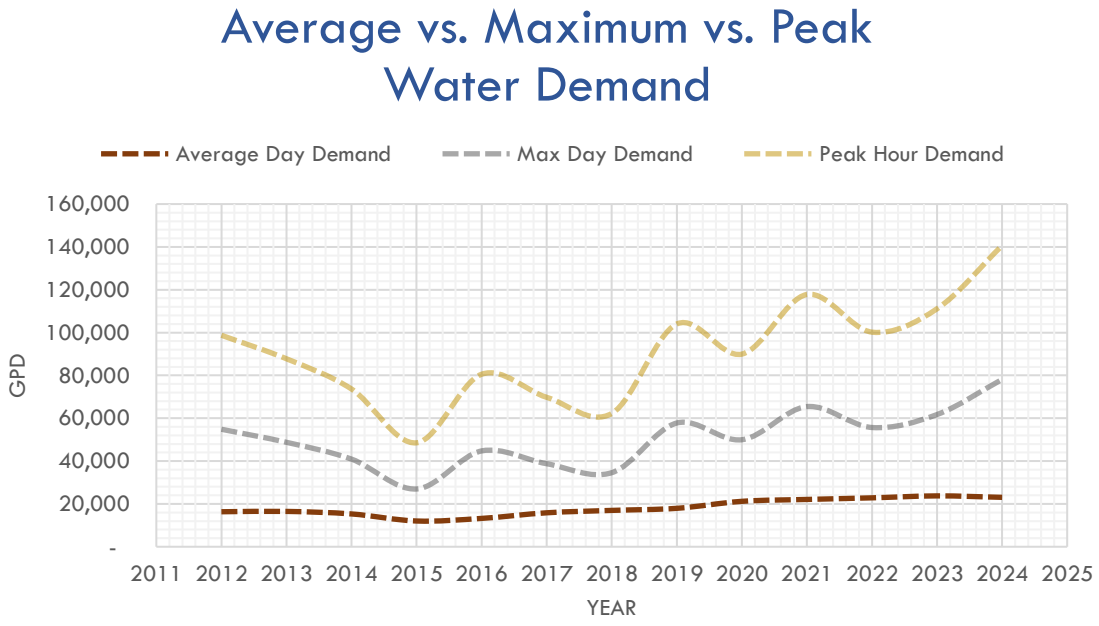


Table 2-4 Water Service EDUs							
Use	Residential Homes	Nakoma Clubhouse-Lodge	Inn at Nakoma	Altitude Rec Center	Nakoma Maintenance Yard	**Totals (EDUs)**	**GPD/ EDU**
2012	96	10	-[1]	-[1]	2	108	**378**
2019	100	6	14	4	11	135	**427**
2024	108	10	10	4	25	157	**576**

1. Was not yet constructed.

The water service commitment at future buildout to serve 427 residential customers and 125 commercial EDUs (552 EDUs total) is estimated to be 91,759 GPD during average day demand and 317,952 GPD during maximum day demand.

Table 2-5 Sewer Service Summary							
Use		Residential Homes	Nakoma Clubhouse-Lodge	Inn at Nakoma	Altitude Rec Center	Nakoma Maintenance Yard	**Totals**
2014	**ADF (GPD)**	8,088	804	-[1]	-[1]	296	9,188
	MMF (GPD)	11,655	1,150			690	13,495
	PHF[2] (GPD)	32,353	3,215			1,186	36,754
2019	**ADF (GPD)**	6,786	363	855	310	141	8,454
	MMF (GPD)	9,171	581	995	852	230	11,830
	PHF[2] (GPD)	27,143	1,450	3,419	1,241	563	33,816
2024	**ADF (GPD)**	8,090	327	883	771	2,007	12,079
	MMF (GPD)	11,600	365	1,057	1,509	3,334	17,865
	PHF[2] (GPD)	32,360	1,308	3,534	3,086	8,028	48,316

1. Was not yet constructed.
2. Peak Hour Flow = Average Day Flow * 4 Peaking Factor (Population Graph 10 State Standards)

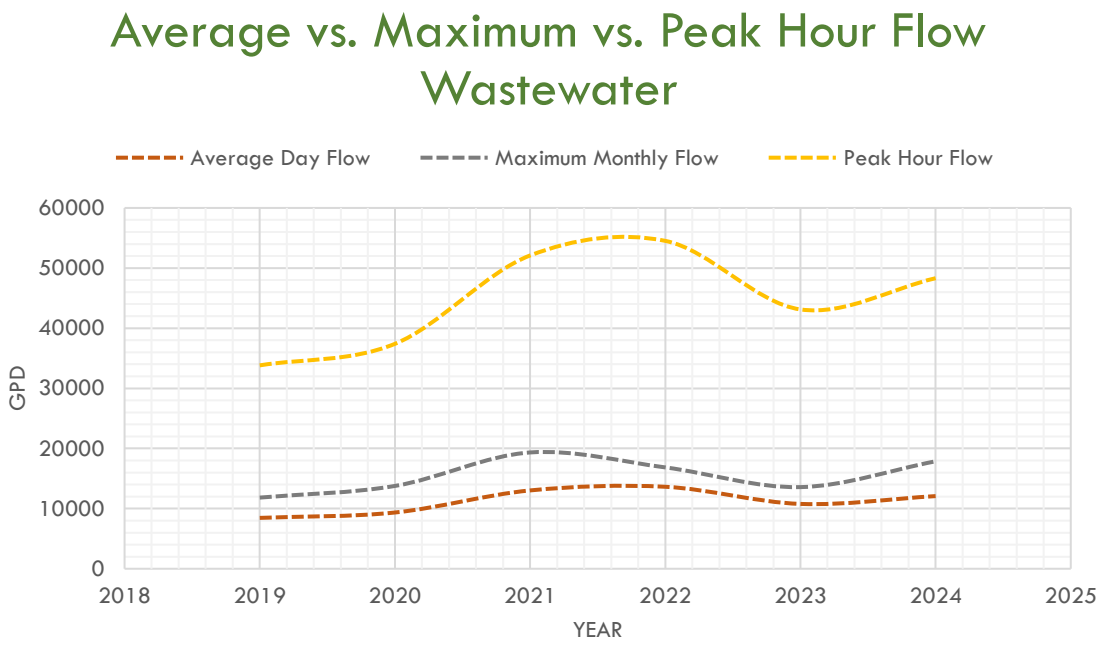


Table 2-6 Sewer Service EDUs							
Use	Residential Homes	Nakoma Clubhouse-Lodge	Inn at Nakoma	Altitude Rec Center	Nakoma Maintenance Yard	**Totals**	**GPD/ EDU**
2014	96	12	-[1]	-[1]	5	113	**131**
2019	100	6	10	9	2	127	**92**
2024	108	3	10	14	31	166	**107**

1. Was not yet constructed.

At future buildout, the wastewater disposal commitment (and potentially wastewater treatment) to serve 427 residential customers and 125 commercial EDUs (552 EDUs total) is estimated to be 41,348 GPD during average day flow and 59,064 GPD during maximum monthly flow.

3.0 WATER SYSTEM UPDATE

The overall condition of the water system is satisfactory, and its capability to meet current domestic demands is good. Water quality is excellent and meets all drinking water regulatory standards. A few new residential connections have been made since the previous Update; however, no new commercial connections have been made. One new storage tank was constructed near Well 29 to provide storage to the upper-pressure zones; however, the tank does not float on a pressure zone and relies on a booster pump to access the stored volume of water. In this master planning effort, the existing, future, and buildout systems were analyzed following the California Waterworks Standards (CCR Title 22, Division 4, Chapter 16) and the GMCSD Planned Development Permit, 1996. The stricter of the two requirements are provided in Table 3.1 below for each infrastructure Category.

Table 3-1 Water System Design Requirements

Category	Requirement	Reference
Distribution System	**Existing System:** 20 psi (min) at all times	22 CCR § 64602
	New Construction: All Scenarios except Fire Flow: 40 psi (min) Fire Flow Scenarios: 20 psi (min)	
Water Sources (Wells)	Maximum Day Demand with the largest source offline	22 CCR § 64554.c
Pumping Facilities	Maximum Day Demand	22 CCR § 64554.b
Storage Facilities (Tanks)	2,500 Gal per EDU	GMCSD PDP, Condition 38, Fire Protection

3.1 Water Distribution System

Overall, the water distribution system in the District is in adequate condition. Water main breaks and leaks are rare. The accuracy of existing distribution system mapping has been continuously updated and improved to include new facilities. No upgrades or extensions to the GMCSD distribution system have been made since the 2017 Master Plan Update. To confirm the operational status of the distribution system regarding county and state standards, the hydraulic model was updated to include new customer connections and project future demands.

There are nine separate water pressure zones within the District's service area. Water pressure zones are established based on land elevation intervals to sustain water system pressure between 40-100 psi. The centralized storage tanks are located at an elevation approximately mid-level in the service area. System pressure delivered to customers below the elevation of the storage tanks is sustained by gravity (starting elevations approximately 100 feet below the storage tanks). Pressure-reducing valves (PRVs) are required when the system's service pressure exceeds approximately 80 psi. Pressure-regulated zones serve most customers located along and north of County Road A-15. Customers served below the storage tanks receive high reliability for water delivery. Operational and emergency water storage can keep these customers in service for extended periods when disruptions in water supply occur. District customers above the water storage tanks do not share the same degree of supply reliability as customers below the tanks due to the need to boost the pressure with

a booster pump station.

The model provides pressure, flow, and velocity data for Maximum Day Demand (MDD), Peak Hour Demand (PHD), and Maximum Day Demand + Fire Flow (MDD+FF). Tables 3-2, 3-3, and 3-4 below summarize each pressure zone's demands through buildout. The following values were used in the determination and timing of capital improvement projects.

Table 3-2 Existing Pressure Zone Service Properties

Pressure Zone	Scenario	Demand (GPD)
1 (via PRV 1 and Well 17)	ADD	7,496
	MDD	25,360
	PHD	45,649
2 (via BPS 2)	ADD	302
	MDD	1,032
	PHD	1,857
3 (via Storage tanks)	ADD	9639
	MDD	32,607
	PHD	58,692
4 (via PRV 2)	ADD	1,679
	MDD	5,691
	PHD	10,243
5 (via BPS 3)	ADD	914
	MDD	3,103
	PHD	5,585
6 (via BPS 4)	ADD	914
	MDD	3,103
	PHD	5,585
7 (via BPS 5, Well 29, and Well 33)	ADD	1832
	MDD	6208
	PHD	11,174
8 (via BPS 6)	ADD	149
	MDD	514
	PHD	926
9 (via BPS 7)	ADD	149
	MDD	514
	PHD	926
Total Average Day Demand		23,076
Total Maximum Day Demand		78,132
Total Peak Hour Demand		140,637

Table 3-3 2029 Pressure Zone Service Properties				
Pressure Zone	Scenario	Demand (GPD)		
		2 EDUs/Yr	3 EDUs/Yr	4 EDUs/Yr
1 (via PRV 1 and Well 17)	ADD	7,702	7,640	7,729
	MDD	26,122	25,932	26,251
	PHD	47,020	46,677	47,254
2 (via BPS 2)	ADD	445	587	583
	MDD	1,507	1,995	1,981
	PHD	2,713	3,590	3,566
3 (via Storage tanks)	ADD	9,628	9,697	9,771
	MDD	32,652	32,914	33,186
	PHD	58,776	59,245	59,736
4 (via PRV 2)	ADD	1,777	1,763	1,750
	MDD	6,028	5,984	5,944
	PHD	10,850	10,771	10,698
5 (via BPS 3)	ADD	1,185	1,323	1,459
	MDD	4,019	4,488	4,953
	PHD	7,234	8,079	8,916
6 (via BPS 4)	ADD	1,037	1,176	1,167
	MDD	3,517	3,990	3,963
	PHD	6,329	7,181	7,133
7 (via BPS 5, Well 29, and Well 33)	ADD	2,370	2,498	2,625
	MDD	8,038	8,478	8,915
	PHD	14,468	15,261	16,048
8 (via BPS 6)	ADD	296	441	729
	MDD	1,004	1,496	2,476
	PHD	1,808	2,693	4,458
9 (via BPS 7)	ADD	296	441	583
	MDD	1,004	1,496	1,981
	PHD	1,808	2,693	3,566
Total Average Day Demand		24,736	25,566	26,396
Total Maximum Day Demand		83,892	86,772	89,652
Total Peak Hour Demand		151,007	156,192	161,377

Table 3-4 Buildout Pressure Zone Service Properties		
Pressure Zone	Scenario	Demand (GPD)
1 (via PRV 1 and Well 17)	ADD	16,628
	MDD	46,559
	PHD	83,806
2 (via BPS 2)	ADD	1,726
	MDD	4,832
	PHD	8,697
3 (via Storage tanks)	ADD	39,217
	MDD	109,809
	PHD	197,656
4 (via PRV 2)	ADD	5,334
	MDD	14,934
	PHD	26,881
5 (via BPS 3)	ADD	4,706
	MDD	13,177
	PHD	23,719
6 (via BPS 4)	ADD	3,765
	MDD	10,542
	PHD	18,975
7 (via BPS 5, Well 29, and Well 33)	ADD	9,255
	MDD	25,915
	PHD	46,647
8 (via BPS 6)	ADD	4,235
	MDD	11,859
	PHD	21,347
9 (via BPS 7)	ADD	1,726
	MDD	4,832
	PHD	8,697
Total Average Day Demand		86,592 GPD (60.13 GPM)
Total Maximum Day Demand		242,458 GPD (164.37 GPM)
Total Peak Hour Demand		455,821 GPD (316.54 GPM)

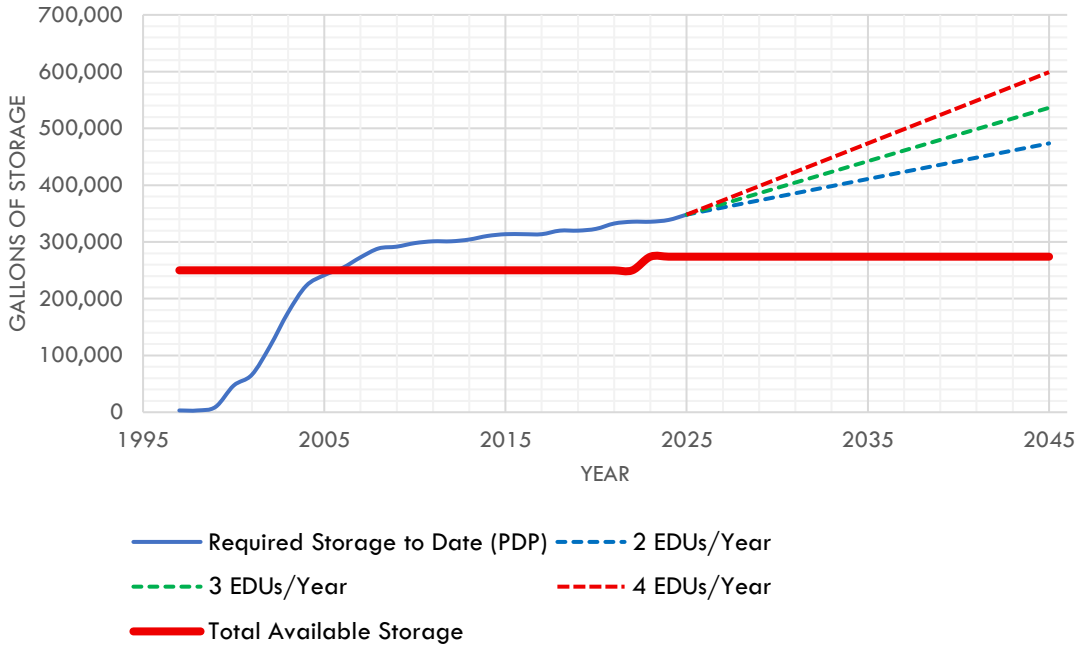
3.2 Water Storage

The District has two 125,000 gallon tanks located on Dream Maker and one 32,000 gallon tank on Blazing Star Road, which have been operating normally for a total of 282,000 gallons (0.282 MG). All daily operations continue to be performed manually, including manually operating wells and booster pumps to fill the tank, which are not in sight of the tanks. Installation of SCADA to monitor and operate the system would significantly increase service reliability in the area and reduce the burden on GMCSD staff. Hillside slopes along the south side of the tank site have remained stable. The tanks are overdue for an internal and external coating and corrosion inspection, which should be scheduled for the next year. A new assessment of water storage, including new conservative recommendations for operational, fire, and emergency storage, was completed as a part of this master plan. The operational storage volume recommended for the District is 6 hours of peak hour demand. The required fire storage is 2,500 gallons per equivalent dwelling unit per the GMCSD PDP; recommended emergency storage is one hundred percent of the maximum day demand. The summary of the required storage capacity is provided in Table 3-5 below and depicted in the graphs on Page 3-6.

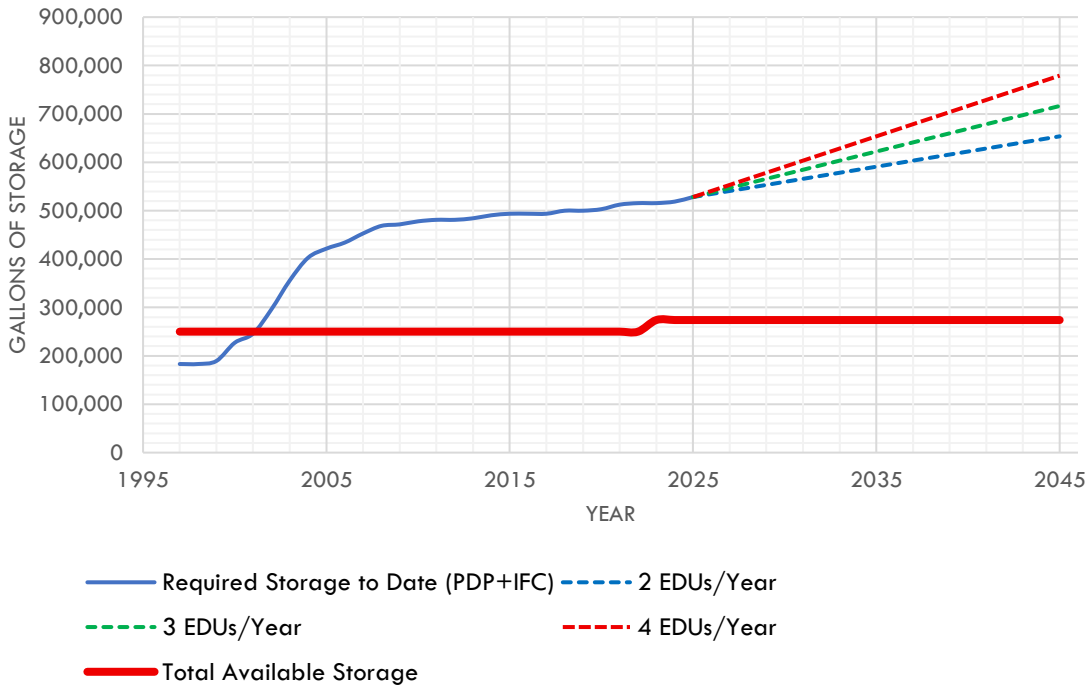
Table 3-5 Water Storage Requirements

	Existing				**2029 (3 EDUs/Yr)**				**Buildout**			
	Operational (6 hrs PHD)	Emergency (24 hrs MDD)	Fire (2,500 Gal per EDU)	**Total**	Operational (6 hrs PHD)	Emergency (24 hrs MDD)	Fire (2,500 Gal per EDU)	**Total**	Operational (6 hrs PHD)	Emergency (24 hrs MDD)	Fire (2,500 Gal per EDU)	**Total**
PDP Fire Storage	0.024	0.062	0.270	**0.356**	0.028	0.071	0.308	**0.407**	0.123	0.317	1.380	**1.820**
PDP+IFC Fire Storage	0.024	0.062	0.450	**0.536**	0.028	0.071	0.488	**0.587**	0.123	0.317	1.560	**2.000**

Required vs Available Storage (PDP Storage Requirement ONLY)



Required vs Available Storage (PDP+IFC Storage Requirement)



3.3 Booster Pump Stations and Wells

Approximately 38% of the residential service area requires booster pumping to deliver water and sustain pressures. Six booster pumping stations currently serve the five high-elevation pressure zones. Booster Pump Station (BPS) #2, 3, 4, 5, 6, and 7 are required to supply water and bolster pressures to the higher elevation lots in the District's south and southwest service areas. Booster Pump Station 1 serves as a redundant water source for Pressure Zone 2; however, it rarely operates due to the reliability of the storage tanks currently serving Pressure Zone 2. There are 162 high-elevation service lots. Many lots require two or more BPSs to provide service. Well 33 and 29A, which augment supply and service, are located in the upper-pressure zones but cannot provide fire flow. If a fire were to occur in the upper pressure zones, the system could only provide between 100 and 200 gpm. Back-up generators do provide emergency power during power outages. However, there are no redundant pumps at these stations. Mechanical or electrical equipment failure can often lead to service outages until repairs can be made and pumping systems are restored. A significant portion of the district's operation and maintenance workforce is required to keep the BPSs in operation. It is highly recommended that the District consider providing water storage facilities within the upper zones of the system to increase redundancy.

Table 3-6 Booster Pump Station Pumping Capacity

BPS #	Design Point	8-Hr Pumping		12-Hr Pumping		16-Hr Pumping	
		GPD	EDU	GPD	EDU	GPD	EDU
1 (Model: Berkeley B2TPMS) 10 HP	175 GPM @ 50 PSI	84,000	146	126,000	219	168,000	292
2 (Model: Berkeley B1WPS) 5 HP	62 GPM @ 70 PSI	29,760	52	44,640	78	59,520	103
3 (Model: Berkeley B1-1/2TPMS) 7.5 HP	120 GPM @ 65 PSI	57,600	100	86,400	150	115,200	200
4 (Model: Berkeley B1WPS) 7.5 HP	60 GPM @ 100 PSI	28,800	50	43,200	75	57,600	100
5 (Model: Berkeley B2ZPLS) 10 HP	200 GPM @ 61 PSI	96,000	167	144,000	250	192,000	333
6 (Model: Berkeley B1-1/2TPMS) 5 HP	80 GPM @ 56 PSI	38,400	67	57,600	100	76,800	133
7 (Model: Hayes TG 50-300) 3 HP	30 GPM @ 112 PSI	14,400	25	21,600	38	28,800	50

The GMCSD currently gets its water from five groundwater wells throughout the system with one standby well (Well 36) with unstable water quality. The State of California requires that water systems be capable of providing maximum day demand with the largest source offline. Well 33 and Well 37 have the largest capacity, leaving Well 8, 17, 29, and 37 capable of delivering 112 GPM to the system. This equates to 367 EDUs while pumping 24 hours per day. While the wells do not currently struggle to serve the system's demands, Well 33 has trace amounts of Uranium below the EPA maximum contaminant limit (MCL). Water pumped in the future from Well 33 could exceed the EPA threshold, which would render Well 33 unusable. It is recommended that an alternative groundwater source be identified in case Uranium levels increase over time. All other wells do not have detectable uranium levels at this time.

Table 3-7 Water Supply and Well Pumping Capacity

Well	Pumping Rate (GPM)	8-Hr Pumping		12-Hr Pumping		24-Hr Pumping	
		GPD	EDUs	GPD	EDUs	GPD	EDUs
8	30	14,400	25	21,600	37.5	43,200	75
17	30	14,400	25	21,600	37.5	43,200	75
29	17	8,160	14	12,240	21	24,480	43
33	35	16,800	29	25,200	44	50,400	88
36[1]	25	12,000	21	18,000	31	36,000	63
37	35	16,800	29	25,200	44	50,400	88
Firm Pumping Capacity	172	82,560	143	123,840	215	247,680	430
Pumping Capacity with Largest Well out of Service	137	65,760	114	98,640	171	197,280	343
Pumping Capacity with Largest Well and Well 36 Out of Service	**112**	**53,760**	**93**	**80,640**	**140**	**161,280**	**280**

[1]Standby Well

Adequate water supply capacity must be readily available to meet maximum day demands without over-pumping the wells. Furthermore, supply needs must account for routine well maintenance and equipment failure that could remove a well from service for an extended period. The existing GMCSD system is deemed to have adequate source capacity to serve the system through 2029.

3.4 5 Year Capital Improvement Plan

Capital improvements and planning efforts should be considered to improve water service and delivery, including the following:

1. The water system currently has 157 equivalent residential units (108 residential EDUs + commercial EDUs). It is recommended that a system-wide SCADA system be installed to monitor and automatically operate the wells, booster pumps, and tank levels. This will allow operators to develop more efficient procedures for operating and maintaining the water system. A SCADA system would be capable of providing real-time alarm response to any disruptive conditions such as low pressure, loss of power, flooding, over-temp, and other alarms as desired. Furthermore, a SCADA system could automate some of the routine operational functions now being performed manually, such as the daily filling of the water tanks. It is recommended that the District install a backbone SCADA system that establishes a primary communication network that, at a minimum, monitors primary operational functions.

2. After completion of the 300,000 gallon storage tanks, pressure-reducing stations should be installed at booster pump stations 3, 4, 5, 6, and 7, as well as replacement of the closed valves between pressure zones 6 and 7 and pressure zones 1 and 7. Installation of the pressure-reducing valves will reduce the strain on the booster pump stations.

3. Well 36 is currently drilled to approximately 805' deep and is being used as a standby well source for the District. Due to Well 33 showing trace amounts of Uranium in the groundwater, it is recommended to add Well 36 as an alternate source of water to ensure redundancy for future development and to allow the District to take Well 33 offline in the event that Uranium levels exceed the EPA Maximum Contaminant Level. Adding an alternate source of water will also allow the District to take other wells offline for maintenance while adequately providing maximum day demand to the rest of the system. Bringing Well 36 online would include a well pump installation, a new well house, electrical/SCADA implementation, and connecting the well to the water system.

4. Well 9 is currently drilled to approximately 450' deep and is being used as a standby well source for the District. Due to Well 33 showing trace amounts of Uranium in the groundwater, it is recommended to add Well 9 as an alternate source of water to ensure redundancy for future development and to allow the District to take Well 33 offline in the event that Uranium levels exceed the EPA Maximum Contaminant Level. Adding an alternate source of water will also allow the District to take other wells offline for maintenance while adequately providing maximum day demand to the rest of the system. Bringing Well 36 online would include a well pump installation, a new well house, electrical/SCADA implementation, and connecting the well to the water system.

5. It recommended to plan for alternate well exploration for the District's water supply. The existing GMCSD system is deemed to have adequate source capacity to serve the system through 2029; however, providing alternate water sources for increasing future demands will ensure the water system will provide maximum day demand with the largest Well offline and any future maintenance that requires to take a Well

offline.

Table 3-8 Summary of 5-Year Water System Capital Improvements		
Project No.	Project Description	Budget Estimate
1W	Backbone SCADA System	$1,023,600
2W	Pressure Reducing Stations	$598,200
3W	Recommission Well 36	$212,400
4W	Recommission Well 9	$212,400
5W	Well Exploration and Equipping	$835,200
	Water Total	**$2,881,800**

1. Costs do not include the price of land acquisition.

4.0 WASTEWATER SYSTEM UPDATE

All wastewater in the District is currently pumped to leachfield disposal (subsurface infiltration). Wastewater consists of primary septic tank effluent. Waste organic solids are removed and contained within individual septic tanks. A submersible pump inside the pump chamber of each septic tank pumps effluent on demand to the leachfields. There are 100 residential and three commercial septic tanks. The District is responsible for maintaining all septic tanks and sewage pumps, including regular pumping of tanks to remove solids. Annually, operators repair or replace approximately 3-4 pumps and pump out 3-6 septic tanks. The overall condition of the wastewater system is satisfactory, and the capability to meet current demands is adequate.

Two community leachfield sites are in operation and receiving wastewater. Typically, one field is in operation while the other field is resting. Wastewater during peak months is relatively low when compared to the water usage. The maximum month, daily flow in 2024 was 17,865. In 2021, the Falling Water Leachfield was expanded to include 5 new zones, increasing the effective treatment capacity from 10,197 GPD to 15,406 GPD. Currently, both leachfields are adequately sized to accommodate the existing flows.

The District discharges wastewater via State Water Resource Control Board Water Quality Order 2014-0153-DWQ "*General Waste Discharge Requirements for Small Domestic Wastewater Treatment Systems (General Order)*." The District operates specifically under 2014-0153-DWQ-R5253.

4.1 Leachfield Capacity

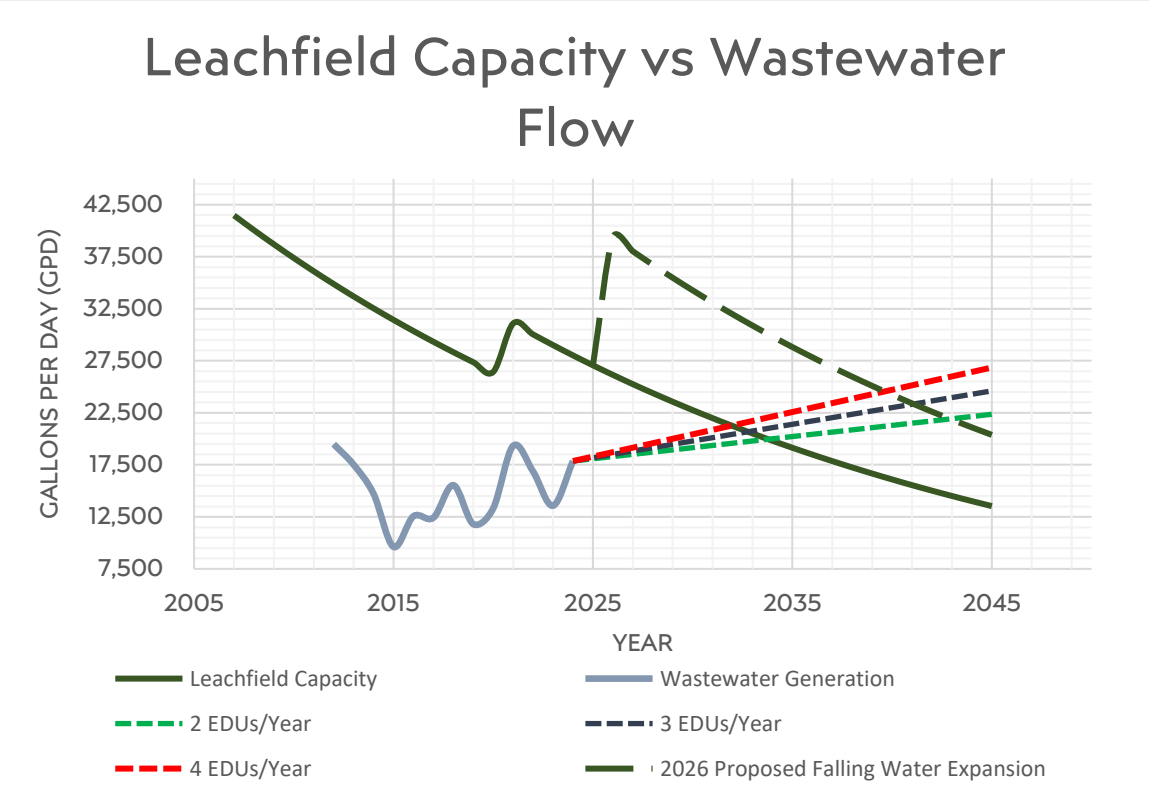
Current wastewater loading capacities for the Falling Water and Windsong Leachfields are provided in Table 4.1. Leachfield capacity degrades over time as biological growth begins in the soil. The capacities in Table 4-1 will be less in the following years. Percolation tests should be performed annually to determine the level of degradation in the leachfields and should be performed around the same time every year.

Table 4-1 Wastewater Disposal Capacity

	2019	2024
Falling Water Leachfield	10,557 GPD	13,855 GPD
Windsong Leachfield	16,807 GPD	14,133 GPD
Total Leachfield Capacity	27,364 GPD	28,018 GPD
Wastewater Loading	11,830 GPD	17,865 GPD
Available Volume for Growth	15,534 GPD	10,153 GPD
Additional Available Service Capacity	145 EDUs	95 EDUs
Approx. Buildout Capacity Required	59,064 GPD	

1. Falling Water Leachfield was expanded in 2021 to a new capacity of 29,674 GPD.
2. Leachfield degradation was assumed to be 3% per annum.

Table 4-2 2029 Wastewater Disposal Capacity			
	2029		
	2 EDUs/Yr	**3 EDUs/Yr**	**4 EDUs/Yr**
Falling Water Leachfield	11,676 GPD		
Windsong Leachfield	11,885 GPD		
Total Leachfield Capacity	23,561 GPD		
Wastewater Loading	18,935 GPD	19,470 GPD	20,005 GPD
Available Volume for Growth	4,626 GPD	4,091 GPD	3,556 GPD
Additional Available Service Capacity	43 EDUs	38 EDUs	33 EDUs



The wastewater loading capacities for Windsong and Falling Water leachfields provided in Tables 4-1 and 4-2 have been approximated based on operational performance and operator observations. As discussed to some extent in the 2007 Master Plan Report, the wastewater loading capacity of two leachfield facilities was not established during the original design but was subsequently noted to be only designed for 84 lots (EDUs). Currently, the fields receive wastewater effluent from 157 EDUs. The Windsong field was reconstructed in 2005 after it failed, and the Falling Water field was not fully operational until approximately 2009. The combined leachfield capacity appears adequate for current loading. However, both fields are significantly impacted by groundwater during wet weather periods. Both fields require constant operator attention and observation. Operators routinely adjust field loading and rotate loading zones to optimize disposal performance. Flow monitoring at Falling Water was recently improved to obtain more accurate loading measurements. Improvements at Falling Water were also performed to install an effluent

dosing station designed to pump effluent and load individual infiltration zones to improve infiltration efficiency and capacity. The dosing facility has improved the ability of the leachfield to infiltrate without dead zones.

Eventually, the leachfields will lose most of their capacity and must be replaced or reconstructed. Most leachfields have a design life between 20 to 30 years due to organic growth in the soil surrounding the fields. Estimating when replacement will be needed depends on several factors, including how the fields were initially constructed, the materials used to build the field, soil characteristics, loading, usage, and operation. When the original leachfields were constructed, it was determined that the native soils were not ideal for leaching wastewater as they have a slower natural percolation rate and are more easily clogged with organics. The staff has made an effort to maintain percolation rates by turning the soil in recent years.

Since the 2017 Master Plan occupancy rates in the District have been more consistent, with more of the population being full-time residents. In 2017, the lowest occupancy month was January, 45% lower than July 2017. In 2022, January was approximately 20% lower than the population in August. Currently, the leachfields appear to be operating and in good condition. It is recommended that percolation testing be done annually to determine the leachfield performance's degradation rate. Any significant increase in residential growth can accelerate the degradation of the leachfields. Current estimates show that the leachfields will have sufficient capacity to accommodate aggressive growth (4 EDUs/yr) for the next five years. It should be noted here that leachfields are typically capable of short periods of hydraulic overloading, such as occurs on maximum occupancy and summer holiday weekends. Operational management of flows during these events will also help extend the life of the existing disposal fields.

Both fields are significantly impacted by transient inflow from surface and groundwater during wet weather periods. During wet weather, individual leach trenches fill with water, leaving little room for wastewater inflow. Typically, wet weather events are short-lived and occur during winter months when occupancy and wastewater flows are much lower, and stormwater dissipates soon after. The impact of wet weather events, including the potential for wastewater surfacing, will become more pronounced as new development adds more wastewater flow, and percolation capacity in the fields naturally degrades.

Until conventional wastewater treatment is available, subsurface infiltration (leachfields) will remain the only viable option for wastewater disposal in the District. As the District moves towards buildout, it is recommended that recycled water or indirect potable reuse system be investigated to sustain development within the District.

4.2 Wastewater Treatment and Effluent Reclaim

A wastewater treatment facility was included in the original planning of the Gold Mountain development and community. Until recently, wastewater treatment planning consisted of maintaining a treatment site placeholder on District maps and mentioning the future facility in planning discussions, documents, and reports. However, in July 2015, a preliminary review, conceptual project, and cost estimate for a proposed water reclamation facility (WRF) was completed to consider potential grant funding. The proposed WRF project includes a treatment facility located at the Falling Water site, effluent piping to distribute treated wastewater to Windsong Leachfield, and a golf course holding pond for irrigation reclamation. An Orenco AdvanTex treatment system or similar process suitable for receiving

STEP system wastewater should be considered. The treatment process would be followed by a Title 22 compliant effluent filtration process to meet regulatory requirements to reclaim wastewater. The estimated budgetary cost for planning, permitting, design, and construction of a WRF facility is $2.0 million to $3.0 million.

For a WRF project to be viable, the District will need to reclaim treated wastewater. Considering current subsurface disposal capacity concerns and the limited availability to expand leachfield areas, the District needs to investigate reclaiming and reusing treated wastewater for golf course irrigation. An approach that disposes high-quality, advanced treated, and filtered wastewater to golf course irrigation during peak summer loading and only uses the leachfields during the low flow season should be considered. A more comprehensive planning effort for a WRF, including preparation of a preliminary engineering report (to support the Report of Water Discharge and discharge permit applications and District planning efforts), should be completed within the next five years, if not sooner. Furthermore, the District should begin discussions with golf course ownership to seek and secure a long-term agreement to reclaim effluent on the golf course via turf irrigation.

It should be noted that the current wastewater discharge permit triggers the construction of a sand filter or equivalent treatment process once the District reaches 33,000 GPD of discharge (305 EDUs) and an entire water reclamation facility when the District reaches 66,000 GPD (611 EDUs). The District is not projected to exceed 305 EDUs within the next five years, so no treatment facility improvements are recommended.

4.3 5-year Capital Improvement and Planning Recommendations

It is recommended that the District consider and implement the following capital improvements and planning efforts over the next five years:

1. To keep up with leachfield degradation and community growth it is recommended that the Falling Water Leachfield Phase 2 and Phase 3 expansion.

2. Prepare a preliminary engineering report for a Water Reclamation Facility for the treatment and reclamation of wastewater. The PER would evaluate the facility's design, loading, influent, and effluent quality and assess and recommend a wastewater treatment process. Evaluate and recommend a Title 22 filtration process. Review effluent pumping and discharge facilities; assess discharge pipe alignments, including right-of-way issues; and develop updated cost estimates. The construction of a water reclamation facility may be necessary if the District cannot locate a suitable site for future expansion of the leachfield facilities.

3. Pursue a reclamation agreement with the Nakoma Golf Course.

4. Updating the Windsong Leachfield septic system to a fully automated system would allow operators to monitor accurate flows and be alerted for any potential leaks or high tank levels.

5. Ultimately, as groundwater disposal capacity declines, the necessity for surface disposal will become more important. It is recommended the GMCSD begin investigating funding opportunities and begin the planning and design required to construct a 50,000 GPD wastewater treatment facility.

Table 4-3 Summary of 5-Year Wastewater System Capital Improvements		
Project No.	Project Description	Budget Estimate
1S	Falling Water Leachfield Expansion	$792,000
2S	PER for Water Reclamation Facility	$100,000
3S	Nakoma GC Reclamation Agreement	$35,000
4S	Windsong Leachfield Update	$102,000
5S	50,000 GPD Wastewater Treatment Plant	$2,172,684
	Wastewater Total	**$3,202,548**

5.0 EMERGENCY SERVICES AND FIRE PROTECTION UPDATE

During the development of the 2007 Master Plan, it was determined that the water distribution system was not designed to provide adequate fire protection throughout the District. The district expressed interest in bolstering fire protection in recent years. As a part of this Master Plan, a hydraulic analysis was completed to determine the level of fire protection the existing system can provide and identify projects that will help improve fire protection.

In recent Master Plan updates, the focus has been on fire mitigation more than fire protection. In light of recent years, it is apparent that wildfires are becoming more unpredictable and larger. Hence, the need for increased fire protection is more critical. The Gold Mountain PDP requires 2,500 gallons per EDU in the District in the form of storage tanks, ponds, or swimming pools that can be accessed during a fire. The District has expressed disinterest in using ponds and swimming pools for fire protection and would like to increase the storage capacity in steel storage tanks. Constructing storage tanks increases the reliability and capacity of the water system in fighting fires.

While the District seeks to increase fire protection capacity, fire hazard mitigation is equally important. The district's fire hazard mitigation has been an excellent model for districts throughout the area and shall continue to do so to reduce the risk of wildfires. The GMCSD does not have a fire department; instead, they contract fire suppression services with the Beckwourth Fire Protection District. Recent efforts to develop a multi-agency fire protection district have occurred and are discussed in further detail in Section 5.3

5.1 Fire Flow and Storage

Although not designed to meet fire flow standards, the water distribution system can provide limited fire flow and fire protection in the District. Water service zones located below the storage tank site on Dream Maker, generally the District's commercial core, can provide between 1,000 and 1,750 GPM of fire flow demand. See Exhibit 2 in Appendix A. Water in the storage tanks is available to provide 1,000 GPM for at least 2 hours. Fire flow outside the commercial core is minimal. Pressure Zones 5 and 6 are only served by booster pumps, so the fire flow is limited to the capacity of the booster pump stations. Regulated lower water zones provide approximately 400 GPM of flow; the capability of higher elevation pumped water zones ranges from 260 GPM to only 65 GPM at the highest hydrant in the system on Startop. To improve fire protection in areas with limited fire flow capability and generally through the District's service area, the District has prepared and implemented a Tactical and Strategic Emergency Services Plan.

5.2 Interior Residential Fire Sprinklers

All new residential construction within the District will require the installation of interior residential fire sprinklers in accordance with local and state building codes. Typically, residential fire sprinkler systems require between 30-60 GPM for single-family dwellings up to 5,000 square feet for a flow duration of 60 minutes. The District's water distribution system should be capable of meeting residential fire sprinkler demand. Furthermore, the District has sufficient water storage to provide more than 4 hours of sprinkler supply. The amount of water is included in the recommended emergency storage component discussed in Section 3.2 of this Update.

5.3 Re-organization of Fire Protection & Emergency Services

To improve the efficiency of Fire Protection in Eastern Plumas County, six study group agencies began to meet in February 2020 to discuss the current State and challenges of sustaining volunteer firefighting and emergency response services in Eastern Plumas County. This resulted in the formation of one new District for Fire protection and emergency response services to serve Eastern Plumas Rural Fire Protection District, Sierra Valley Fire Protection District, Beckwourth Fire Protection District, City of Portola, Eastern Plumas Rural Fire Protection District and Gold Mountain Community Services District for structural fires only as of July 1st, 2024. Pooling resources allows the participating districts to better serve their community's emergency needs.

5.4 Hazardous Fuel Removal and Treatment

At this time, most hazardous fuel removal has been completed and maintained. The GMHOA has taken the lead in hazardous fuel treatment maintenance, resulting in a re-evaluation of GMCSD fire protection responsibilities and priorities, which is currently underway.

5.5 5-Year Capital Improvement and Planning Recommendations

Capital improvements should be considered to improve fire protection and emergency service response, including the following:

1. The District should evaluate the installation of a new 600,000 gallon tank site (two 300,000 gallon storage tanks). Future construction of these storage tanks adjacent to the existing 240,000 gallon tank site would provide additional fire protection and domestic storage for the water system.

2. Booster Pump Station #8 and two 60,000 gallon tanks are recommended for additional fire storage located near the top of the development on Eagles Nest. In addition, it is recommended that the watermain be extended a looped for additional fire hydrants around the Eagle Nest loop for more fire fighting capacity. Currently, Booster Pump Station #8 serves Pressure Zone 9 and provides fire flow through a single fire hydrant in the Zone. Considering future growth with the District, the additional tank and fire hydrants in Pressure Zone 9 will provide more reliable fire protection in the event of an emergency.

3. A new fire hydrant system from Eagle Nest to Moon Shadow will add approximately 3,200 LF of 8" C900 PVC and an additional 4 fire hydrants to the system as well as a pressure reducing station to regulate pressure from Pressure Zone 9 to Pressure Zone 7. Anticipated growth between Eagle Nest and Moon Shadow will require a water main extension to provide adequate fire protection in this area.

Table 5-1 Summary of 5-Year Fire and Emergency Services Capital Improvements

Project No.	Project Description	Budget Estimate
1	Two 300,000 gal Tanks	$1,198,872
2	BPS #8 and one 50,000 gal tank	$661,399
3	Fire Hydrant System Eagle Nest to Moon Shadow	$650,760
	Fire Total	**$2,511,031**

6.0 OPERATIONS AND MAINTENANCE UPDATE

Operation of the water system continues to be labor-intensive. Meters are read monthly. Seven booster stations, four wells, and two water tanks are monitored daily. This work is done manually. A SCADA system (supervisory control and data acquisition) will be necessary to continue operations and is included in the five-year capital improvement program. The water system has not experienced any major outages in the past year.

The District is responsible for fire protection at Gold Mountain. It does so through an annual contract with the Beckwourth Fire District. Most calls continue to be accident/medical related. In conjunction with the Gold Mountain Homeowners Association the District operates a quick attack vehicle during the summer fire season. The district has an organized community brigade that operates the type III fire engine. The District is also developing a strategic fire plan for structural fires.

Gold Mountain has an aggressive fire-safe program funded jointly by the District and Homeowners Association. A hazardous fuel reduction program has been undertaken in Homeowners Association common areas, residential properties, and private lands.

7.0 MANAGEMENT AND STAFFING UPDATE

The relatively small size of the District—427 residential lots with 98 residential customers—limits staffing needs. The District employs a full-time General Manager, a full-time Office Administrator, and two full-time Utility Operators, and one part-time fire and emergency se rvices coordinator. Periodically, part-time staff are required for relief and special projects.

The District depends heavily on volunteer help from Board members and other residents. There is a close working relationship with the Homeowners Association. At this time, additional staffing is not contemplated.

Preliminary work is currently underway for a joint facility with the Homeowners Association for storage, workspace, and offices. Initially, the facility will provide storage for materials and equipment. A phased plan will ultimately provide the option of locating offices on the site.

8.0 SUMMARY

The District has made substantial progress since homeowners took control in 2006. Early years were spent inventorying the water and wastewater systems and determining overall conditions. Progress has been made in improving the existing systems to make them more efficient and effective.

Planning is the key to the future since the District does not have facilities to serve the community at build out. The 2017 Master Plan was the second update to the Master Plan. This report constitutes a second update. The District is positioned to accommodate modest growth without needing major capital outlay. However, if aggressive development occurs in the next decade, major infrastructure improvements will be required. The District has determined when these facilities will be needed and are engaged in planning, design, and financing efforts to accommodate new construction.

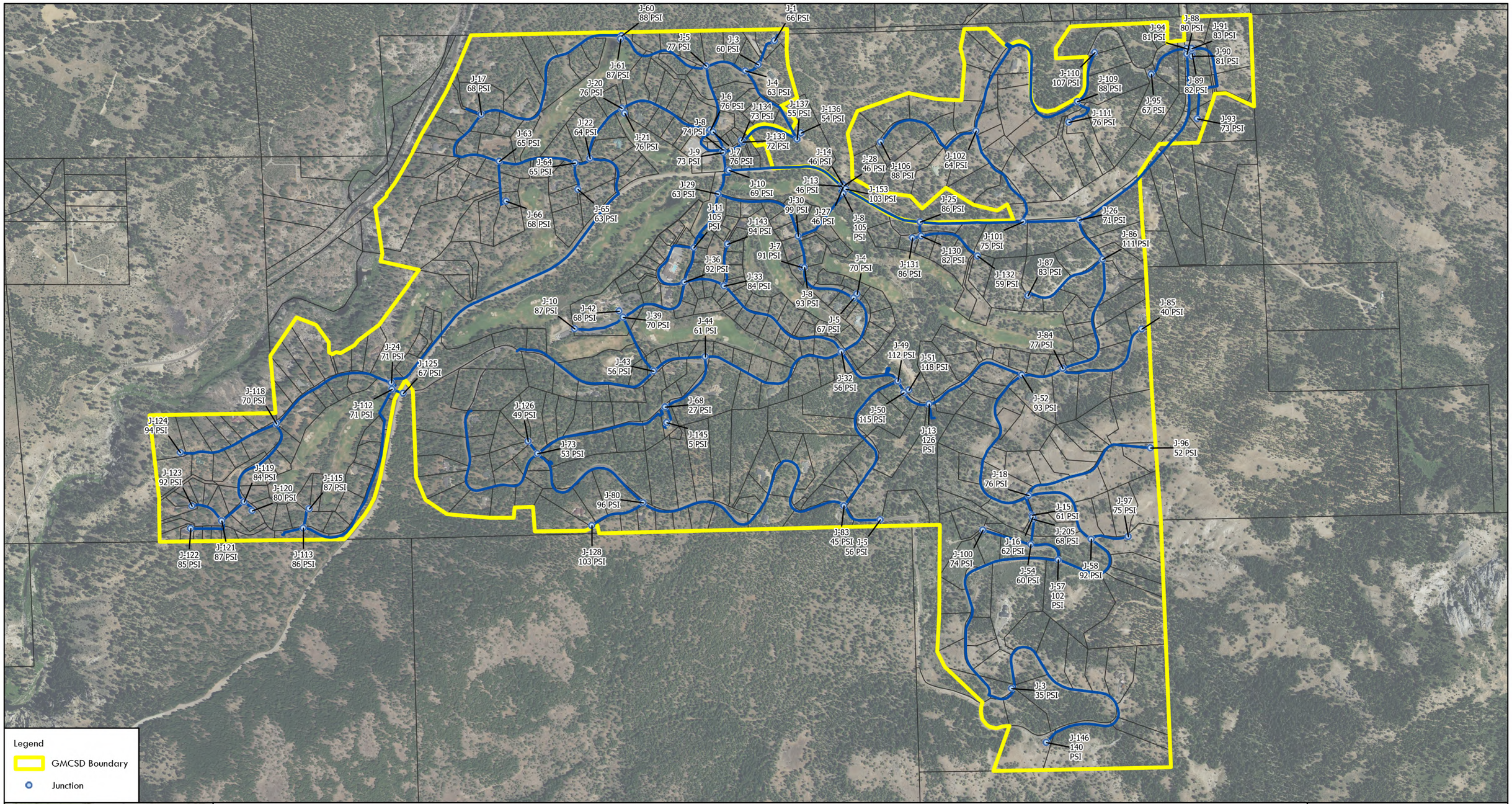
The following projects are recommended to be completed or in progress within the next 5-years.

Table 8-1 Summary of 5-Year Water System Capital Improvements		
Project No.	**Project Description**	**Budget Estimate**
1W	Backbone SCADA System	$1,023,600
2W	Pressure Reducing Stations	$598,200
3W	Recommission Well 36	$212,400
4W	Recommission Well 9	$212,400
5W	Well Exploration and Equipping	$835,200
	Water Total	**$2,881,800**

Table 8-2 Summary of 5-Year Wastewater System Capital Improvements		
Project No.	**Project Description**	**Budget Estimate**
1S	Falling Water Leachfield Expansion	$792,000
2S	PER for Water Reclamation Facility	$100,000
3S	Nakoma GC Reclamation Agreement	$35,000
4S	Windsong Leachfield Update	$102,000
5S	50,000 GPD Wastewater Treatment Plant	$2,172,684
	Wastewater Total	**$3,202,548**

Table 8-3 Summary of 5-Year Fire and Emergency Services Capital Improvements		
Project No.	**Project Description**	**Budget Estimate**
1F	Two 300,000 gal Tanks	$1,198,872
2F	BPS #8 and one 50,000 gal tank	$661,399
3F	Fire Hydrant System Eagle Nest to Moon Shadow	$650,760
	Fire Total	**$2,511,031**

Appendix A
Master Plan Figures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J-1 66 PSI
J-5 77 PSI
J-3 60 PSI
J-61 87 PSI
J-17 68 PSI
J-20 76 PSI
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J-6 76 PSI
J-134 73 PSI
J-137 55 PSI
J-136 54 PSI
J-22 64 PSI
J-8 74 PSI
J-63 65 PSI
J-21 76 PSI
J-133 72 PSI
J-9 73 PSI
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J-11 105 PSI
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J-4 70 PSI
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J-87 83 PSI
J-8 93 PSI
J-10 87 PSI
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J-85 40 PSI
J-24 71 PSI
J-125 67 PSI
J-49 112 PSI
J-84 77 PSI
J-43 56 PSI
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J-112 71 PSI
J-68 27 PSI
J-52 93 PSI
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J-100 74 PSI
J-58 92 PSI
J-54 60 PSI
J-57 102 PSI
J-128 103 PSI
J-122 85 PSI
J-121 87 PSI
J-113 86 PSI
J-3 35 PSI
J-146 140 PSI
J-94 81 PSI
J-88 80 PSI
J-91 83 PSI
J-90 81 PSI
J-110 107 PSI
J-109 88 PSI
J-89 82 PSI
J-95 67 PSI
J-111 76 PSI
J-93 73 PSI
Legend
GMCSD Boundary
Junction
Project Location
National Forest
Reno
Tahoe National Forest
Exhibit 1: GMCSD System Map and Pressures
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Trusted Engineering Expertise
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Feet
California State Parks, Esri, TomTom, Garmin, FAO, NOAA, USGS, Bureau of Land Management, EPA, NPS, USFWS, USGS, USDA, Esri, USGS

FH18
417
GPM

FH4
980 GPM

FH2
160 GPM

FH3
1059 GPM

FH14
460
GPM

FH25
1094
GPM

FH5
1222 GPM

FH15
275 GPM

FH23
468 GPM

FH8
1124
GPM

FH6
1004 GPM

FH24
1045
GPM

FH19
345
GPM

FH10
368
GPM

FH7
1163 GPM

FH13
244 GPM

FH1
1090
GPM

FH26
1828
GPM

FH20
96 GPM

FH16
256
GPM

FH9
442 GPM

FH11
148 GPM

FH12
72 GPM

FH17
271
GPM

FH21
64 GPM

FH22
380 GPM

Legend

- GMCSD Boundary
- less than 100 GPM
- 100 - 250 GPM
- 250 - 500 GPM
- 750 - 1,000 GPM
- 1,000 - 1,500 GPM
- greater than 1,500 GPM

Project Location

National Forest

Reno

Tahoe National Forest

Exhibit 2: Gold Mountain CSD Hydrant Map

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Trusted Engineering Expertise

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Feet

Well 17
BPS-2
Well 37
BPS-1
BPS-5
T-2
0.125 MG
BPS-3
T-1
0.125 MG
BPS-4
Well 33
Well 29
Well 29
Tank
0.032 MG
BPS-6
BPS-7

Legend
- GMCSD Boundary
- Tank
- Wells
- Pump

Pipe Diameter
- 2-Inch
- 3-Inch
- 4-Inch
- 6-Inch
- 8-Inch

Project Location
National Forest
Reno
Tahoe National Forest

Exhibit 3: GMCSD Critical Infrastructure Map

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Trusted Engineering Expertise

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N

0 500 1,000
Feet

Pressure Zone 1

Closed Valve

Pressure Zone 2

Closed Valve

PRV 1
High: 108 PSI
Low: 52 PSI

Pressure Zone 3

PRV 2
High: 92 PSI
Low: 60 PSI

Pressure Zone 7

Pressure Zone 5

Pressure Zone 4

Pressure Zone 6

Pressure Zone 8

Closed Valve

Pressure Zone 9

Legend

GMCSD Boundary

Tank

Wells

Pump

Pipe

Pipe

Zone

1
2
3
4
5
6
7
8
9

Project Location

National Forest

Reno

Tahoe National Forest

Exhibit 4: GMCSD Pressure Zone Map

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Trusted Engineering Expertise

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N

0 500 1,000
Feet

State 40A Rd
Deer Trl
Windsong Leachfield
Wind Song
Gold Mountain
Bear Run
Portola-McLears Rd
Craig Rd
Red Sky
Dragon Golf Course and Nakoma Resort
Falling Water Leachfield
Portola-McLears Rd
Red Sky
Falling Water
Craig Rd
Craig Rd

Project Location
Carson C
Sacramento

Exhibit 5: GMCSD Wastewater Facilities Map

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Trusted Engineering Expertise

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