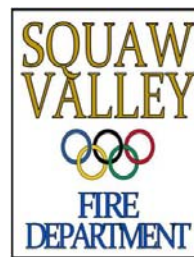




## SQUAW VALLEY PUBLIC SERVICE DISTRICT



### Water Master Plan – Sewer Master Plan

**DATE:** May 26, 2015

**TO:** District Board Members

**FROM:** Mike Geary, General Manager

**SUBJECT:** Proposal from Farr West Engineering to prepare Water and Sewer Master Plans

**BACKGROUND:** The District's current Water System Master Plan was prepared in April, 1993 and its current Sewer System Master Plan in December, 1994.

The Water and Sewer Master Plans will provide a comprehensive study of the District's water and sewer systems. They will include:

- Relevant regulations, permits and agreements
- System overviews and existing and future evaluations
- Historical, current and future water demands / sewer flows
- Water resources
- Capital Improvement Plans
- Capital Replacement Plans
- Financial Impacts

Updating the Water Master Plan and Sewer Master Plan is consistent with the Work Plan in the Five-Year Strategic Plan adopted in 2012:

**Goal 4 – Finance.** *Maintain a well-planned, proactive financial condition that minimizes rate shocks and impacts on customers while meeting all service needs. (see all of the Actions identified in the Work Plan to accomplish Goal 4, attached).*

**Action 1.3.0 –** Apportion costs and benefits fairly among the water supply users.

**Action 5.3.2 –** Utilize the Asset Management System to inform and improve the accuracy of the Capital Replacement Programs, rate setting and apportionment of costs and benefits. Provide long-term financial

stability that avoids rate shocks and special assessments.

The Master Plans will include and compile information from the Olympic Valley Groundwater Management Plan, *Creek / Aquifer Interaction Study*, results from recently completed hydraulic modeling of the water and sewer systems in support of the Village at Squaw Valley Specific Plan, the Water Supply Assessment (WSA), financial projections relevant to the VSVSP, the *Space Needs Analysis* of the Utility Operations Department, as well as work completed as part of the *Redundant Water Supply / Preferred Alternative Evaluation*.

While some system expansion and increase in capacity is necessary to provide water and sewer service for new customers through build out of Placer County's 1983 *Squaw Valley General Plan and Land Use Ordinance*, the majority of the District's capital needs are replacement of existing infrastructure. We are entering the Era of Replacement for our water and sewer systems.

The Master Plans will identify present and future capital needs and help the District achieve its vision of providing a safe and reliable water supply while protecting the environment.

**DISCUSSION:** The preparation of the Water and Sewer Master Plans is a component of a process designed to lay out a fiscally responsible plan to meet the service levels expected by the Squaw Valley community from its PSD and Fire Department.

The strategy to achieve this goal is:

- Prepare Water Master Plan and Sewer Master Plan that include Capital Improvement Plans (CIP) and Capital Replacement Plans (CRP).
- Update the Fire Department's CIP and CRP.
- Capital *Replacement* Plans consider all foreseeable capital expenditures to maintain, and ultimately replace, the current inventory of District assets.
- Assets include Facilities, Equipment / Fleet, and Water & Sewer Infrastructure.
- Estimates of unit costs and useful life expectancy of improvements are applied to inform a schedule of expenses for long-term capital maintenance and replacement to assess the financial impact and aggregate effect on water and sewer rates.
- A Cost of Service Analysis is performed to apportion rates equitably across the variety of customer classes.
- A Funding Plan is prepared and adopted that commits to a level of funding of CRP's and CIP's from water and sewer rates and includes an inflationary escalator and a smoothing approach to increase rates to achieve desired funding levels.

- Compliant with regulatory constraints, Fixed Asset Replacement Funds (FARF) are redistributed departmentally to establish funding reserves that are equal in each department on a percentage-of-need basis.

This scope of work is an initial and important step in this strategy.

Farr West Engineering, in this scope of work, is assessing the water and sewer infrastructure only. Updates to the Fire Department's CIP and CRP as well as preparation of maintenance and replacement schedules for equipment, fleet and facilities that support the water and sewer departments will be performed by District staff. Inter-departmental funding allocations will be established for facilities and fleet used to deliver benefit shared by multiple departments.

Of course, the Master Plans, CRP's, CIP's and the Funding Plan will require periodic updates to correct for changes in asset inventory (e.g., system expansion, replacements, and improvements), actual asset deterioration (e.g., useful life expectancy is less or greater than estimated), economic factors, regulations, probabilities and significances of failure, risk exposure, etc.

**ALTERNATIVES:** A1. Authorize staff to execute a Professional Services Agreement (PSA) with Farr West Engineering to prepare a Water Master Plan for an amount not-to-exceed \$83,900.

*OR*

A2. Do not approve the proposal to prepare the Water Master Plan.

**AND**

B1. Authorize staff to execute a Professional Services Agreement (PSA) with Farr West Engineering to prepare a Sewer Master Plan for an amount not-to-exceed \$75,300.

*OR*

B2. Do not approve the proposal to prepare the Sewer Master Plan.

**FISCAL/RESOURCE IMPACTS:** The total costs to prepare the Master Plans are budgeted as capital expenses. However, staff submitted a grant application to the Placer County Water Agency's (PCWA) Financial Assistance Program to support preparation of the Water Master Plan in the amount of \$50,000; we expect to be notified by the end of May, 2015 if grant funds will be awarded.

The proposed scope of work, although costly, will update the foundation from

which the District will strategically and methodically improve its ability to achieve the goals envisioned in the Five-Year Strategic Plan, specifically the actions identified to accomplish Goal 4 in the Work Plan: *Maintain a well-planned, proactive financial condition that minimizes rate shocks and impacts on customers while meeting all service needs.*

**RECOMMENDATION:**

- A. Authorize staff to execute a Professional Services Agreement (PSA) with Farr West Engineering to prepare a **Water Master Plan** for an amount not-to-exceed \$83,900.

**AND**

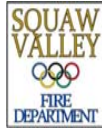
- B. Authorize staff to execute a Professional Services Agreement (PSA) with Farr West Engineering to prepare a **Sewer Master Plan** for an amount not-to-exceed \$75,300.

**ATTACHMENTS:** Five-Year Strategic Plan *Work Plan* – Goal 4; Proposal from Farr West Engineering to prepare the District’s Water Master Plan; Proposal from Farr West Engineering to prepare the Sewer Master Plan.

**DATE PREPARED:** May 20, 2015.



## Squaw Valley Public Service District 2012 Strategic Plan Summary



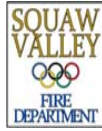
### Priorities:

1. Critical project that must be accomplished on time.
2. Important project but that can be delayed if needed to complete a #1 priority project.
3. Desirable project that can be delayed or cancelled to complete a #1 or #2 priority project.

No.	P	Action	Lead	Progress (% Complete)	Status/ Comments	Schedule
4.0.0		<b>Goal 4 – Finance. Maintain a well-planned, proactive financial condition that minimizes rate shocks and impacts on customers while meeting all service needs.</b>				
4.1.0		<b>Maintain adequate funding to meet long-term District obligations, including asset replacement, maintenance, expansion and employee benefits.</b>				
4.1.1	1	Continue Strong Reserve Funding of the Capital Replacement Programs by setting rates that include contributions to asset replacements.	Board	ongoing	Contributions strained by decrease in AV property tax revenue	ongoing
4.1.2	2	Prepare <u>Deferred Maintenance / Replacement Schedules</u> including cost estimates for all District Facilities, Equipment and Fixed Assets and assign funding responsibilities to beneficiary service department by allocations developed from Work Order System (4.2.1).	Jesse Pete		Mike (4.2.1)	July 2013 - Dec. 2013
4.1.3	2	Prepare <b>Capital Replacement Programs</b> for each service department (water, sewer, fire, administration, dumpster facility, parks and recreation) that include Needs Analyses, Budget Forecasts and Funding Plans. Clearly justify capital replacement contributions collected from User Fees. Incorporate in to an update of Master Plans for each service upon completion of improvements prompted by new development.	Jesse Pete		Mike, Aleta, Kathy	
4.2.0		<b>Implement a GIS-based Work Order System and Asset Management System to apportion costs and benefits fairly among existing customers as well as among current and future generations of customers.</b>				
4.2.1	1	Implement a <b>Work Order System</b> . Track expenses for labor, equipment, materials, and services to accurately determine the cost of operations for each service provided. Develop cost allocations for shared resources. Use data to inform operating and capital budget decisions, and to accurately set rates and assessments that correlate to the levels of services provided.	Mike	15%	Pete, Jesse, Cindy, Brandon (1.3.0) (5.20)	Jan. 2012 - Dec. 2013 + beyond



# Squaw Valley Public Service District 2012 Strategic Plan Summary



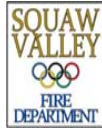
## Priorities:

1. Critical project that must be accomplished on time.
2. Important project but that can be delayed if needed to complete a #1 priority project.
3. Desirable project that can be delayed or cancelled to complete a #1 or #2 priority project.

No.	P	Action	Lead	Progress (% Complete)	Status/ Comments	Schedule
4.3.0		<b>Continue to review and update Water, Sewer, Fire, Garbage, Park/Public Recreation Facilities connection fees and user fees. Include capital replacement fees in user fees.</b>				
4.3.1	1	Utilize annual budget process to update User Fees to cover operating expenses. Use Capital Replacement Programs to determine asset replacement contributions to User Fees. Update Connection Fees. Utilize cost allocations for shared resources developed from Work Order System.	Aleta	50%  User Fees & FARF contributions are ongoing.	Update Connection Fees upon completion of Feasibility Study (1.1.2) (1.3.0)	June 2011 - Dec. 2013 + beyond
4.4.0		<b>Seek alternative sources of revenue / funding that don't rely on customer rates and fees.</b>				
4.4.1	1	Continue pursuit of <u>grant funding</u> opportunities. Consider cost of application and grant contract administration versus the benefit.			(1.2.0) (1.5.0) (2.2.0)	Oct. 2011 - Dec. 2013 + beyond
		<ul style="list-style-type: none"> <li>Federal Emergency Management Agency (FEMA)</li> </ul>	Pete	90%	Grant application submitted	Mar. 2012 – Jan. 2013
		<ul style="list-style-type: none"> <li>Integrated Regional Water Management (IRWM)</li> </ul>	Cindy	20%	Funding pending for IRWM Plan Update	Oct. 2011 - Dec. 2013 + beyond
		<ul style="list-style-type: none"> <li>Local Groundwater Assistance Program (LGWAP)</li> </ul>	Cindy	90%	Grant application submitted.	June 2012 - Jan. 2013
		<ul style="list-style-type: none"> <li>Placer County Water Agency's (PCWA's) Financial Assistance Program (FAP)</li> </ul>	Jesse	100%	\$10,000 - MWC Intertie	Apr. 2012 - May 2012
		<ul style="list-style-type: none"> <li>North Lake Tahoe Resort Association's (NLTRA's) Transient Occupancy Tax (TOT)</li> </ul>	Kathy		Bike Trail Snow Removal	Jan 2013 - Sept. 2013
		<ul style="list-style-type: none"> <li>Park Dedication Fees</li> </ul>	Mike		Bike Trail Snow Removal	Jan 2013 - Sept. 2013
		<ul style="list-style-type: none"> <li>Public Recreation/Parks County Service Area (CSA)</li> </ul>	Mike		Bike Trail Snow Removal	Jan 2013 - Sept. 2013



## Squaw Valley Public Service District 2012 Strategic Plan Summary



### Priorities:

1. Critical project that must be accomplished on time.
2. Important project but that can be delayed if needed to complete a #1 priority project.
3. Desirable project that can be delayed or cancelled to complete a #1 or #2 priority project.

No.	P	Action	Lead	Progress (% Complete)	Status/ Comments	Schedule
4.4.2	3	Consider potential for <u>rental revenue</u> in the property master plan.	Pete		Jesse (5.5.0)	Jan. 2013 - Dec. 2013
4.4.3	3	Consider <u>benefit assessments</u> . Utilize Community Survey.	Kathy		Mike, Pete (2.2.3)	
4.4.4	3	Consider providing services (e.g., administrative, operations & maintenance) outside of District's service areas on a contractual, time and material, reimbursable, fee basis. Mutual Water Company, Squaw Valley Park, Bike Trail, etc.	Mike	25%	Bike Trail Snow Removal ongoing Jesse, Aleta, Kathy	Oct. 2011 - Dec. 2013 + beyond
4.4.5	3	Develop a graph that benchmarks revenue from outside funding sources by year. Include grants, reimbursable expenses, rental income.	Aleta			Nov. 2012

# FARR WEST

## ENGINEERING

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May 20, 2015

Mike Geary, P.E.  
General Manager  
Squaw Valley Public Service District  
305 Squaw Valley Road  
P.O. Box 2026  
Olympic Valley, CA 96146-2026

**RE: Scope of Work for SVPSD Water Master Plan**

Dear Mike,

Farr West Engineering (Farr West) appreciates the opportunity to present this scope of work to prepare a Water Master Plan for the Squaw Valley Public Service District (District). The last water master plan prepared for the District was in 1994. Since that time, numerous water system planning efforts have taken place, including recent studies such as:

- Village at Squaw Valley Specific Plan (VSVSP) SB 610 Water Supply Assessment;
- VSVSP Water System Hydraulic Evaluation;
- Redundant Water Supply – Preferred Alternative Evaluation Project; and
- Olympic Valley Creek/Aquifer Interaction Study

This Water Master Plan will consolidate the results of all of these planning efforts into a single, comprehensive document, as well as develop a Capital Improvement Plan (CIP) and Capital Replacement Plan (CRP). The CIP will identify improvements required as a result of expanding or increased capacity needs, as well as improvements recommended to optimize operational efficiencies. The CRP will establish a long term plan and funding strategy for the replacement of existing water system assets.

Ultimately, the Water Master Plan will provide a comprehensive document for both current and future conditions that addresses:

- Water demands;
- Water supply and sources;
- Regulatory requirements;
- CIP;
- CRP; and
- Financial impacts.



Specifically, this scope of work includes the following tasks:

- Task 1: Data Collection, Organization and Review
- Task 2: Capital Improvement Plan – Alternatives Evaluation
- Task 3: Capital Replacement Plan – Budget Forecasting
- Task 4: Water Master Plan Preparation
- Task 5: Project Management and Meetings

Details of each task are presented below.

### **Task 1: Data Collection, Organization and Review**

This task includes the collection and review of pertinent data and previous studies that will be used in the preparation of this Water Master Plan. This task will also include the organization of existing data used to prepare previous studies such as water demand and production data, land use and future potential development information, future water demand and production estimates, etc. Currently, this data resides in a number of different electronic documents and formats. In the end, a comprehensive database will be prepared that houses all of this data. This database will also catalog all pertinent District water planning documents prepared previously by the District, including water supply studies, master plan documents, hydrogeologic investigations, development agreements, etc.

#### ***Deliverables:***

- There are no formal deliverables associated with this task.

### **Task 2: Capital Improvement Plan – Alternatives Evaluation**

This task will include the development of CIP alternatives based on previous studies and further hydraulic analysis. CIP projects will include those driven by proposed and future planned development, as well as alternatives developed to address existing system deficiencies and operational optimization needs.

Growth related capital improvements have been recently identified as a result of the proposed VSVSP project, Resort at Squaw Creek Phase II project, and anticipated future development through General Plan buildout. Water system improvements for these instances have been identified based on hydraulic modeling efforts.

A number of non-growth related capital improvements have been identified and will be evaluated in this task. This includes projects such as a new water storage tank at the east end of the Valley to establish a new pressure zone and meet regulatory pressure requirements, a booster pump station at the new east end tank site to support operational needs, and increased capacity at the existing East Booster Pump Station. Farr West will work closely with the District to identify other capital improvements to be evaluated as well.

Planning level cost estimates will be prepared for each alternative, as well as a phasing plan identifying the estimated timing and trigger points for the projects. This information will be incorporated into the Water Master Plan document.

***Deliverables:***

- Summary Memorandum – CIP Alternatives Evaluation

**Task 3: Capital Replacement Plan – Budget Forecasting**

The CRP will establish a long term plan and funding strategy for the replacement of existing water system assets. Farr West will work closely with the District to develop a long term (100-year) CRP utilizing the Budget Forecasting tool in VueWorks (the District’s asset management program). The CRP will address each asset type individually, including:

- Mains
- Valves
- Services and meters
- Tanks
- Wells (horizontal and vertical)
- Water treatment facilities
- Hydrants
- Pump stations
- Pressure reducing valves (PRVs)
- Misc. Valves (blow-off, air/vacuum, etc.)
- SCADA

Farr West will use the District’s existing water system GIS for this analysis. Using the Budget Forecasting tool requires, at a minimum, asset attributes such as asset type, installation date, and location (off-road/on-road). In its current state, the installation date for most water mains is populated in the GIS. Location information is not currently populated in the GIS. Installation dates will need to be populated for the other water system assets. For tanks, wells, treatment facilities, pump stations, and PRVs the level of effort is small. For valves, hydrants, and services, we will likely use installation dates and locations based on the nearest main. Updating the GIS database with this information will be performed under the 2014/2015 Asset Management and Work Management On-Call Implementation Services Professional Services Agreement. Edits to the GIS database will be performed by Farr West. Identification of installation dates and locations will be completed by both Farr West and District staff.

The CRP will also require assigning asset life expectancy and unit cost estimates for each asset type. Farr West will prepare a summary of unit cost estimates and asset life expectancy for the District’s review. Farr West will also work with the District to establish deterioration curve(s) for each asset type.

With this data, Farr West and the District will work interactively in the VueWorks Budget Forecasting Module to perform “what-if” analysis and establish a CRP that provides annual cost of replacement for each water system asset over a 100-year period. No risk or condition data will

be used for the CRP evaluation. We will use the automated budget forecast where VueWorks prioritizes assets and jobs. This will return:

- Yearly budget figures for asset replacement;
- Detailed information on each asset for when jobs should be applied, their cost, and their effect on the asset's deterioration and life expectancy.

The results of the CRP will be used to inform the Financial Impacts chapter of the Water Master Plan.

***Deliverables:***

- Spreadsheet – yearly budget figures for replacement by asset type

**Task 4: Water Master Plan Preparation**

This task includes the preparation of the Water Master Plan. The format will closely follow the SVSPSD Water Master Plan Table of Contents (Exhibit A). Specific chapters include:

Executive Summary

Section 1:	Introduction
Section 2:	Regulations and Agreements
Section 3:	Existing Water System Overview
Section 4:	Historical, Current, and Future Water Demands
Section 5:	Water Resources
Section 6:	Existing System Evaluation
Section 7:	Future System Evaluation
Section 8:	Capital Improvement Plan
Section 9:	Capital Replacement Plan
Section 10:	Financial Impacts

The level of effort assumes that many of the chapters will be populated with existing information from recent studies with no further evaluation being performed as part of this scope of work. Specifically:

- Section 4 will provide a summary of recent studies which evaluated historical, current, future, and redundant water demands, including VSVSP SB 610 Water Supply Assessment, VSVSP Water System Hydraulic Evaluation, and Phase 1 and 2 of the Redundant Water Supply – Preferred Alternative Evaluation Project.
- Section 5 will provide a summary of recent studies which evaluated water resources in the Olympic Valley, including the VSVSP SB 610 Water Supply Assessment and Olympic Valley Creek/Aquifer Interaction Study, as well as the 2009 Alternative/Supplemental Water Supply and Enhanced Utilities Feasibility Study regarding potential redundant water supplies outside of the Valley.
- Sections 6 and 7 will include the methods and results of the existing and future system hydraulic and regulatory evaluation performed under the VSVSP Water System Hydraulic evaluation. This study identified system improvements necessary to serve future anticipated growth, including the VSVSP and General Plan buildout water demand estimates.

The Section 8 CIP will include the results of the Task 2 evaluation, including project descriptions, cost estimates, and proposed phasing/trigger points of the CIP projects evaluated. The Section 9 CRP will include the results from Task 3, including the methods and results of the 100-year budget forecast evaluation.

Section 10 Financial Impacts will be prepared by the District rate and connection fee analysis consultant, with support provided by Farr West and the District. Farr West will incorporate the financial impacts analysis into the Water Master Plan.

***Deliverables:***

- Draft Water Master Plan
- Final Water Master Plan

**Task 5: Project Management and Meetings**

**Project Management**

This task includes overall project management throughout the project. Project management tasks include, but are not limited to, coordination with the District, staff, preparation of monthly status reports and invoices and associated administrative time.

**Meetings**

Preparation of the Water Master Plan will be an interactive effort between the District and Farr West. Specifically in the development of the CIP and CRP. This scope of work assumes the following meetings:

- Kick Off Meeting
- Capital Improvement Plan Development (2 meetings)
- Capital Replacement Plan Development (8 meetings)
- Draft Water Master Plan Review Meeting
- Water and Sewer Committee Presentation
- Board Presentation

***Deliverables:***

- Meeting agendas and minutes
- PowerPoint presentation for Board
- Monthly invoices

## Schedule

Preparation of the Water Master Plan is expected to take approximately 9 months to complete. Assuming approval of the scope of work at the May 2015 Board meeting, work will begin immediately thereafter. The major project milestones include:

- Submit Draft Water Master Plan to District – January 4, 2016
- Draft Water Master Plan presentation - January 2016 Board meeting
- Submit Final Water Master Plan to District – February 15, 2016
- Final Water Master Plan adoption – February 2016 Board meeting

Farr West Engineering proposes to perform the above scope of services for an estimated fee not to exceed \$83,900.00. The estimated fee will not be exceeded without prior authorization. The work will be billed on a time and expense basis according to the 2015 Farr West Fee Schedule (Exhibit B). The task breakdown and fee estimate are attached as Exhibit C.

Please contact me at (775) 853-7263 if you have any questions regarding this SOW. We are prepared to commence work immediately upon your authorization.

Sincerely,

A handwritten signature in blue ink, appearing to read "Dave Hunt".

Dave Hunt, P.E.  
Principal Civil Engineer

Enclosures

Attachment A – SVPSD Water Master Plan Table of Contents  
Attachment B – FWE 2015 Fee Schedule  
Attachment C – Task Breakdown and Fee Estimate

cc:

# **SVPSD WATER MASTER PLAN**

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  - 4.4.2. GENERAL PLAN BUILDOUT
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## 2015 RATE SCHEDULE

<b>Title</b>	<b>Hourly Rate</b>	<b>Title</b>	<b>Hourly Rate</b>
Principal Civil Engineer	\$130	Senior Designer	\$90
Project Manager	\$105	GIS Analyst	\$105
Project Engineer, EIT	\$90	GIS Technician	\$75
Project Engineer, EIT II	\$80	Water Rights Surveyor	\$125
Senior Hydrogeologist	\$130	Water Rights Specialist	\$105
Hydrogeologist	\$90	Water Rights Technician	\$75
Hydrogeologist II	\$75	Water Rights Technician II	\$65
Principal Electrical Engineer	\$150	Professional Surveyor	\$115
Environmental Scientist	\$105	Survey Technician	\$75
Construction Inspector	\$90	Survey Technician II	\$60
Plan Check/Building Inspector	\$75	2 Man Survey Crew	\$135
Senior Administrator	\$70	3 Man Survey Crew	\$155
Project Assistant	\$60	Intern	\$45
Administrator	\$45		

### Other Fees and Charges:

1. All direct project expenses, including subconsultants, will be billed at actual cost plus 15%.
2. Vehicles used for travel to meetings, deliveries, etc. will be charged at the current federal reimbursement rate.
3. GPS receivers will be charged at a rate of \$10/hr/receiver.
4. Density gauges will be charged at a rate of \$100/day.
5. An overtime surcharge of 25% will be applied to the hourly rates of non-salaried employees for authorized overtime work.

Squaw Valley Public Service District  
Water Master Plan  
Task Breakdown and Fee Estimate

	Principal Engineer - QA/QC	Principal Engineer	Project Manager	Project Engineer	GIS Analyst	GIS Technician	Administration	Total Labor		Expenses (a)	TOTAL	
TASKS	Rate (\$/hr)	\$130	\$130	\$105	\$90	\$105	\$75	\$60	Hours	(\$)	(\$)	(\$)
1.0 Data Collecton, Organization and Review												
Collect and Review Existing Data (population, existing water supply/demand, etc.)			16	8					24	\$2,920		\$2,920
Summary of Studies Completed to Date			4						4	\$520		\$520
Subtotal			20	8					28	\$3,440		\$3,400
2.0 Capital Improvement Plan - Alternatives Evaluation												
Existing System			16	80					96	\$10,480		\$10,480
Future Demand Conditions			8	20					28	\$3,140		\$3,140
Cost Estimates			2	12					14	\$1,520		\$1,520
Phase Plan/Trigger Points			4						4	\$520		\$520
Subtotal			30	112					142	\$15,660		\$15,700
3.0 Capital Replacement Plan - Budget Forecasting												
Cost Estimating Criteria			2	16					18	\$1,940		\$1,940
Asset Life Expectancy				8					8	\$840		\$840
100-yr Budget Forecast by Asset Type			80						80	\$10,400		\$10,400
Existing System CRP			8	32					40	\$4,400		\$4,400
Subtotal			90	56					146	\$17,580		\$17,600
4.0 Master Plan Preparation												
Draft Master Plan		8	44	120		44		12	228	\$24,700		\$24,700
Final Master Plan		4	16	24		16		12	72	\$7,520		\$7,520
Subtotal		12	60	144		60		24	300	\$32,220		\$32,200
5.0 Project Management and Meetings												
Monthly Reports, Progress Billings, Staff Management			24				12	36	\$3,840			\$3,840
Meetings			80					80	\$10,400	\$750		\$11,150
Subtotal			104				12	116	\$14,240	\$750		\$15,000
TOTAL		12	304	320		60		36	732	\$83,140	\$750	\$83,900

# FARR WEST

## ENGINEERING

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May 20, 2015

Mike Geary, P.E.  
General Manager  
Squaw Valley Public Service District  
305 Squaw Valley Road  
P.O. Box 2026  
Olympic Valley, CA 96146-2026

**RE: Scope of Work for SVPSD Sewer Master Plan**

Dear Mike,

Farr West Engineering (Farr West) appreciates the opportunity to present this scope of work to prepare a Sewer Master Plan for the Squaw Valley Public Service District (District). The last sewer master plan prepared for the District was in 1994; the last infiltration and inflow (I/I) analysis was performed in 2001. Since that time, a number of sewer system planning efforts have taken place, including the 2007 Sewer Capacity Study, East Valley Sewer evaluation, and the most recent Village at Squaw Valley Specific Plan (VSVSP) Sewer Capacity Analysis (2014).

This Master Plan will consolidate the results of all of these planning efforts into a single, comprehensive document, as well as develop a Capital Improvement Plan (CIP) and Capital Replacement Plan (CRP). The CIP will identify improvements required as a result of expanding or increased capacity needs, I/I reduction projects, increased capacity needs of the Truckee River siphon, and an evaluation of options for replacement of Squaw Valley Road sewer interceptor. The CRP will establish a long term plan and funding strategy for the replacement of existing sewer system assets.

Ultimately, the Sewer Master Plan will provide a comprehensive document for both current and future conditions that addresses:

- Existing and future sanitary average dry weather flow (ADWF) and peak wet weather flow (PWWF);
- Regulatory requirements;
- Infiltration and inflow;
- CIP;
- CRP; and
- Financial impacts.

Specifically, this scope of work includes the following tasks:

- Task 1: Data Collection, Organization and Review
- Task 2: Infiltration and Inflow Analysis
- Task 3: Capital Improvement Plan – Alternatives Evaluation
- Task 4: Capital Replacement Plan – Budget Forecasting
- Task 5: Master Plan Preparation
- Task 6: Project Management and Meetings

Details of each task are presented below.

### **Task 1: Data Collection, Organization and Review**

This task includes the collection and review of pertinent data and previous studies that will be used in the preparation of this Master Plan. This task will also include the organization of existing data used to prepare previous studies such as sewer flow data, land use and future potential development information, future sewer flow, etc. This task includes review of recently collected closed caption television (CCTV) inspection data. Recent CCTV data has been added to the sewer system GIS, but has not been evaluated by Farr West.

Currently, this data resides in a number of different electronic documents and formats. In the end, a comprehensive database will be prepared that houses all of this data. This database will also catalog all pertinent District sewer planning documents prepared previously by the District, including sewer system capacity analysis, Sewer System Management Plan (SSMP), I/I documents, development agreements, etc.

#### ***Deliverables:***

- There are no formal deliverables associated with this task.

### **Task 2: Infiltration and Inflow Analysis**

The most recent I/I evaluations of the District's sewer collection system include the 1994 Sewer Master Plan and a study performed by ECO:LOGIC Engineering in 2001. The 1994 Master Plan recommended the placement of permanent sewer flow meters at four locations. The 2001 study provided alternatives for permanent flow monitor installation and a temporary flow monitoring program. A permanent flow monitor was installed adjacent to manhole SSMH T40 in 2011. This monitor measures flows from the primarily residential basin including the Hidden Lake, Painted Rock, and Winding Creek Road areas.

This task will include a thorough evaluation of the T40 flow meter data to assess I/I patterns in that flow basin. This task will also review past and present I/I trends in the remainder of the system, based on available flow monitoring data. Results of this analysis will be presented in the CIP alternatives evaluation.

#### ***Deliverables:***

- Summary Memorandum – I/I Trends and Flow Monitoring Recommendations

### **Task 3: Capital Improvement Plan – Alternatives Evaluation**

This task will include the development of CIP alternatives based on previous studies and further hydraulic analysis. CIP projects will include those driven by proposed and future planned development, as well as alternatives developed to address existing system deficiencies.

Growth related capital improvements have been recently identified as a result of the proposed VSVSP project, Resort at Squaw Creek Phase II project, and anticipated future development through General Plan buildout. Sewer collection system improvements for these instances have been identified based on hydraulic modeling efforts.

A number of non-growth related capital improvements have been identified and will be evaluated in this task. This includes projects related to I/I reduction and flow monitoring, the East Valley Sewer evaluation (Auerbach Engineering study), replacement and/or upsizing the Truckee River siphon, and replacement options for the Squaw Valley Road interceptor. Farr West will work closely with the District to identify other capital improvements to be evaluated as well.

Planning level cost estimates will be prepared for each alternative as well as a phasing plan identifying the estimated timing and trigger points for the projects. This information will be incorporated into the Master Plan document.

#### ***Deliverables:***

- Summary Memorandum – CIP Alternatives Evaluation

### **Task 4: Capital Replacement Plan – Budget Forecasting**

The CRP will establish a long term plan and funding strategy for the replacement of existing sewer system assets. Farr West will work closely with the District to develop a long term (100-year) CRP utilizing the Budget Forecasting tool in VueWorks (the District's asset management system). The CRP will address each asset type individually, including:

- Interceptors
- Mains
- Siphons
- Manholes
- Flow monitors
- District owned cleanouts
- Service laterals and property line cleanouts
- SCADA

Farr West will use the District's existing sewer system GIS for this analysis. Using the Budget Forecasting tool requires, at a minimum, asset attributes such as asset type, installation date, and location (off-road/on-road). In its current state, the installation date for most sewer mains (6" diameter and greater) and sewer manholes is populated in the GIS. Location information is not currently populated in the GIS. Installation dates will need to be populated for the other sewer system assets. For sewer flow monitors the level of effort is small. For District owned cleanouts,

property line cleanouts and service laterals, we will populate installation dates and locations based on the nearest sewer main. Updating the GIS database with this information will be performed under the 2014/2015 Asset Management and Work Management On-Call Implementation Services Professional Services Agreement. Edits to the GIS database will be performed by Farr West. Identification of installation dates and locations will be completed by both Farr West and District staff.

The CRP will also require assigning asset life expectancy and unit cost estimates for each asset type. Farr West will prepare a summary of unit cost estimates and asset life expectancy for the District's review. Farr West will also work with the District to establish deterioration curve(s) for each asset type.

With this data, Farr West and the District will work interactively using the VueWorks Budget Forecasting tool to perform "what-if" analysis and establish a CRP that provides annual cost of replacement for each sewer system asset over a 100-year period. No risk or condition data will be used for the CRP evaluation. We will use the automated budget forecast where VueWorks prioritizes assets and jobs. This will return:

- Yearly budget figures for asset replacement; and
- Detailed information on each asset for when jobs should be applied, their cost, and their effect on the asset's deterioration and life expectancy.

The results of the CRP will be used to inform the Financial Impacts chapter of the Master Plan.

The level of effort assumed in the fee estimate is based on the water system CRP being completed first. The same methodologies developed in the water system CRP will be used in the sewer system CRP.

***Deliverables:***

- Spreadsheet – yearly budget figures for replacement by asset type

**Task 5: Master Plan Preparation**

This task includes the preparation of the Master Plan. The Master Plan will closely follow the SVPSSD Sewer Master Plan Table of Contents (Exhibit A). Specific chapters include:

Executive Summary

- Section 1: Introduction
- Section 2: Regulations, Permits and Agreements
- Section 3: Existing Sewer Collection System Overview
- Section 4: Historical, Current, and Future Sewer Flows
- Section 5: Existing System Evaluation
- Section 6: Future System Evaluation
- Section 7: Capital Improvement Plan
- Section 8: Capital Replacement Plan
- Section 9: Financial Impacts

The level of effort assumes that many of the chapters will be populated with existing information from recent studies with no further evaluation being performed as part of this scope of work. Specifically:

- Section 4 will provide a summary of recent studies which evaluated historical, current, and future sewer flows, including the VSVSP Sewer Capacity Analysis. Section 4 will also address the I/I analysis performed under Task 2.
- Sections 5 and 6 will include the methods and results of the existing and future system hydraulic evaluation performed under the VSVSP Sewer Capacity Analysis. This study identified system improvements necessary to serve future anticipated growth, including the VSVSP and General Plan buildout sewer generation estimates.

The Section 7 CIP will include the results of the Task 3 evaluation, including project descriptions, cost estimates, and proposed phasing/trigger points of the CIP projects evaluated. The Section 8 CRP will include the results from Task 4, including the methods and results of the 100-year budget forecast evaluation.

Section 9 Financial Impacts will be prepared by the District rate and connection fee analysis consultant, with support provided by both Farr West and the District. Farr West will incorporate the financial impacts analysis into the Master Plan.

***Deliverables:***

- Draft Sewer Master Plan
- Final Sewer Master Plan

**Task 6: Project Management and Meetings**

**Project Management**

This task includes overall project management throughout the project. Project management tasks include, but are not limited to, coordination with the District, staff, preparation of monthly status reports and invoices and associated administrative time.

**Meetings**

Preparation of the Sewer Master Plan will be an interactive effort between the District and Farr West. Specifically in the development of the CIP and CRP. This scope of work assumes the following meetings:

- Kick Off Meeting
- Capital Improvement Plan Development (2 meetings)
- Capital Replacement Plan Development (4 meetings)
- Draft Sewer Master Plan Review Meeting
- Water and Sewer Committee Presentation
- Board Presentation

***Deliverables:***

- Meeting agendas and minutes
- PowerPoint presentation for Board
- Monthly invoices

**Schedule**

Preparation of the Sewer Master Plan is expected to take approximately 9 months to complete. Assuming approval of the scope of work at the May 2015 Board meeting, work will begin immediately thereafter. The major project milestones include:

- Submit Draft Sewer Master Plan to District – January 4, 2016
- Draft Sewer Master Plan presentation - January 2016 Board meeting
- Submit Final Sewer Master Plan to District – February 15, 2016
- Final Sewer Master Plan adoption – February 2016 Board meeting

Farr West Engineering proposes to perform the above scope of services for an estimated fee not to exceed \$75,300.00. The estimated fee will not be exceeded without prior authorization. The work will be billed on a time and expense basis according to the 2015 Farr West Fee Schedule (Exhibit B). The task breakdown and fee estimate are attached as Exhibit C.

Please contact me at (775) 853-7263 if you have any questions regarding this SOW. We are prepared to commence work immediately upon your authorization.

Sincerely,



Dave Hunt, P.E.  
Principal Civil Engineer

Enclosures

Attachment A – SVPSD Sewer Master Plan Table of Contents  
Attachment B – FWE 2015 Fee Schedule  
Attachment C – Task Breakdown and Fee Estimate



# **SVPSD SEWER MASTER PLAN**

## **TABLE OF CONTENTS**

### **EXECUTIVE SUMMARY**

### **SECTION 1. INTRODUCTION**

- 1.1. HISTORY AND BACKGROUND
- 1.2. PURPOSE
- 1.3. PREVIOUS STUDIES

### **SECTION 2. REGULATIONS, PERMITS AND AGREEMENTS**

- 2.1. WASTEWATER COLLECTION SYSTEM REGULATIONS
  - 2.1.1. FEDERAL
  - 2.1.2. STATE
  - 2.1.3. COUNTY
  - 2.1.4. LOCAL
  - 2.1.5. SEWER SYSTEM MANAGEMENT PLAN
- 2.2. COMPLIANCE CRITERIA
- 2.3. STANDARDS
  - 2.3.1. DESIGN, CONSTRUCTION AND OPERATION STANDARDS
- 2.4. LAND USE
  - 2.4.1. 1983 GENERAL PLAN
- 2.5. DEVELOPMENT AGREEMENTS

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- 3.1. COLLECTION SYSTEM
  - 3.1.1. SEWER MAINS
  - 3.1.2. SEWER INTERCEPTORS
  - 3.1.3. SIPHONS
  - 3.1.4. FLOW METERS
  - 3.1.5. MANHOLES
  - 3.1.6. DISTRICT OWNED CLEANOUTS AND LATERALS
  - 3.1.7. SERVICE LATERALS AND PROPERTY LINE CLEANOUTS
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### **SECTION 4. HISTORICAL, CURRENT AND FUTURE SEWER FLOWS**

- 4.1. EXISTING AND HISTORIC SEWER FLOWS
  - 4.1.1. SEASONAL FLOWS
  - 4.1.2. HIGH CAMP FLOW
- 4.2. UNIT WASTEWATER GENERATION RATES
- 4.3. BUILDOUT SEWER FLOWS
  - 4.3.1. VSVSP

- 4.3.2. GENERAL PLAN BUILDOUT
- 4.3.3. EAST VALLEY SEWER
- 4.4. INFILTRATION AND INFLOW

## **SECTION 5. EXISTING SYSTEM EVALUATION**

- 5.1. METHODOLOGY
- 5.2. MODEL DEVELOPMENT
- 5.3. COLLECTION SYSTEM ANALYSIS
  - 5.3.1. ADWF
  - 5.3.2. PWWF
- 5.4. SIPHON CAPACITY

## **SECTION 6. FUTURE SYSTEM EVALUATION**

- 6.1. HYDRAULIC ANALYSIS
  - 6.1.1. ADWF
  - 6.1.2. PWWF
- 6.2. SIPHON CAPACITY

## **SECTION 7. CAPITAL IMPROVEMENT PLAN**

- 7.1. METHODOLOGY
- 7.2. COST ESTIMATING CRITERIA
  - 7.2.1. CONSTRUCTION COSTS
    - 7.2.1.1. SEWER MAINS
    - 7.2.1.2. SEWER INTERCEPTORS
    - 7.2.1.3. SIPHONS
    - 7.2.1.4. MANHOLES
    - 7.2.1.5. SEWER FLOW METERS
    - 7.2.1.6. DISTRICT OWNED CLEANOUTS AND LATERALS
    - 7.2.1.7. SERVICE LATERALS AND PROPERTY LINE CLEANTOUS
    - 7.2.1.8. CONTINGENCIES
    - 7.2.1.9. ENGINEERING AND ADMINISTRATION
- 7.3. CAPITAL IMPROVEMENT PLAN
  - 7.3.1. ALTERNATIVES DEVELOPMENT
    - 7.3.1.1. COLLECTION SYSTEM
    - 7.3.1.2. SIPHONS
    - 7.3.1.3. SEWER FLOW METERS
    - 7.3.1.4. SCADA

## **SECTION 8. CAPITAL REPLACEMENT PLAN**

- 8.1. CAPITAL REPLACEMENT PLAN
  - 8.1.1. EXISTING FACILITIES REPLACEMENT PLAN
    - 8.1.1.1. BUDGET FORECASTING BY ASSET TYPE

## **SECTION 9. FINANCIAL IMPACTS**

### **9.1. CURRENT FEE AND RATE STRUCTURE**

#### **9.1.1. CONNECTION FEES**

#### **9.1.2. FACILITY FEES**

#### **9.1.3. RATES**

### **9.2. PROPOSED FEE AND RATE SCHEDULE**

#### **9.2.1. CONNECTON FEE STRUCTURE**

#### **9.2.2. PROPOSED FACILITIES FEE STRUCTURE**

#### **9.2.3. PROPOSED RATE STRUCTURE**



## 2015 RATE SCHEDULE

<b>Title</b>	<b>Hourly Rate</b>	<b>Title</b>	<b>Hourly Rate</b>
Principal Civil Engineer	\$130	Senior Designer	\$90
Project Manager	\$105	GIS Analyst	\$105
Project Engineer, EIT	\$90	GIS Technician	\$75
Project Engineer, EIT II	\$80	Water Rights Surveyor	\$125
Senior Hydrogeologist	\$130	Water Rights Specialist	\$105
Hydrogeologist	\$90	Water Rights Technician	\$75
Hydrogeologist II	\$75	Water Rights Technician II	\$65
Principal Electrical Engineer	\$150	Professional Surveyor	\$115
Environmental Scientist	\$105	Survey Technician	\$75
Construction Inspector	\$90	Survey Technician II	\$60
Plan Check/Building Inspector	\$75	2 Man Survey Crew	\$135
Senior Administrator	\$70	3 Man Survey Crew	\$155
Project Assistant	\$60	Intern	\$45
Administrator	\$45		

### Other Fees and Charges:

1. All direct project expenses, including subconsultants, will be billed at actual cost plus 15%.
2. Vehicles used for travel to meetings, deliveries, etc. will be charged at the current federal reimbursement rate.
3. GPS receivers will be charged at a rate of \$10/hr/receiver.
4. Density gauges will be charged at a rate of \$100/day.
5. An overtime surcharge of 25% will be applied to the hourly rates of non-salaried employees for authorized overtime work.

Squaw Valley Public Service District  
Sewer Master Plan  
Task Breakdown and Fee Estimate

	Principal Engineer - QA/QC	Principal Engineer	Project Manager	Project Engineer	GIS Analyst	Administration	Total Labor		Expenses (a)	TOTAL
TASKS	Rate (\$/hr)						Hours	(\$)	(\$)	(\$)
1.0 Data Collecton, Organization and Review										
Collect and Review Existing Data (sewer flow meter data, CCTV data, etc.)		4	16	40			60	\$5,800		\$5,800
Summary of Studies Completed to Date		4					4	\$520		\$520
Subtotal	0	8	16	40	0	0	64	\$6,320	\$0	\$6,300
2.0 Infiltration and Inflow Analysis										
Compile and Evaluate SSMH T40 Data		4	8	40			52	\$4,960		\$4,960
Overall System I/I Analysis		4	24				28	\$3,040		\$3,040
Subtotal	0	8	32	40	0	0	80	\$8,000	\$0	\$8,000
3.0 Capital Improvement Plan - Alternatives Evaluation										
Existing System (including Squaw Valley Rd. interceptor analysis)		16	80				96	\$10,480		\$10,480
Future Demand Conditions (including Truckee River siphon analysis)		8	20				28	\$3,140		\$3,140
Cost Estimates		2	12				14	\$1,520		\$1,520
Phase Plan/Trigger Points		4					4	\$520		\$520
Subtotal	0	30	112	0	0	0	142	\$15,660	\$0	\$15,700
4.0 Capital Replacement Plan - Budget Forecasting										
Cost Estimating Criteria		2	16				18	\$1,940		\$1,940
Asset Life Expectancy			4				4	\$420		\$420
100-yr Budget Forecast by Asset Type		40					40	\$5,200		\$5,200
Existing System CRP		8	32				40	\$4,400		\$4,400
Subtotal	0	50	52	0	0	0	102	\$11,960	\$0	\$12,000
5.0 Master Plan Preparation										
Draft Master Plan	8	38	100	0	40	12	198	\$21,400		\$21,400
Executive Summary					4					\$0
Section 1 - Introduction		2	4							\$0
Section 2 - Regulations, Permits and Agreements		2	8							\$0
Section 3 - Existing Sewer Collection System		4	12		8					\$0
Section 4 - Histroical, Current and Future Sewer Flows		4	12		4					\$0
Section 5 - Existing System Evaluation		2	4		4					\$0
Section 6 - Future System Evaluation		2	4		4					\$0
Section 7 - Capital Improvement Plan (CIP)		10	32		8					\$0
Section 8 - Capital Replacement Plan (CRP)		8	16		8					\$0
Sectoino 9 - Financial Impacts		4	8							\$0
Final Master Plan	4	16	24		16	12	72	\$7,520		\$7,520
Subtotal	12	54	124	0	56	24	270	\$28,920	\$0	\$28,900
6.0 Project Management and Meetings										
Monthly Reports, Progress Billings, Staff Management		24				12	36	\$3,840		\$3,840
Meetings		60					60	\$7,800	\$750	\$8,550
Subtotal	0	84	0	0	0	12	96	\$11,640	\$750	\$12,400
TOTAL	12	226	304	40	56	36	674	\$74,500	\$750	\$75,300