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Program Manager,
Sr Water Resources Engineer

Mendocino Community Water System – Draft Source Water Study Findings

December 3, 2024

Welcome

Funding for this project has been provided under the Safe and Affordable Funding for Equity and Resiliency (SAFER) Drinking Water Program through an agreement with the State Water Resources Control Board (SWRCB).

Agenda

1. Why are we here?
2. Previous Studies
3. Project Goals
4. Project Components
5. Findings
6. Where do we go from here?
7. Funding

Why are we here?

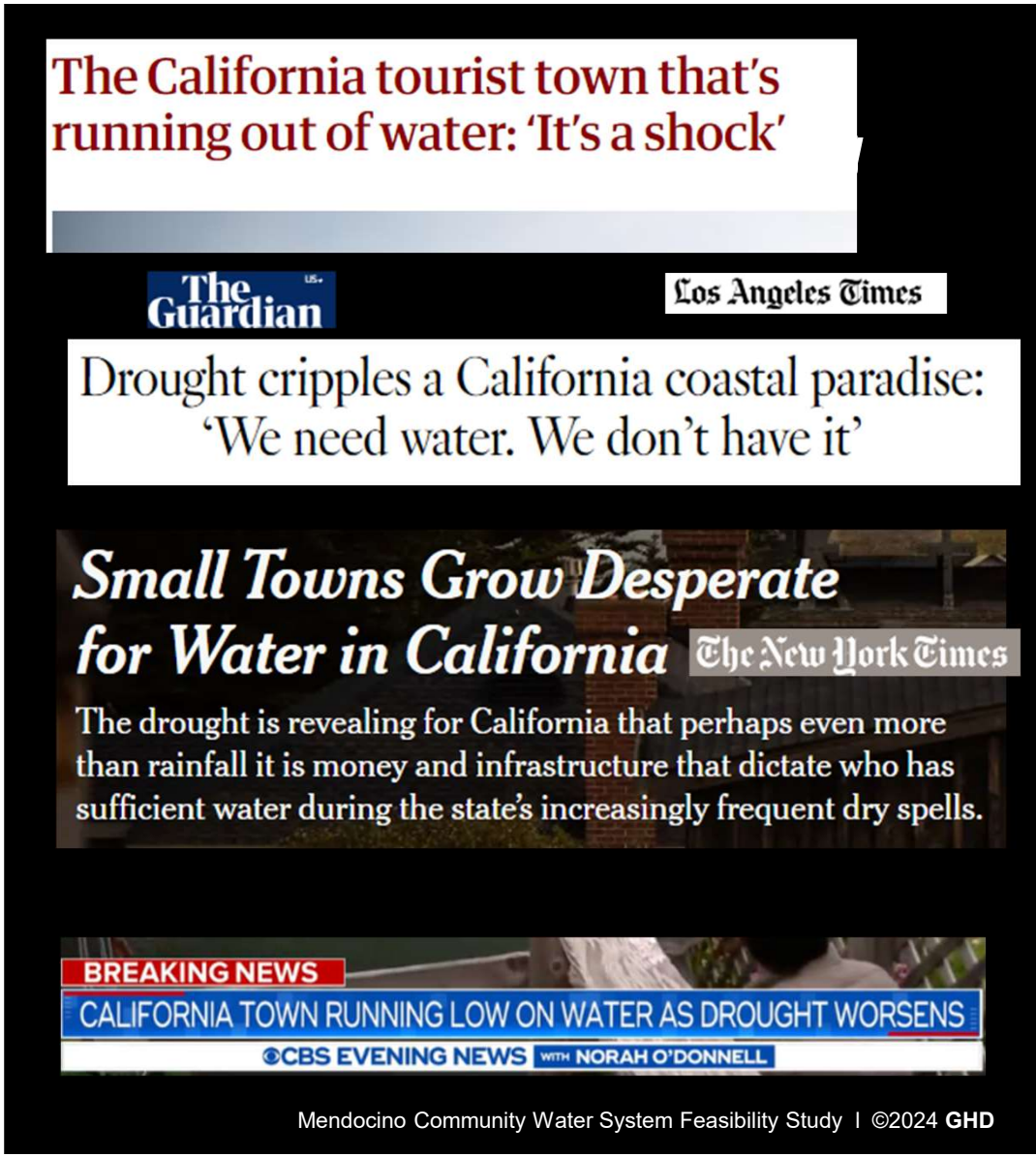
History of water issues in Mendocino

- Mid 1800s-Settled
- 1900s- Community expanded without establishing a centralized public water system
- Late 1900s- droughts highlight Mendocino's water supply issues
- 2000s- more frequent droughts

Water hauling within the community is common during dry seasons and droughts.

Why are we here?

During the drought of 2020-2021 nearby water systems stopped selling water to water haulers and the situation became a crisis.



Previous Studies

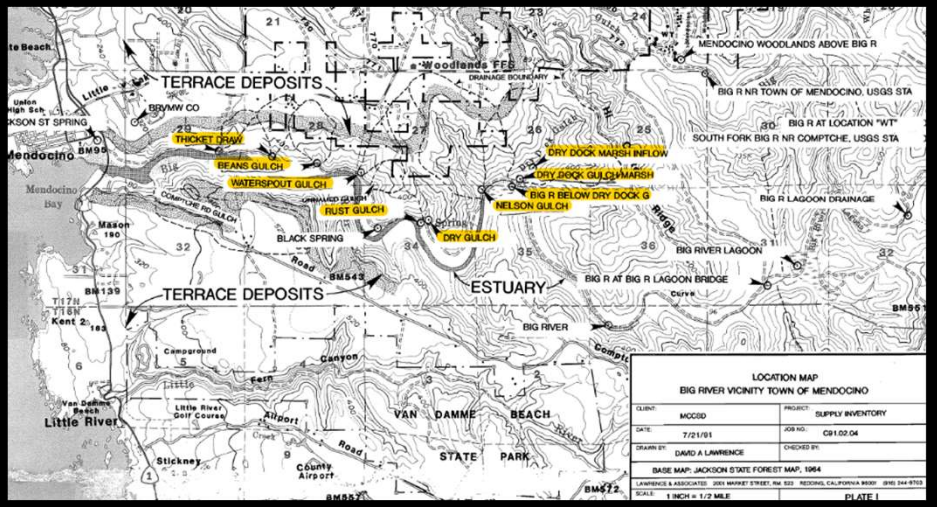
Numerous studies have been completed.

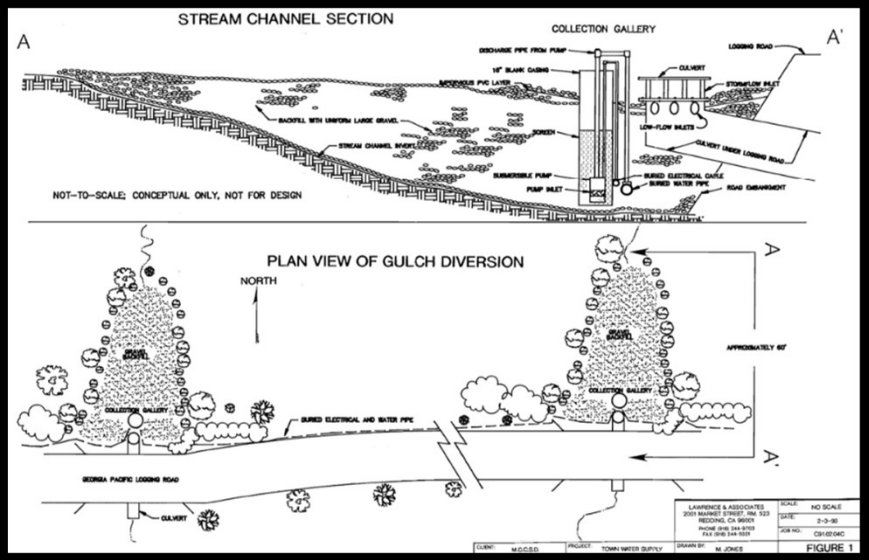
- *1982: Mendocino County Coastal Groundwater Study by the Department of Water Resources (DWR)*
- *1985: Town of Mendocino Groundwater Study by DWR*
- *1990: Water System Feasibility Study for MCCSD by Winzler and Kelly*
- *1992: Summary of Drilling and Testing of MCCSD Test Hole 2 Drilled at Mud Flat 6 Big River Estuary by Lawrence & Associates*
- *1992: Long Term Yield Analysis by Lawrence & Associates*
- *1993: Points of Diversion of the Lower Gulches and Drydock Gulch Reservoir Tributary to the Big River by Lawrence and Associates*
- *1993: Water Supply Cost Feasibility Study by SPH Associates Consulting Engineers*

3 alternative water sources were identified:

1. Groundwater
2. Surface water from Big River
3. Surface water from Big River Gulches- *recommended*

Conceptual designs and cost estimates were developed but were not pursued.

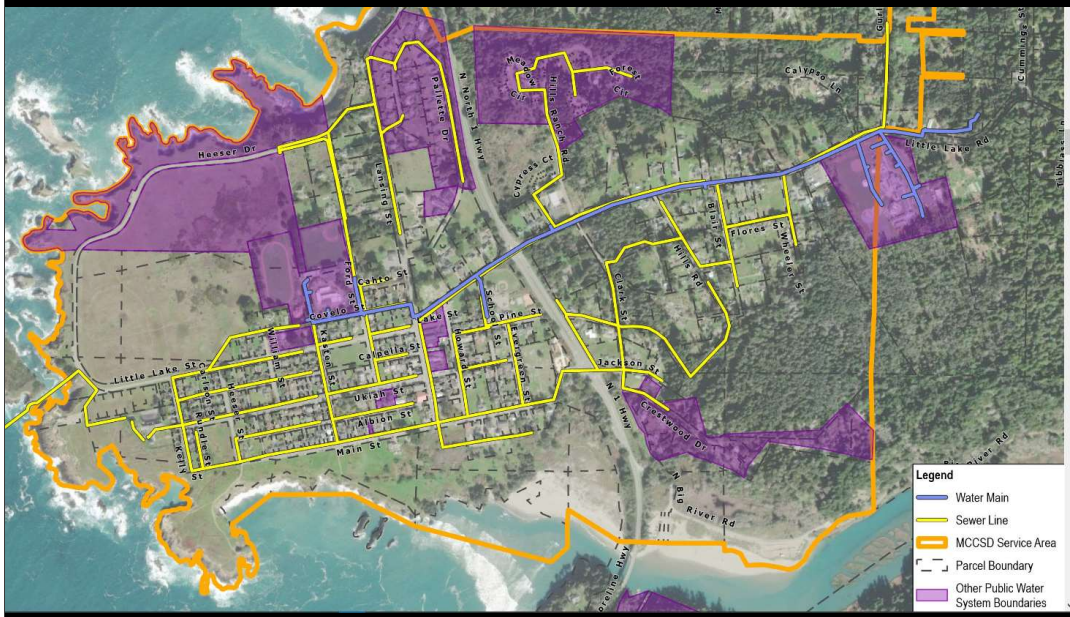




Project Goals

- Review and summarize previous Studies
- Identify and describe existing water systems
- Estimate demands
- Identify water sources
- Develop alternative CWS conceptual designs and recommend an alternative

Provide the Community of Mendocino with a clean and reliable water supply.



Project Components

Source Water Study

1

1. Estimate study area demands
2. Identify source water options

How much water do we need and have?

Alternative Analysis Engineering Report

1. Identify and develop alternative water system conceptual designs

How do we best use it?

Project Components

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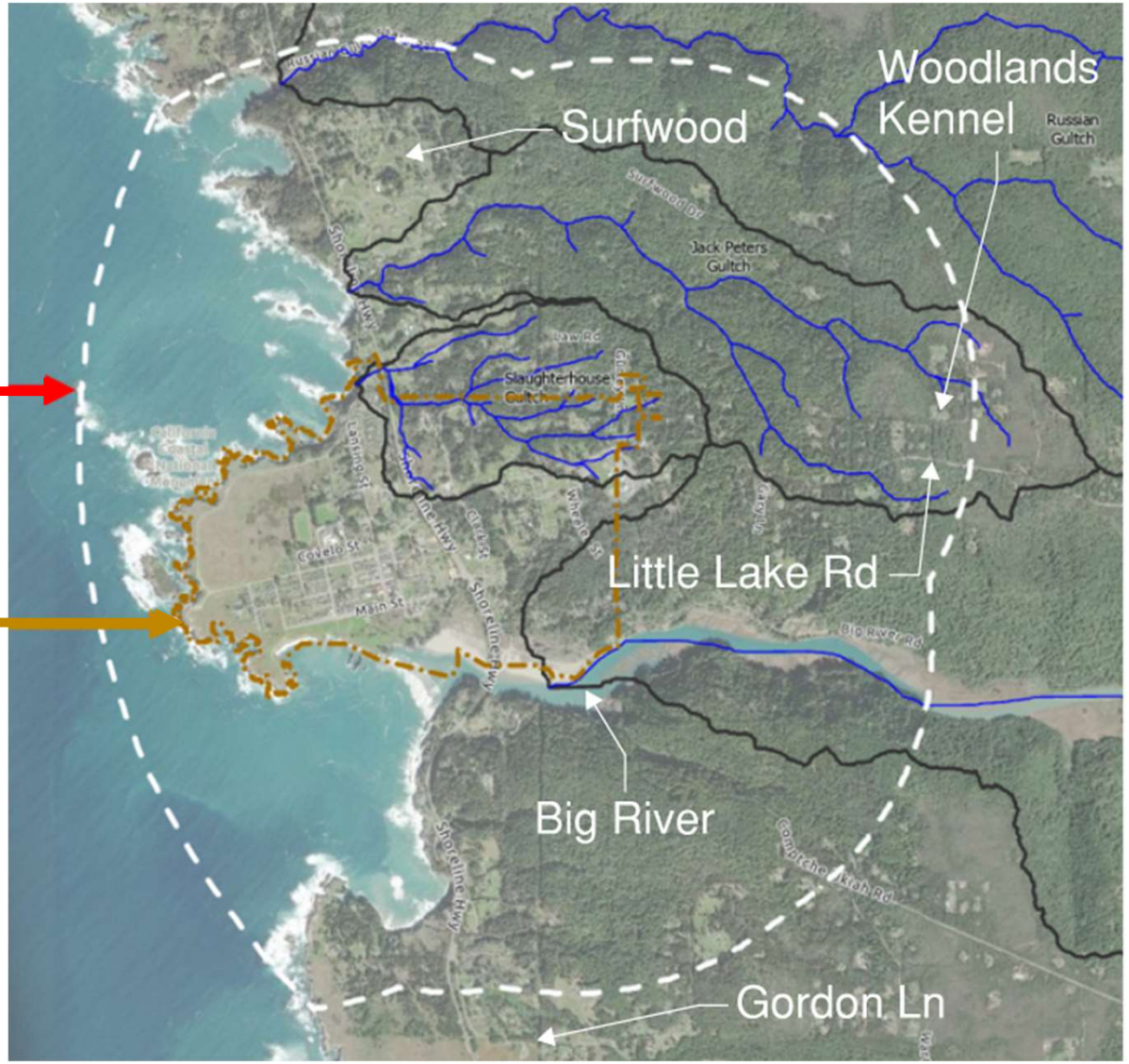
How do we best use it?

2

Geography

Study Area

MCCSD Boundary



Draft Source Water Study

Findings

1. 28 public water systems were identified within the study area
2. Study area maximum day demand estimated at 534k gpd
3. Existing sources combined may provide 233k gpd + potential recycled source of 30k gpd.
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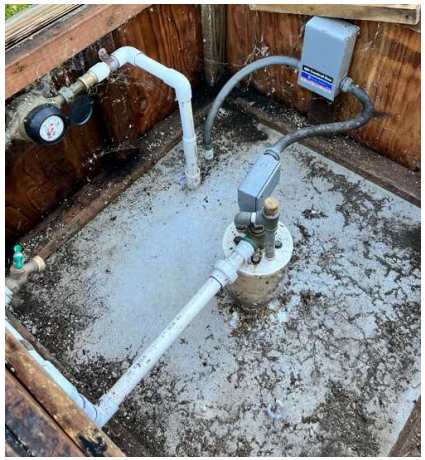
6. Costs to develop source water options were prepared and range from $6M-15.6M



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- Groundwater
- Desalination
- Recycled Water (Conjunctive Use)

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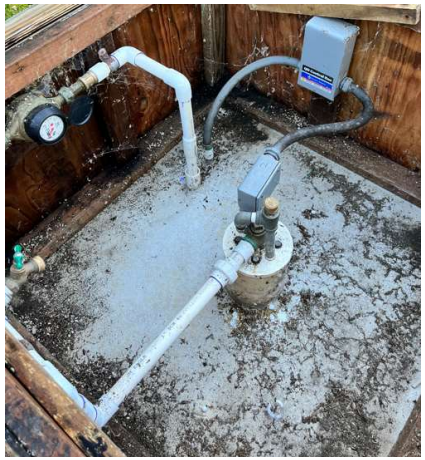

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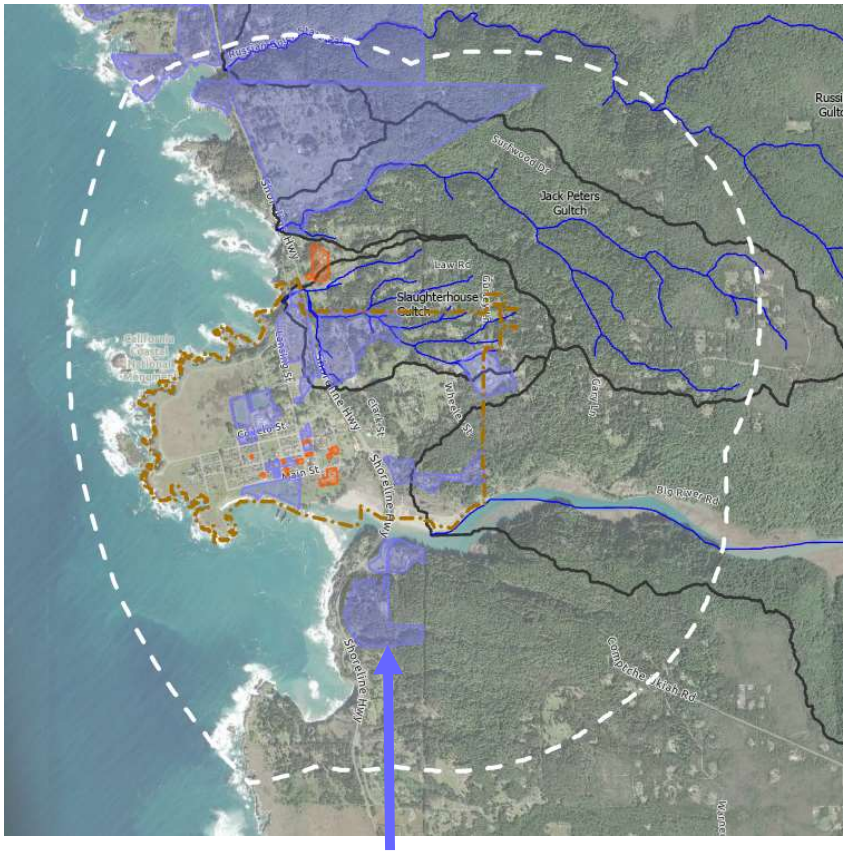
Water Systems in Study Area



Water Systems

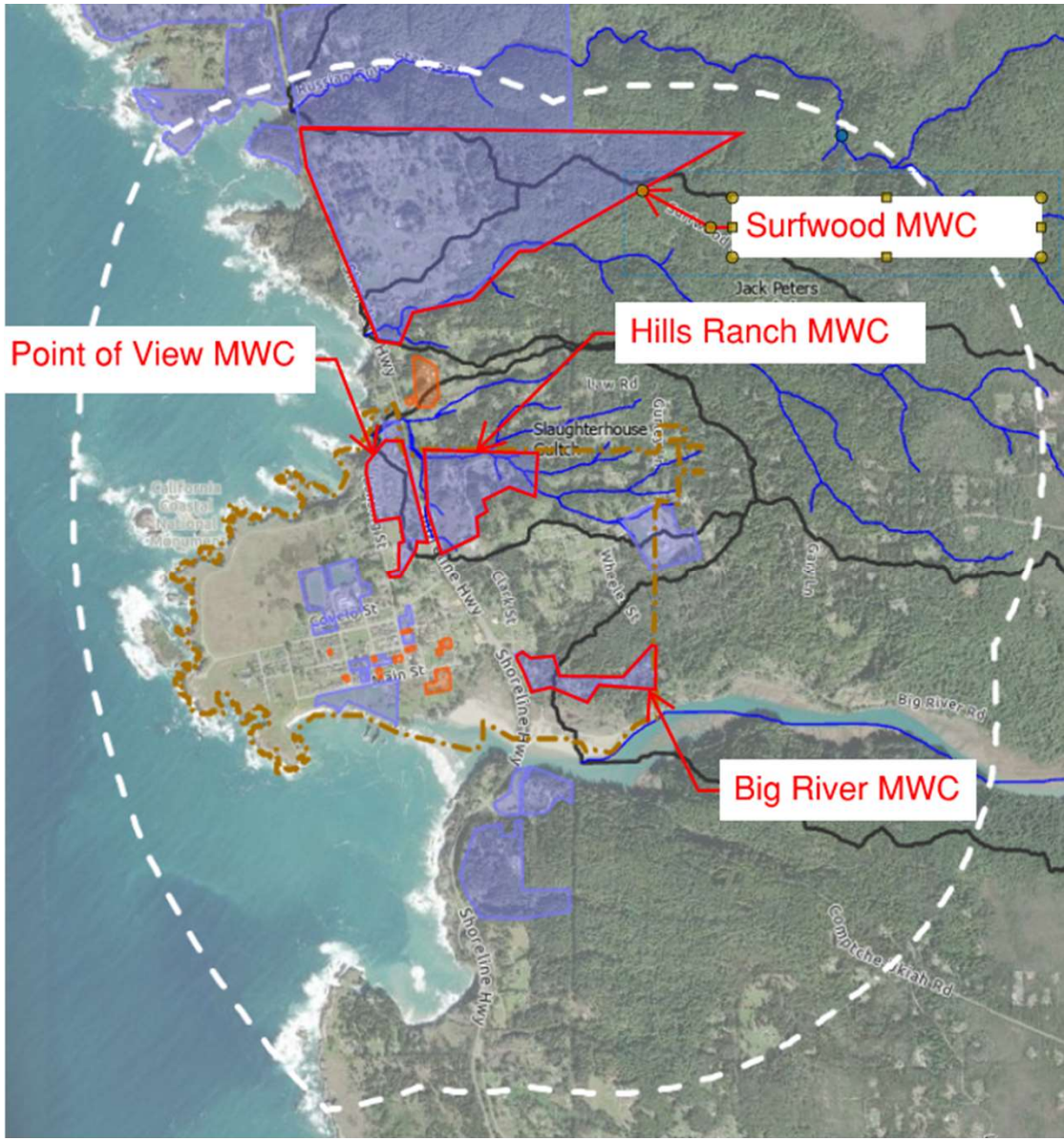
No.	Organization/Business	Service Connections	Population Served
1	Mendocino Presbyterian Church	3	90
2	Trillium Café and Inn	1	129
3	Luna Trattoria	2	120
4	Café Beaujolais	2	100
5	Frankies	7	100
6	Flow Restaurant	4	61
7	Fog Eaters	4	26
8	Mendo Market & Deli	3	26
9	Shell Building (Garden Bakery, Bay View Coffee, Gnar Bar)	1	25
10	Pattersons	1	160
11	Surfwood Mutual Water Corporation*	107	160
12	Hills Ranch Mutual Water Company*	48	79
13	Point of View Mutual Water Company*	31	56
14	Big River Vista Mutual Water Company	19	36
15	MUSD*	15	579
16	Green Real Estate Enterprises, LLC	5	108, 100 NT, 8 Residential
17	Mendocino Hotel	1	50
18	Harvest at Mendosas	3	45
19	CSP- Mendocino Headlands- Sea Arch-State Park Service	1	500
20	CSP-Mendocino Headlands- Ford House	2	275
21	Maccallum House Inn	1	200
22	Stanford Inn	6, 1 AG, 3 CM, 2 RS	153
23	Mendocino Art Center	12	108
24	Hill House, LLC	1	62
25	Searock	10 includes agate cove	54
26	CSP- Russian Gulch State Park	24	30
27	Mendocino Grove	2	27
28	Dick's Place	1	25

Water Systems

Four of the 28 Public Water Systems are larger Community Water Systems;

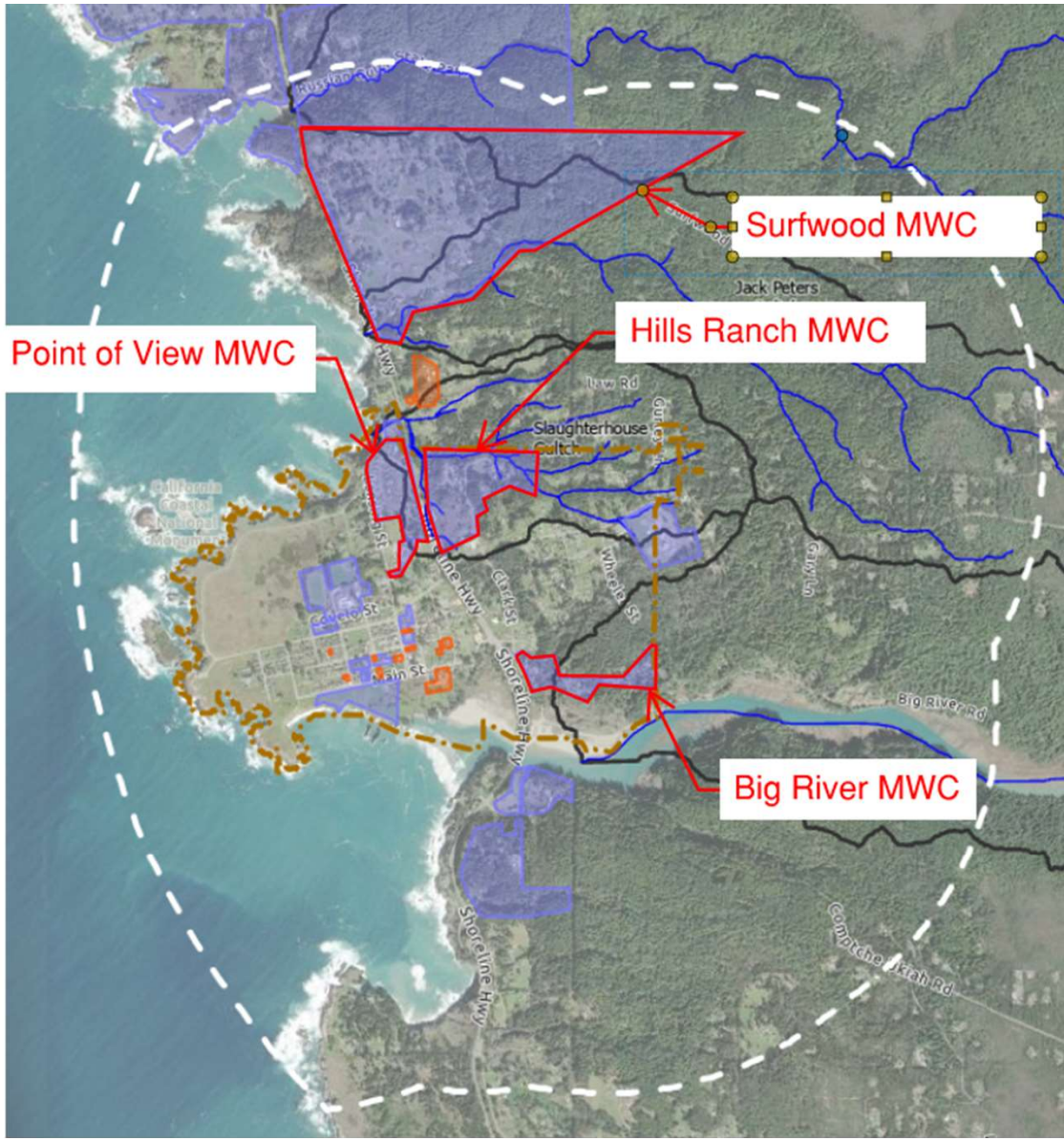
1. Big River Vista MWC
2. Hills Ranch MWC
3. Point of View MWC
4. Surfwood MWC

GHD conducted field visits to 3 of these systems and gathered information on all 28 Public Water Systems.



Water Systems

Water System Name	Storage Capacity gallons (# of Tanks)	Source Water	Estimated Supply Capacity
Big River Vista MWC	10,000 (1), 30,000 (1)	Well 01	4 gpm (5,760 gpd)
Hills Ranch MWC	100,000 (1), 200,000 (1)	Wells 02, 04, 11 and 13	3 gpm (2,880 gpd)
Point of View MWC	30,000 (1)	Wells 02, 03, 04 and 05	2 gpm (2,880 gpd)
Surfwood MWC	56,000 (1), 200,000 (1)	Jack Peters Gulch	22.4 gpm (32,256 gpd)



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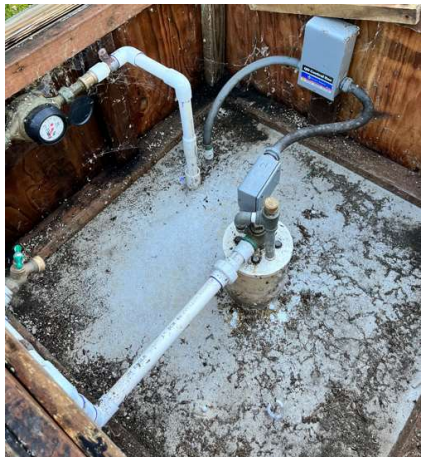

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Demands

Study Area Demands

1. Census data, water system reporting, land use, zoning and tourism estimates were used to estimate a population within the study area of 4,186 people.
2. Demands were estimated using existing water system usage of approx. 85 gpcd

	ADD (gallons)	MDD (gallons)[1]	PHD (gallons)[2]
Existing Demand	356,000 (399 AFY)	534,000	33,400 (556 gpm)
Build-Out Demand	394,000 (441 AFY)	591,000	37,000 (617 gpm)

[1] *Calculated per Cal. Code Regs. Tit. 22, § 64554 using a peaking factor of 1.5*
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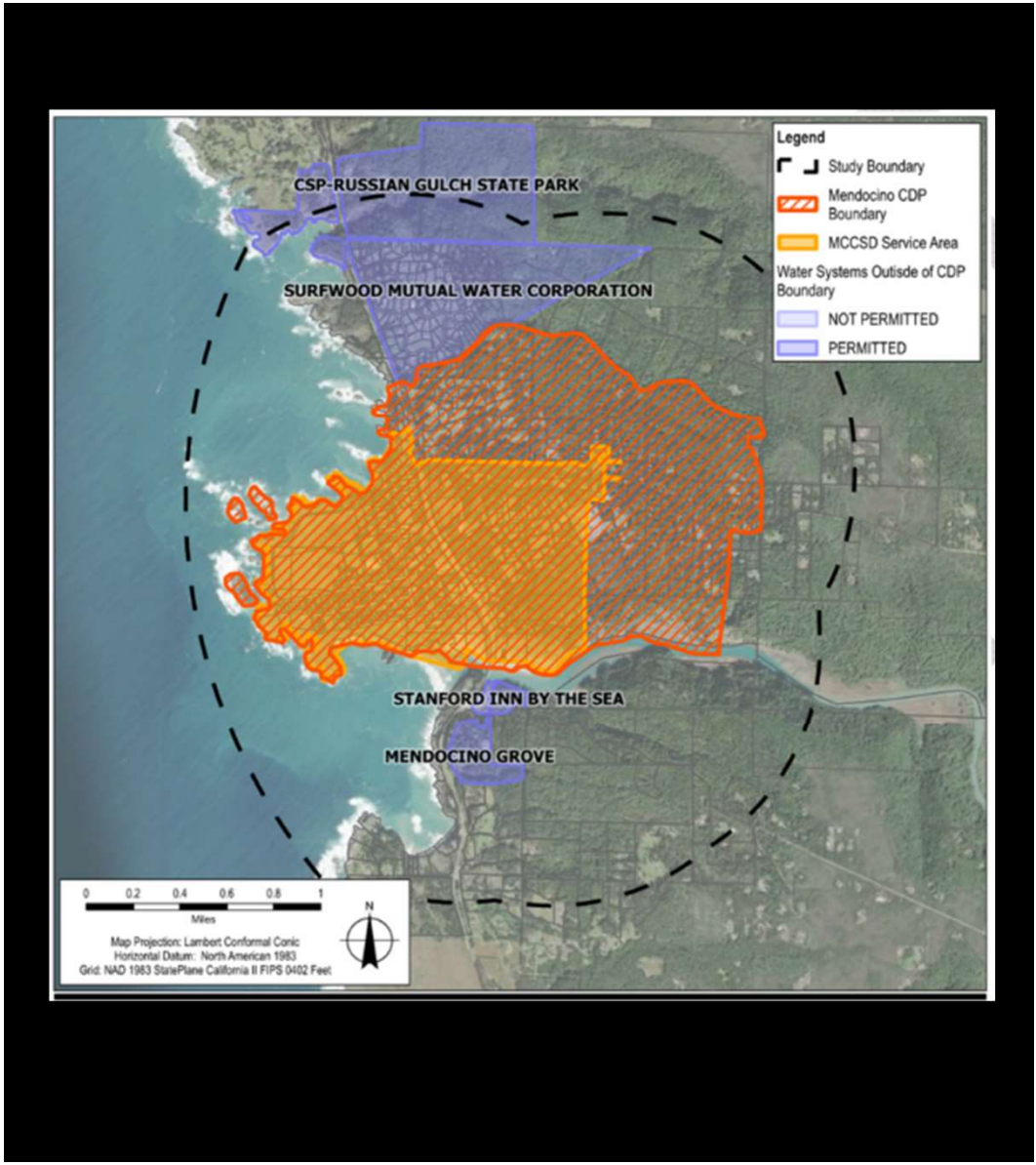
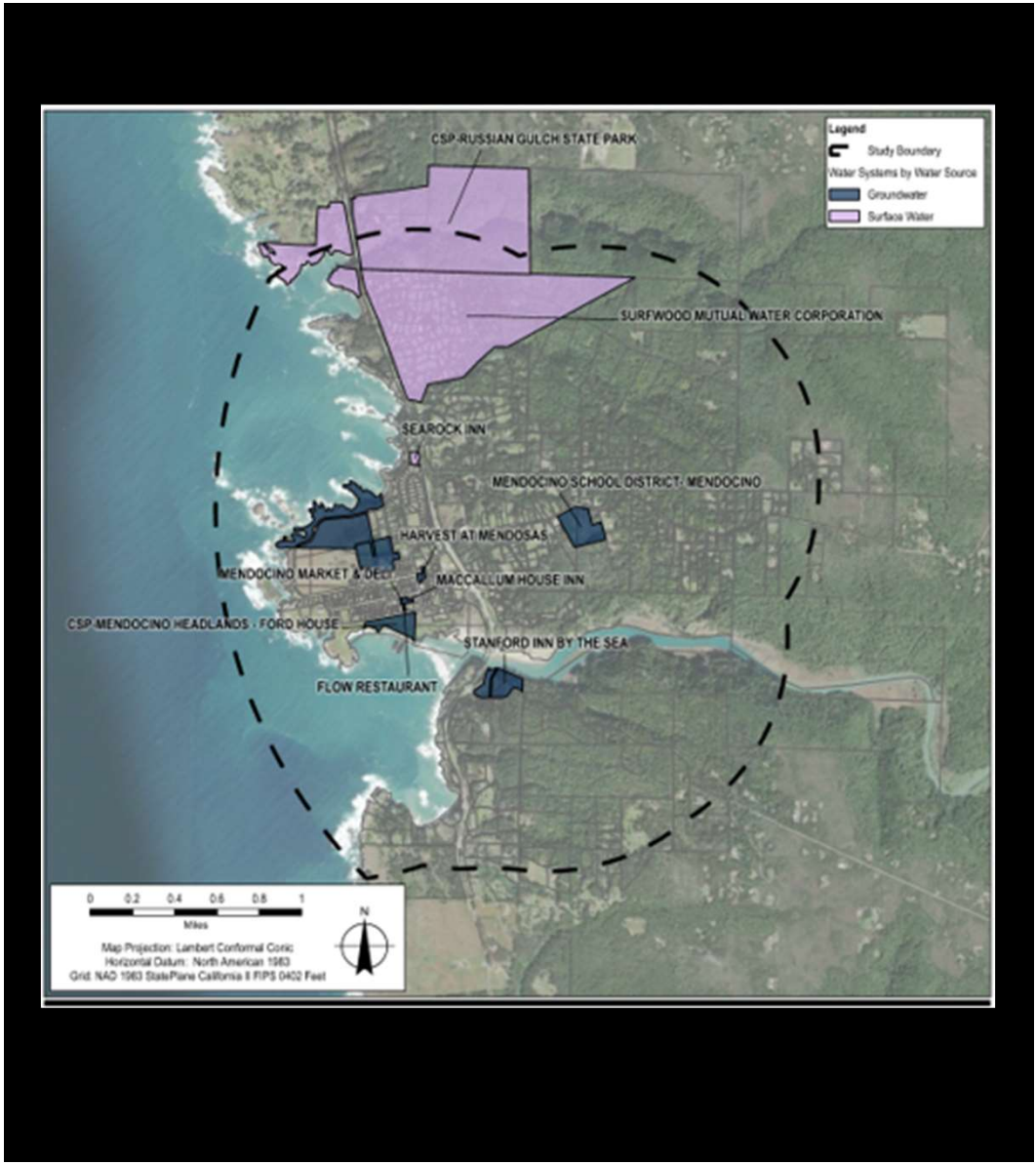


Demands

Existing Water Supply Assets

In this scenario, existing water system sources >6 gpm were combined and compared to the estimated study area demands.

Water System Name	Water Source	Capacity (gpd)
Surfwood Mutual Water Corporation	Jack Peters Gulch	32,300
Harvest at Mendosas	Well 01, Well 04	28,000
Mendocino Unified School District	Well 02, 03, 04, 05	10,800
CSP-Mendocino Headlands- Ford House	Well 01	16,600
CSP- Mendocino Headlands- Sea Arch- State Park Service	Well 01	14,400
CSP- Russian Gulch State Park	Russian Gulch	36,000
Maccallum House Inn	Well 01, Well 02	14,400
Searock	Slaughterhouse Gulch	23,000
Stanford Inn by the Sea	Well 01, Well 09, Well 10	25,900
Flow Restaurant	Well 01	17,300
Mendo Market & Deli	Well 01	14,400
Total		**233,100**

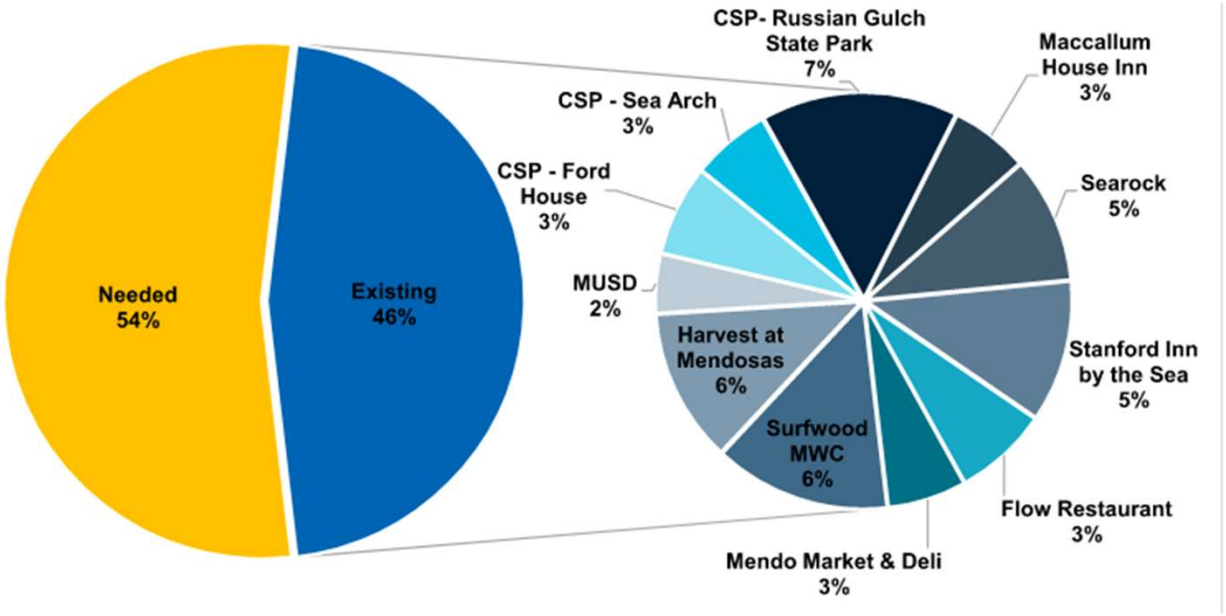


Demands

Summary

Table ES1 *Summary of Existing Demands and Potential Existing Supply*

	ADD (gpd)	MDD (gpd)	Source Water Requirement (gpm)
Existing Demand	356,000	534,000	371
Existing Supply	210,000	233,000	162
Potential Recycled Water Supply	30,000	30,000	21
Net Balance	**(116,000)**	**(271,000)**	**(198)**



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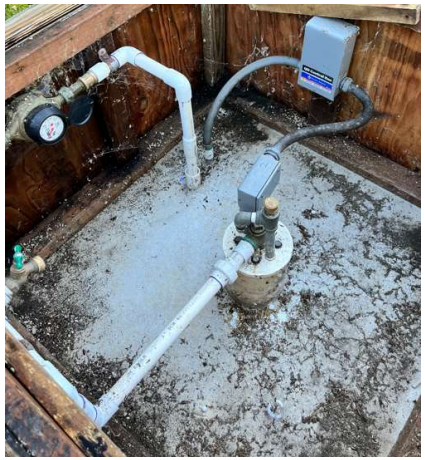

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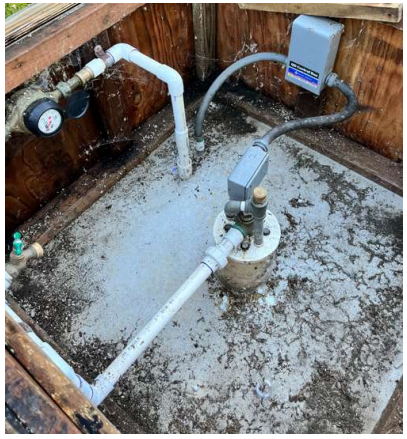
New Sources

Surface Water

Groundwater



Desalination

New Sources

Water Source	Can Meet Deficit	Challenges
Surface Water	Yes	Permitting process is long and there is no guarantee that a new water right permit could be obtained. Significant storage needed to mitigate low flows during the summer months.
Groundwater	No	Limited areas of moderate production. Well fields would be large and not centrally located. Water yields are dependent on annual precipitation. Significant land use or land acquisition would be required.
Desalination	Yes	Costly treatment. Would require additional centralized water treatment and storage systems necessitating potentially significant land use or land acquisition.
Recycled Water	No	Existing planned improvements supply 60 percent of the potential dry weather recycled water production by the WWTP. Recycled water is non-potable and can only be used to offset potable water as irrigation.

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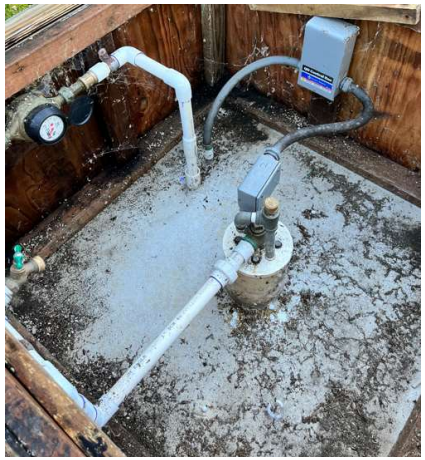

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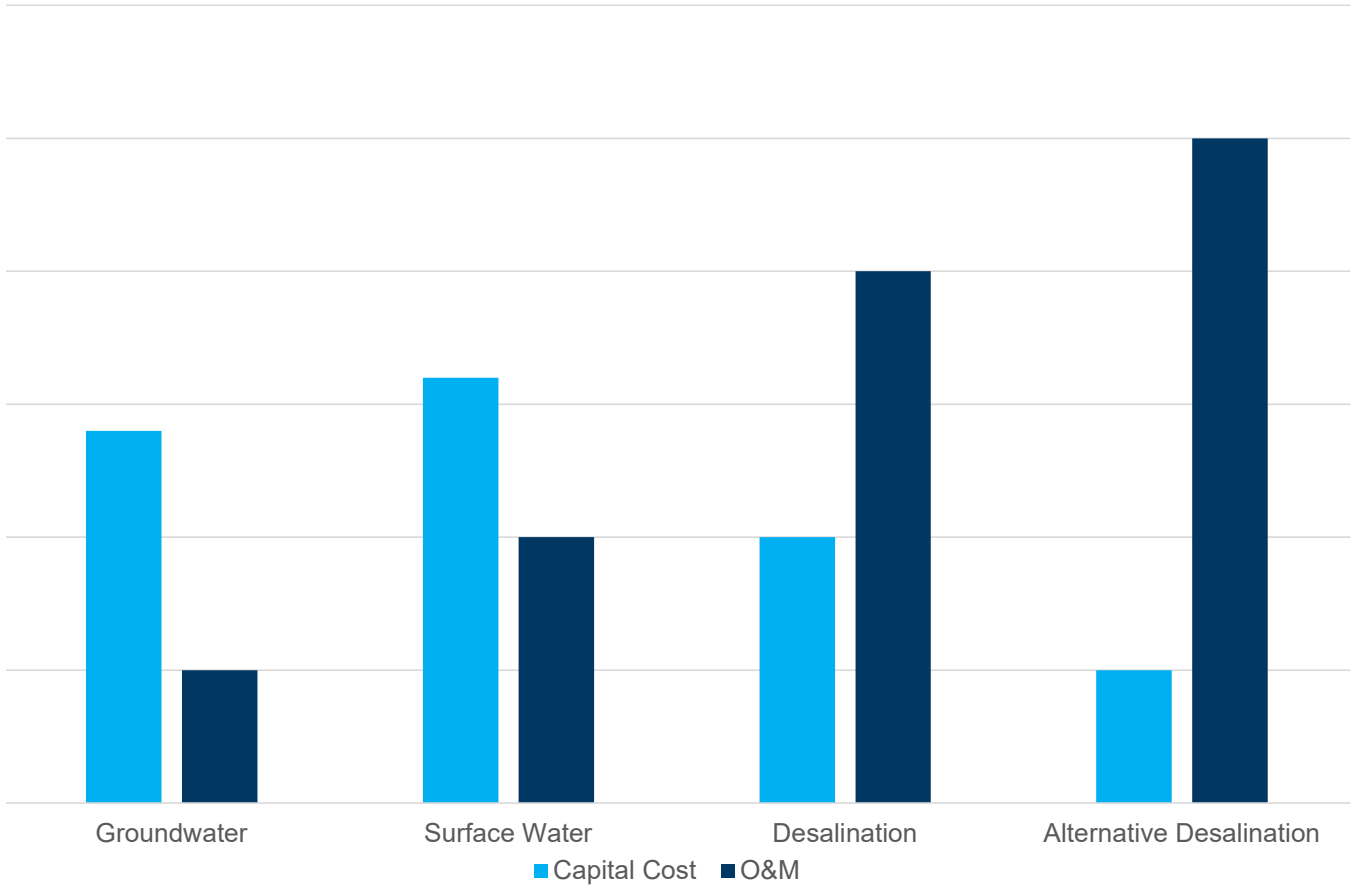
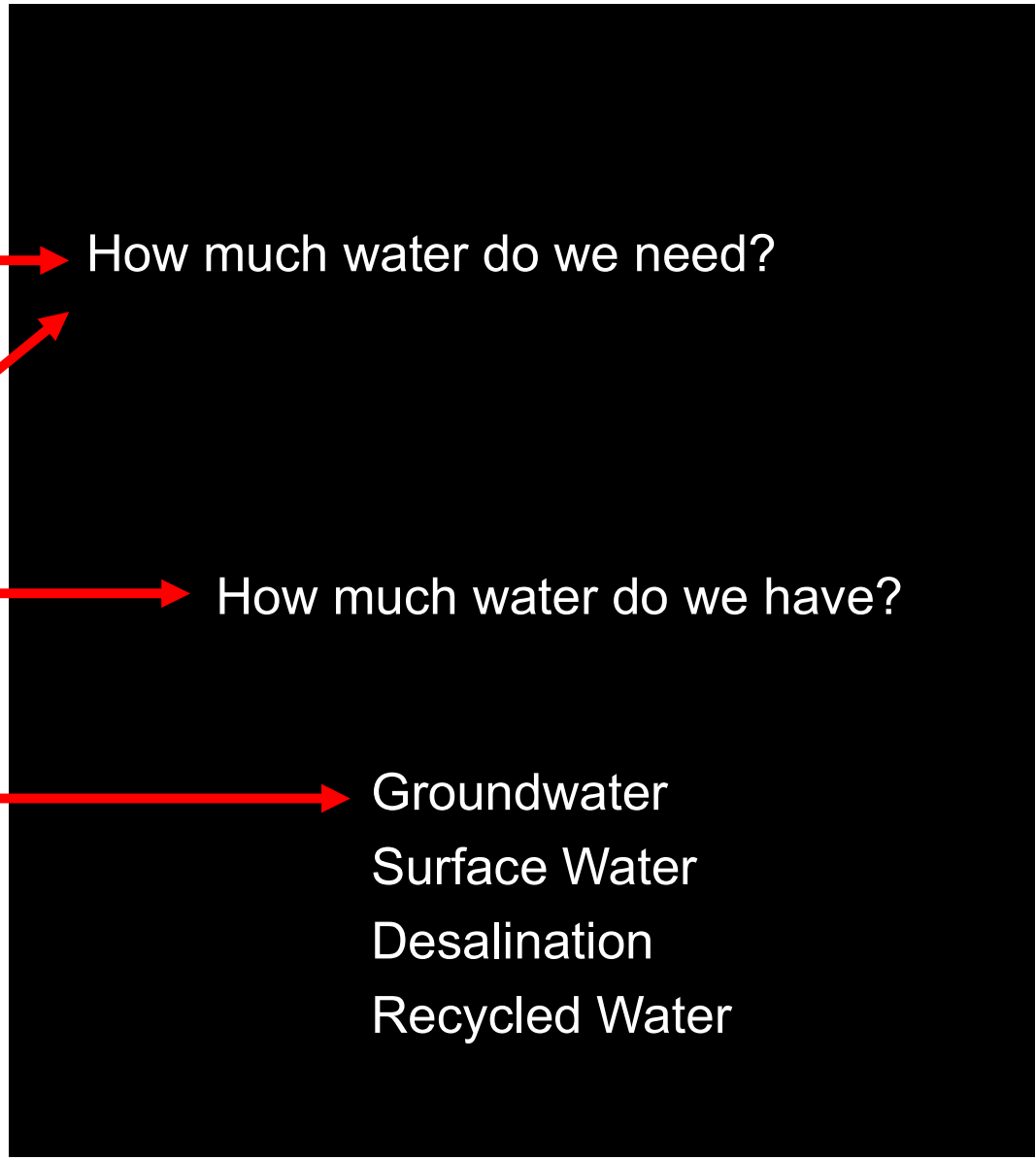
Costs


Groundwater
Surface Water
Desalination
Alternative Desalination
Capital Cost
O&M

Where do we go from here?

1. Define service area.
2. Determine which areas within study area are most vulnerable and in need of a community water system.
3. Determine which existing water sources recommended for consolidation are interested in consolidation.
4. Determine which NEW sources the community is interesting in pursuing.



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How much water do we need?

How much water do we have?

Groundwater
Surface Water
Desalination
Recycled Water

Define Service Area

Determine which areas within study area are most vulnerable and in need of a community water system.

Focus on area west of Hwy 1?

Within existing MCCSD Service Area?

The service area is decided through a collaborative process between the community, MCCSD, GHD and the State.

Wells that have gone dry.

Service Area Demands

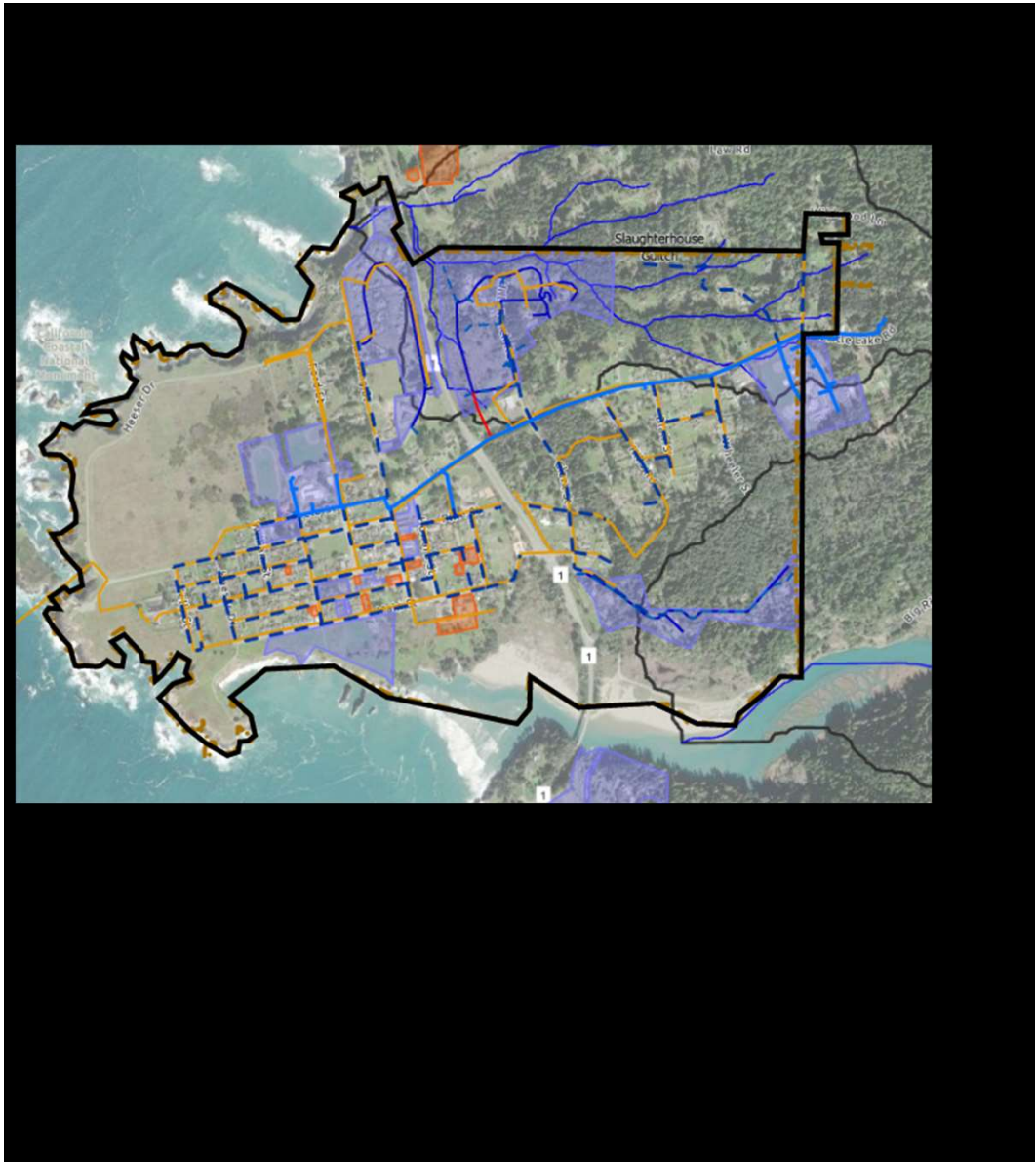
If we decide the service area will be the existing MCCSD service area.

Population=3355

@85 gpcd:

ADD= 285,000 gpd

MDD=428,000 gpd



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Groundwater
Surface Water
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Recycled Water

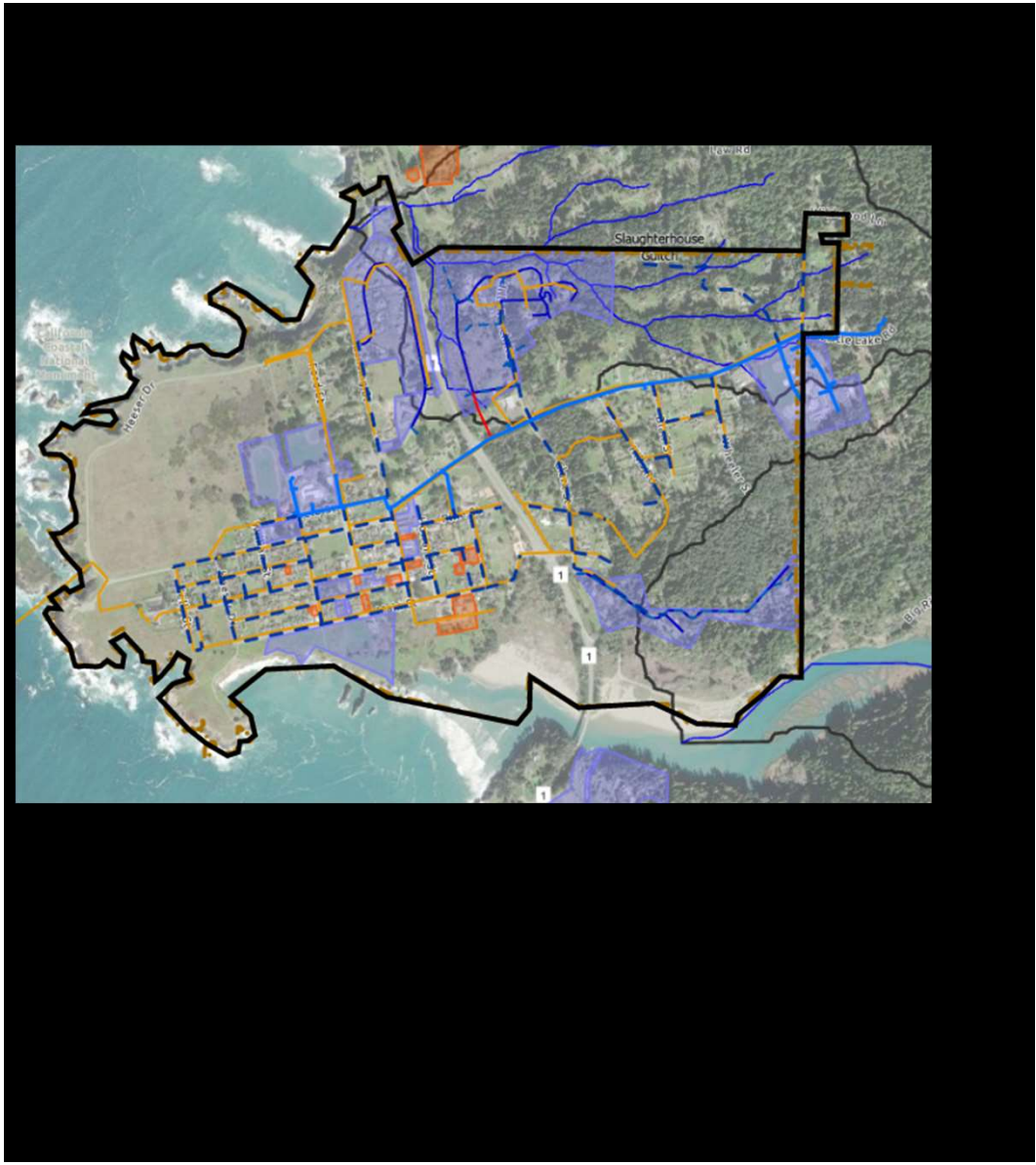
Service Area Supply

If we combine all existing water system sources within the MCCSD service area, the supply would be

198,000 gpd

If we only combine existing water system sources >6 gpm, the supply would be

139,000 gpd

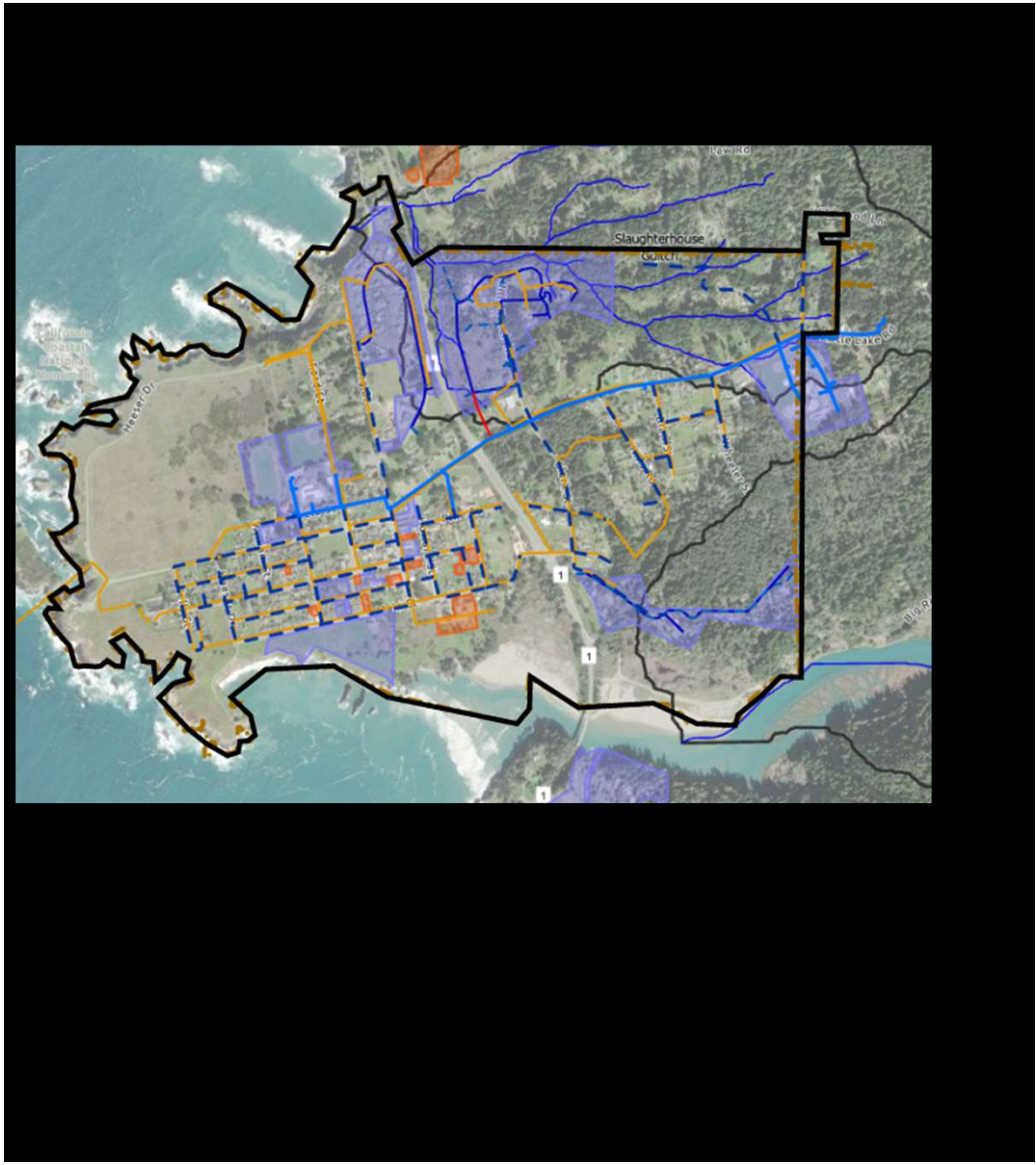


Deficit

Supply Deficit =

428,000 gpd - 198,000 gpd

= 230,000 gpd



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Groundwater
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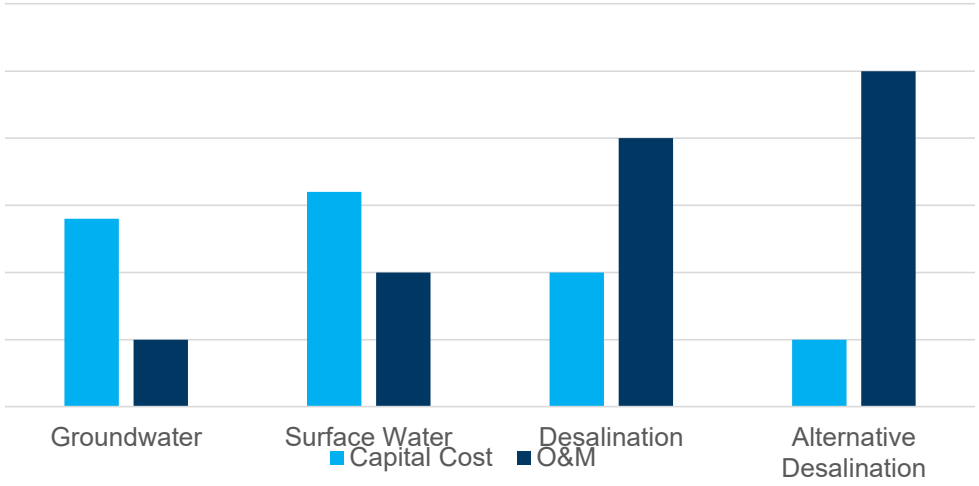
Costs and Capacity



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Where do we go from here?

Alternatives Analysis Engineering Report

1. Develop 3 conceptual water system designs
2. Develop construction cost estimates

Develop 3 different conceptual water system designs.

Elements that will vary between alternatives:

- Service area
- Existing Sources (Consolidation)
- New Sources
- Infrastructure

Understand interest of existing water systems

Alternatives Analysis

Water Infrastructure:

Source Infrastructure

Water Mains & Fire Hydrants

Treatment Systems

Tanks

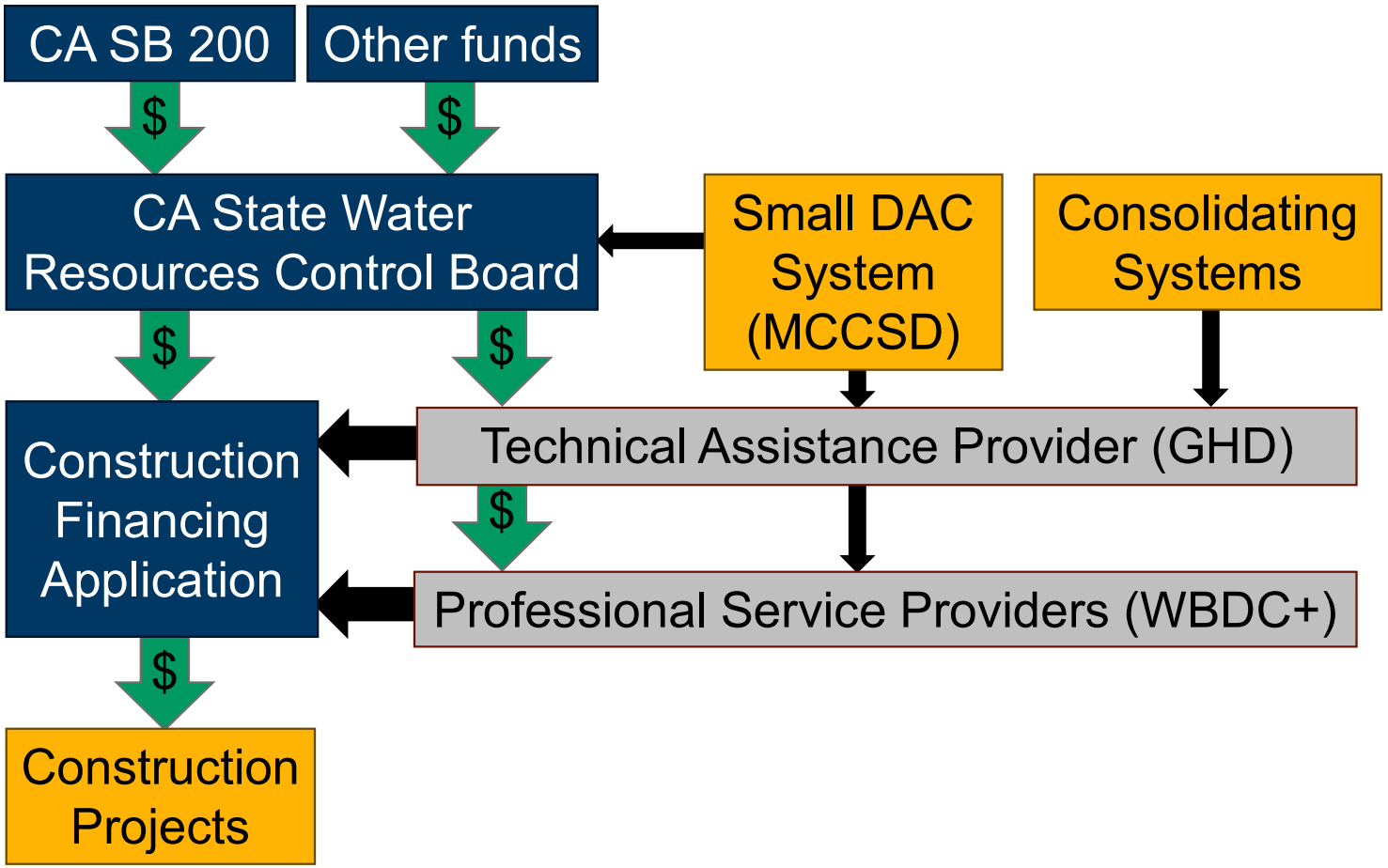
Service Connections

Pump Stations

Schedule

Item	Anticipated Completion Date
Community Meeting #1	December 3, 2024 6PM
Final Source Water Study	February 28, 2025
Draft Engineering Report	March 14, 2025
Community Meeting #2	April 22, 2025
Final Engineering Report	June 6, 2025

What is the SAFER Program? TA Program?



State Priorities

APPENDIX E: Construction Project Grant and PF Limitations for an Eligible PWS

Maximum PF, Grant or Combination Thereof Per Construction Project [35, 36]				
Type of Community[37]	**Residential Water Rates as a Percentage of MHI [38]**	**Percentage of Total Eligible Project Cost**	**Maximum Amount Per Connection[39,40,41]**	
Category A – C[42] and/or Consolidation Projects[43]				
Small DAC/SDAC; Eligible NTNC[44] That Serves a Small DAC/SDAC; Expanded Small DAC/SDAC; or Small Non-DAC with MHI < 150% of Statewide MHI	N/A	up to 100%	$80,000 [45]	
Medium DAC[46]	>=1.5%	up to 50%	$40,000	
Repayable Construction Financing Terms				
Type of Community	**Residential Water Rates as a Percentage of MHI**	**Interest Rate**	**Maximum Financing Term[47]**	**Local Cost Share[48]**
Small SDAC or Eligible NTNC That Serves a Small DAC	N/A	0%	40 Years	Waived
Small DAC or Expanded Small DAC	>=1.5%	0%	40 Years	Waived
Small DAC or Expanded Small DAC	<1.5%	½ General Obligation Bond Rate	40 Years	Waived
SDACs and DACs may be eligible for Prop. 1 GWGP drinking water treatment grants. For GWGP grants, the funding maximums provided above apply in addition to the limit for grant/PF from other funding sources. SDACs of any size may be eligible for GWGP grant funds regardless of water rates, and DACs of any size may be eligible for GWGP grant funds if residential water rates as a percentage of MHI≥1.5%. For GWGP grants, DACs and SDACs of any size, including large DACs, are subject to the grant limits specified for Small DACs in the table above. No local match is required.				

Questions?

Provide feedback and stay informed on our Website at:
https://tinyurl.com/mendowaterstudy2024

This Project
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Systems Regulation
Matt Foster, PE
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* Thank You

→ ghd.com


STOP