

CHAPTER 4. IDENTIFYING SOLUTIONS

This phase of the planning process consisted of defining solutions to the drinking water and/or wastewater problems for the disadvantaged and suspected disadvantaged communities identified in the region. An in-depth analysis was pursued for each of the seven selected high priority communities, and a general “roadmap” for future work was developed for remaining communities. Table 4.1 on the following pages summarizes the drinking water and wastewater problems, recommended solutions, next steps, and potential funding sources for the targeted seven high priority communities along with the other disadvantaged and suspected disadvantaged communities on the high priority list. Figure 3.3 (in Chapter 3) shows the location of those communities within the Greater Monterey County IRWM region.

It is the intention of this planning process for solutions to be explored for all disadvantaged communities on the high and medium priority lists, along with newly designated disadvantaged communities, as additional funding becomes available.



Harvesting spinach. Many of the disadvantaged communities in the Salinas Valley are surrounded by intensive agricultural production. Photo credit: Monterey County Agricultural Commissioner’s Office. Used by permission.



Asparagus field. Photo credit: Monterey County Agricultural Commissioner’s Office. Used by permission.

Table 4.1 Summary of Next Steps and Recommendations for all High Priority Disadvantaged and Suspected Disadvantaged Communities

Community	Area / Nearest Water Provider	DAC/EDA Status ¹ [MHI]	Drinking Water and Wastewater Problems ²	Recommendation(s)	Next Steps	Suitable Funding Source	Point of Contact
Middlefield Rd.	Bolsa Knolls area Cal Water-Salinas, Gabilan Water Company	DAC [\$38,200] MHI Survey by EJCW, 2016/2017	Nitrate above the MCL. No known wastewater problems.	Consolidation with Cal Water-Salinas. <i>See Project Proposal for more detail.</i>	Outreach, MHI survey, and facilitate consensus of neighboring small water system to determine whether they will join project (EJCW). Support Middlefield Rd. community in all aspects of connecting to larger water provider. (EJCW, DACI or Prop 1 TA).	SRF/Prop 1 (Construction)	EJCW
Johnson Rd, McGinnis Rd, lower Live Oak Rd.	Las Lomas area Cal Water-Las Lomas	EDA [\$49,673] ACS Data	Nitrate above the MCL. No known wastewater problems.	Waterline extension from Cal Water-Las Lomas with Monterey County or Cal Water as grant applicant. <i>See Project Proposal for more detail.</i>	<u>Phase 1:</u> MHI survey and continued outreach to finalize determination of community boundary for Johnson Rd., McGinnis Rd. and lower Live Oak Rd. (EJCW and Prop 1 TA). Conduct wastewater analysis to determine options (EJCW/CECorps). <u>Phase 2:</u> Conduct outreach meetings and door-to-door outreach to upper Live Oak Rd. to determine interest (EJCW, DACI and/or Prop 1 TA).	Prop 1 TA or IRWM DACI (Planning)	EJCW
Walnut Ave. (Carrillo Farms)	City of Greenfield	SDAC [\$30,100] MHI Survey by EJCW, 2016	Nitrate above the MCL. Failing septic systems.	Waterline extension from City of Greenfield. <i>See Project Proposal for more detail.</i>	Consultations with County planning department, City of Greenfield, LAFCO, neighboring residents, State Water Board regarding potential project (EJCW, DACI or Prop 1 TA).	Prop 1 TA or IRWM DACI (Pre-Planning and Planning)	EJCW
Apple Ave. #1 and #4 (Mittelstadt)	City of Greenfield	SDAC MHI Survey by RCAC, 2016	Nitrate above the MCL. Possible wastewater problems.	Waterline extension from City of Greenfield.	Environmental review, LAFCO out of service area agreement, grant application. Engineering complete. (EJCW, Prop 1 TA)	Prop 1/SRF (Construction) <i>Same application as Camp Rocha.</i>	EJCW / Nilsen and Assoc
Apple Ave. #3 (Camp Rocha)	City of Greenfield	SDAC	Nitrate above the MCL.	Waterline extension from City of Greenfield.	Environmental review, grant application. Engineering complete.	Prop 1/SRF (Construction)	EJCW / Nilsen and

		MHI Survey by RCAC, 2016	Reported septic system upgrade needed.		(EJCW)	Same application as Mittelsteadts.	Assoc
Hudson Landing Rd.	Watsonville /Las Lomas area Pajaro Sunny Mesa CSD	Suspected DAC	Nitrate above the MCL. Potential wastewater problems.	Extension from Pajaro Sunny Mesa CSD. <i>See Project Proposal for more detail.</i>	Outreach to neighbors to gauge interest and determine community boundary (EJCW, IRWM DACI). Conduct MHI survey (RCAC, IRWM DACI).	IRWM DACI (Pre-Planning) Prop 1/SRF (Planning and Construction)	EJCW
Schoch Rd.	Bolsa Knolls area Cal Water - Salinas, CalAm-Ralph Lane	Suspected DAC	Nitrate above the MCL. No known wastewater problems.	Waterline extension from Cal Water-Salinas. <i>See Project Proposal for more detail.</i>	Outreach to neighbors to gauge interest and determine project boundary (EJCW, IRWM DACI). Conduct MHI survey (RCAC, IRWM DACI).	IRWM DACI (Pre-Planning) Prop 1/SRF (Planning and Construction)	EJCW
Springfield, Struve, and Giberson Rds	Moss Landing area Springfield Water Company / Pajaro Sunny Mesa CSD	DAC ACS Data	Nitrate above the MCL. No known wastewater problems.	Consolidation of Springfield Rd, Struve Rd, Giberson Rd, and the Moss Landing Manor mobile home park into Springfield Water Company, which is owned and operated by Pajaro Sunny Mesa CSD.	Monitor progress and provide assistance if Pajaro Sunny Mesa CSD encounters any roadblocks. Pajaro Sunny Mesa CSD has received a SRF planning grant and received the permit from Monterey County to proceed with a test well in late August 2017.	SRF (Planning and Construction)	Pajaro Sunny Mesa CSD and Nilsen and Assoc
Bluff, Jensen Rds	Moss Landing area Pajaro Sunny Mesa CSD	DAC ACS Data	Nitrate above the MCL. No known wastewater problems.	Waterline extension from a water system owned and operated by Pajaro Sunny Mesa CSD.	Outreach to property owners and residents to gauge interest and determine community boundary (EJCW, IRWM DACI). If residents are interested, prepare Planning Grant application (Nilsen and Assoc SRF or IRWM DACI)	DACI (Pre-Planning) SRF/Prop 1 (Planning)	Nilsen and Assoc / EJCW
Alpine Court, River Rd. WS	City of Gonzales	SDAC [\$24,000]	Nitrate above the MCL.	Water and wastewater consolidation with the City of	Monitor progress and provide assistance if the City of Gonzales	Prop 1 (Planning and	City of Gonzales/

#25		MHI Survey by CRLA, 2013	Failing septic systems.	Gonzales.	encounters any roadblocks.	Construction)	RCAC / Nilsen and Assoc
Chinatown	City of Salinas (within city limits)	SDAC	Previously, no public restroom access after 7pm	No additional recommendations at this time.	24-hour public toilet and shower facility complete in Oct. 2016	n/a	n/a
Blue Rock Apartments	Boronda area Cal Water -Salinas	SDAC ACS Data	Nitrate above the MCL. No known wastewater problems.	A UCLA project site	UCLA has applied for a waste discharge permit from the Central Coast Regional Board. They will also need to submit an amendment to the current drinking water permit for approval by the Monterey County Health Department.	State Water Board grant, Agreement No. 14-251-550 [C/A 367]	UCLA
Pryor Farms	City of Soledad	DAC ACS Data	Nitrate above the MCL. No known wastewater problems.	A UCLA project site	UCLA will need a waste discharge permit from the Central Coast Regional Water Quality Control Board, and also an amendment to the current drinking water permit for approval by the Monterey County Health Department.	State Water Board grant, Agreement No. 14-251-550 [C/A 367]	UCLA
Santa Teresa	City of Soledad	DAC [\$40,000] MHI Survey by CRLA, 2014	Nitrate above the MCL. Reported septic system upgrade needed.	A UCLA project site <i>See Project Proposal for more detail.</i>	UCLA pilot project site for wellhead nitrate treatment and remote monitoring.	State Water Board grant, Agreement No. 14-251-550 [C/A 367]	UCLA

ACRONYMS AND ABBREVIATIONS:

CRLA: California Rural Legal Assistance

DAC: Disadvantaged Community

DACI: Proposition 1 Integrated Regional Water Management (IRWM) Disadvantaged Community Involvement Grant Program.

EDA: Economically Distressed Area

Prop 1 TA: Proposition 1 Technical Assistance grant funds

SDAC: Severely Disadvantaged Community

SRF: California State Revolving Fund

4.1 Identifying Solutions for High Priority Communities: Overview of the Process

The following sections summarize the process and outcomes of identifying solutions for the seven targeted high priority communities. The seven communities are:

1. Johnson Road
2. Walnut Avenue
3. Apple Avenue
4. Santa Teresa Village
5. Hudson Landing Road
6. Middlefield Road
7. Schoch Road

Figure 4.1 on the following page shows the location of the seven communities in Monterey County in geographic context with nearby large water utilities.

4.1.1 The Process

The process of identifying solutions involved in-depth investigation and analysis by the Project Team in partnership with the Community Engineering Corps (CECorps, described below) for each of the seven communities. Alternative options were identified and a final recommended solution offered for each community. The Environmental Justice Coalition for Water (EJCW) led the community engagement effort, working extensively with each community to collect information, inform them about the alternative solutions, and assist them in selecting a preferred option. These steps are described in more detail below.

The Project Team was very fortunate to enlist the help of the CECorps in investigating engineering solutions for each of the seven communities. CECorps is an alliance of the American Society of Civil Engineers, the American Water Works Association, and Engineers Without Borders-USA:

- Founded in 1852, the **American Society of Civil Engineers (ASCE)** represents more than 145,000 members of the civil engineering profession worldwide and is America's oldest national engineering society.
- Established in 1881, the **American Water Works Association (AWWA)** is the largest nonprofit, scientific and educational association dedicated to managing and treating water. With approximately 50,000 members, AWWA provides solutions to improve public health, protect the environment, strengthen the economy and enhance quality of life.
- Founded in 2002, **Engineers Without Borders USA (EWB-USA)** is a nonprofit humanitarian organization established to support community-driven development programs worldwide through partnerships that design and implement sustainable engineering projects, while creating transformative experiences that enrich global perspectives and create responsible leaders. Their 14,700 members work with communities to find appropriate solutions for water supply, sanitation, energy, agriculture, civil works, structures and information systems.

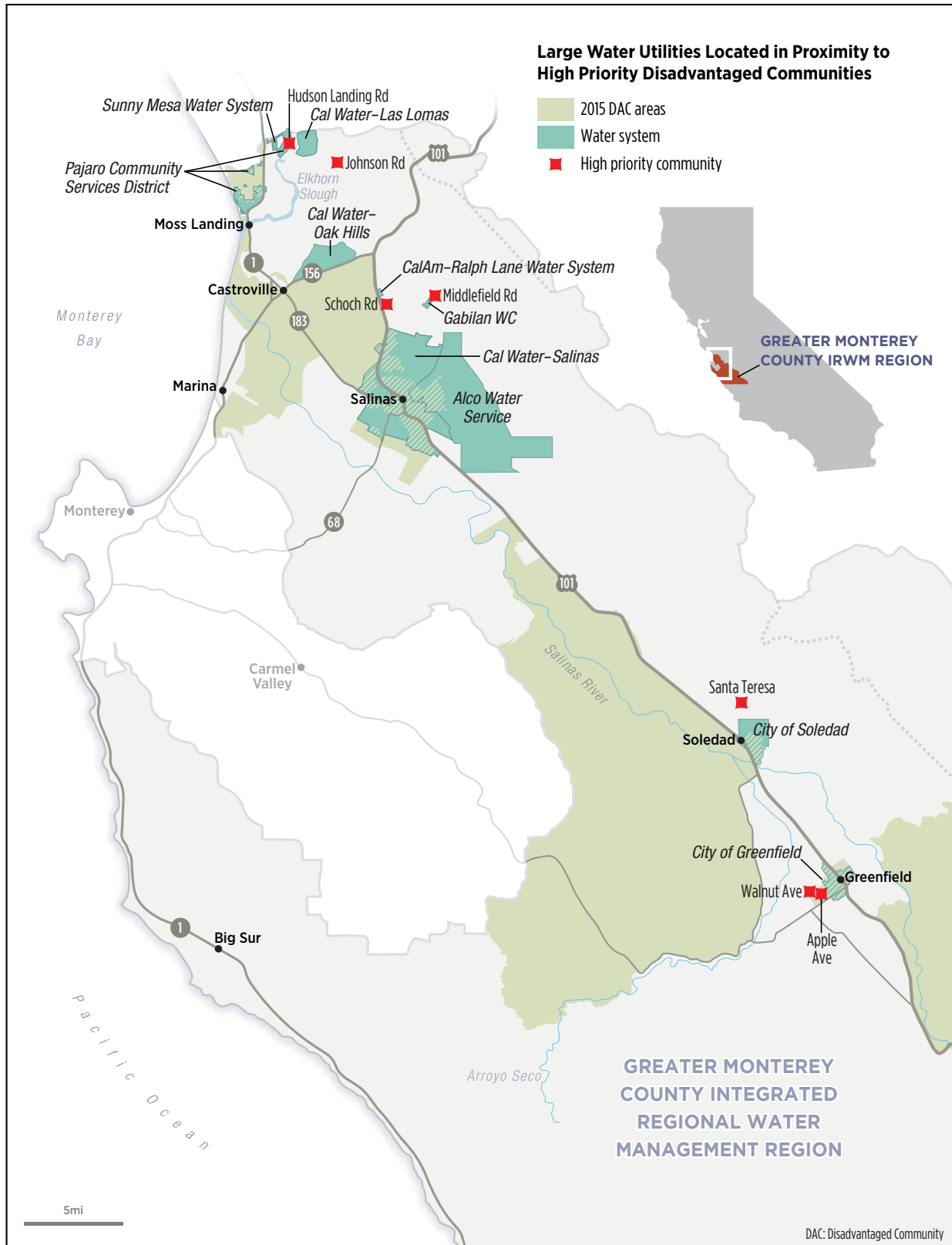


Figure 4.1 Location of the selected high priority communities and nearby large water utilities

CECorps was launched in February 2014 to help underserved communities in the United States meet their infrastructure needs. Members of the three founding organizations – ASCE, AWWA and EWB-USA – volunteer their time and expertise to work on CECorps projects across the country. CECorps partners with communities that do not have the financial resources to access engineering services in a traditional manner. Volunteer teams for the seven high priority communities targeted for this project consisted of engineering professionals from across the country, as listed below:

Johnson Road	EWB-USA Kansas City Professional Chapter
Walnut Avenue	AWWA California/Nevada Section
Apple Avenue	AWWA California/Nevada Section
Santa Teresa Village	EWB-USA Cleveland State University Chapter
Hudson Landing Road	EWB-USA Independent Project Team (predominantly west coast)
Middlefield Road	EWB-USA San Jose State University Chapter
Schoch Road	EWB-USA Kansas City Professional Chapter

Funding for CECorps’s work on this project was provided entirely through a United States Department of Agriculture (USDA) Rural Utilities Service Technical Assistance and Training Grant. The USDA grant funded technical assistance and training work on 10 projects in Arizona, California and South Dakota between October 1, 2015 and September 30, 2017. The Project Team is grateful for CECorps’s assistance on this project, and for the USDA grant funds that fully supported their work.

CECorps’s specific scope of work for this project consisted of the following:

1. Gather community-specific information, including:
 - Number of water service connections and population served
 - Proximity to a larger water system suitable for consolidation
 - Water supply source and size, e.g., number of wells, size, depth, pump capacity, etc.
 - Water quality characteristics
 - System structure: existing treatment, pipelines, storage tanks, fire hydrants, etc.
 - Understand the general managerial and financial systems in place for each community
2. Evaluate at least three primary solutions:
 - Consolidation with or waterline extension from a nearby larger water provider
 - Deeper and/or improved well(s) managed by community
 - Wellhead treatment of existing wells
3. For each potential solution:
 - Draft potential layout for community-specific application
 - Develop preliminary equipment and/or sizing of solution components
 - Develop ballpark planning budget estimates for each potential solution
 - Identify the advantages and disadvantages for each potential solution
4. Compare solution alternatives
5. Recommend preferred solution

CECorps's analyses and recommendations were documented in individual reports for six of the communities (the Apple Avenue engineering report was completed by NV5, Inc.). Each report was reviewed and approved by a CECorps Technical Review Committee comprised of CECorps professional engineers. The Technical Advisory Committee (TAC) for this Plan reviewed the CECorps Final Reports and provided additional input on technical aspects and costs. Based on the CECorps recommendations, TAC feedback, and subsequent conversations with community members, the Project Team then prepared project proposals for each of the communities, summarizing viable options, reviewing potential barriers, and evaluating funding opportunities. All CECorps reports and project proposals are attached to this Plan as appendices.

4.1.2 A Few Items of Note

Most of the CECorps engineering teams focused primarily on long-term *drinking water* solutions (an analysis of wastewater system alternatives was also conducted for the Walnut Avenue community). In addition, the CECorps engineering teams focused specifically on *engineering* solutions, including consolidation, well improvements or new well, and wellhead treatment. The CECorps teams were also asked to focus on commercially available, proven technology that met State of California and Monterey County legal requirements at the time of their report. There are many other potential alternatives that do not involve engineering solutions, or that may be undertaken to increase the efficiency, sustainability and/or performance of engineering solutions. These include, for example:

- *Regionalization*: Multiple disadvantaged communities can share resources such as administrative and operation expenses to reduce costs and increase efficiency.
- *Relocation of Community*: Residents in a community may be physically moved to another location.
- *Formation of a Local Entity*: A local entity such as mutual water company can be formed to enable community ownership of a water system.
- *Technical Assistance and Training*: This includes a wide range of services, such as technical, managerial, and financial (TMF) training, operation and maintenance training, energy efficiency training, and assistance in project/application development and obtaining grant funds and loans.

Some of these options, in addition to the CECorps-recommended engineering solutions, were discussed by the Project Team and may be explored further for some of the communities.

In addition, there are promising new technologies currently being piloted in California and the Salinas Valley for wellhead treatment. While this planning process was taking place, a team from the University of California Los Angeles (UCLA) initiated a wellhead treatment pilot project in the Salinas Valley to address drinking water contaminated with nitrate in small disadvantaged communities. The results of that project may have implications for future work for addressing drinking water issues of small communities in the region. See *Chapter 5 Other Related Efforts and Considerations* for a description of the UCLA pilot project.

It should be noted that point-of-use (POU) and point-of-entry (POE) treatment options were evaluated by some of the CECorps teams as potential solutions for some of the communities. POU/POE treatment is not currently permissible under Monterey County Code for local and state small systems. The State Water Resources Control Board recently issued emergency regulations for small public water systems (15 to 199 connections) to use POU and POE treatment systems as an option for compliance for up to three years or until funding for centralized treatment is available. Monterey County Health Department is planning to implement a POU/POE policy for smaller systems soon. However, since POU/POE is not currently allowed, the Project Team considered POU/POE to be an interim solution only and therefore did not consider it a

viable long-term option for the communities (see *Chapter 5* for more information regarding POU/POE).

Another development of note is the Interim Replacement Water Settlement Agreement. In March 2017, the State Water Board's Office of Enforcement and the Central Coast Regional Water Board signed a settlement agreement with a coalition of Salinas Valley growers, landowners, and shippers that would enable members of the coalition to avoid water enforcement programs in exchange for providing replacement drinking water to residents whose wells were contaminated with nitrate. The settlement agreement lists Local Primacy Agency (LPA) water systems (15-199 connections), small water systems (2-14 connections), and some domestic wells used by about 850 residents in the rural area. Households in each of the seven high priority communities are currently receiving bottled water either through a State Water Board grant or through this settlement program. Five of the seven high priority communities are located within the geographic boundary of the settlement agreement: Apple Avenue, Walnut Avenue, Schoch Road, Middlefield Road, and Santa Teresa Village. Please see *Chapter 5* for more information on the settlement agreement.

Finally, while this project focused primarily on nitrate contamination in the drinking water supplies of disadvantaged communities, another serious drinking water issue is hexavalent chromium. In May 2017, the Superior Court of Sacramento County issued a judgment invalidating the hexavalent chromium maximum contaminant level (MCL) for drinking water, citing that the State Water Resources Control Board "failed to properly consider the economic feasibility of complying with the MCL." As of September 11, 2017, the maximum contaminant level for hexavalent chromium is no longer in effect. The State Water Board is required to adopt a new MCL for hexavalent chromium, and is currently evaluating next steps. Enforcement is on hold in the meantime, while chromium-6 continues to pose a serious threat to public health for many of the small disadvantaged communities identified in this project.

4.1.3 Summary of Water System Information for High Priority Communities

Table 4.2 summarizes water system information for the seven high priority communities.

Table 4.2 Water System Summary for the Seven High Priority Communities

Community Name	DAC Status	Water System Description	Location and Census Block Group (BG)	Est. # of Connections
Johnson Road	Suspected DAC, EDA	Approx. 50 private wells plus 6 local small systems	Johnson/McGinnis/ Live Oak Rd near Las Lomas BG# 60530102012	85
Walnut Avenue	SDAC (MHI survey conducted by EJCW in 2016)	1 state small system	Near City of Greenfield BG# 60530112042	6
Apple Avenue	SDAC (MHI survey conducted by RCAC in 2016)	1 public water system and 2 local small water systems	Near City of Greenfield BG# 60530112042	20
Santa Teresa Village	DAC (MHI survey conducted by CRLA in 2014)	1 state small system	San Vicente Rd, near City of Soledad BG# 60530111023	9
Hudson Landing Road	Suspected DAC	Numerous private wells + 1 state small and 8 local smalls	Hudson Landing Rd, 1 mile west of Las Lomas BG# 60530146012	80
Middlefield Road	DAC (MHI survey conducted by EJCW in 2016)	2 state small systems	BG# 60530001012	12
Schoch Road	Suspected DAC	Priv. wells, local and state smalls	BG# 60530105011	44

The sections below outline the process of identifying solutions for each of the seven targeted high priority communities. The analyses, recommendations, and community preferred options are summarized in each section, with the full CECorps engineering Final Reports for each community included in the appendices. Nilsen and Associates, a member of the Project Team, led the development of project proposals for each high priority community, including a review of potential barriers, funding sources, other considerations, and next steps. These project proposals are also attached to the Plan in the appendices, as noted throughout this chapter.

4.2 Community #1: Johnson Road

EJCW staff worked with a CECorps engineering team consisting of volunteers from the EWB-USA Kansas City Professional Chapter to investigate drinking water issues and evaluate solutions for the Johnson Road community. This section summarizes the results of that effort. A project proposal for the Johnson Road project can be found in Appendix 4.1, and the final CECorps engineering report can be found in Appendix 4.2.



4.2.1 Community Description

The Johnson Road community is a small, rural neighborhood located in North Monterey County, approximately 1.5 miles southeast of Las Lomas, California. The population of this community was estimated to be about 340 residents (based on an estimated 85 homes and 4 people per home). Census data from 2010 for Census Tract 010202 Monterey County support the accuracy of this estimate.

The Johnson Road community is located within the US Census block group 60530102012, with a median household income of \$49,673. The US Census block group is classified as an Economically Distressed Area. Thirty-one households within the Johnson Road community currently receive bottled water through a grant from the State Water Board's Interim Emergency Drinking Water Program. This grant provides bottled water to qualifying disadvantaged families whose drinking water contains nitrate at unsafe levels (e.g. over the maximum contaminant level of 10 mg/L nitrate as N). The bottled water program is intended to be an interim solution until a long-term solution is provided.

4.2.2 Drinking Water System and Water Quality

The Johnson Road water system draws from the Pajaro Valley Groundwater Basin. The primary source of water supply for the homes within the Johnson Road community is from privately owned domestic wells. It is estimated that over 50 wells total serve the 85 homes/dwellings that make up the community. Six of these wells have been identified as local small water systems. Each well is owned and operated by the property owner(s) being served by the well, and all costs associated with maintaining the system are the responsibility of those property owner(s). Table 4.3 below summarizes the water system information for the Johnson Road community.

Table 4.3 Water Systems Comprising the Johnson Road Community (data from Monterey County Environmental Health)

Water System Name	Number of Connections	NO ₃ -N (mg/L) MCL=10	Sample Date	Chrom-6 (ug/L) MCL= 10	Sample Date
Live Oak WS #2	2	8.6	6/29/2016	14	7/21/2016
Live Oak WS #7	3	5.2	6/28/2016	5.1	6/28/2016
Live Oak WS #15	2	0.9	6/29/2016	19	6/29/2016
Johnson Rd WS #1	2	13.8	6/28/2016	9.1	6/28/2016
Johnson Rd WS #3	3	45.4	3/12/2014	5.9	6/28/2016
McGinnis Rd WS #1	4	16.5	6/28/2016	13	6/28/2016

Figure 4.3 below shows the approximate boundaries of the Johnson Road community and approximate locations of the six local small water systems.

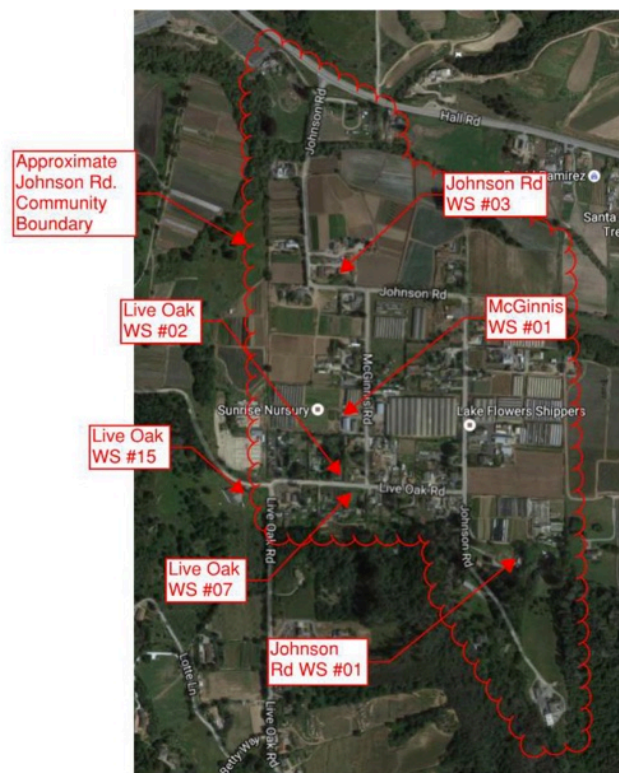


Figure 4.2 Johnson Road community boundary and water systems

Data from the Monterey County Health Department shows that nitrate concentrations have been above the MCL since the late 1980s (where the state MCL for nitrate is 10 mg/L as NO₃-N). Nitrate concentrations in wells located on Johnson Road and McGinnis Road have been increasing over time and in recent years have regularly exceeded 45 mg/L NO₃-N (with the highest nitrate level recorded at 54 mg/L). Recent sampling at McGinnis Road Water System #01, Live Oak Road Water Systems #02 and #15 produced positive results for chromium-6, the latter at nearly double the MCL. Total Dissolved Solids (TDS) concentrations were over the secondary limit in one of two samples tested as part of the CECorps study.

4.2.3 Wastewater System

All of the residences have on-site septic systems. Monterey County Public Works and Monterey One Water

(the renamed Monterey Regional Water Pollution Control Agency, a joint powers agency and wastewater treatment provider) are considering expansion of the service area for Monterey One Water. The Johnson Road neighborhood is not listed as a priority focus for the study. However, discussions with Monterey One Water and the County about other North County wastewater treatment needs may lead to a broader, long-term expansion strategy.

4.2.4 Description of Alternatives

The CECorps engineering team evaluated three alternatives for the Johnson Road community. The alternative solutions consisted of either providing an alternate water supply to the community through consolidation to a nearby public water system or treatment of the contaminated water source to reduce the contaminants to safe levels. Below is a brief description of the alternatives.

Alternative #1: Consolidation: Pipeline Extension from Cal Water

Alternative 1 is the consolidation of the Johnson Road water system with the nearest available public water system, California Water Service (Cal Water). For system consolidation, the Johnson Road community water system would connect to Cal Water's existing water main at its nearest location to the community, near Las Lomas, approximately 1.5 miles west of Johnson Road. This alternative would include the construction of approximately 13,800 feet of new water main. It is assumed the system would be sized to provide fire flow plus maximum daily demand (MDD). Once installed, the system would be owned and operated by Cal Water. All costs associated with maintaining the system would be included in the water service and commodity charges that are paid by each homeowner. Figure 4.4 below shows the proposed water main alignment and location of connection to Cal Water's distribution system.

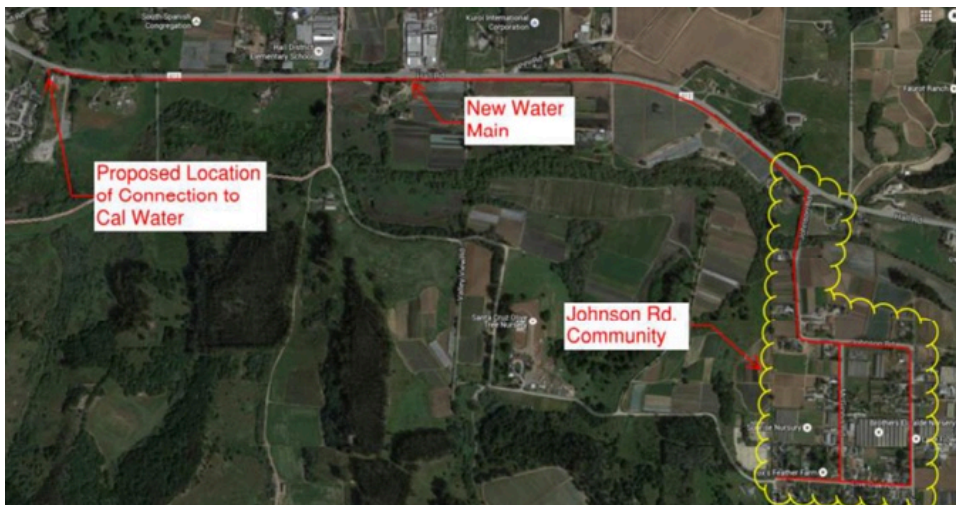


Figure 4.3 Johnson Road – proposed water main alignment for consolidation

Four to five homes on the southern most portion of Johnson Road are located at elevations above 95 ft and would require a booster pump station to connect to Cal Water's system. Because the costs associated with connecting these 4-5 homes to Cal Water's system would significantly increase the cost to consolidate with Cal Water, they were separated out in the economic evaluation and referred to as Alternative 1A.

Cal Water is supportive of this project and interested in participating. Potential project sponsors include Cal Water and Monterey County.

Alternative #2: Community-Managed Water System and Treatment Facility

Alternative 2 includes the construction of a new distribution system within the Johnson Road neighborhood and a water supply and treatment facility to provide treated water to the entire community. The facility would be located within the community and would include the construction of two new wells, an ion exchange treatment system, storage tank, backup electric generator, and new distribution water mains. A separate system for providing the required fire flow would also be included. This alternative would require the formation for a new public water system, such as a mutual water company (MWC), which would encompass the entire Johnson Road community. Once formed, the MWC would be responsible for setting water rates, collecting fees, and operating and maintaining the system.

Alternative #3: Divided Treatment Facilities

Alternative #3 consists of dividing the community into five public water systems, each with their own supply, treatment, and storage equipment. Since there are approximately 85 homes in the community, this alternative assumes each water system would have at least 15 service connections. Each system would therefore be considered a public water system and would need to comply with the standards outlined in Title 22. The treatment system for each of the five systems would be similar to the ion exchange system described in Alternative #2, but on a smaller scale. This alternative would include a single 120,000-gallon ground storage tank to store untreated groundwater for use in fire protection.

4.2.5 Analysis of Alternatives and Recommendation

The alternative solutions were evaluated using both economic and noneconomic criteria. The noneconomic factors included water quality, sustainability, system reliability, and ease of regulatory acceptance. A summary of the economic evaluation is shown in Table 4.4 below.

Table 4.4 Johnson Road – Economic Evaluation of Alternatives

	Alt 1: Consolidation	Alt 1A: Consolidation + Booster Pump Station	Alt 2: Community Treatment Facility	Alt 3: Divided Treatment Facilities
Capital Cost	\$4,140,000	\$4,850,000	\$5,181,000	\$8,506,000
Annual O&M Cost	\$44,190	\$48,480	\$238,000	\$576,000
Net Present Value	\$4,914,000	\$5,699,000	\$9,351,000	\$18,598,000
Estimated average monthly cost/home	\$43	\$48	\$233	\$565

Based upon the results of the economic and non-economic evaluations, the CECorps engineering team recommended that the Johnson Road community move forward with Alternatives 1 and 1A, which include consolidation with Cal Water. While the initial capital cost would be high, the operation and maintenance (O&M) costs would be significantly lower than the other alternatives. The Project Team and the TAC agreed with this recommendation.

4.2.6 Community Engagement: Selecting the Preferred Option

EJCW staff has worked with Johnson Road community partners to conduct extensive outreach in the Johnson Road community. EJCW hosted several community meetings and also conducted door-to-door outreach. EJCW staff developed and shared information with local residents including a factsheet about this project, nitrate factsheet, a map of nitrate levels in the community, and a factsheet about the CECorps-recommended

solutions. EJCW staff also shared water quality information and well testing results with community members who requested well testing. In addition, EJCW sent a mailer to all residents and owners in the community informing them of the water project, offering free nitrate testing (through Pajaro Valley Water Management Agency's program), and inviting them to community meetings. In November 2016, EJCW hosted a community meeting to discuss the CECorps recommendations, with approximately 30 attendees. In August 2017, EJCW hosted a community meeting specifically for property owners who had not yet attended a meeting, with approximately 15 attendees.

The majority of residents and water system owners that EJCW has been in contact with have been supportive of ongoing efforts to engage with community members and service providers to select a preferred option. EJCW will continue a dialogue with the neighborhood leaders, property owners, and residents concerning opportunities and development constraints for system alternatives. Financing options will need particular attention as individual parcel and water system owners have expressed that cost, including for laterals on private property, will determine their ability and interest in participating.

In addition, EJCW conducted preliminary outreach to property owners and residents of the upper Live Oak Road neighborhood, which is adjacent to Johnson Road. This outreach included three different mailers informing property owners of the Johnson Road water project, the water quality of the well serving their property (if served by a state or local small water system), and an invitation to a community meeting.

4.2.7 Funding Sources, Potential Barriers, and Other Considerations

Under Alternative 1 Consolidation, Cal Water would assume responsibility for operating and maintaining the new system upon completion. Cal Water is regulated by the California Public Utilities Commission (CPUC) and the State. The CPUC monitors the financial health of the utility and sets rates. Compliance with California Public Health, Fire and Water Codes, other regulations and the provisions of the federal Safe Drinking Water Act are monitored through regulatory agencies at the state level. Consolidation would offer the best potential to meet TMF requirements of the alternatives considered. This project is a good candidate for Proposition 1 Technical Assistance (Prop 1 TA) funding for pre-development and project development activities.

Under Alternative 2 Community Treatment, a new legal entity such as a mutual water company would have to be formed and approved by Monterey County Environmental Health and satisfy prospective funders of its fiscal resources, stability, and managerial capabilities to operate a new treatment facility and distribution system. A capital improvement and replacement reserve plan would need to be in place and approved. Contracts with the treatment supplier and a qualified operator would need to be negotiated and in place before TMF documentation would be submitted to the Monterey County Environmental Health and funders. It would be appropriate to request Prop 1 TA funds for assistance in developing a rate and reserve study and preparing TMF documents.

The Johnson Road project would be considered potentially eligible as a consolidation under State Revolving Fund (SRF)/Proposition 1 Guidelines as it will potentially meet disadvantaged community criteria, would result in safe drinking water and potentially resolve incipient wastewater system deficiencies. This project is also a potential candidate for Prop 1 TA funding for pre-development activities including environmental and hydrology studies, engineering, surveying and other pre-development costs. Should the community decide in favor of an option besides the preferred Alternative 1 Consolidation, then legal entity formation and TMF assistance should be pursued. Implementation funding and funding for connecting to main supply lines could be eligible for Community Development Block Grant (CDBG) or US Department of Agriculture (USDA) grants

or loans.

The Johnson Road area qualifies as an Economically Distressed Area (EDA) per Proposition 1 IRWM Grant Program (administered by the California Department of Water Resources). The Greater Monterey County IRWM Regional Water Management Group (RWMG) is applying for Proposition 1 IRWM Disadvantaged Community Involvement Funding in conjunction with the Central Coast IRWM Funding Area regions. The Greater Monterey County portion of the application includes project development assistance for a limited number of disadvantaged community projects that are not receiving or are not eligible for Prop 1 TA funds. If the application is successful, the RWMG and Project Team will evaluate and select individual projects for participation. Johnson Road would be a good candidate for this scope of work.

4.2.8 Next Steps

The Project Team supports the CECorps team and TAC recommendation of consolidation with Cal Water-Las Lomas. EJCW will continue stakeholder engagement in the Johnson Road community in two phases: 1) complete the outreach to Johnson Road, McGinnis Road, and lower Live Oak Road; and 2) additional outreach to upper Live Oak Road. The immediate-term goals are to confirm a potential project sponsor, define the project boundary, and conduct a median household income (MHI) survey.

4.3 Community #2: Walnut Avenue

EJCW staff worked with a CECorps engineering team consisting of volunteers from the AWWA California/Nevada Section to investigate drinking water and wastewater issues and evaluate solutions for the Walnut Avenue community. This section summarizes the results of that effort. A project proposal for the Walnut Avenue project can be found in Appendix 4.3, and the final CECorps engineering report can be found in Appendix 4.4.

4.3.1 Community Description

Walnut Avenue Water System #2 is located about a half mile west of the City of Greenfield on Walnut Street between 13th and 14th Street, in the central Salinas Valley. The community consists of six dwellings (one house and five mobile homes) with an estimated population of 20 – 30 residents, including many children. The property owner has expressed a desire to potentially increase the number of dwellings on this property.

The Walnut Avenue community is a severely disadvantaged community as determined by an MHI survey conducted by EJCW in 2016. The community is surrounded by agricultural fields outside of the city limits and sphere of influence for the City of Greenfield.



Figure 4.4 Walnut Avenue system’s location in relation to the City of Greenfield, as denoted by the yellow dashed boundary

4.3.2 Water System and Water Quality

Walnut Avenue Water System #2 consists of an active well and storage tank along the northwest edge of the property. The well provides unchlorinated potable water for six households. Water for crop irrigation is purchased separately from local irrigation canals. The system also contains an inactive well, and two septic systems with leach fields located on opposite sides of the property.

The Walnut Ave water system is located in the Forebay subaquifer of the Salinas Valley Groundwater Basin (Basin Number 3-4.04). This aquifer has a known history of high nitrate concentrations, stemming from extensive non-point source nitrate contamination from agricultural production in the Salinas Valley. Water quality results obtained in May 2016 indicated high nitrate levels (36 mg/L $\text{NO}_3\text{-N}$, where the MCL is 10 mg/L). Water testing also showed unacceptable concentrations of total coliform bacteria, and high levels of TDS and 1,2,3-trichloropropane (TCP). The well has a history of bacterial contamination.

Historical trends in nitrate levels, obtained from historical sampling reports, show that nitrate concentrations have been above the MCL since 1988 and are increasing with time. Current concentrations are now over three times the MCL.

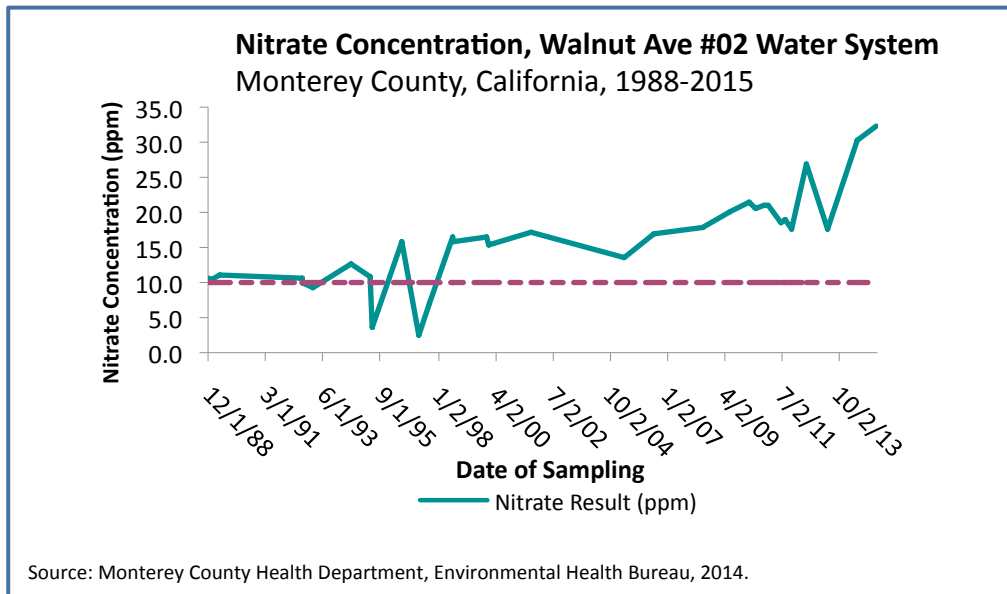


Figure 4.5 Walnut Avenue Water System #2 - nitrate concentration historical trends

4.3.3 Description of Alternative Solutions

The CECorps engineering team considered several options for the Walnut Avenue community, as summarized below.

Alternative #1: Consolidation: Pipeline Extension from City of Greenfield

The first option consists of a pipeline extension and connection to the City of Greenfield's system. The City has expressed interest in consolidation, and has adequate water supply to accommodate new customers. The pipeline extension would be approximately 4,510 feet long. The City recommended that fire protection be considered and that fire hydrants be installed as part of a consolidation project. Operations costs would be borne by the City of Greenfield and paid for by residents through water rates. The Monterey County Local Agency Formation Commission (LAFCO) would allow an out of service area agreement for a pipeline extension from the City of Greenfield for the dwellings currently on the property.

Alternative #2: New Well

In this option, a new well of equal or greater capacity would be drilled in an area that can easily be piped to the existing homes. Given the presence of wells with low nitrate in other parts of the City of Greenfield system, the CECorps engineering team considered this a viable alternative. Figure 4.7 below illustrates potential locations for a new well based on required sanitary separations highlighted in red. All areas not highlighted in red are potential locations for a new well and would require further evaluation.

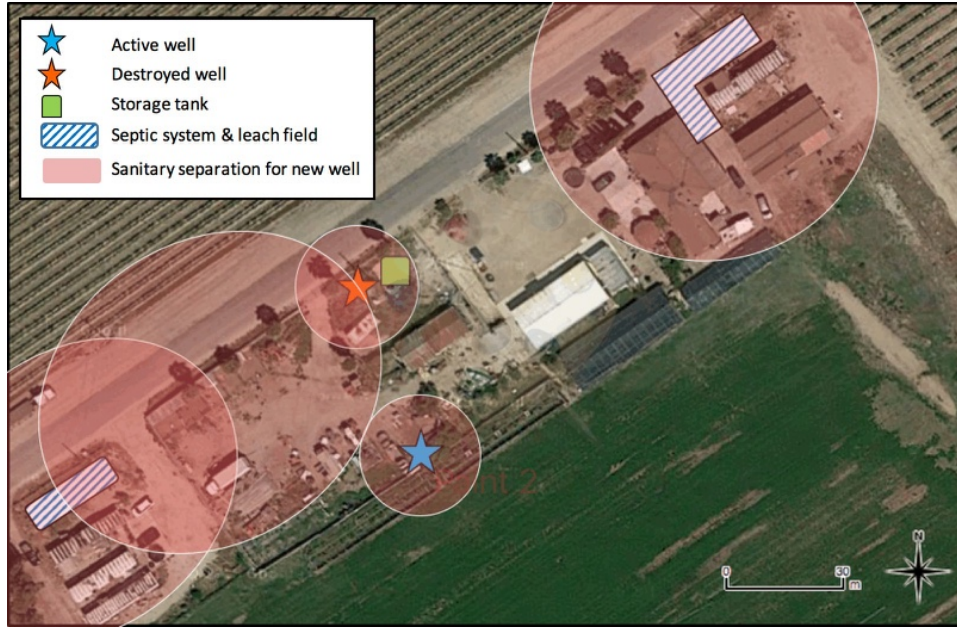


Figure 4.6 Possible locations for a new well for the Walnut Avenue community..

Alternative #3: Wellhead Treatment

The CECorps engineering team considered several wellhead treatment options, including 1) strong base anion exchange (SBA-IX), 2) reverse osmosis, 3) electrodialysis/electrodialysis reversal, and 4) biological denitrification. The first three treatment options would require disposal of a concentrated waste stream; the fourth alternative would not require disposal, since the process consists of nitrate being converted to nitrogen gas rather than displaced to a concentrated waste stream.

4.3.4 Analysis of Alternatives and Recommendations

The CECorps engineering team did not consider any of the wellhead treatment options to be viable solutions for the Walnut Avenue community. SBA-IX treatment was not recommended due to very high capital costs and other factors. The reverse osmosis and electrodialysis/electrodialysis reversal treatment options were rejected due to disposal challenges and other factors. Biological denitrification was rejected due to high capital costs and the complexity of operation.

The CECorps engineering team did not make a specific recommendation between the remaining alternatives, but presented the costs and benefits to help the community evaluate the best option. Table 4.5 below summarizes the estimated costs for the two viable alternatives. While a new well would be less costly, the CECorps team noted that there is no guarantee the water would meet all state and federal standards.

Table 4.5 Walnut Avenue – Economic Evaluation of Alternatives

	Alt 1: Consolidation	Alt 2: New Well
Total Installed Capital Costs	\$870,000	\$480,000
Annual O&M Costs	\$2,800	\$3,900
20-Year NPW Costs	\$920,000	\$540,000
Estimated average monthly cost/home	TBD	TBD

4.3.5 Wastewater Considerations

In addition to drinking water impairment, the Walnut Avenue community also faces wastewater management challenges. CECorps completed an analysis of the community's wastewater system, which can be found in Appendix 4.5. The system contains two active septic systems, each serving three of the community's six households. One of the septic systems experiences periodic ponding in the leach field, likely caused by the leach field not adequately sized for the volume and soil conditions. It should be noted that if additional drinking water were available to Walnut Ave Water System #2 residents, sewage volumes may also increase, further overwhelming the second leach field. The CECorps team considered consolidation with the City of Greenfield and leach field expansion as possible long-term wastewater options.

Alternative #1: Consolidation

One option to provide sanitation to the community is to connect to the City of Greenfield's wastewater system. At a May 10, 2016 meeting with the City of Greenfield's community development staff, it was confirmed that there was adequate capacity in the wastewater treatment plant to add these additional customers. The City indicated a preference for annexation if they were to provide both water and sewer service to a property; however, LAFCO has stated it would not allow annexation, because the Walnut Ave property lies outside the city's sphere of influence. The Apple Ave Water System #3 (Rocha Camp), the Mittelsteadt properties (Apple Ave Water Systems #1 and #4), and the Apple Ave Water System #2, are also candidates for consolidation to the city's wastewater system (see description of these communities below). The Apple Ave Water System #2 has also experienced issues with their septic system.

Approximately 4,510 feet of sewer line would be needed for consolidation with the City of Greenfield's wastewater system and Walnut Ave Water System #2. Adding Apple Ave #3 to the consolidation option would not change the amount of sewer line needed. Adding the Apple Ave WS #2, Apple Ave WS #1, and Apple Ave WS #4 to the consolidation (with Walnut Ave and Apple Ave #3) would require about 6,670 feet of sewer line.

Alternative #2: Leach Field Expansion

Another option is to reduce the leach field overloading by adding a second drainage line. This solution had been implemented on the property's other leach field, which had also experienced periodic ponding, and proved to be a successful approach.

Cost Analysis

Costs for consolidation with the City of Greenfield were estimated for three scenarios, and include installed capital equipment, service connections, manholes, permitting, design, construction, and management. The cost for consolidation with Walnut Ave WS #2 was estimated at \$880,000. Adding the Apple Ave WS #3 to the consolidation would not increase this cost. The cost for consolidation with Walnut Ave WS #2, Apple Ave WS #3, Apple Ave WS #2, Apple Ave WS #1, and Apple Ave WS #4 was estimated at \$1.3 million. For the leach field expansion option, total installed capital costs were estimated at \$41,400. While the leach field expansion is the lowest cost option, leach field expansion may not be grant eligible and all costs would then be borne by the property owner. The consolidation option, while more expensive, may be grant eligible for up to 75 percent grant funding under the SRF.

4.3.6 Community Engagement: Selecting the Preferred Option

The property owner's preference is to consolidate with the City of Greenfield's water and sewer systems. Tenants in two households also expressed a preference to connect to the City of Greenfield's water system; tenants in the three other households did not express a preference for a long-term solution.

4.3.7 Funding Sources, Potential Barriers, and Other Considerations

There are several potential barriers to consolidation of the Walnut Avenue Water System with the Greenfield water and sewer systems that would need to be resolved: obtaining staff recommendations for City Council approval of an application to LAFCO for an Out of Service Area Agreement, completing applications for any proposed project financing, and identifying and reimbursing associated City costs. There have been a series of discussions with LAFCO staff regarding several alternatives that would allow consolidation with services from the City of Greenfield: annexation, extension of the sphere of influence and an extraterritorial agreement. The City of Greenfield is willing to proceed with an application to LAFCO for a service extension upon request. The City has been discouraged by LAFCO from pursuing annexation of the property due to potential growth inducing factors and because Walnut Avenue is outside of the City's sphere of influence.

Monterey County Environmental Health Department staff has expressed interest in seeing the project configured as a consolidation with City of Greenfield services. Adding a sanitary sewer connection to Greenfield's wastewater treatment infrastructure would resolve an ongoing drain field issues.

The Walnut Avenue project would be considered potentially eligible as a consolidation under SRF/Prop 1 Guidelines as it meets the Severely Disadvantaged Community criteria, would result in safe drinking water and potentially resolve incipient wastewater system deficiencies. One potential barrier to SRF/Prop 1 funding is the potential high per connection cost of the Walnut Avenue project. This project is a potential candidate for Prop 1 TA funding for pre-development activities. The Walnut Avenue project is also a good candidate for Prop 1 IRWM Disadvantaged Community Involvement funding for project development funding.

4.3.8 Next Steps

The property owner is evaluating options for the property that may postpone a decision on the course of action to correct water system deficiencies for the near term. EJCW will continue a dialogue with the owner concerning the property owner's potential plan for expanding the number of units, along with future development constraints that should be considered in the decision process. The project will be considered temporarily on hold pending a final decision from the owner.

4.4 Community #3: Apple Avenue

While the AWWA California/Nevada Section CECorps engineering team and EJCW were investigating drinking water and wastewater issues for the Walnut Avenue community, they were introduced to several neighboring communities (small water systems) that were also experiencing drinking water problems. These systems are shown in Figure 4.8 below (with Walnut Avenue #2 shown for reference). The full project engineering report for Apple Avenue is available by request from the State Water Board.

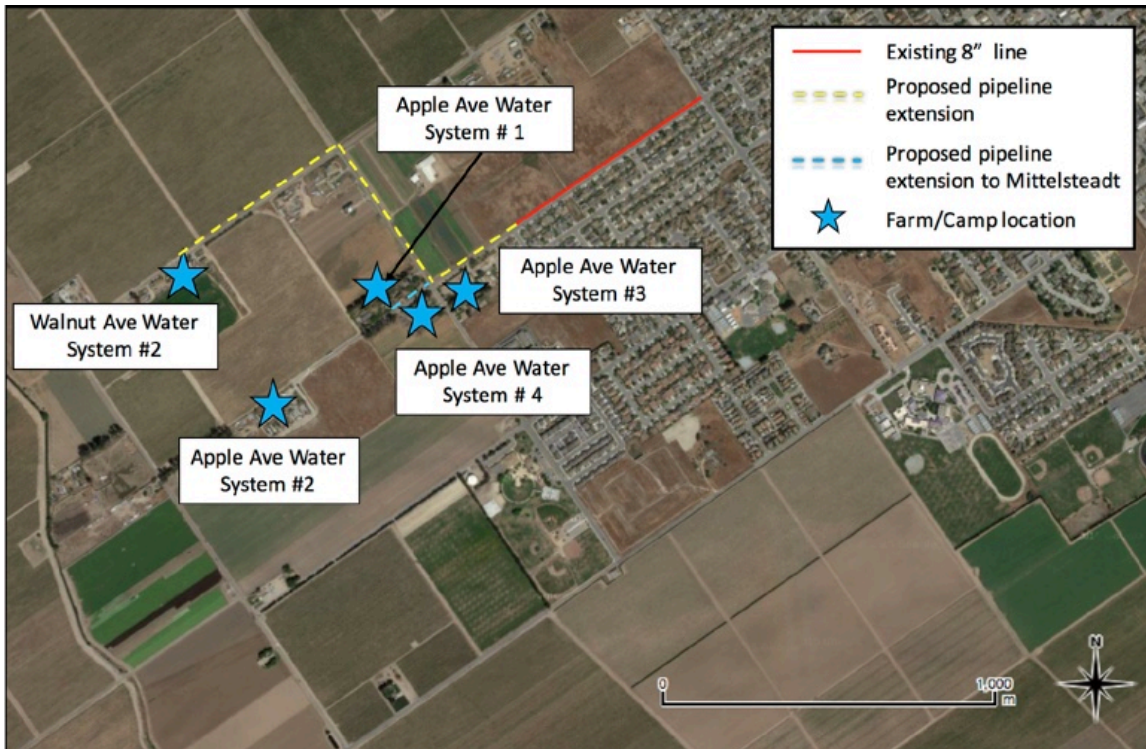


Figure 4.7 Apple Avenue water systems

4.4.1 Community Description

Apple Avenue Water System #3 is a multifamily residential property and farm labor camp located within the City of Greenfield limits. The Rural Community Assistance Corporation (RCAC) performed an MHI survey for this community in 2016, and determined the community to be severely disadvantaged with an MHI of \$21,600. Across the street from the Apple Avenue Water System #3 property are six households served by two water systems, Apple Avenue Water System #1 and Apple Avenue Water System #4 (depicted in Figure 4.8 above). RCAC also performed an MHI survey for these water systems and determined the households to be severely disadvantaged, with an MHI of \$24,196. Both wells serving those properties have high nitrate levels in exceedance of the MCL. An additional 750 feet of pipeline would be needed in order to serve all of these six dwellings.

Apple Avenue Water Systems #1 and #4 were included in planning and design in 2017, bringing the total number of connections to 20 that would be consolidated with the City of Greenfield water system. The latter two systems are located outside of the city boundary and would require LAFCO approval of a request from Greenfield to provide water service.

4.4.2 Water System and Water Quality

There are 14 water system service connections for Apple Ave WS #3, one of which serves a 19-room labor camp. The well serving this property has a nitrate level in exceedance of state drinking water standards. In 2014, Apple Ave WS #3 completed engineering design for a consolidation with the City of Greenfield water system after receiving a planning grant. At that time, a SRF construction funding application was not submitted.

The Apple Avenue Water System #2 is southwest of the point of connection on Apple Avenue. This community recently constructed a well, which is compliant with the nitrate water quality standard. The community was not considered a high priority for consolidation at this time, and therefore was not included in this project.

4.4.3 Description of Alternative Solutions and Recommendations

The City of Greenfield contracted with NV5, Inc., an engineering firm that is not part of the CECorps, to amend the original Apple Ave WS #3 consolidation engineering design to include the six connections currently served by Apple Ave WS #1 and Apple Ave WS #4. The revised design and Engineering Report was completed in August 2017. Consolidation with the City of Greenfield is the recommended option for the Apple Avenue drinking water systems.

In the original Engineering Report of October 2014 for the Rocha property, four alternatives were considered: no action, drill a new well, provide water treatment, and consolidate with a nearby system. The no action alternative would leave the community without access to safe water into the foreseeable future and was not recommended. The Engineering Report describes drilling a new well as an unacceptable solution due to high nitrate levels in the surrounding groundwater basin. Treatment for nitrate was deemed an undesirable alternative because of the high cost of treatment systems. The recommended alternative, consolidation with the City of Greenfield, was estimated at a probable cost of \$890,000 for all three systems.

4.4.4 Community Engagement: Selecting the Preferred Option

All property owners support the City's efforts to secure funding for the consolidation of Apple Ave water systems #3, #1, and #4 with the Greenfield municipal water service. The Apple Ave WS #3 owner has signed an Agreement with the City for this purpose. The owners of Apple Ave WS #1 and Apple Ave WS #4 sent the City of Greenfield a letter requesting drinking water service. As of July 1, 2017, all residents served by the water systems are currently receiving bottled water through the Salinas Valley Replacement Water Settlement (see Chapter 5, Section 5.1.1.1). This transition was facilitated by EJCW who had previously been facilitating bottled water delivery via a State Water Board grant.

4.4.5 Funding Sources, Potential Barriers, and Other Considerations

A preliminary application for Proposition 1/SRF funding was submitted by the City of Greenfield for the proposed consolidation. EJCW has requested funding under the Prop 1 TA Program and has received approval of a work plan to provide support for the completion of required elements of the Prop 1/SRF Construction Application to provide financing for the consolidation.

LAFCO approval will be required for an extension of service to the Apple Ave WS #1 and Apple Ave WS #4 properties located outside Greenfield's Municipal Service area.

The County of Monterey has agreed to allow the City of Greenfield to act as the Lead Agency for environmental reviews under CEQA and NEPA that are required as a condition of Proposition 1 and SRF funding. The proposed consolidation will include construction of pipelines in the County roadways, necessitating approval of an Encroachment Permit from Public Works prior to commencement of construction.

A funding source for the costs associated with installing the service lines from the meter to the residences (lateral connections) has not been determined. CDBG funds will be explored for the Apple Ave WS #3

property, which is located within Greenfield’s city limits and thus might qualify for a loan or grant under the Monterey County’s CDBG Urban County Entitlement Program. The properties serving Apple Ave WS #1 and Apple Ave WS #4 would not qualify unless an application is submitted by an eligible agency and approved through the County’s standard CDBG allocation process, which begins in late fall of each year. Lack of funding for laterals has been identified as a barrier for this project.

4.4.6 Next Steps

As part of the work plan for the Prop 1 TA grant, EJCW will contract with EMC Planning Group to complete two environmental studies specified by the State Water Board environmental staff: a Biological Study and a Cultural Resources Study. The studies and NEPA checklist are included in the Environmental Package component of the Prop 1/SRF Construction Financing Application. EJCW will continue to work with the property owners and facilitate an Agreement for Connection to the Greenfield Water System for Apple Ave WS #1 and Apple Ave WS #4. Other components of the Construction Financing Application are to be completed by the City of Greenfield with support from Nilsen and Associates. The City Engineer is currently working with the project engineering firm NV5 Inc. to complete the plans, specifications and bid package for the consolidation. The City of Greenfield will take the lead in preparing the application to LAFCO for the Out of Service Area Agreement.

4.5 Community #4: Santa Teresa Village

EJCW staff worked with a CECorps engineering team consisting of volunteers from the EWB-USA Cleveland State University Ohio Chapter and a registered professional engineer from California, Marilu Corona to investigate drinking water issues and evaluate solutions for the Santa Teresa community. This section summarizes the results of that effort. A project proposal for the Santa Teresa Village project can be found in Appendix 4.6, and the final CECorps engineering report can be found in Appendix 4.7.



4.5.1 Community Description

Santa Teresa Village is an unincorporated community located in the central Salinas Valley approximately half mile northeast of the City of Soledad. The physical address is 32300 San Vicente Road, Soledad CA 93960. One landowner owns the 3.58-acre property and approximately 10 houses located on the property. At the time of the site visit, nine of the houses were occupied and one house was vacant. The Santa Teresa property is served by a domestic well and an on-site septic system.

Santa Teresa is a disadvantaged community as determined by an MHI survey conducted by California Rural Legal Assistance (CRLA) in 2014, which found an MHI for the community of \$40,000 (the MHI survey was approved by State Water Board staff in 2016). The community is located within US Census block group 60530111023. Santa Teresa Village is surrounded by agricultural fields. An agricultural field on the south side of San Vicente Road has the potential for future subdivision development and annexation to Soledad.



Figure 4.8 Santa Teresa Village, located about 0.8 miles north of the City of Soledad

4.5.2 Water System and Water Quality

Santa Teresa's water system is a state small system, known as San Vicente Road Water System #01. The system consists of 10 connections, serving an estimated 36-40 individuals, and is comprised of one well, one pump, two tanks, and distribution piping to ten connections. The community obtains its water supply from the Forebay subaquifer of the Salinas Valley Groundwater Basin. Maintenance of the system is managed by Santa Teresa's property owner and is financed by a monthly water fee of approximately \$40 (2016) per household. The community's sole water source is groundwater extracted from the one well, which is located on a small easement approximately 350 yards west of the community in the middle of an agricultural field.

At the time of the March 2016 site visit by the CECorps engineering team and EJCW, each house in Santa Teresa had on display a Monterey County sign stating that the water was not suitable for drinking. Nitrate concentrations have only slightly exceeded the state MCL of 10 mg/L (as NO₃-N) (with highest levels shown as 10.6 mg/L in 2012 and 2016), though annual monitoring data since 1989 indicates an upward trend. Community members have also expressed concern regarding diminishing groundwater levels in nearby wells and the reliability of their well's future pumping capacity. In 2015, supplemental water was delivered to the community's on-site storage tank by a private trucking service to augment water capacity. Potable water is available for bulk purchase and delivery by a private water tanker through an arrangement with the City of Soledad.



Santa Teresa well and well encasement

The owner of Santa Teresa Village has executed an agreement to install a nitrate treatment system to remove excess nitrate in conjunction with the UCLA pilot project. The system combines a reverse osmosis nitrate removal treatment unit with remote data monitoring, tracking, and control off site. The UCLA program is funded by a four-year grant from the State Water Board. In addition to providing safe drinking water to selected communities, the UCLA pilot is intended to test costs of remote monitoring and control and determine whether the need for on-site operations and management can be reduced for small rural communities with nitrate contaminated drinking water. See *Chapter 5 Other Related Efforts and Considerations* for more information about the UCLA pilot project.

4.5.3 Description of Alternative Solutions

The CECorps engineering team evaluated the following alternatives for the Santa Teresa community: consolidation, new well siting or well relocation, wellhead treatment, and water importation.

Alternative #1: Consolidation: Pipeline Extension from City of Soledad

The first alternative consists of a pipeline extension from the City of Soledad. Consolidation with the City of Soledad Public Works water system would require the construction of a 0.8-mile pipeline along San Vicente Road with a tie-in location shown in Figure 4.10. The City's consolidation requirements may require Santa Teresa to consolidate its wastewater system as well.



Figure 4.9 Proposed placement of pipeline extension

The new pipeline and associated facilities would be owned, operated, and maintained by the City of Soledad. Each household would be required to pay City of Soledad water fees, which would likely be greater than the current household expenditure on water services.

Alternative #2: New Well

This alternative includes the installation of a new well site that will reach lower aquifers containing potentially improved water quality. It is important to note that groundwater of adequate quality may not be found in the area, and if found, it may not be a reliable source of adequate quality water in the long term. Siting of a new well would require pumping, storage, and distribution system modifications at Santa Teresa, based on the location of the new well relative to the community.

Alternative #3: Wellhead Treatment

The CECorps engineering team considered three treatment options for the Santa Teresa water system: reverse osmosis, ion exchange, and blending. Reverse osmosis and ion exchange remove nitrate, while blending dilutes nitrate to an acceptable concentration. If the Santa Teresa community were to opt for the blending alternative, the CECorps engineering team recommended that they also implement wellhead treatment equipment in case the imported water source were to become unreliable.

Alternative #4: Water Importation

Santa Teresa residents currently use bottled water for drinking and cooking. An alternative to purchasing bottled water is water delivered by the City of Soledad using certified water trucks and stored in a storage tank. This solution is considered a temporary solution only. Upgrades to the existing storage tank may be required for the detention of the imported water.

4.5.4 Analysis of Alternatives and Recommendation

The table below compares the estimated costs for the three long-term alternatives (including three types of wellhead treatment):

Table 4.6 Santa Teresa Village – Economic Evaluation of Alternatives

	Alt 1: Consolidation with City of Soledad	Alt 2: New Well	Alt 3a: Wellhead Treatment [UCLA Pilot Project]
Total Installed Capital Costs	\$1,740,314	\$300,720	TBD
Annual O&M Costs	\$0 (incurred by city)	\$24,000	TBD
20-Year NPW Costs	\$1,740,314	\$720,720	TBD
Est. average monthly cost per home	\$40.37*	\$200	TBD

*Assumes 5/8" water meter, 100 gallons per person per day water demand, 4 people per residence, and January 1, 2018 City of Soledad water rates.

The long-term solution recommended by the CECorps engineering team for the Santa Teresa community was Alternative 1, consolidation with the City of Soledad. Alternative 2 was eliminated due to the uncertainty of whether or not it would result in adequate water supply or quality. Alternative 3 was eliminated by the CECorps Team due to infeasibility of Santa Teresa to directly or indirectly hire a certified operator to oversee wellhead treatment installations as required by the State of California. The Project Team has added the UCLA pilot project as Alternative 3a and will populate this table when more cost information becomes available.

4.5.5 Community Engagement: Selecting the Preferred Option

EJCW conducted door-to-door outreach to all residents in October 2016 with five households responding. Residents in two households expressed a preference to connect to the City of Soledad's water system, residents in two other households did not express a preference for a long-term solution, and a resident in one household suggested "monitoring farmers" as a long-term solution to ensure better water quality. The property owner does not want to take any action at this time that would jeopardize the arrangements with UCLA for the pilot treatment system or violate the terms of the signed agreement.

If the consolidation option were to be viable at the conclusion of the UCLA project, the City of Soledad is willing to proceed with an application to Monterey County LAFCO for an out of service area extension upon request. The City is also willing to consider annexation of the property should a nearby property owner proceed with annexation plans and permitting for a residential subdivision.

4.5.6 Wastewater System

The Santa Teresa property is served by an on-site septic system. According to Monterey County Environmental Health Bureau, there are significant constraints to drain field expansion because of setback requirements from the property line and existing structures and septic system components in place.

4.5.7 Funding Sources, Potential Barriers, and Other Considerations

There are several potential barriers to consolidation of the Santa Teresa Village and Soledad systems that would need to be resolved, including obtaining City Council approval of an application to LAFCO for an Out of Service Area Agreement and applications for any proposed project financing. City costs associated with

grants and construction management will need to be identified. Other potential hurdles or barriers discussed include the LAFCO process, review by the Monterey County Environmental Health Bureau, the CEQA process, and consultations with the Mission-Soledad Fire District.

The property owner has stated he would be unable to contribute to the cost of consolidation with the City of Soledad. The City of Soledad is unable to fund the project as it is located outside of the current City limits boundary. However, the City may be able to assist with the development of replacement water and wastewater infrastructure through facilitation of funding applications and the LAFCO process, acting as the project sponsor or fiscal agent, and performing construction management services.

The estimated budget for consolidation with Soledad is \$1,740,314 based on CECorps estimates. The Santa Teresa project would be considered potentially eligible as a consolidation under SRF/Prop 1 Guidelines as it meets the Disadvantaged Community criteria, would result in safe drinking water, and potentially resolve incipient wastewater system deficiencies. The cost per connection may be the primary consideration for potential funding.

4.5.8 Next Steps

The UCLA nitrate treatment system, scheduled to be installed in late 2017 or 2018 depending upon permit approval, will address water quality issues for the length of the grant program. Therefore, no action is recommended until the ongoing cost of operation and maintenance costs of the UCLA treatment system is known. The Project Team has moved this project to inactive status as no immediate action is needed.

4.6 Community #5: Hudson Landing Road

EJCW staff worked with a CECorps engineering team consisting of volunteers from an EWB-USA Independent Project Team (predominantly from California) to investigate drinking water issues and evaluate solutions for the Hudson Landing Road community. This section summarizes the results of that effort. A project proposal for the Hudson Landing Road project can be found in Appendix 4.8, and the final CECorps engineering report can be found in Appendix 4.9.

4.6.1 Community Description

Hudson Landing Road community is an unincorporated community in North Monterey County. The community is located approximately one mile west of Las Lomas. The community is bordered by Hall Road to the east, Elkhorn Road to the southwest, and a golf course to the northwest on top of the hill overlooking the community (see Figure 4.11), and is located in US Census block group number 60530146012. The Hudson Landing Road community is a suspected disadvantaged community. The community lies at the headwaters of the Elkhorn Slough and Preserve, which is a biologically productive and environmentally sensitive seawater estuary. It is a rural community situated in an active agricultural area with predominately row crops and confined livestock operations. The Hudson Landing Road community is made up of approximately 80 households (estimated population of 260).



Figure 4.10 Hudson Landing Road community location

4.6.2 Water System and Water Quality

The Hudson Landing Road community consists of approximately 80 homes, most served by individual domestic wells. There are approximately 50 wells in the immediate area. There are eight local small water systems and one state small water system within the Hudson Landing project area (summarized in Table 4.7 below).

Table 4.7 Water Systems Comprising the Hudson Landing Road Community

Water System Name	Number of Connections	NO ₃ -N (mg/L) MCL=10	Sample Date	Chrom-6 (ug/L) MCL= 10	Sample Date
Hudson Landing WS #03	2	40.4	9/24/2015		
Hudson Landing WS #01	4	1.4	1/5/2016		
Hudson Landing WS #04	2	17.6	9/25/2013		
Hudson Landing WS #08	13	0.5	6/22/2016	20	3/31/2016
Hudson Landing WS #10	4	4.1	3/31/2016	5.3	3/31/2016
Hudson Landing WS #11	2	7.0	9/24/2015		

Hudson Landing WS #12	2	1.1	10/5/2015		
Hudson Landing WS #13	2	0.7	10/5/2015		
Spring Rd WS #03	2	14.0	3/13/2014		

The community draws its water supply from the Aromas Sand Aquifer of the Pajaro Valley Groundwater Basin. A number of the multi-resident wells are currently out of compliance with federal and state drinking water quality standards with regard to nitrate. Nitrate levels found in one shared well are upward of four times the allowable amount for drinking water. The CECorps engineering team, which conducted a site visit to Hudson Landing Road in July of 2016, attributed the nitrate contamination to both the surrounding agricultural land use as well as to the community’s septic systems. A few households within the community are being provided bottled water by EJCW through a grant from the State Water Resources Control Board Emergency Drinking Water Program. The well water is primarily used for food preparation and personal hygiene as well as landscape irrigation.

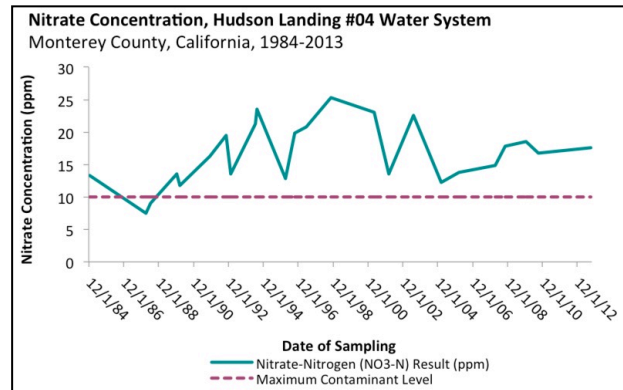
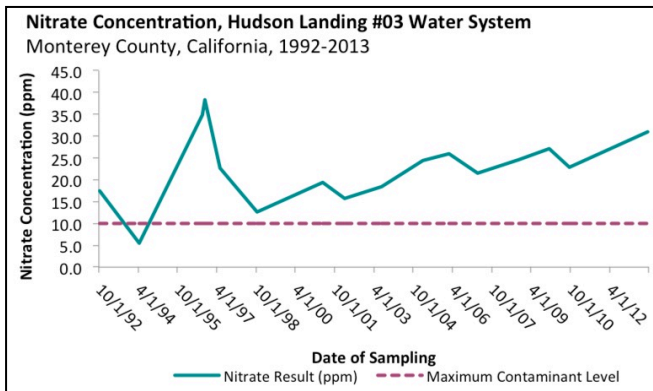


Figure 4.11 Example of nitrate trends from well testing at two small water systems in Hudson Landing Road community (nitrate as NO₃-N; the MCL is 10 ppm NO₃-N)

The CECorps engineering team tested one shared well during their site visit. The laboratory results for one well confirmed a high chromium-6 level of 22 µ/L, more than twice the MCL (10 µ/L).¹ A local municipal water utility, Pajaro/Sunny Mesa Community Services District (PSMCS), which provides the water services to the Watsonville area and areas adjacent to the Hudson Landing Road community, confirmed the existence of chromium-6 in the area and, at the time of the CECorps report, had been planning a long-term solution for two of their wells located just north of Hudson Landing Road. In addition, there is evidence of seawater intrusion affecting some wells.

In 2006, a detailed water engineering feasibility study was prepared for the PSMCS with regard to the Hudson Landing Road community being incorporated into the CSD. It is understood that the proposed cost allocation and the overall magnitude of the costs prevented the implementation of the study recommendations in the past. The 2006 proposal had been to create an assessment district with project costs added to the property tax bills.

¹ Please see discussion about the recent court ruling regarding the MCL for hexavalent chromium in Section 4.1.2 above.

4.6.3 Description of Alternative Solutions

The CECorps engineering team evaluated five alternatives for the Hudson Landing Road community. Following is a brief summary.

Alternative #1: Consolidation: Pipeline Extension from Pajaro/Sunny Mesa Community Services District System

The first alternative involves a pipeline extension from PSMCSD. The PSMCSD would manage and maintain the system. This alternative is very similar to the system studied and proposed in 2006 with regard to consolidation. A larger area of coverage with additional properties is included in this alternative with a distribution system of 13,110 linear feet. The CECorps engineering team considered having a central managing authority to maintain and monitor the system to be a strong advantage of this alternative.

Alternative #2: Wellhead Treatment for All Wells

There are approximately 50 active wells in the community. For this alternative, each wellhead would be fitted with a treatment package, each tailored to the specific constituents to be removed.

Alternative #3: Community Distribution System and Wellhead Treatment for Select Wells

Alternative #3 consists of wellhead treatment for select wells. This option would require the testing of several wells to establish two new locations to tap for a distribution system serving all residents. A distribution network of approximately 9,650 linear feet of pipe would need to be designed and installed. Treatment packages would also be required for three wells. This alternative would provide a more secure water supply than the existing system and the plan for Alternative #2; however, it is most likely not a long-term solution.

Alternative #4: Community Distribution System and Installation of New Deep Wells

Deep wells offer the advantage of reducing or eliminating the occurrence of nitrate and fecal intrusion from ground and surface water, but there is still the potential for seawater intrusion, arsenic, and/or chromium-6, all of which would require a treatment package if present. A distribution system of approximately 13,110 linear feet of pipe would be needed to serve the entire community. This alternative could offer a longer term solution and would require the establishment of an administrative authority to manage the system.

Alternative #5: Community Distribution System and Blending

This alternative involves blending of water from select wells. The alternative assumes that several wells would test satisfactorily to blend with other wells that do not have satisfactory water quality. Similar to Alternatives 3 and 4, a distribution system would be required to serve the entire community. The selected wellheads would require treatment packages. The CECorps engineering team considered this to be a costly alternative for marginal benefits, and therefore dismissed it as an option.

4.6.4 Analysis of Alternatives and Recommendation

The table below compares estimated costs for the two preferred alternatives.

Table 4.8 Hudson Landing Road – Economic Evaluation of Preferred Alternatives

	Alt #1: Consolidation with PSMCSD	Alt #4: Installation of New Deep Wells
Total Installed Capital Costs	\$4,089,771	\$2,899,285
Annual O&M Costs	\$0 (To be covered by PSMCSD)	\$156,780
20-Year NPW Costs	\$4,089,771	TBD
Est. average monthly costs/home	TBD	TBD

The CECorps engineering team considered Alternative 2 (treatment of individual wellheads) to be impractical given the lack of a unified neighborhood organization that could properly maintain and monitor 50 wells. The alternatives for wellhead treatment at select wells (Alternative 3), installation of new wells (Alternative 4), and blending water from select wells (Alternative 5) would have similar issues related to the system O&M due to the lack of an administrative authority or system manager. Alternatives 3, 4, and 5 would require a water distribution system very similar to Alternative 1 (consolidation with PSMCSD); however, it is unlikely that a cost-share entity would provide funding for a system with such tentative long-term viability.

Consolidation with PSMCSD (Alternative 1) and installation of new deep wells (Alternative 4) were considered the only realistic options. The CECorps engineering team considered consolidation with PSMCSD to offer the most secure system and the most benefits to the area, providing high quality water that would meet all federal and state drinking water standards and requirements. Although it is the most costly of the alternatives, the CECorps engineering team considered the project to have good potential of being funded with a cost-share loan/grant.

4.6.5 Community Engagement: Selecting the Preferred Option

Small water system managers in the Hudson Landing Road area contacted to date are interested in connecting to a larger system for water and potentially wastewater services. Similar to other high priority communities, residents in Hudson Landing Road have expressed that the cost of the project will ultimately determine their ability and interest in participating. Therefore, EJCW plans to conduct outreach to the Hudson Landing Road community after the completion of an MHI survey and after a project sponsor has been identified.

4.6.6 Funding Sources, Potential Barriers, and Other Considerations

There are limited choices for sponsorship of funding applications. The CECorps team recommended PSMCSD consolidation as the preferred alternative. However, this option is predicated on obtaining approval of the PSMCD Board of Directors and removal of institutional constraints. Moreover, community interest and PSMCSD availability also relates to the State Water Board's process for reissuing the chromium-6 drinking water standard. If required, a compliance plan to address chromium-6 in the Sunny Mesa well would need to be implemented. As noted previously, the County of Monterey has applied for funding for CDBG and SRF funds to assist public water systems in the past; however, County staff has indicated that a similar level of support may no longer be possible.

The Hudson Landing Road project would be considered potentially eligible as a consolidation project under SRF/Prop 1 Guidelines as it will potentially meet Disadvantaged Community criteria, would result in safe drinking water, and potentially resolve incipient wastewater system deficiencies. This project is a potential candidate for Prop 1 TA funding for pre-development activities including MHI and environmental studies. Implementation funding and/or funding for connecting to main pipelines could be eligible for CDBG or USDA

grants or loans. These options will be explored further during the remainder of this project. The Hudson Landing Road project is also a candidate for Proposition 1 IRWM Disadvantaged Community Involvement Funding for project development funding.

4.6.7 Next Steps

An MHI survey will need to be conducted for the Hudson Landing Road community to determine whether it can be defined as a disadvantaged community. The Project Team will continue outreach to County officials and potential funding partners to identify a project sponsor. Following the MHI Survey, EJCW will expand community engagement efforts with the goal of reaching more property owners in the Hudson Landing project area. The Project Team will also continue to follow the State Water Board process of re-issuing the chromium-6 drinking water standard.

4.7 Community #6: Middlefield Road

EJCW staff worked with a CECorps engineering team consisting of volunteers from the EWB-USA San Jose State University Chapter to investigate drinking water issues and evaluate solutions for the Middlefield Road community. This section summarizes the results of that effort. A project proposal for the Middlefield Road project can be found in Appendix 4.10, and the final CECorps engineering report can be found in Appendix 4.11.

4.7.1 Community Description

The Middlefield Road community is a rural, low-density residential neighborhood located in unincorporated Monterey County approximately seven miles northeast of downtown Salinas. The community consists of five residences (located at 740-750 Middlefield Road) sharing one water supply well served by Livingston Mutual Water System (LMWS). Currently, LMWS is managed by the homeowners of the Middlefield Road community with one appointed well manager. The well is located at 742 Middlefield Road. The area is across the street from homes served by Gabilan Water Company and a short distance from a connection for Cal Water. The community was identified as a disadvantaged community through an MHI survey conducted by EJCW in 2016. The MHI is \$38,400.

4.7.2 Water System and Water Quality

The well serving the Middlefield Road community has consistently exceeded the MCL for nitrate since 2009. The highest level detected was 14.9 mg/L NO₃-N in August 2015. Figure 4.13 below illustrates nitrate trends from 2001 - 2016.

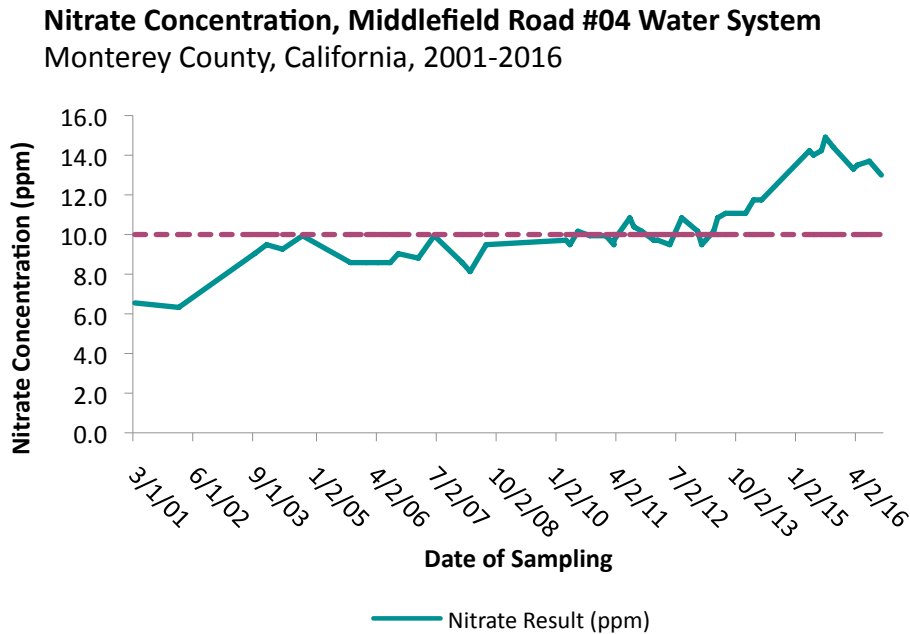


Figure 4.12 Nitrate trends in Middlefield Road community 2001 - 2016 (nitrate as NO₃-N)

EJCW conducted a water and wastewater needs assessment in 2016, identifying water and wastewater concerns of residents in five homes in the Middlefield Road area. Three residents rated “water quality” as being a “very severe” or “severe” problem in their community. Bottled water deliveries to Livingston Mutual Water Company began in 2016 under the State Water Board Emergency Drinking Water Program and were transitioned on July 1, 2017 to the Salinas Valley Replacement Water Settlement. All five households reported using bottled water for drinking and cooking.

4.7.3 Description of Alternative Solutions

The CECorps engineering team evaluated several alternatives for the Middlefield Road community. Three alternatives were briefly evaluated and dismissed as not being viable: 1) POU/POE treatment, 2) modifications to the existing well (the probability of meeting nitrate MCL levels through this method was too uncertain), and 3) blending (dismissed because of difficulty in monitoring proper dilution, the possibility of cross-contamination with nearby water systems, and liability concerns). Two further alternatives were fully evaluated: 1) drilling a new well near the project site, and 2) consolidation with a nearby water utility. These alternatives are summarized briefly below.

Alternative #1: New Well

Drilling a new well could potentially provide a new source of water that meets the MCL criteria for nitrate concentrations. The new well must be located near the existing pumphouse such that the current storage and pump facilities can be used. The new well must also be drilled to an appropriate depth. A sample of nearby wells, however, shows that some wells at deeper depths are also out of compliance with nitrate regulations. Given the prevalence of high nitrate levels in the East Side Aquifer which underlies the region, the CECorps engineering team considered the probability of locating a site that would meet the nitrate drinking water standard, and that would be within an accessible distance of the LMWS, to be low.

Alternative #2: Consolidation

This alternative consists of a pipeline extension from a nearby water utility. As noted above, the two nearest water utilities are Gabilan Water Utility (Gabilan) and Cal Water-Salinas. The closest Gabilan connection to the Middlefield Road community is located on the northeast corner of 752 Middlefield Road; an estimated 298 feet of new pipeline would be required to connect to this system. The closest Cal Water connection is located at the intersection of San Juan Grade Road and Hebert Road; an estimated 1,430 feet of new pipeline would be required to connect to this system. See Figure 4.14.

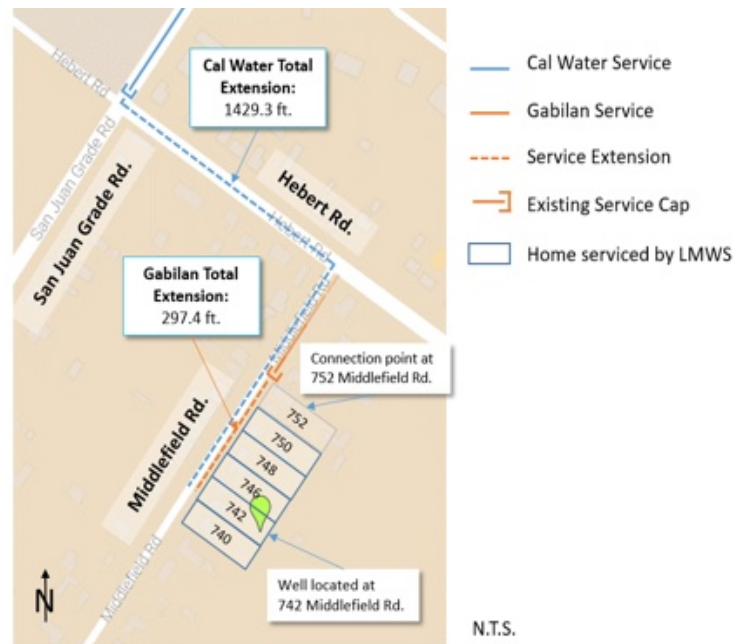


Figure 4.13 Possible connections to the two nearest local water utilities: Gabilan Water Utility and Cal Water. The dotted lines indicate new pipe required to serve the LMWS.

Consolidation with either Cal Water or Gabilan would mean that LMWS would be dissolved and management and maintenance of the system would be the responsibility of the utility. Both utilities can provide safe, clean water and meet regulations as established by the Monterey Regional Fire Department.

Cal Water is a large water utility with ample source capacity. The Gabilan Water Utility is a small water utility and would need to demonstrate that it has source capacity prior to extending service (per CCR Title 22 §64554). LMWS has attempted consolidation with Gabilan in the past but the water utility required that LMWS pay for professional engineering design services and build additional storage capacity for the Gabilan system. At that time, LMWS did not have the means to hire a civil engineer or pay for the project expenses, so the consolidation was not pursued. Gabilan Water Company had not been responsive to Project Team requests regarding a waterline extension to LMWS in 2017.

4.7.4 Analysis of Alternatives and Recommendation

Table 4.9 Middlefield Road – Economic Evaluation of Alternatives

	Alt 1: New Well	Alt 2a: Consolidation with Gabilan	Alt 2b: Consolidation with Cal Water
Total Installed Capital Costs	\$33,233	\$127,328	\$290,972
Annual O&M Costs	\$3,527	\$0 (to be covered by Gabilan)	\$0 (to be covered by CalWater)
20-Year NPW Costs	\$95,233	\$127,328	\$290,972
Est. average monthly cost/home	\$59	\$35	\$69*

*Based upon 4 residents per household using 100 gallons per day and current Cal Water Rates.

The CECorps engineering team also evaluated the alternatives by non-cost factors, including water quality, system maintenance, fire code compliance. Based on these criteria and costs, the CECorps engineering team recommended Alternative 2, consolidation with either Gabilan or Cal Water. Alternative 1 was not recommended based on there being no guarantee that a new, deeper well would not be contaminated with nitrate.

Consolidation with Gabilan has a lower cost compared to consolidation with Cal Water. Both Gabilan and Cal Water meet water quality requirements, and this option would remove the managerial burden from the community.

4.7.5 Wastewater System

All of the residences have on-site septic systems. Monterey County Public Works and Monterey One Water have a conceptual plan to expand the service area for Monterey One Water. The Middlefield Road neighborhood is listed as a priority focus for the expansion.

4.7.6 Community Engagement: Selecting the Preferred Option

The consensus from the community participants to date and the CEC recommendation supports a plan for consolidation with either Gabilan Water Company or Cal Water for a new potable water supply. EJCW has contacted all owners of two adjacent small water systems; Middlefield Road WS #2 (14 connections) and Middlefield Road WS #3 (7 connections) to gauge their interest in joining a consolidation project. As of September 2017, EJCW has completed an MHI survey for Middlefield Road WS #3, which qualifies as a disadvantaged community. An MHI survey is in progress for Middlefield Road WS #2.

4.7.7 Funding Sources, Potential Barriers, and Other Considerations

There are no known LAFCO barriers to the preferred alternative. According to LAFCO staff, approval will not be required for a consolidation with Cal Water or Gabilan Water Company. Consultation with LAFCO would be necessary, however, for incorporation into the service area expansion under study by Monterey One Water and the County for wastewater services. It should be noted that the study is intended to explore expansion to this area at a concept level only at this time.

The Gabilan system, adjacent to Middlefield Road, currently serves 162 connections with two operating wells and combined water storage capacity of 70,000 gallons in two tanks. Gabilan contracts with a certified water system operator for ongoing operation of the system. There are no known water quality violations. Monterey County Environmental Health Bureau would likely require a source capacity assessment and the Fire District

would re-evaluate storage capacity and fire flows under a consolidation plan. Gabilan would need to demonstrate its TMF qualifications. A capital improvement and replacement reserve plan would need to be in place and approved.

Cal Water is a public utility regulated by the CPUC and the State. It has extensive experience managing water and wastewater systems in Monterey County and throughout the state. An assessment of the production and storage capacity could be required in order for the Middlefield Road households to connect to the system. The system expansion plan and capacity assessment would be subject to approval by the CPUC. The residents would be charged the CPUC-approved water service rates in effect at the time of connection if the Cal Water consolidation alternative were selected. A surcharge for development costs associated with the consolidation, such as the pipeline extension, metering, permitting etc., would be levied upon the households or systems electing to participate. These costs will need to be identified and the subsidy level of State financing determined in order for community members to make informed decisions about the consolidation option. Cal Water has a Low Income Ratepayer Assistance Program available to income eligible customers.

Should the option of consolidation with Gabilan move forward, the County of Monterey would likely act as lead agency for NEPA and CEQA determinations for Middlefield Road due to its location in the unincorporated area of the County. If consolidation with Cal Water is selected, State Water Board staff would be able to assume responsibility for environmental review requirements. Monterey County Environmental Health Bureau staff has been supportive of an early determination of categorical exemption under CEQA based on Public Health and could, potentially, take responsibility for preparing or facilitating the necessary local environmental documents. The County Resource Management Agency Planning Department staff would be responsible for circulating documents, notifying the State Clearinghouse and working with the Recorder's Office to record the Notice of Determination unless the State Water Board is the Lead Agency.

Compliance with Monterey County Regional Fire District's specific fire protection requirements would be a condition of consolidation approval. Due to the number of households served, fire flow and storage standards may not be as stringent for Gabilan as would be likely for a connection to the larger Cal Water system.

It is unclear whether any financial contribution would be available from the property owners towards the cost of a potential project. The owners' ability and willingness to apply for conventional or below market rate financing will need to be explored further. USDA and other grant programs may be available to defray the cost of connecting to new services. Costs such as lateral connections from the meter to the individual units, backflow prevention devices, and re-routing supply lines as necessary for outdoor uses would not be included in Proposition 1/SRF funding. Alternative resources or financing may be necessary in order for households to afford any of the options.

The Middlefield Road project would be considered potentially eligible as a consolidation under Proposition 1/SRF Guidelines as it meets disadvantaged community criteria, would result in safe drinking water and potentially resolve incipient wastewater system deficiencies. This project is a potential candidate for Proposition 1 Technical Assistance funding for predevelopment activities including environmental studies, engineering, surveying and other pre-development costs. Implementation funding and funding for connecting to main supply lines could be eligible for CDBG or USDA grants or loans.

Should the community decide to proceed with the Cal Water consolidation plan, it will be necessary to have a project sponsor or fiscal agent for the state and federal programs that offer favorable terms. There are limited choices for sponsorship of funding applications. Cal Water is considering the feasibility of acting as

the applicant on behalf of this community. In the event the company declines to apply, it may be possible to enlist Monterey County or the City of Salinas to take on this role. Securing an appropriate sponsor, applicant and fiscal agent is a major barrier for disadvantaged communities such as Middlefield Road. This project may be a candidate for a FAAST application once a grant sponsor is identified.

4.7.8 Next Steps

Engineering consultants will, subject to funding availability, complete a Design Report to evaluate consolidation of additional property owners on Middlefield Road or nearby and recommend community boundaries for the proposed service area. If Cal Water is selected as the provider, then an application should be submitted to the CPUC for the expanded service area. Cal Water would provide in-house design engineering for the consolidation project. The Project Team will continue to engage County officials, Cal Water staff members, potential funding organizations, and additional community members with the goal of identifying a funding source and finalizing a project boundary.

4.8 Community #7: Schoch Road

EJCW staff worked with a CECorps engineering team consisting of volunteers from the EWB-USA Kansas City Professional Chapter to investigate drinking water issues and evaluate solutions for the Schoch Road community. This section summarizes the results of that effort. A project proposal for the Schoch Road project can be found in Appendix 4.12, and the final CECorps engineering report can be found in Appendix 4.13.

4.8.1 Community Description

The Schoch Road community is a rural, low density residential neighborhood located in unincorporated Monterey County. The community is generally bounded by Highway 101, Martines and Harrison Roads to the north of Salinas. Adjoining land uses consist mainly of agricultural and suburban residential. Light industrial and food processing uses, and larger residential parcels are located nearby. The community boundary for the project has not been clearly defined since outreach efforts are continuing.

Thirty-four homes in the project area are served by a six state and local small water systems and approximately ten homes are on private domestic wells (illustrated in Figure 4.15 below). The area is less than a mile from an existing Cal Water Service water line and a shorter distance from a new Cal Water main to be constructed in 2018. All of the residences have on-site septic systems. The community is a suspected disadvantaged community.



Figure 4.14 Schoch Road water systems

4.8.2 Water System and Water Quality

Reported drinking water quality deficiencies include consistent nitrate concentration over the MCL (since 1986 in some locations). The data shows a trend of increasing nitrate levels over time, with the most recent samples showing nitrate over two times the state MCL for some systems. The table below illustrates nitrate levels during 2014-2016 sampling for the six systems.

Table 4.10 Schoch Road Water Systems

Water System Name	Number of Connections	NO ₃ -N (mg/L) MCL=10	Sample Date
El Camino Real WS #34	5	14.0	5/27/2014
El Camino Real WS #35	5	0.5	11/13/2015
El Camino Real WS #33	4	8.4	3/1/2016
El Camino Real WS #37	4	22.4	11/12/2015
El Camino Real WS #43	2	24.4	12/9/2015
White Rd WS #1	14	0.7	8/9/2015

All of the residences in the Schoch Road community have on-site septic systems. Monterey County Public Works and Monterey One Water are considering a conceptual plan for expansion of the service area for wastewater treatment connections and services. The Bolsa Knolls area, which includes the Schoch Road

community, is within the study area.

4.8.3 Description of Alternative Solutions

The CECorps engineering team evaluated the following alternatives for the Schoch Road community.

Alternative #1: Consolidation with Cal Water-Salinas or CalAm-Ralph Lane Water Systems

Consolidation consists of connecting the Schoch Road project area to either Cal Water at Harrison and Martines Roads under the extension to be completed in 2018 (Alternative 1A), or to the CalAm main at Ralph Lane (Alternative 1B). In general, it can be assumed that the design and installation of service lines, fire hydrants, individual meters and appurtenances for the mains would be similar for either provider. The exception would be the diameter and length of the main.

Alternative #2: Community Treatment Facility

Under Alternative 2, a new community treatment facility, two new wells, water storage, emergency generators and new distribution mains would be constructed to replace the existing drinking water systems and private wells. A separate parallel system utilizing untreated water would be installed for fire flows. The new well locations would depend on the availability of appropriate sites and suitability based on currently available data such as land use and distance from other wells, septic systems and additional front and rear setbacks required by Monterey County for this zoning designation. The probable depth for the wells would be approximately 600 feet.

Alternative 3: Wellhead Treatment

The CECorps team evaluated a wellhead treatment option. This alternative would be limited to the six small water systems and would not provide treatment for the homes that are on private wells. It was estimated to be the most expensive option in terms of estimated monthly cost per household.

Other Alternatives

The CECorps team also evaluated a POE treatment option. POE treatment was the least costly option in terms of estimated project development budget. This option was not included as a long-term solution given current State of California and Monterey County regulations (see *Chapter 5 Other Related Efforts and Considerations*, Section 5.1.3 for a more complete discussion).

4.8.4 Analysis of Alternatives and Recommendation

Cost estimates were prepared for each of the consolidation alternatives, for a community water treatment facility and two new wells, and for the wellhead treatment option. Consolidation cost estimates will depend upon a number of factors that have not been fully defined at this time. One factor that might influence monthly household costs related to Alternatives 1A and 1B would be whether financing is available as a grant or loan. An amortized loan would result in a surcharge to the household. Under CPUC utility consolidation scenarios, the residents would be charged the CPUC approved water service rates in effect at the time of connection if the Cal Water or CalAm consolidation alternative is selected. A surcharge would be required for amortized loan expenses if costs are not fully grant funded. Cal Water and CalAm have Low Income Ratepayer Assistance Programs available to income eligible customers. A rate study may be necessary to establish a reasonable rate to cover debt service and expenses for any alternative to a Cal Water or CalAm

consolidation.

The community treatment facility alternative would have the highest capital costs, and much higher monthly household costs compared with the consolidation options. Wellhead treatment would result in the highest projected monthly cost per household. Cost estimates are summarized in the table below.

Table 4.11 Schoch Road – Economic Evaluation of Alternatives

	Alt 1A: Consolidation with Cal Water	Alt 2a: Consolidation with CalAm	Alt 2: Community Treatment Facility	Alt 3: Wellhead Treatment
Total Installed Capital Costs	\$1,305,000	\$2,035,000	\$3,370,000	\$2,583,000
Annual O&M Costs	\$27,810*	\$20,710*	\$128,000	\$189,000
Net Present Value (NPV)	\$1,792,000	\$2,398,000	\$5,613,000	\$5,894,000
Est. average monthly cost/home	\$52.67 (not including surcharge, if any)*	\$39.22 (not including surcharge, if any)*	\$242.42	\$357.95

*O&M cost estimate and monthly cost per home for the consolidation alternatives assume that 50% of the residents will qualify for the LIRA program and will pay a reduced rate.

The CECorps and Project Team support a plan for consolidation with either Cal Water or CalAm water public utilities for a new source of potable water. Cal Water is supportive of this project and interested in participating. It should be noted that Cal Water may not be prepared to apply for funding towards the cost of improvements to connect the system. CalAm has expressed a willingness to apply for grant funding. The Project Team has also had preliminary discussions with the City of Salinas and Monterey County about their serving as a project sponsor on behalf of Cal Water.

4.8.5 Community Engagement: Selecting the Preferred Option

The Schoch water system owner and households contacted to date are interested in exploring the costs and feasibility of connecting to a larger system for water service and other options. Community outreach to neighboring water systems and those relying on state/local small water systems will be necessary in order to determine the community boundary.

4.8.6 Funding Sources, Potential Barriers, and Other Considerations

The Schoch Road project would be considered potentially eligible as a consolidation under SRF/Prop 1 Guidelines as it is likely to meet disadvantaged community criteria and would result in safe drinking water for residents. The project would be assigned to Category A-Immediate Health Risk for nitrate in excess of MCL. The project would likely meet two other factors for priority over other projects in the same category: disadvantaged community status and as a project resulting in consolidation or extension of service to a disadvantaged community not served by a public water system.

This project is a potential candidate for Prop 1 TA funding for pre-development activities including an MHI survey, community outreach, environmental studies, and other predevelopment work. Should the community decide in favor of an option besides the preferred Alternative 1 Consolidation, then additional TA to include legal and TMF assistance should be pursued to fully explore legal options for entity formation and to develop TMF elements such as a rate study and capital improvement plan. Funding for implementation and connection to main supply lines could potentially be eligible for CDBG or USDA grant or loan programs. The project will also be eligible under Proposition 1 IRWM Implementation Grant funds, though the project

would need to be “implementation-ready” within the grant funding timeframe (likely by 2020) and would require a project sponsor. In addition, depending upon the outcome of the Monterey One Water wastewater treatment study, the community and Monterey One water could potentially apply for Clean Water SRF funding to resolve identified wastewater system deficiencies, if any.

Participants would need to be provided with well abandonment, backflow prevention device installation, lateral connection and any other capital or ongoing cost estimates that may not be fully funded by grants or loans in sufficient detail to make informed decisions.

There are limited choices for sponsorship of funding applications, though Cal Water may be a willing sponsor. As noted elsewhere, securing an appropriate sponsor, applicant, and fiscal agent is a major barrier for disadvantaged communities such as Schoch Road.

There are no significant barriers associated with the preferred alternative (i.e., consolidation with Cal Water or CalAm). According to LAFCO staff, approval will not be required for a consolidation with Cal Water or CalAm. Consultation with LAFCO would be necessary under certain other connection categories, such as incorporation into the service area expansion under study by Monterey One Water and the County for wastewater treatment services. Consolidation with Cal Water or CalAm would require approval of the CPUC, though this is not expected to present an obstacle.

4.8.7 Next Steps

Ongoing community engagement and technical assistance will be needed to continue progress towards a solution to water quality problems for the community. Should the community decide to proceed with a consolidation plan, it will likely be necessary to have a project sponsor or fiscal agent for the state and federal programs that offer favorable terms. The County of Monterey and other qualifying entities will be contacted to determine potential participation. If Cal Water or CalAm is selected as the provider, then an application will be submitted to the CPUC for the expanded service area.

When this planning project ends, EJCW staff will continue community engagement with the Schoch Road community through Proposition 1 IRWM Disadvantaged Community Involvement funds and/or Prop 1 TA funds. An MHI survey will be conducted during the winter 2017/2018, and dialogue with property owners, Cal Water, CalAm, and Monterey County Environmental Health regarding water system options will be continued following the completion of the income survey.

4.9 Next Steps for Other High Priority Communities: Focus Areas for Future Work

4.9.1 Small Water Systems with Nitrate Greater than the Maximum Contaminant Level

In 2017, the Project Team worked with staff from the Central Coast Regional Water Board and Monterey County Environmental Health to identify 52 small water systems with high nitrate levels (2015-2017) located in disadvantaged community block groups, tracts, and places (according to the 5-year average ACS data from 2011-2015). Of the 52 small water systems, six are designated as Local Primary Agency (LPA) systems: two are non-transient, non-community; two are transient, non-community; and two are community water systems (Springfield Mutual Water Company and San Lucas Water District). The remaining 46 systems are designated as state small water systems all with nitrate above the MCL. See a complete list of these systems grouped by disadvantaged community block group or census tract in Appendix 2.1.

4.9.2 Focus Areas For Future Work

As described in detail in Chapters 2 and 3, high priority projects were selected based upon ACS income data, water quality data from Monterey County Environmental Health, and consultations with community members and TAC members. EJCW staff then conducted a door-to-door survey of over 150 households in areas thought to both have water quality issues and to qualify as disadvantaged. This original work drew on ACS data from 2013 and water quality data from 2011-2013. In addition, many suspected disadvantaged communities were identified during this process, some of which were confirmed as disadvantaged communities through MHI surveys.

Figure 4.15 on the following page illustrates the following four geographic focus areas for future work based upon 2017 mapping efforts: Northwest Monterey County, North of Salinas, West of Soledad and Gonzales, and Greenfield area.

4.9.3 Next Steps

First, the Project Team recommends refreshing the list of high priority communities every year when new ACS data is released. With nitrate levels continuing to increase in the Salinas Valley and Greater Monterey County IRWM region, the Project Team anticipates additional systems being added to this list on an annual basis.

Second, Table 4.1 includes a summary of next steps and recommendations for 16 of the 52 small water systems identified in Monterey County that are located in high priority disadvantaged communities. In addition, Table 3.7 includes recommendations and next steps for San Lucas, which is the only disadvantaged community with high nitrate levels that is also a census designated place (CDP).

Next, the Project Team recommends outreach to nearby water providers and directly to the remaining 35 small water systems listed in Appendix 2.1, which are located north of Salinas, west of Gonzales and Soledad, and in the Greenfield area, to determine feasible interim and long-term water solution options. Similar to high priority communities in Table 4.1, these water systems can be brought through a similar process of pre-project development and project development based upon community and nearby water provider interest. The City of Greenfield, for example, is interested in extending service to additional small water systems within and near their city boundary after the completion of the Apple Avenue project, which is currently underway. During a meeting in August 2017, City of Soledad staff also expressed a willingness to extend service to seven nearby small water systems with high nitrate levels in a disadvantaged community census tract. However, they acknowledged numerous potential challenges including the distance to serve a relatively small number of people in a low-density population area, the expense of crossing the Salinas River, and LAFCO approval for an extension to an area outside of the City's sphere of influence.

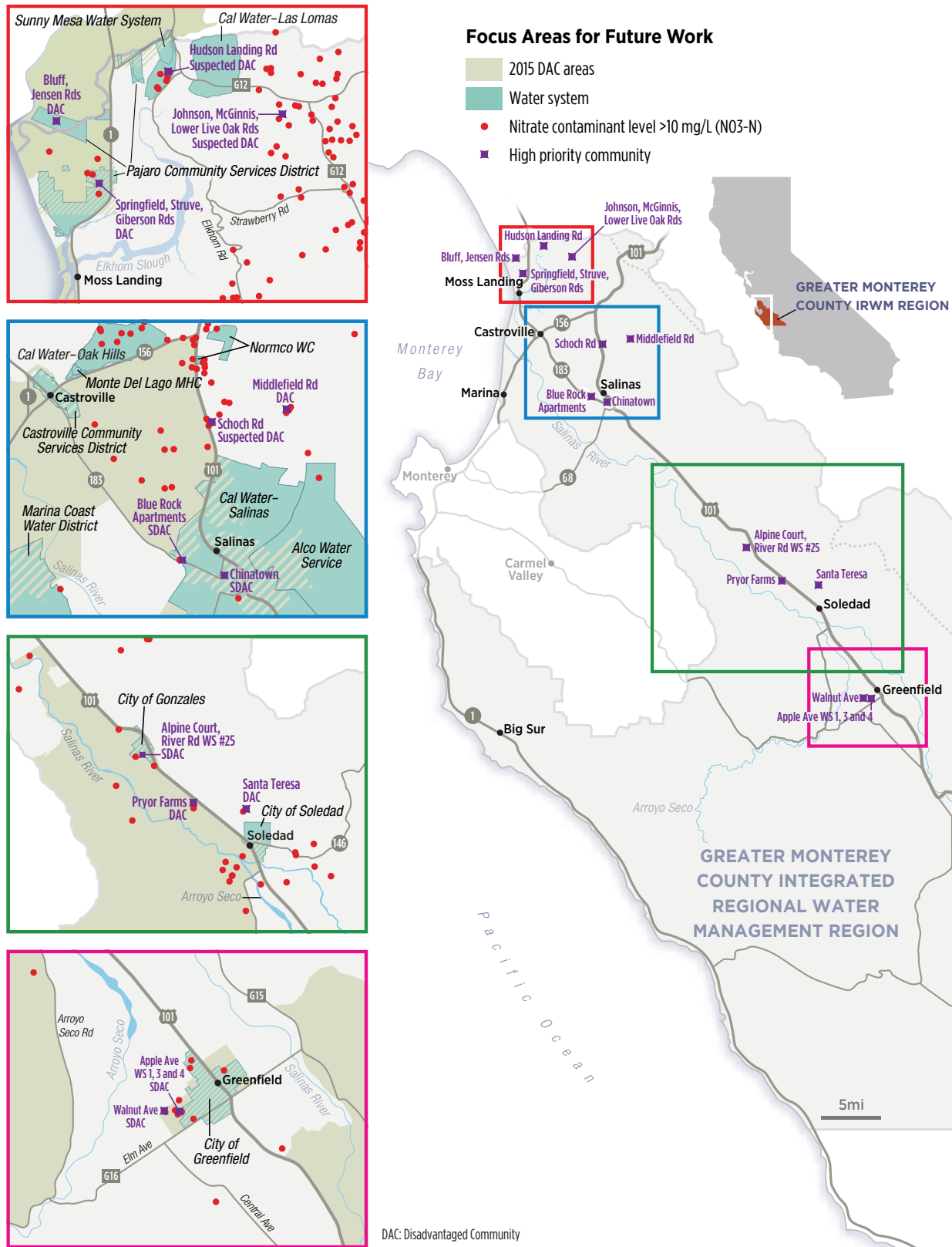


Figure 4.15 Focus areas for future work