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The Struggle for Water Justice in California's San Joaquin Valley: A Focus on Disadvantaged Unincorporated Communities

Appendices

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APPENDIX 1. CASE STUDIES

a. East Orosi, Tulare County

Background and Problem Statement

East Orosi, located in Tulare County, has approximately 500 residents, 94% of whom are Latino and 41% of whom are living below the poverty line as of 2011 (Tulare County Local Agency Formation Commission [LAFCO] 2011). East Orosi is served by the East Orosi Community Service District (CSD), and its sewer services are managed through a regional Cutler-Orosi Wastewater Joint Powers Authority (Self-Help Enterprises 2017). The East Orosi CSD has been supplying drinking water in violation of the maximum nitrate levels allowable by law for many years. The CSD has a limited capacity to communicate the health risks posed by contaminated water (Tulare County LAFCO 2011, Interview 2017).[1] Given such chronic violations of safety standards, for the last several years, the East Orosi CSD has also received funds from the California State Water Resources Control Board (SWRCB) to deliver bottled water to its customers. In pursuing long-term solutions, both Self-Help Enterprises (SHE) and the Community Water Center (CWC) worked with community members and the East Orosi CSD to secure state funding to evaluate and rehabilitate existing wells (CWC 2016). The East Orosi CSD also sought drought funding for a Water Conservation and Meter Project to improve water efficiency via the installation of low-flow toilets and water meters (East Orosi CSD 2014).

The 2017 East Orosi Community Plan was funded through a Strategic Growth Council grant to further integrate infrastructure analysis within the community's needs in compliance with SB 244 (TCRMA 2017). The Community Plan evaluated economic and housing conditions, land use and zoning, and infrastructure and water systems among community concerns. Their evaluation suggested that the East Orosi CSD consolidate with other systems in the Cutler-Orosi region to supply SDWA compliant drinking water (TCRMA 2017).

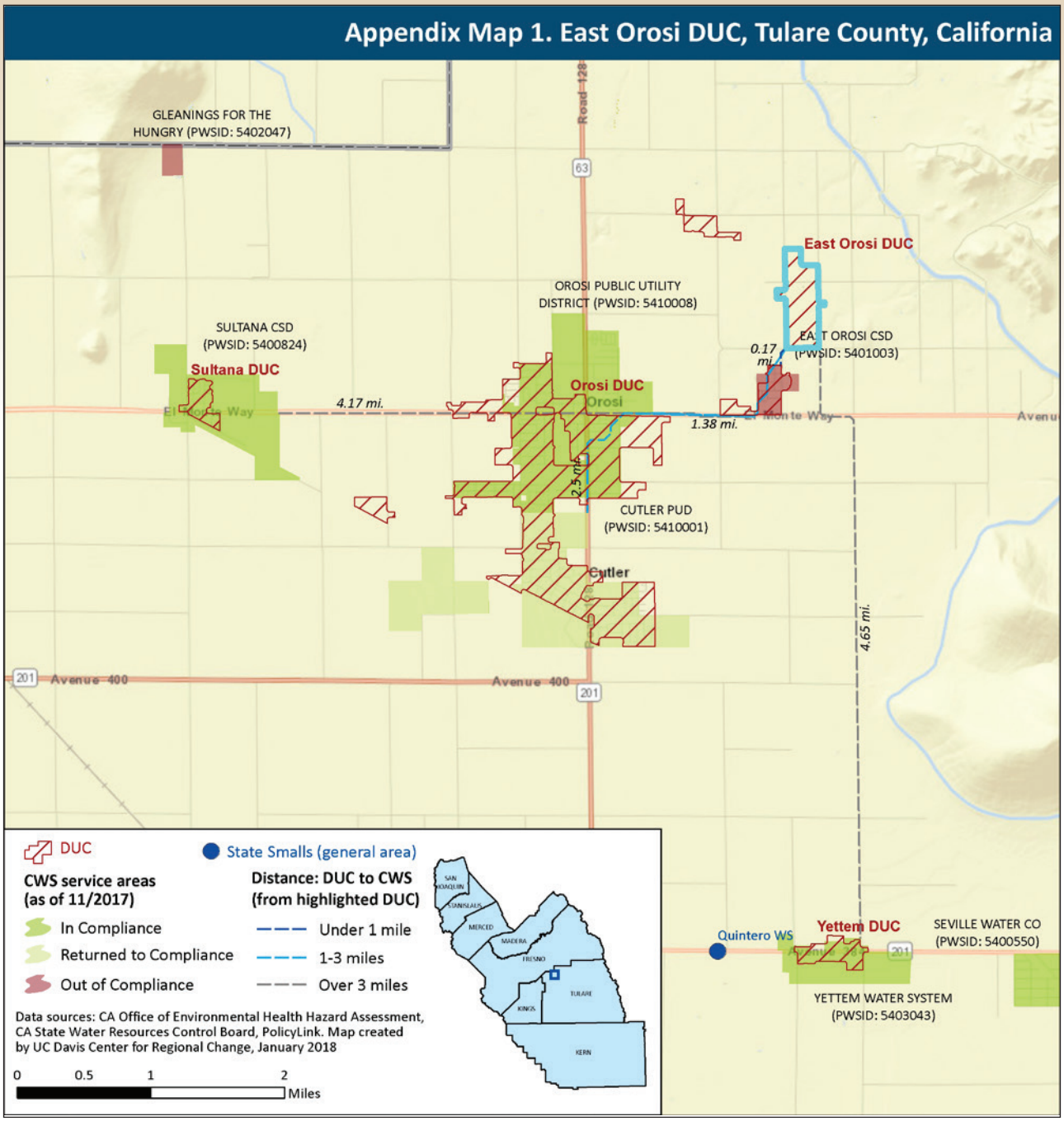
Current Solutions and Future Directions

The East Orosi CSD is near to three special district CWSs (Orosi, Cutler and Sultana Public Utility Districts (PUDs)), as well as other unincorporated communities (Seville, Yettem) served by Tulare County as "Zones of Benefit." The consolidation of the East Orosi CSD with a nearby CWS was assessed as "logical and highly feasible" and "determined to be imperative" (Tulare County LAFCO 2011, 5-5, 5-7). Aligning with both the county LAFCO service review and the Community Plan recommendations, a draft Preliminary Engineering Report for East Orosi CSD also recommended consolidation with Orosi PUD (Interview 2017). Since there is no known groundwater of acceptable quality in the immediate vicinity of East Orosi, a test well with good water quality has been drilled south of Orosi. Any long-term solution involving this new source will require the cooperation of the Orosi PUD, whether through consolidation, or a 'water-wheeling' agreement (Interview 2017).[2]

East Orosi is one of three members of the North Tulare County Regional Water Alliance, a Joint Powers Authority formed in October 2017, which represents a regional collaborative effort to develop long-term solutions in addressing drinking water needs (CWC 2017). Alongside Tulare County and Sultana CSD, the Alliance hope to plan shared solutions for East Orosi, Seville, Sultana, Monson, and Yettem. The creation of this new entity was initially funded through Legal Entity Formation Assistance (LEFA), a pilot program from the SWRCB, and later through Prop 1 funds. Unfortunately, both Orosi PUD and Cutler PUD dropped out of Alliance negotiations (RCAC 2016). The CWC continues to work with Regional Alliance to explore future regional collaboration options (RCAC 2016; Interview 2017).

To date, the Orosi PUD has been reluctant to collaborate with its East Orosi neighbors (Interview 2017). While difficult, negotiations are nevertheless ongoing; indeed, the SWRCB includes the Orosi PUD as the "receiving system" for the East Orosi CSD on its list of Disadvantaged Community-serving systems with funding to explore the feasibility of consolidation (SWRCB 2018).

This case study illustrates both the challenges and opportunities available for creative consolidation strategies for DUCs with nearby CWSs and PUDs. Developing collaborative entities such as the North Tulare County Regional Water Alliance and providing stable sources of state funds for infrastructure development are crucial elements of long-term solutions for DUCs without local capacity for providing safe drinking water for their residents.



b. Cantua Creek, Three Rocks and El Porvenir, Fresno County

Background and Problem Statement

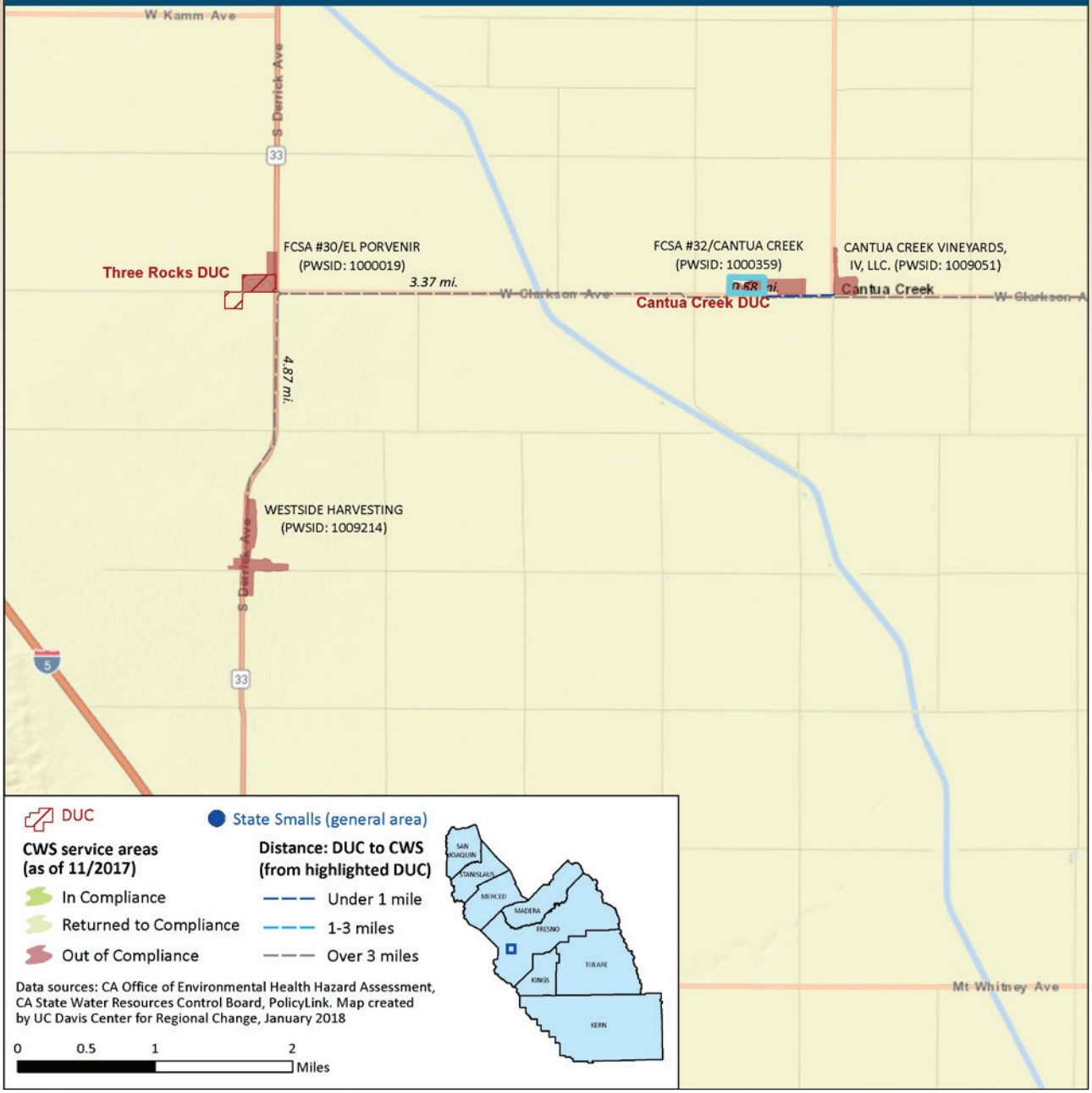
The small, isolated communities of Cantua Creek and El Porvenir emerged from housing developments for farm laborer in the late 1970s. All three communities are located at a considerable distance from basic urban services and have limited water supplies. Residents in El Porvenir are served by County Service Area No. 30 (CSA 30) and those in Cantua Creek are served by CSA No. 32. Fresno County manages the CSAs, and both rely on aging water treatment plants to process raw, canal water that the county purchases from Westlands Water District (SWRCB 2017a). Since at least 2008, both CSAs have been plagued by disinfection byproduct violations, forcing their residents to pay for both unsafe tap water and replacement water (SWRCB 2017b; SWRCB 2017c). One researcher who interviewed DUC residents learned that on average, residents were paying 15.3% (Three Rocks) and 13.1% (Cantua Creek) of their income on drinking water (Galik 2015).

As a Central Valley Project (CVP) agricultural contractor, Westlands' water rates varies, challenging the systems to adopt appropriate rate structures to account for the price fluctuations. According to the County, issues with water pricing were driven by the rates set by the Bureau of Reclamation, not Westlands: "The Bureau of Reclamation has set an extraordinarily high price for water. Westlands Water District isn't charging a surcharge to deliver the water. I've learned it's just the high cost of water"(Cásarez 2015). In early 2014, when CVP allocations were curtailed during the drought, Westlands tripled the cost of water delivered to these DUCs, generating unaffordable bills that went unpaid by many residents. The Fresno County Board of Supervisors threatened to shut water off to these communities (Interview 2017; Gonzales 2015) and at one public hearing some members yelled at advocates working on behalf of these communities over the water rates (Benjamin 2016a).

Current Solutions and Future Directions

After years of investigating the possibility for joint and/or upgraded surface water treatment facilities to reduce disinfection byproducts, the drought and water rate hikes prompted the County to explore deeper, groundwater as an alternative, cost-effective supply option. As of 2017, Fresno County was pursuing an groundwater alternative for each CSA with funding from a SWRCB grant. However, as of this writing, no groundwater solution has been achieved. In the interim, residents are paying $70-90 per month for CSA water and receiving bottled water from the SWRCB (Benjamin 2016b). The SWRCB is subsidizing the increased rates until early-2018 to keep water rates consistent for residents (Benjamin 2016b). Additionally, DUCs that rely on groundwater will have to negotiate with powerful districts like the Westlands to implement the 2014 Sustainable Groundwater Management Act, and secure their ability to pump groundwater. These challenges related to disparities in power between DUCs and the water systems they rely on suggest that state intervention and assistance are critical parts of long-term solutions.

Appendix Map 2. Cantua Creek DUC, Fresno County, California



c. Fairmead, Madera County

Background and Problem Statement

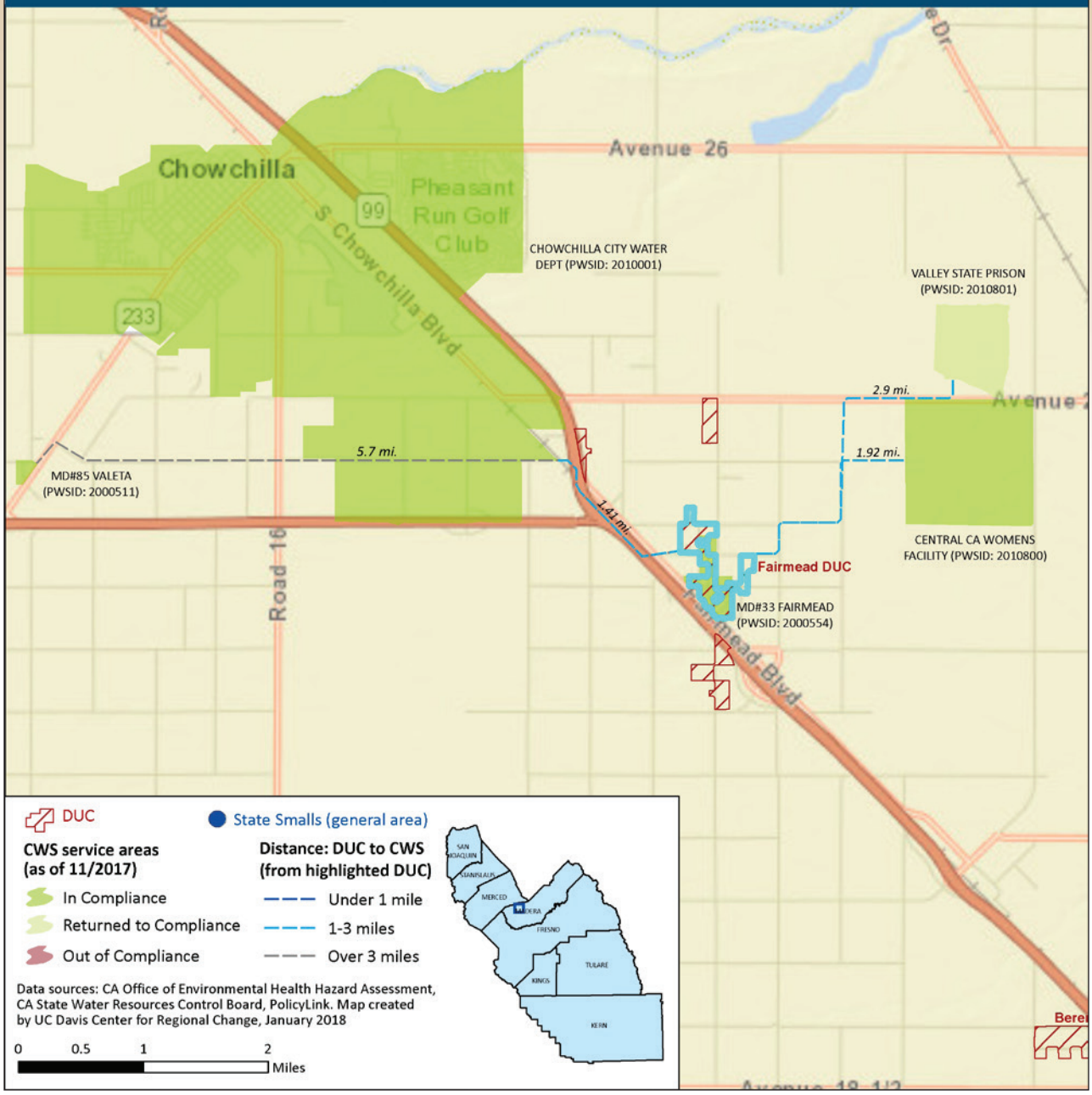
Fairmead was founded as a farming colony in 1912 by the Cooperative Land and Trust Company of Palo Alto, as part of the California Colonization Project, which sought to develop farm and town communities throughout the San Joaquin Valley (Essinger 2013). Fairmead has a substantial African-American population, in addition to a population of Mexican immigrants, and an aging, white population (Abramsky 2015). It depends on groundwater for irrigation and potable drinking water. However, the area is also known for water unavailability due to factors such as persistent drought, intensive agricultural production, groundwater contamination, and an overall lack of public investment.

Fairmead has recently experienced a series of systematic well failures with its Community Water System, Maintenance District 33 (MD 33). These well failures have occurred in conjunction with an exodus of businesses and services, among them, stores, restaurants and libraries. Agriculture, however, continues to thrive, and recent farming trends favoring orchard production mean that groundwater is regularly drawn from private wells to irrigate large tracts of land (Abramsky 2015). According to Romero (2015), "family homes in Fairmead with shallow private wells can't compete with agricultural wells sucking water out of the aquifer at 1,000 feet or deeper."

Current Solutions and Future Directions

In light of recent well failures, state and county authorities have offered temporary relief to Fairmead's residents. A Proposition 218 vote led to the approval of a rate increase to help fund current water projects to improve MD 33's failing and inadequate infrastructure (Interview 2017). One such project is the creation of a new well, which is to be connected to Fairmead's water storage tank. In the spring of 2017, Self-Help Enterprises assisted MD 33 with a state application for construction funding (Madera County 2017). Given the area's reliance on a single water source, there is interest in exploring a possible pipeline connection between Fairmead and the City of Chowchilla, under SB 88 (Interview 2017). This additional water source could resolve the problem of an insufficient water supply due to ongoing groundwater depletion.

Appendix Map 3. Fairmead DUC, Madera County, California



d. South Dos Palos, Merced County

Background and Problem Statement

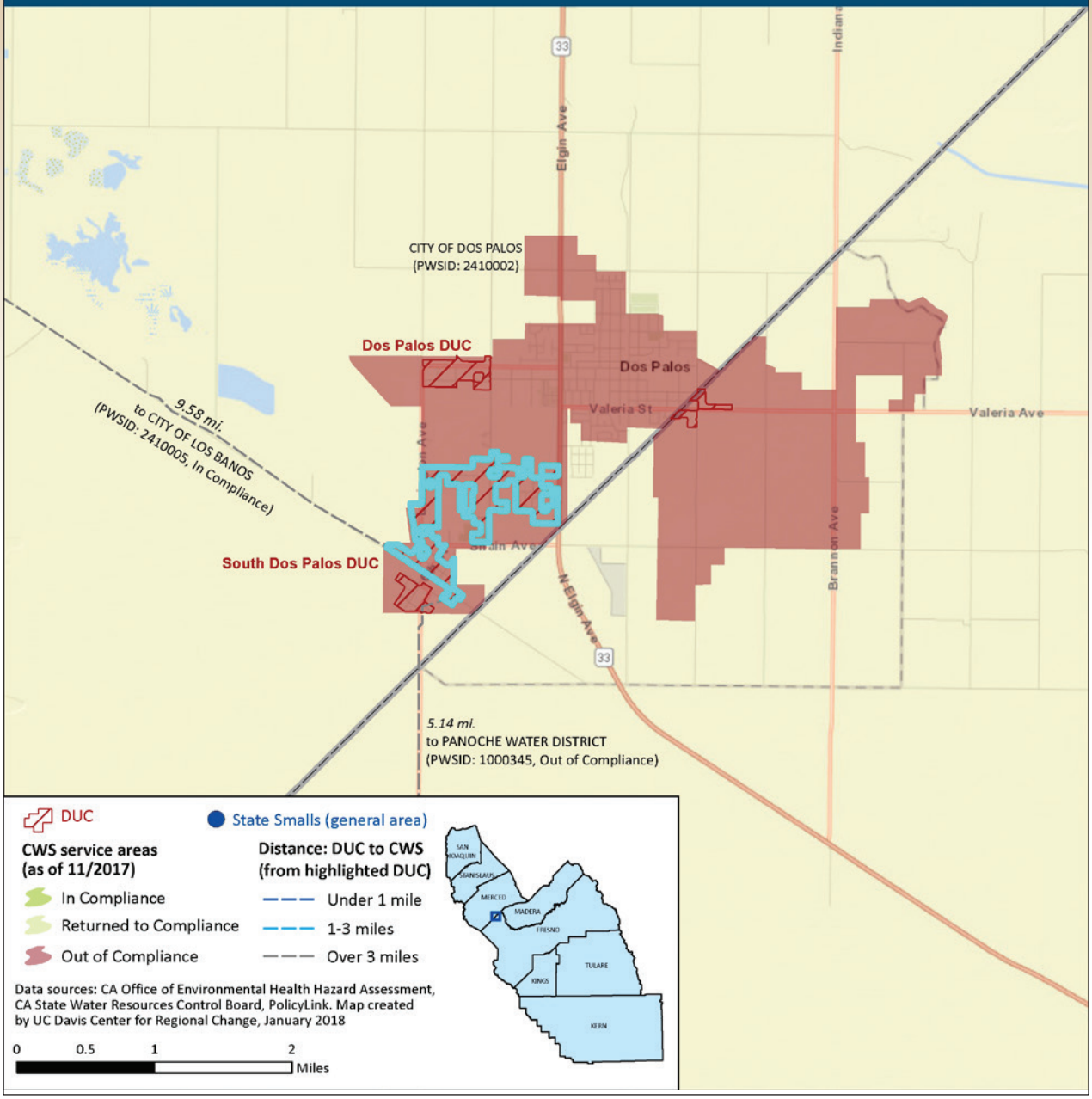
The unincorporated community of South Dos Palos was founded in 1891 by famed San Joaquin Valley land speculator Henry Miller as the original townsite of the "Dos Palos Colony" (California State Assembly Democratic Caucus 2018). Like Fairmead, it was one of several communities in the San Joaquin Valley with large populations of African American migrating from the south form the early 1900s through the 1960s (Essinger 2013, McBroome 2001). As of 2010, there were approximately 1600 residents, 77% of which are Latino and 8% are African American.. The City of Dos Palos provides water and wastewater treatment services for South Dos Palos. It operates and maintains a water treatment plant for the raw surface water it acquires from the California Aqueduct. The system's complete reliance on surface water necessitated a daily output reduction of about 15% during the recent drought (Interview 2017). The plant currently operates at about 65% of its original capacity of 3 million gallons per day (Interview 2017). Furthermore, the water treatment plant itself is nearly 50 years old, and disrepair has resulted in recent violations (SWRCB 2017d).

South Dos Palos must operate and maintain its own water distribution and wastewater collection systems. Residents of this unincorporated area cannot generate enough local revenue to replace their old cast iron water and sewer lines (Interview 2017). The general disrepair of these lines causes an abundance of main breaks. These problems are exacerbated by the deteriorated water treatment plant in the City of Dos Palos. Overall, this situation places the community at risk for poor and inconsistent access to quality drinking water.

Current Solutions and Future Directions

As of 2017, The City of Dos Palos began negotiating a $4-6 million co-funded grant from the Drinking Water State Revolving Fund and US Department of Agriculture, to build a new surface water treatment plant (Interview 2017; SWRCB 2017d) and ensure that South Dos Palos residents receive safe drinking water from the California Aqueduct. Additionally, as of 2017, the City of Dos Palos has a $500,000 grant to sample nearby groundwater sources (Interview 2017). If the city creates a successful test well with safe water, then it will apply for funds to drill a permanent groundwater well. The plan is to mix the new groundwater with treated surface water to accommodate the impact of future drought events (Interview 2017). South Dos Palos is also exploring funding opportunities with Self-Help Enterprises in order to replace its decayed cast iron water and sewer lines (Interview 2017). Replacing these lines will help ensure more consistent access to quality water and sanitation services, alleviating the community's problems with main breaks.

Appendix Map 4. South Dos Palos DUC, Merced County, California



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Appendix 2. Methodology and Dataset Limitations

a. Determining Disadvantaged Unincorporated Community Access to Safe Drinking Water

The CRC has generated maps and analyses of Disadvantaged Unincorporated Communities (DUCs) to facilitate comparisons with surrounding communities, and to provide an overview of neighboring community water systems (CWSs). These datasets help assess whether a DUC is overlapped by a CWS, the least cost paths to nearby CWSs, as well as the drinking water quality of CWSs based on their compliance with state and federal Safe Drinking Water Act regulations.

To do so, the CRC used a DUC dataset developed by PolicyLink and its partners last updated in 2013. DUCs are settled, low-income, rural areas that are either not identified as Census Designated Places (CDP) in the 2010 Census, or are small communities within a comparatively wealthy CDP. PolicyLink used four metrics to determine DUC status:

- Unincorporated status: DUCs are areas outside city limits.
- Parcel density: DUCs are areas with at least 250 parcels per square mile (PolicyLink uses this benchmark because it allows DUCs to be compared to Census Designated Places).
- Low-income neighborhoods: DUCs have census block groups with a median household income (MHI) of less than 80% of the state MHI, using 2013 American Community Survey (ACS) data.
- Residential settlement: DUCs are primarily designated for residential land uses and are at least than ¾ acres in size.

The updated 2013 PolicyLink DUC dataset contains information about 450 distinct DUCs in the San Joaquin Valley. For race and ethnicity measures, the CRC used 2010 census block- level data. (For more information, see the body of the PolicyLink report, available at: California Unincorporated: Mapping Disadvantaged Communities in the San Joaquin Valley.)

The CRC obtained CWS boundary data from the Office of Environmental Health Hazard Assessment (OEHHA) in December 2017. OEHHA used this dataset to create the drinking water indicator in CalEnviroScreen 3.0, released in January 2017. It contains 667 boundary polygons for CWSs in the San Joaquin Valley. OEHHA obtained many of the polygons in the dataset (581 CWSs, or 87% of the total) from the California Environmental Health Tracking Program (CEHTP) Drinking Water Systems Geographic Reporting Tool (also known as the Water Boundary Tool, or WBT). The WBT relies on information about boundaries that is input by staff who work for water systems, water system wholesalers, water districts, county environmental health departments, and state agencies. For the CWS boundaries missing from the WBT dataset (86 CWSs, or 13%), OEHHA approximated the locations by using a) water quality sampling and population figures for those served by the systems (for 64 CWSs, or 10%); b) online research, information downloaded from the provider, or current maps (for 15 CWSs, or 2%); or c) the census block polygon (for 7 CWSs, or 1%). The CRC was also able to gather the approximate locations of State Small Water Systems (SSWSs), (water systems with 5-14 service connections), from all the county Departments of Environmental Health in the study area.

The CRC characterized CWS water quality using data obtained in November 2017 from the California EPA State Water Resources Control Board's (SWRCB) Human Right to Water Portal. The CRC characterized CWSs by their compliance status with the federal Safe Drinking Water Act. There are three possible forms of compliance status: in compliance, returned to compliance, and out of compliance. For CWSs for which current monitoring data had not been reported, compliance status was assigned a null value. Of the 667 PWSs in the San Joaquin Valley, 447 are in compliance (67%), 48 have returned to compliance (7%), 137 are out of compliance (21%), and 35 have a null value (5%).

b. CWS Boundary Data Limitations

As of this writing the Water Boundary Tool is currently undergoing an upgrade, including systematic fact-checking by specialists at the California Department of Public Health (CDPH) and OEHHA. The updated dataset will include an additional 300-500 community water systems in all of California, approximately 30 of which are located in the San Joaquin Valley.

The OEHHA data used in this study is arguably the best data available for mapped Community Water System locations and boundaries. OEHHA staff spent considerable time cleaning boundary data. Nevertheless, it is possible that some of the boundaries may be inaccurate, and may very well not have been updated to reflect recent CWS consolidations. Boundaries may thus be either over-inclusive (including all areas within jurisdictional boundaries, or failing to depict holes in polygons) or under-inclusive (for example, the Lanare CSD has extended its services without updating its boundary for decades, a fact that may not be represented in the data). The OEHHA service areas used in this report also include 21 'inactive' CWSs, according to the SWRCB's Public Drinking Water Watch (PDDW) database. The reasons for system inactivation may include consolidation. As a result, we have chosen to keep these service areas in the analysis. There are 24 active CWSs in the San Joaquin Valley that do not have a boundary, and are thus not included in the spatial analysis.

c. Least-Cost-Path Analysis

For the least cost path analysis, DUCs that were not fully within a CWS service area were described with two distance metrics. First, the CRC measured a boundary-to-boundary, straight-line (shortest) distance to the nearest CWS from a DUC boundary. Second, a weighting algorithm was used to find the shortest, least cost path along roadways from the DUC to the three closest CWSs. The weighting algorithm assigned the highest cost to non-roadway paths, and the lowest cost to paths along major roads, such as freeways and highways (the largest difference in cost was between non-roadways and roadways of any kind.) This weighting reflected the size and ease of access to right-of-ways for water main and distribution pipeline installation, and confirmed that the nearest CWS is not always the least-cost path CWS.

The CRC developed data tables to summarize the findings of this analysis. For DUCs not overlapped by a CWS, the CRC provided data for the nearest, least-cost path CWS, including its compliance status, number of distribution system service connections (roughly the number of households it serves), system name, and Public Water System Identification (PWSID). For DUCs partially overlapped by a CWS service area, similar information was recorded for any overlapping CWSs.

Regarding the ranking of the CWS for each DUC, the CRC used the current compliance status of the CWS, the distance from the CWS to the DUC, and the connections count of the CWS relative to the DUC household count. These factors produced a score that was used to rank the CWS for each DUC, as follows.

Score = C*H/D, where

- C = CWS compliance status score = 4 for "IN COMPLIANCE'; 2 for "RETURNED TO COMPLIANCE"; and 1 for "OUT OF COMPLIANCE." This score could be varied to change how CWS compliance was figured into the score, including by looking at the history of violations in more detail. Where there was no compliance record ('null'), we assigned 2.
- H = households score = (CWS SC Count) / (DUC Households Count)
- D = least cost distance in miles (with any CWS overlapping or within 100 meters of a DUC considered to be at 100 meters).

Thus, the score improved (increases) with a larger CWS, smaller DUC, better CWS compliance, and greater proximity. The score was only calculated for the nearest 5 CWSs within a distance of 10 miles (in a straight line) of the DUC in question, plus any CWSs within 100 meters. As a result, weighting algorithm tended to select the overlapping or very proximate CWSs (if any), unless the CWS connection count was much smaller than the DUC household count. Note that the score was not meant to provide a proportional comparison between CWSs. Instead, it helped single out CWSs that were best suited for particular DUCs, from among all the CWSs in the area. Only the ranking is included in the data table, not the score.

d. Interviews

The interviews for this project served two purposes. First, they provided ground truth to complement the CRC's mapping analysis. Second, they served to gather historical data from experts in the field. The CRC sought expertise from people working in multiple disciplines and areas, including government regulation and administration, water system management and operation, academia, and nonprofit technical assistance. A total of 18 interviews were conducted over three months, with 12 intended to provide ground-truth, and 6 to provide historical data using an Institutional Review Board-approved interview protocol. Interviews were conducted either by telephone or in person, and each was administered by one or two graduate student researchers from the University of California, Davis. The interviewee provided verbal consent to participate, and in most cases, verbally consented to an audio recording of the interview before it began. Direct quotes and information in the report from these interviews is cited as '(Interview date)', but individual identities are withheld for the sake of anonymity.

e. Historical Document Review

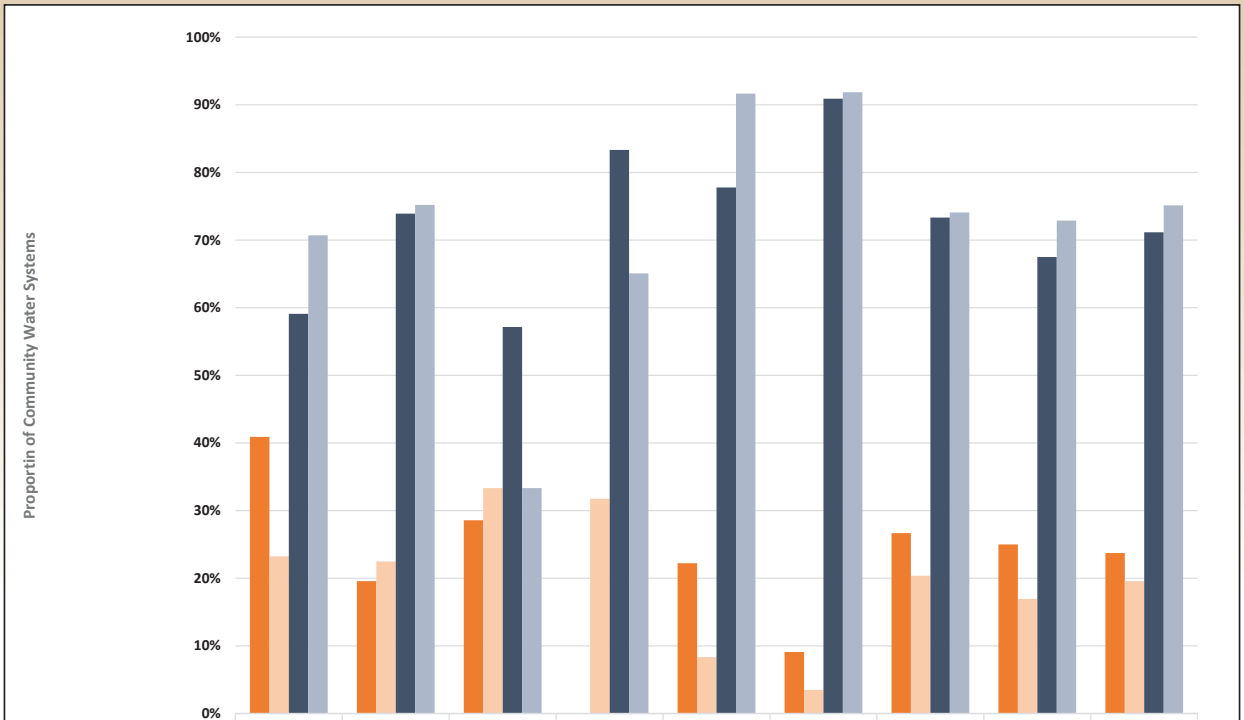
In addition to interviews, CRC conducted historical research drawing from city and county general plans and Local Agency Formation Commission documents from the 1960s to the present. These materials were accessed through the California State Library, the California History Room, and online sources. See the main report's reference list for the primary source documents reviewed.

APPENDIX 3. ADDITIONAL ANALYSIS RESULTS

a. Table 1. Active CWSs in the SJV without OEHHA Boundaries (as of November 2017)

PWS ID	CWS NAME	COUNTY	COMPLIANCE STATUS
CA1000377	ST NICHOLAS RANCH & RETREAT	FRESNO	RETURNED TO COMPLIANCE
CA1000627	ZONNEVELD DAIRY - CERINI	FRESNO	IN COMPLIANCE
CA1510053	ANTELOPE VALLEY E KERN WTR AGY- ROSAMOND	KERN	IN COMPLIANCE
CA1510040	KERN COUNTY WATER AGENCY	KERN	IN COMPLIANCE
CA1500465	OAK KNOLLS MUTUAL WATER COMPANY	KERN	IN COMPLIANCE
CA1503226	QUAIL VALLEY WATER DIST-WESTSIDE SYSTEM	KERN	OUT OF COMPLIANCE
CA1510020	TEHACHAPI, CITY OF	KERN	IN COMPLIANCE
CA1500371	UNION PACIFIC RAILROAD CO.-KEENE WATER	KERN	IN COMPLIANCE
CA1503526	WINI MUTUAL WATER COMPANY	KERN	IN COMPLIANCE
CA1600002	SUNSET VISTA ESTATES MHP	KINGS	IN COMPLIANCE
CA2000941	BASS LAKE MHP	MADERA	OUT OF COMPLIANCE
CA2000647	JOHN HOVANNISIAN WATER SYSTEM	MADERA	IN COMPLIANCE
CA2400084	EVERGREEN MOBILE HOME PARK	MERCED	IN COMPLIANCE
CA3910015	CITY OF LATHROP	SAN JOAQUIN	RETURNED TO COMPLIANCE
CA3910006	STOCKTON EAST WATER DISTRICT	SAN JOAQUIN	IN COMPLIANCE
CA3810008	THOMAS SHAFT WHOLESALE	SAN JOAQUIN	IN COMPLIANCE
CA5010038	MODESTO IRRIGATION DISTRICT	STANISLAUS	IN COMPLIANCE
CA5010040	SOUTH SAN JOAQUIN IRRIGATION DISTRICT	STANISLAUS	IN COMPLIANCE
CA5410800	CAL FIRE - MOUNTAIN HOME CNSRVTN CAMP	TULARE	IN COMPLIANCE
CA5400769	FOOTHILL APARTMENTS	TULARE	IN COMPLIANCE
CA5403212	MONSON WATER SYSTEM	TULARE	NULL
CA5402036	R-RANCH IN THE SEQUOIAS	TULARE	IN COMPLIANCE
CA5400964	SIERRA VISTA ASSN	TULARE	OUT OF COMPLIANCE
CA5403213	TEEN CHALLENGE	TULARE	IN COMPLIANCE

b. Figure 1. Proportion of CWSs, by County and Type of Community Served, Delivering Unsafe Water (Out of Compliance) and Safe Water (In Compliance, and Returned to Compliance) (as of November 2017)



	FRESNO	KERN	KINGS	MADERA	MERCED	SAN JOAQUIN	STANISLAUS	TULARE	REGION
Unsafe Water [DUCs]	0.41	0.20	0.29	0.00	0.22	0.09	0.27	0.25	0.24
Unsafe Water [Other Areas]	0.23	0.22	0.33	0.32	0.08	0.03	0.20	0.17	0.20
Safe Water [DUCs]	0.59	0.74	0.57	0.83	0.78	0.91	0.73	0.68	0.71
Safe Water [Other Areas]	0.71	0.75	0.33	0.65	0.92	0.92	0.74	0.73	0.75

For this chart, we assume that a DUC that is intersected by the boundary of a CWS is served by that system, which may be an overestimation of DUCs served for reasons explained in Appendix 2a. In many San Joaquin Valley counties, a higher proportion of the CWSs that serve DUCs are supplying unsafe water, compared to the proportion of the CWSs that serve non-disadvantaged communities i.e. "other areas". For example, in Fresno County, 41% of the CWSs serving DUCs are supplying unsafe water, compared to 23% of the CWSs serving other areas. In addition, more CWSs that serve these other areas in Fresno (71%) are delivering safe water, compared to 59% of the CWSs serving DUCs. In other counties, the discrepancies are less pronounced. In Kern, San Joaquin, and Stanislaus Counties, for example, the difference between the proportion of CWSs delivering safe water to DUCs, and the proportion of CWSs delivering safe water to other areas, is much reduced. And in Kings County, the situation is actually reversed: here, a higher proportion of the CWSs that likely serve DUCs (57%) are delivering safe water, compared to 33% of the CWSs serving other areas.

c. Implementation of SB 244

The Planning for Disadvantaged Community Act (SB 244) requires local agencies to assess and address the social, economic and environmental conditions of DUCs within their jurisdiction. In addition to mapping DUCs, local agencies must also appraise each DUC for the seven essential general plan elements: land use, circulation, housing, conservation, open space, noise, and safety. The updated general plans must include: analyses of current efforts to mitigate inequities in DUCs; analyses of barriers to overcoming those inequities; and an evaluation for potential annexation. It uses the categories of "island" (enveloped with city boundaries), "fringe" (located in the edge of a city boundary) and "legacy" (located outside an SOI) (California State Legislative Information 2011). Cities and counties in the San Joaquin Valley have had an uneven track record to date in implementing the law.

Table 2. Review of SB 244 Implementation, by County

County	Count of DUCs	DUC Database	DUC Maps	Community Plan for DUCs	Review of Possible Annexation	Review of DUC Drinking Water Services	Review of DUC Sewer Services	General Plan Element
FRESNO[3]	no	X	X (all DUC types // large area)	no	no	no	no	2016 Multi-Jurisdictional Housing Element; Comprehensive review forthcoming[4]
KINGS[5,6];	4 (legacy)	X (legacy)	X (legacy)	X (legacy)	X ("urban fringe")	X (legacy)	X (legacy)	2035 General Plan
KERN[7]	22 (legacy)	X (legacy)	X (legacy // large area)	no	no	X (legacy)	X (legacy)	2035 General Plan
MADERA[8]	16 (legacy)	X (legacy)	X (legacy // large area)	no	no	X	X	2024 General Plan Background Report
MERCED[9]	19 (legacy)	X (legacy)	X (legacy // large area)	X (legacy)	no	X (legacy)	X (legacy)	2030 General Plan
SAN JOAQUIN[10]	22 (legacy)	X (legacy)	X (legacy)	X (legacy)	X ("urban fringe")	X (legacy)	X (legacy)	2035 General Plan
STANISLAUS	7 (legacy)	X (legacy)	X (legacy)	X (legacy)	no	X (legacy)	X (legacy)	2015 Land Use Element
TULARE[11,12]	27 (LAFCO) 45 (General Plan)	X	X	13 of 45	X (33 of 45; for services)	X (33 of 45)	X (33 of 45)	2012 LAFCO review; 2015 General Plan Housing Element

Note: A more complete review of SB 244 implementation by CA LAFCO is anticipated to be released in early 2018.

Table 3: SB 244 Implementation Gaps by County

Fresno County	Multi-Jurisdictional Housing Element (2016) does not include an analysis of services in the DUCs, nor are the communities comprehensively named.
Kern County	Evaluation of annexation was limited to reporting whether or not any DUCs had contacted the county with a request for annexation, or whether any were being considered at this time.
Kings County	Analyzed the water and sewer services for four legacy unincorporated communities, but the analysis does not identify any community as disadvantaged.
Madera County	Identified 17 legacy DUCs in a general plan background report (2015); six of these were identified as "small areas" in Madera County's 1969 general plan.
Merced County	Included legacy DUCs in its General Plan, but five DUCs remain unnamed, and the analysis does not address the potential for annexation.
San Joaquin County	General Plan's Community Development section includes detailed profiles for 7 urban communities and 15 rural communities, but none are specified as being disadvantaged.
Stanislaus County	DUC Report ends by highlighting the cost-prohibitive nature of connecting isolated DUCS to existing municipal water and sewer systems. Low assessed property values within DUCs are cited as the primary factor limiting funding opportunities for making these connections.
Tulare County	Identified 27 DUCs within or adjacent to current or future city SOIs in 2012. Since then, 8 of the DUCs have been annexed; however, Tulare County's 2015 housing element still includes 45 DUCs.

Table 4. Example of Detailed SB 244 Evaluation Matrix (from the San Joaquin County 2035 General Plan, 3.1-160)

School District(s):	[illegible] 0 Elementary 0 High School
Parks/Recreation:	None

Endnotes

1 Interviews referenced in this case study refer to confidential conversations with water justice organization staff in 2017 that were undertaken to confirm and update information that was obtained from reviewing reports available online.

2 Wheeling is the conveyance of water not owned or controlled by a utility through the utility's facilities, for delivery to a customer or other party.

3 Fresno Local Agency Formation Commission (LAFCO). 2017. Disadvantaged Unincorporated Communities Information.

4 Fresno County. 2016. Fresno Multi-Jurisdictional 2015-2023 Housing Element.

5 Kings County. 2016. Draft Kings County 2016 Housing Element.

6 Kings County. 2017. 2035 General Plan.

7 Kern County. 2016. 2015—2023 Housing Element Update.

8 Madera County. 2015. Madera County General Plan Background Report.

9 LAFCo Merced. 2016. Appendix B: Disadvantaged Unincorporated Communities.

10 San Joaquin County. 2016. 2035 General Plan.

11 California Association Local Agency Formation Commissions (CALAFCo). 2017. "Learning to Walk Like a DUC." Presentation.

12 Tulare County. 2014. Tulare County Housing Element Action Program 9: Existing Infrastructure.

13 CALAFCo. 2017. "Learning to Walk Like a DUC." Presentation. Last retrieved on February 1, 2018 from https://calafco.org/resources/2017-staff-workshop/ducs-part-i-learning-walk-duc

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The report benefited from an active partnership with water justice organizations that provided crucial knowledge about on-the-ground conditions in Disadvantaged Unincorporated Communities (DUCs) and helped formulate policy and public funding recommendations. These included the Aoki Water Justice Clinic/ UC Davis School of Law, California Rural Legal Assistance Foundation, Clean Water Action, Community Water Center, Environmental Justice Coalition for Water, Leadership Counsel for Justice and Accountability, and PolicyLink. We would also like to thank Krystyna von Henneberg, Ph.D., of Creative Language Works, for her editorial assistance with this project and Jason Mendez at Snapshot Media for his skillful graphic design.

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