

# **SANTA CRUZ INTEGRATED REGIONAL WATER MANAGEMENT**

## **DISADVANTAGED COMMUNITY OUTREACH PILOT PROJECT REPORT & CITY OF WATSONVILLE PROJECTS 2014**

January 2015

Prepared by The Environmental Justice Coalition for Water



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## **Executive Summary**

The purpose of the Disadvantaged Community (DAC) Engagement Pilot Project (Project) for the Santa Cruz IRWM Planning Region was to ensure that the statewide priorities for the Integrated Regional Water Management Program (IRWMP) were met<sup>1</sup>, lay out a strategy to effectively engage disadvantaged communities from the Santa Cruz region in the Integrated Regional Water Management (IRWM) processes that directly impact their lives, and update the IRWM Plan for the Santa Cruz region, accordingly. The objectives of The Environmental Justice Coalition for Water (EJCW) included incorporating new DACs into EJCW's statewide water justice support and advocacy network to enhance the near- and long-term goals of integrating DACs into the Santa Cruz IRWM process and beyond.

EJCW is grateful for the opportunity to have undertaken this work and gives thanks to the Department of Water Resources, Regional Water Management Foundation, and the Santa Cruz IRWM Planning Region steering committee, for seeing fit to engage us. EJCW is also grateful to the many people who worked with us on this Project, including community representatives, community-based organizational representatives, staff members from the City of Watsonville, and, of course, our project partners.

It should be noted that, from the very beginning, this Project was marked by severe resource limitations that challenged all of us involved to achieve the ambitious goals set before us using our ideal environmental justice, community-lead, methodology. When originally proposed, this Project was designed to be completed from start to finish in roughly five months. The Project objectives roughly mirror that of the six (6) other IRWM DAC pilot projects from around the state, which were multi-year projects that were funded at ten times the amount available for EJCW's portion of this Project.

Notwithstanding these limitations, EJCW was able to meet the Project objectives and, did so, by negotiating a longer time within which to conduct the outreach and develop community relationships, leveraging relationships with EJCW's partners, i.e., the UC Davis Center for Regional Change and Nilsen & Associates, leveraging funding from external sources, i.e., private foundations, to subsidize the otherwise under-resourced outreach efforts undertaken as part of this Project, and hiring new staff, based in the Central Coast, to increase EJCW's capacity to undertake this type of work in Santa Cruz County and the broader region.

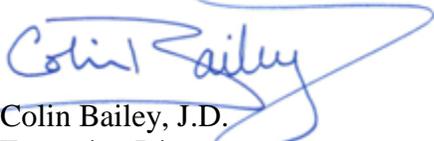
It should not go without saying what an extraordinary partner EJCW has had in this Project in Tim Carson and the Regional Water Management Foundation. Our thanks go to Tim and the Foundation for stepping up to support our approach to community engagement every step of the way.

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<sup>1</sup> IRWM Program preferences, as specified in PRC §75026(b), include: Address critical water supply or water quality needs of DACs within the region. Address statewide priorities, including “ensure equitable distribution of benefits,” which includes specifically: increase the participation of small and disadvantaged communities in the IRWM process; develop multi-benefit projects with consideration of affected DACs and vulnerable populations; and identify and include projects that address safe drinking water and wastewater treatment needs of DACs.

What follows below is a review of EJCW's work and accomplishments as part of the Disadvantaged Community (DAC) Engagement Pilot Project (Project) for the Santa Cruz IRWM Planning Region. We believe this work has set the stage for a new era of disadvantaged community involvement in IRWM, in particular, and water governance, more generally in Santa Cruz County and the Central Coast. We are in the process of seeking additional resources to continue this work and hope to advance an increasing number of community-based projects in the coming years.

In community,



Colin Bailey, J.D.  
Executive Director

The Environmental Justice Coalition for Water

## **I. DAC Identification and Assessment in the Santa Cruz IRWM region**

The goal of the DAC Identification and Assessment task was to use DWR's DAC mapping tool to map local DACs, as defined by DWR<sup>2</sup>, evaluate the accuracy of the results based upon additional data gathered from interviews and surveys from those with knowledge of local communities, and map additional DACs or pockets of disadvantage to inform outreach and engagement efforts.

It has become apparent that DWR's DAC mapping tool is unable to accurately identify small rural low-income communities due to its use of Census tract or block group income data. In many cases, rural Census tracts cover a large area. As a result, small-unincorporated community data is collapsed into the larger census tract, which may skew the overall MHI. EJCW has seen this phenomenon happen throughout the Central Coast. This leads IRWMs to inaccurately identify DACs in their regions and is a barrier to communities taking advantage of DAC-linked funding.

To successfully complete this task, EJCW developed a process in which a combination of data would be compiled to reveal potential "hidden DACs" within the Santa Cruz IRWM region. While the project team initially hoped to map hidden DACs using already existing GIS indexes, it became apparent that without nuanced income data, this task required looking at alternative indicators of disadvantaged status and proxies for income such as concentration of poverty and unemployment rates. EJCW's final assumption was that if a pocket of poverty and high unemployment exists but is not considered a DAC by DWR, then this may indicate the existence of a "hidden DAC." The following explains EJCW's process for completing a set of maps submitted for this project.

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<sup>2</sup> DWR's August 2010 Proposition 84 and 1E IRWM Guidelines define a DAC as a community with an annual median household income (MHI) of less than 80% of the statewide annual MHI (\$48,706).

### *UC Davis Center For Regional Change*

In early April 2014, EJCW secured a partnership with the University of California at Davis (UCD) Center for Regional Change (CRC) for Task 1 of this Project. CRC staff who worked on Task 1 includes the following:

Dr. Jonathan K. London, director of the Center for Regional Change  
Teri Greenfield, Director of Informatics/GIS  
Sara Watterson, GIS Analyst

After a series of initial meetings between EJCW and CRC staff, the CRC agreed to assist EJCW in a range of activities related to the completion and ongoing integration of Task 1 into the other Project tasks. The CRC brought with it a wealth of experience and skills related to mapping social vulnerability across a range of important indicators including, but not limited to, median household income as well as privileged access to data from the California Office of Environmental Health Hazard Assessment (OEHHA) California Communities Environmental Health Screening Tool CalEnviroScreen and other data sets not otherwise readily available to the public. A number of conversations, conference calls and email exchanges were held to help refine CRC's mapping efforts over the course of the project period.

What follows, below, is a set of maps that will be incorporated into the Santa Cruz IRWM planning in 2015:

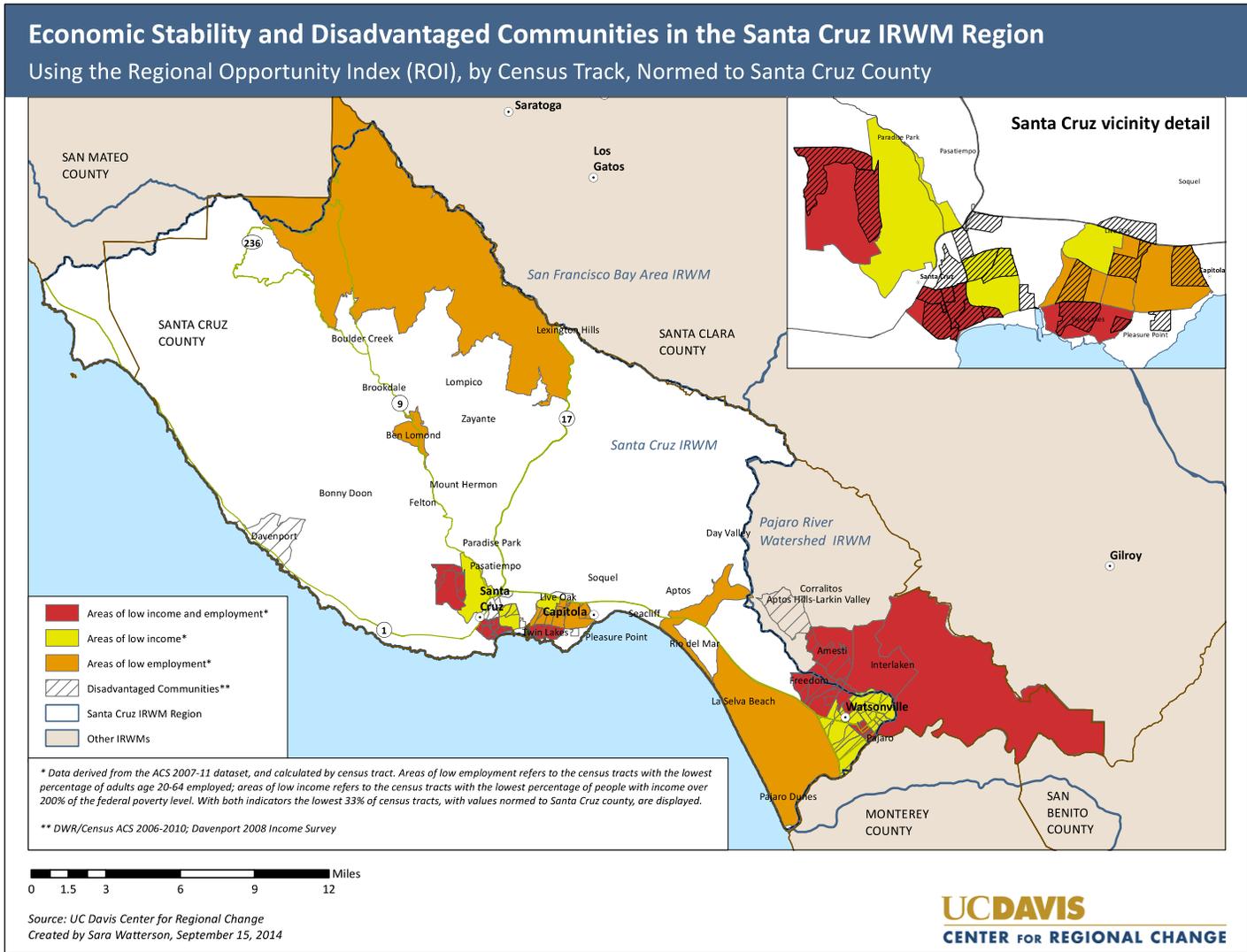


Fig. 1.1—Economic data: These data are derived from the ACS 2007-11 dataset (American Community Survey, U.S. Census Bureau) and also displayed in the Regional Opportunity Index (ROI, [mappingregionalchange.ucdavis.edu/roi/](http://mappingregionalchange.ucdavis.edu/roi/)). "Areas of low employment" refers to the census tracts in the region with the lowest percentage of adults age 20-64 employed; "Areas of low income" refers to the census tracts in the region with the lowest percentage of people with income over 200% of the federal poverty level). With both indicators, the 33% of census tracts with the lowest values within Santa Cruz County are displayed. The red area displays tracts found with the lowest values for both indicators.

Table 1 Areas of Low Employment<sup>3</sup>

<b>Areas of low employment (lowest third)</b>		
<i>Census tract</i>	<i>Percentage of adults age 20-64 employed (ACS , 2007-11).</i>	<i>Nearby City/town</i>
6087110700	84.13	Freedom/Airport
6087110600	84.73	Freedom
6087110502	86.32	Freedom
6087120302	86.80	Ben Lomond
6087121500	88.17	Twin Lakes
6087100400	89.01	UC Santa Cruz
6087123100	89.03	Amesti
6087121700	89.08	Capitola Mall/Pleasure Point/Live Oak
6087122201	89.33	Aptos
6087101000	89.66	Santa Cruz
6087122300	89.68	La Selva Beach/Pajaro Dunes
6087121403	90.39	Live Oak
6087122500	90.63	Interlaken
6087123300	90.66	West of Interlaken
6087121402	91.26	Twin Lakes
6087110300	91.27	Watsonville/Pajaro
6087120500	91.55	North of Boulder Creek/Castle Rock State Park
County Average	92.36	
State Average	90.42	

<sup>3</sup> Adults age 20-64

Table 2. Areas of Low Income

<b>Areas of low income (lowest third)</b>		
<i>Census tract</i>	<i>Percentage of people with income over 200% of the federal poverty level (ACS, 2007-11).</i>	<i>Nearby City/town</i>
6087110300	22.93	Watsonville/Pajaro
6087123300	38.07	West of Interlaken
6087101000	42.80	Santa Cruz
6087110400	45.18	South of Watsonville
6087110501	47.14	Watsonville
6087100800	51.91	East Santa Cruz
6087110600	51.95	North of Watsonville
6087100400	52.20	UC Santa Cruz
6087110502	52.86	Freedom
6087110100	56.87	Watsonville
6087123100	57.05	Amesti
6087110700	57.59	Freedom/Airport
6087110200	60.06	Watsonville
6087100300	63.09	Santa Cruz
6087122500	63.63	Freedom/Interlaken
6087121500	64.66	Twin Lakes
6087121401	66.04	Live Oak
County Average	69.80	
State Average	65.96	

Table 3. Areas of Low Employment and Income

<b>Areas of overlapping low income and low employment</b>			
<i>Census tract</i>	<i>Percentage of adults age 20-64 employed (ACS, 2007-11).</i>	<i>Percentage of people with income over 200% of the federal poverty level (ACS, 2007-11).</i>	<i>Nearby City/town</i>
6087100400	89.01	52.20	UC Santa Cruz
6087101000	89.66	42.80	Santa Cruz
6087110300	91.27	22.93	Watsonville/Pajaro
6087110502	86.32	52.86	Freedom
6087110600	84.73	51.95	North of Watsonville
6087110700	84.13	57.59	Freedom/Airport
6087121500	88.17	64.66	Twin Lakes
6087122500	90.63	63.63	Freedom/Interlaken
6087123100	89.03	57.05	Amesti
6087123300	90.66	38.07	West of Interlaken

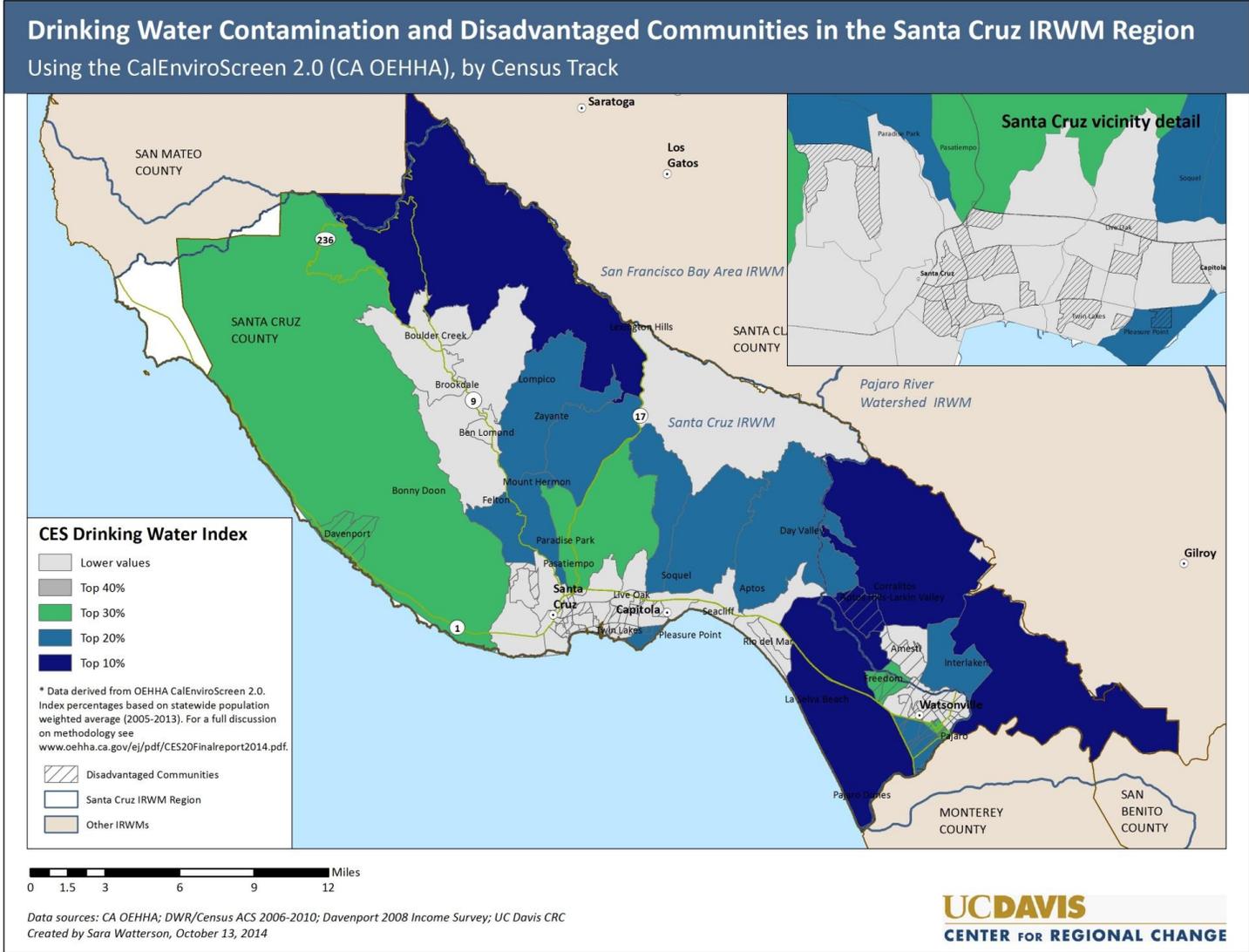


Fig. 1.2—Drinking Water data: These data are derived from the CalEnviroScreen 2.0, developed by the CA Office of Environmental Health Hazard Assessment (OEHHA). This map displays the top 33% of tracts within Santa Cruz County with the highest scores for the Drinking Water Contaminant indicator. The drinking water contaminant index is a combination of contaminant data that takes into account the relative concentrations of different contaminants and whether multiple contaminants are present. The indicator score is calculated using average contaminant concentrations over one compliance cycle (2005-2013). For a full explanation of the data, including the contaminants evaluated, visit: <http://oehha.ca.gov/ej/pdf/CES20FinalDWMMethodology2014.pdf>

### ***Santa Cruz Service Provider Outreach***

EJCW also took a number of steps to identify and assess the needs of DACs in the Santa Cruz IRWM region by engaging service providers who serve local DAC members. Vicente Lara, EJCW's outreach coordinator, contacted and/or met with a number of key organizations that would help in identifying possible DACs in the Santa Cruz Region, including, but not limited to:

- Mid-Peninsula Housing
- Applied Survey Research
- Second Harvest Food Bank
- The Pajaro Valley Migrant Education program
- The Davenport Resource Center
- The Watsonville Law Center
- Central Coast Regional Water Quality Control board member Mike Johnston
- Watsonville California Rural Legal Assistance, Inc.
- Pajaro Valley Water Management Agency

Vicente interviewed and assessed where these non-profit organizations provide services. This allowed EJCW to “ground truth” CRC's mapping efforts in locating hidden DACs. For example, when Vicente met with Mercedes Barrios from the Pajaro Valley Migrant education program, she provided information regarding potential DACs in Southern Santa Cruz County. Vicente also met with Stephanie Flores from the Davenport Resource Center who provided additional information regarding potential DACs in Northern Santa Cruz County.

While EJCW was not able to confirm all DACs that were mentioned during our outreach efforts, for instance DAC communities in North Santa Cruz County, this did provide the platform to test additional methodologies to identify hidden DACs using GIS data. As the economic stability map shows, there are areas in the County that do have a high rate of unemployment and poverty that are not currently classified as a DAC. This includes additional communities in the San Lorenzo Valley. Both of these areas were mentioned as possible DACs during outreach and “ground truthing” efforts. EJCW highly encourages future outreach efforts to target these areas, especially given the fact that there has been some confirmation of Santa Cruz mountain communities facing dire water quality and quantity issues as a result of the current drought in the State.

## **II. Community Outreach and Engagement**

### ***Outreach Overview***

In addition to interviewing and assessing the service areas of many Santa Cruz County-based non-profits for task 1, Vicente also engaged many of the same organizations to assess the water related needs of Watsonville residents and received feedback regarding community engagement of the IRWM process for task 2. A snowball sampling method was used to guide EJCW's community outreach efforts. EJCW began by meeting with staff from the Community Foundation Santa Cruz County as well as staff from the City of Watsonville to develop an initial outreach list of community representative who would provide insight into the needs of local

residents. Vicente began contacting individuals from this initial list, who were asked if they know of any additional community representatives who EJCW should contact. This resulted in EJCW reaching approximately 20 different community representatives who provided EJCW invaluable insight into the local and regional water-related needs of DAC members. This includes the following individuals:

- Amy Knewell (Pajaro Valley Water Management Agency)
- Ana Maria Rebelo (Sustainable Program Coordinator for the County of Santa Cruz)
- Ana Rasmussen (Mesa Verde Gardens)
- Angelical Gonzales (Watsonville Environmental Science Workshop)
- Chris Miranda (City of Watsonville--Neighborhood Services)
- Christina Cuevas (Community Foundation of Santa Cruz County)
- Deborah Pembroke (Unitarian Universalist Justice Ministry)
- Gretchen Regenhardt (California Rural Legal Assistance, Inc. - Watsonville office)
- Henry Martin (Watsonville Law Center)
- Jonathan Pilch (Watsonville Wetlands Watch)
- Juan Gomez (Milpa)
- Kevin Heuer (Second Harvest Food Bank)
- Kirsten Liske (Ecology Action)
- Mercedes Barrios (Pajaro Valley Migrant Head Start)
- Michelle Templeton (City of Watsonville)
- Mike Johnston (Central Coast Regional Water Quality Control Board Member)
- Professor Leslie Lopez (University of California, Santa Cruz)
- Stephanie Flores Boyd (Davenport Resource Center)
- Terry Iancino (Catholic Charities of the Diocese of Monterey)
- Tim McManus (Communities Organized for relational Power in Action [COPA])

### ***Community Representative Meetings***

The community representative meetings were of an introductory character to both establish EJCW's credentials as a community-based, environmental justice organization and describe the objectives of the outreach project, as well as to affirm the value of each potential community partner to the success of the project, link that success to the potential partner's mission and current work, and lay the groundwork for future collaboration. This developed into a concerted effort to outreach and engage a number of community organizations in South Santa Cruz County. As a result, three consistent themes arose from these meetings.

*Water Conservation:* When asked what kind of community water project would meet the needs for Watsonville residents, many of the community representatives mentioned the need for expanded water conservation projects in their community. This was due to two major concerns of residents. The first concern was the lack of knowledge and understanding among the community members regarding the need for water conservation during this current drought. The second concern was the need to conserve water in an effort to cut down on water use and cost. Given that many residents in Watsonville are low-income, the desire to cut down on utility costs is not surprising.

Vicente met with Chris Miranda from the City's Neighborhood Services division. Chris works directly with Watsonville residents to increase communication between residents and city government, encourage civic awareness and participation, and provide more effective coordination among City departments to address neighborhood needs. Vicente and Chris discussed how to engage current participating residents in the City's water planning process. Chris stated that many residents do have a number of water-related concerns, especially in terms of water conservation and cost. Vicente later followed up with Chris and Michelle Templeton, the Environmental Program Manager for the City of Watsonville, who also agreed that a water conservation project would make the most sense for Watsonville residents. The City has been able to implement an effective water conservation effort, which had been able to maintain the same annual water use over the last 15 years, even as the population of Watsonville has dramatically increased during that period<sup>4</sup>. Michelle expressed great enthusiasm in terms of expanding the city's efforts to reach specific DAC neighborhoods in Watsonville. While funding for such a project would have to come from alternative funding sources aside from current IRWM funds, EJCW highly encourages the Santa Cruz IRWM to pursue a partnership with the City of Watsonville to explore the feasibility of a neighborhood-based water conservation project in Watsonville.

In addition to speaking with City of Watsonville Staff, Karen Nilsen and Vicente Lara also met with Kirsten Liske from Ecology Action in Santa Cruz. Vicente wanted to approach Ecology Action to see if there was any potential for collaborate on a water conservation project in Watsonville. While Ecology Action currently does not have any programing in Watsonville, Kirsten expressed interest in pursuing additional funds for such a project.

*Water Affordability:* During an initial meeting with Jackie McCloud, Environmental Projects Analyst and Steve Palmisano, Director of Public Works and Utilities from the City of Watsonville, water affordability was mentioned as an additional concern among Watsonville residents. While water rates in Watsonville are some of the lowest in the County, the City still faces a high rate of unpaid water bills and water shut off orders.

Water affordability was a concern mentioned at a number of meetings with community representatives. For example, on June 17<sup>th</sup>, Vicente met with Ana Rasmussen, director of the Mesa Verde Gardens. The Mesa Verde Gardens has 2 sites in Watsonville, and 4 additional community gardens throughout Santa Cruz County. Many garden members are farm workers who work in the local agricultural industry and rely on the garden as their only affordable source of fresh organic produce. Ana estimates that many of these families enjoy up to 85 pounds of organic produce a year. Yet, the gardens in Watsonville face a number of challenges regarding water affordability. The gardens are located on donated land from local churches. As a result, the water rates they pay are based on a "residential use" basis. Elsewhere in the County water supply agencies are raising rates in response to the drought and efforts to ensure long-term water supply sustainability, Ana fears if Watsonville imposed similar rate increases it could threaten the financial sustainability of the gardens and ultimately impact the families who benefit from this project.

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<sup>4</sup> <http://cityofwatsonville.org/city-of-watsonville/watsonvilles-conservation-program-save-money-now-and-ensure-water-for-our-future>

In addition, on June 18<sup>th</sup>, Vicente also met with Angelical Gonzales, the Watsonville Environmental Science Workshop coordinator. During a conversation with Angelica, she also mentioned meeting a Watsonville resident who had his water turned off due to not being able to pay his bill. He had been without water for over three months and stated that it was extremely difficult because he had children living in the home. City staff also told EJCW that the City faced a 7-10% delinquency rate<sup>5</sup> on utility bills. Since this issue presented itself among many community representatives and City staff, it should be explored in the immediate future.

*Water Quality:* The last major concern heard from community representatives was the issue of water quality. The City provides customers with water that is safe to drink. It operates a comprehensive water quality-monitoring program to ensure its customers receive water that is in compliance with strict state and federal drinking water standards. Yet, according to City outreach staff, many residents believe that bottled water is more pure, safer and healthier. Convenience and taste are other reasons why residents may opt for bottled water. The City of Watsonville began a “[I LOVE Watsonville Tap Water](#)” campaign to encourage residents not to buy bottled drinking water, since buying bottled drinking water is an unnecessary cost. The City estimates residents can save \$600 – 1000 per year by using tap water instead of bottled water<sup>6</sup>. In an initial meeting with Michelle Templeton, she discussed the concern many residents had regarding water quality in Watsonville. While she has extensively assured many residents that the water quality in Watsonville meets state and federal standards, many continue to fear poor water quality in their homes. This may not be as surprising given that some communities near Watsonville do struggle with adequate water quality. For instance, EJCW is currently providing interim drinking water to North Monterey County communities such as Pajaro and Las Lomas due to nitrate contamination in drinking water wells; both which are 1 to 4 miles away from Watsonville. On June 9<sup>th</sup>, Vicente met with Amy Newell, a Pajaro Valley Water Management Agency board member. Vicente and Amy discussed the outreach project and her knowledge of the water related needs in southern Santa Cruz County. While Amy did not know of any water quality issues in Watsonville, she was aware of water quality issues in north Monterey County. While Monterey County is beyond the scope of this project, EJCW has begun implementing new interim drinking water projects in the communities of Las Lomas, Royal Oaks and Springfield Terrace.

EJCW also met with Mike Johnston, a board member for the Central Coast Regional Water Quality Control Board, who lives in Watsonville. Mike provided some insight into the situation at Pinto Lake, a local regional park outside the Watsonville city limits. Pinto Lake, because it is located on unincorporated county land, has suffered from wastewater and agricultural pollution. In conversations with Jonathan Pilch from Watsonville Wetlands Watch and Leslie Lopez, a professor at the UC Santa Cruz, both also mentioned the situation at Pinto Lake. While EJCW would have liked to explore this issue, Pinto Lake unfortunately falls outside of the Santa Cruz IRWM boundary and is, therefore, beyond the scope of this project. EJCW hopes to pursue more information regarding Pinto Lake in its future efforts in Santa Cruz County.

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<sup>5</sup> In fact, City staff may actually have quoted the rate of active water shutoff orders at approximately 8%, which would seem to suggest a delinquency rate significantly greater than 8%. Exact figures on water delinquency and active shutoff orders have not yet been obtained.

<sup>6</sup> City of Watsonville <http://cityofwatsonville.org/city-of-watsonville/i-love-watsonville-tap-water>, accessed 12/12/2014

EJCW also believes it is important to discuss the issue of messaging when it comes to discussing water justice and DAC water related needs. Many of the service providers with whom we spoke had never asked their clients if they faced a lack of access to clean, safe and affordable water. Many acknowledged the fact that they had never thought about the intersection of their work and the issue of water justice. In a conversation with Juan Gonzales from Milpa, a Salinas-based nonprofit with ties to youth organizing efforts in Watsonville, he stated his concern that community members do not see the importance of water-justice in their daily lives. Juan provided great feedback in terms of making sure our messaging was congruent with a cultural perspective with regard to water. Juan suggested we look at some of Milpa’s material to inform our messaging when outreaching to community members in Watsonville. Given that water has great cultural symbolism in many communities, EJCW saw this as an important step in effectively reaching DAC members in Watsonville. Vicente incorporated this feedback into the community presentations by acknowledging the cultural and social importance water has played in many cultures around the world, with an emphasis on the cultures of Latin America.

***Community presentations***

EJCW engaged Watsonville community members through a series of presentations which focused on the regional water planning process, issues faced by residents in the region and assessing the needs of community members in regards to water-related issues. EJCW facilitated a total of 8 community presentations during the project period.

Presentation Participant	# of Presentations
Watsonville Environmental Science Workshop	2
COPA	2
Mesa Verde Gardens	1
City of Watsonville--Neighborhood Services	1
Watsonville Wetlands Watch	1
City of Watsonville-Watsonville Civic Plaza	1

Two presentations took place at the Watsonville Environmental Science Workshop on June 25<sup>th</sup> and July 3<sup>rd</sup>. Program staff and workshop members participated in both presentations and provided a great deal of feedback in regards to water-related needs in Watsonville, specifically in regards to water conservation and affordability.

Two additional presentations took place on June 18<sup>th</sup> and June 25<sup>th</sup> with COPA at the Our Lady of the Assumption Catholic Church in Pajaro, CA. The presentations focused on COPA’s membership in the Watsonville/Pajaro area. The membership was very interested in the issue of water justice as it related to affordability, given the drought and rationing orders that are currently being implemented in Santa Cruz County.

An additional presentation was held on July 26<sup>th</sup> at the Mesa Verde Gardens in Watsonville. Garden leaders attended the presentation along with the garden director, Anna Rasmussen. Again, as with other presentations, the audience was concerned with the issue of water affordability as well as water conservation. Many of those in attendance work in the agricultural industry and are worried that the local economy will be drastically affected by the drought in the coming years. Since the local economy is directly tied to water access, many fear the loss of

employment due to less water for the region. Many are also concerned of the rise in the cost of living caused by the drought (i.e. the rise in food costs, an increase in the cost of housing due to higher water/utility bills, etc.).

EJCW also presented to the Watsonville Neighborhood Services participants on August 14<sup>th</sup> in downtown Watsonville. Roughly a dozen downtown residents participated and showed an interest in water justice but felt that many in their community had never given the issue much thought. There was consensus that more education and outreach needed to occur regarding water-related issues such as the drought. Many saw the actions taken by the City of Santa Cruz and its water rationing efforts as the future for Watsonville residents. Many discussed the potential effects of the drought; such as an increase in the cost of living including higher rent prices and increased food cost. At this presentation it was impressive to see many community members examine the nuanced effects of water justice in their daily lives.

The final community presentation was held on October 3rd at the Watsonville Wetlands Educational Resource Center located at Pajaro Valley High School. EJCW presented to a Green Careers class and engaged students in thinking about the issue of water-justice, water planning and the environmental practices that affect access to water and water quality. Students were very much engaged in the presentation and, as other participants mentioned, felt a need for an increase in water and environmental justice education.

### ***Community Assessment Survey***

EJCW also administered a short assessment survey at the end of each presentation. This survey focused on measuring the concerns of community members as well as the effectiveness of the presentations. The survey also collected basic demographic information.

Of the 37 respondents, 32 reported Watsonville being the community they “lived in.” Other respondents reported Pajaro, Royal Oaks and Santa Cruz as their community. While the sample size was relatively small, those who participated were largely residents of Watsonville. Eighty-one (81%) of respondents indicate Spanish as their primary language and 92% reported Latino as their ethnicity. Respondents’ ages ranged from under 17 to 74; 61% of respondents were female and 39% male.

The primary question that EJCW used to assess water-related issues in Watsonville was the following: *Using a scale from 1 to 5, where 1 is "Not at all a problem" and 5 is "Very Severe Problem", please indicate how much of a problem the following water issues are in your community.* Respondents were asked to rate the following water-related issues: water quality, water supply/quantity, vulnerability of wells to contamination, wastewater, flooding, affordability, and any other option. Given the anecdotal evidence noted during the community presentations, it is not surprisingly that respondents indicated water quality, affordability and wells at risk for contamination as the top three severe or very severe problems in Watsonville.

### ***City-sponsored Presentation***

On September 18th, EJCW held a larger city-sponsored community forum at the Watsonville Civic Plaza. The intention was to bring community stakeholders together with agency

representatives. While many of the community stakeholders with which EJCW had been in contact were, ultimately, unable to attend, the forum brought together a wide cross-section of government agency, non-profit, funder, and academic representatives, who engaged in a great deal of discussion.

EJCW and City of Watsonville staff presented on the current efforts of the Santa Cruz IRWM DAC project, proposed city-sponsored water projects and overall outreach efforts. Many in attendance found the presentation informative and engaged in dialogue around finding solutions to the many water-related issues that are faced by DAC communities in the region. This forum was the culmination of EJCW outreach efforts and an opportunity to engage decision makers in EJCW's findings regarding the water related needs of Watsonville residents. Of those in attendance, 86% stated that they would be "interested" or "very interested" in continuing to work on "the topic addressed in this presentation." In addition, 93% of participants also stated that they would be interested or very interested in getting involved with "the issue of water justice in the future." Such feedback is important due to the fact many of those that participated in the forum represented agencies that play an important role in the region's water planning and governance. Having these agencies acknowledge their willingness to continue this important work was an important goal EJCW hoped to reach with this forum.

### **III. DAC Project Development and Readiness**

Nilsen and Associates has been engaged with EJCW, the Community Foundation Santa Cruz County, the City of Watsonville and other organizations in the IRWM Region to determine the water-related needs of DACs as a component of the overall Santa Cruz IRWM DAC planning process. In particular, the firm was tasked with evaluating potential IRWM projects submitted by the City of Watsonville for inclusion in the 2014 IRWM Plan. The objective of this section of the report is to review the projects submitted by the City of Watsonville for the 2014 Santa Cruz IRWM Plan Update in order to recommend strategies for strengthening the competitiveness of the City's prioritized projects for future IRWM funding opportunities.

#### ***Santa Cruz County IRWM Plan Priority Objectives***

The Santa Cruz County IRWM Conceptual Framework identifies high and medium priorities to achieve state and regional water planning objectives. State IRWM objectives are also considered in the Santa Cruz IRWM Plan project review and ranking process. Addressing the needs of DACs pertaining to the Human Right to Water is among the state IRWM objectives, specifically to address critical water related needs of DACs within the region and to ensure equitable distribution of benefits<sup>7</sup>. The Santa Cruz IRWM Plan Priority Objectives associated with the Human Right to Water include the following:

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<sup>7</sup> See State Water Plan, 2013 Update, action plan for Object 13, pp. 8-48 through 8-52 at: [http://www.waterplan.water.ca.gov/docs/cwpu2013/Final/09\\_Vol1\\_Ch08\\_Roadmap-For-Action.pdf](http://www.waterplan.water.ca.gov/docs/cwpu2013/Final/09_Vol1_Ch08_Roadmap-For-Action.pdf).

### Objective 1

Ensure a reliable and sustainable local water supply through strategies that diversify the supply portfolio, develop production from alternative/supplemental sources, protect and enhance surface and ground water, protect against seawater intrusion, and maximize efficient delivery and use.

### Objective 2

Reduce water demand as technically and economically feasible, particularly in relation to the cost of additional sources.

### Objective 3

Reduce the sources of harmful pollutants (i.e. sediment, bacteria, nitrate, persistent organics and other toxic constituents) and their impacts on aquatic resources.

### Objective 5

Implement integrated flood management strategies that reduce hazards and impacts from floods and, where feasible, provide multi-benefits (e.g., improve stormwater quality, ecosystem benefits, Low Impact Development (LID) / redevelopment and groundwater recharge).

*Note: Objectives 1 and 3 do not include high or medium priority strategies to treat or mitigate nitrate or chromium 6 levels in excess of current safe drinking water standards.*

## ***2014 IRWM Solicitation and Ranking***

In response to a solicitation for the 2014 Integrated Regional Water Management Plan Update, the City of Watsonville submitted eleven projects for consideration. The projects were evaluated and scored by the Steering Committee in accordance with the evaluation criteria established for the Santa Cruz IRWM plan. The City's project scores ranged between 87 and 160 in the points ranking out of a potential of 465 points. The largest point category within the scoring matrix is Principals of IRWM Planning and Integration, accounting for 285 points (approximately 60% of total). The comparatively high potential points available in this category reflects the emphasis the Santa Cruz IRWM Region places on collaborative projects involving multiple partners and addressing multi-benefits. Since it is so heavily weighted, it would be difficult for a project to score highly overall if it does not perform well in this category. The category with the next highest level of points is Project Status and Feasibility for 110 points. The final two categories are Disadvantaged Community Considerations for up to 40 points and Climate Change and Adaptation for 30 potential points. The 2014 Santa Cruz IRWM Plan Project Scoring Matrix with additional detail regarding sub-category scoring is attached for reference.

## ***Projects Prioritized by the City of Watsonville***

From the initial list of eleven projects proposed for the Watsonville disadvantaged community, seven were selected by the City staff and prioritized according to the need for immediate attention. The seven projects were all included in the Santa Cruz IRWM Plan 2014 Update. The attached table lists the projects in prioritized order along with information regarding the 2014 IRWM project ranking by the review committee and other data. The projects collectively address drinking water treatment, wastewater and stormwater conveyance, water quality and habitat restoration needs identified by the City of Watsonville. It should be noted that the Pajaro Valley

Integrated Regional Water Management Group included the Corralitos Creek Water Supply and Fisheries Enhancement Project in their successful application for the IRWM Program- Drought Solicitation in July 2014. This project was concurrently submitted for the Santa Cruz IRWM Plan in advance of the IRWM Drought Program Solicitation Package (PSP) and has since been removed from the City's list of priority projects.

### ***Other s Identified Through DAC Outreach Needs***

As noted previously in this report, concerns about water quality, conservation and affordability are recurring themes in community responses to EJCW outreach presentations. These identified needs of the DAC community should be evaluated for consideration in planning for future IRWM project applications and in reviewing other funding opportunities for the City of Watsonville's water related projects. Ecology Action would be one willing partner (for water conservation and low impact design) to be consulted in planning future water related projects. With the application tool described in the section Other Sources of Funding regarding alternatives to IRWM funding, the City will be able to explore a number of funding sources for projects through the California Financing Coordinating Committee one stop screening process.

### ***IRWM Funding Challenges and Opportunities for Watsonville***

#### Central Coast IRWM Funding

Funding for the IRWM Program was authorized by Proposition 84 the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Act of 2006 (Public Resources Code Section 75001, et seq.), passed by California voters in the November 2006 general election. Planning and implementation grants from Prop 84 and Prop 50, an earlier water bond, have been approved by the Department of Water Resources for the Central Coast Region in the amount of \$121,217,216.

In 2006, the Santa Cruz Region successfully applied for a \$12.5 million IRWM Implementation Grant from the State Water Resources Control Board (SWRCB). This award, paired with \$17 million in local funding, enabled the completion of high priority projects identified in the initial IRWM Plan. From 2008 – 2013, the grant funded the completion of 15 high priority “components”; many of the component featured multiple projects. In total, 65 projects were completed at more than 80 sites throughout the County. Component 12 of the grant, entitled *Watsonville Sloughs Integrated Watershed Restoration Program*, received \$681,371 in grant funding for improvements to habitat and water quality in the Watsonville Sloughs adjacent to the City of Watsonville. From 2008-2012, 17 projects in the Watsonville Sloughs were completed, these included 11 agricultural water quality projects and 6 habitat restoration projects.

In 2011, the Santa Cruz Region received a \$1m IRWM Planning Grant from DWR. This award funded the \$200,000 Watsonville Sloughs Hydrology Study lead by the Resource Conservation District in association with the following partners: City of Watsonville; Santa Cruz County Water Resources and Public Works; UC Santa Cruz; Pajaro Valley Water Management

Agency; Land Trust of Santa Cruz County; Watsonville Wetlands Watch; and, the Regional Water Management Foundation.

### Funding Challenges

The remaining balance available for the Central Coast Region is less than \$5 million for the entire region for the final round of IRWM funding as authorized by Prop. 84. The Central Coast Region spans the area from Santa Barbara to Santa Cruz counties, an area of diverse and competing water interests and needs. The Department of Water Resources anticipates the draft Program Solicitation Package (PSP) will be released in the spring 2015, the final PSP in the summer 2015. Applications will be due in winter 2015/16 and grants awarded in spring 2016 under this scenario. However, competition for the limited amount of funding available for the Central Coast can be expected to decrease the probability of funding for projects lacking a strong regional emphasis. Successful applications in the IRWM process have typically been regional in scope, incorporate multiple benefits and have a combination of secured matching funds, demonstrated technical feasibility and completed or well developed plans in place prior to submittal.

### Future IRWM Opportunities

Proposition 1, the Water Bond approved by the voters in November 2014 contains funding for continuation of the IRWM Program in future years, although at a reduced level from the dollar amount authorized in Proposition 84. Ten percent of the funds would be reserved for disadvantaged communities such as Watsonville. The method for distribution of funds will be determined by the Department of Water Resources after a proposed Program Solicitation Package and Guidelines are developed and made available for public review and comment. It is projected that a total of \$42 million dollars will be made available for the Central Coast Region over the authorization period for the bond.

### Opportunities for Collaboration

The City of Watsonville's proposed priority projects offer a number of opportunities for collaboration with other organizations. Watsonville Wetlands Watch, the Pajaro Valley Water Management Agency (PVWMA), The Nature Conservancy, Resource Conservation District (RCD), Ecology Action and other Departments within the City have been contacted to discuss community needs and determine whether there were projects in development that complement the City's planned priority projects. Additional points could be added to the scores for individual projects if multiple agencies or organizations were involved in planning, design and implementation of a project or suite of related projects. As an example, the Lee Road stormwater project could be expanded to include collaboration with Watsonville Wetlands Watch for habitat restoration and the City's Parks Department for trail expansion utilizing low impact design principles for Greening the City programs.

It should be noted that involvement of non-profit agencies (NGOs) such as Watsonville Wetlands Watch, Ecology Action, and the Regional Water Management Foundation could add up to five points in the SC IRWM ranking sub-category for regional partnerships. These partnership strategies added points for the steelhead enhancement project. Watsonville Wetlands Watch and RCD have worked cooperatively with the City on past projects and are willing to participate in a meeting convened for the purpose of identifying components of planned activities that could build on the City's projects near or adjacent to the sloughs within the project areas.

The 2014 projects offering the greatest potential for collaboration include the following:

- Mañana Lane and Lee Road Stormwater Projects
- Santa Cruz Stormwater Residuals Project
- Pajaro River Steelhead Enhancement Project
- Freedom Sanitation District Project

### ***Adding Multiple Benefits***

The majority of the planned projects include the potential for multiple benefits such as water quality protection, habitat restoration, open space and parks development and others. As an example, the Stormwater Residuals Project would be considered of regional benefit due to its intended use as a disposal hub for Santa Cruz County. It additionally offers the opportunity to reduce climate impacts/greenhouse gas emissions in a measurable way through trip reduction of wastewater currently transported to Marina in Monterey County or to other counties because Santa Cruz lacks a facility to receive the wastewater. Additional descriptions of the full range of benefits, coordination and partnerships planned for an individual project could result in a more competitive project for funding in the IRWM Program. .

### ***Project Linkages***

The City of Watsonville should consider linking related projects together where it is feasible. One strategy would be to combine the storm water projects into a single application with a monitoring program component that demonstrates the effectiveness of the combined project in protecting water quality, thus earning additional points in the monitoring sub-category.

### ***Inter Regional Cooperation for Water Supply***

The top two priority DAC projects for the City of Watsonville, Chromium and Nitrate Drinking Water Treatment, would provide safe drinking water to residents within the boundaries of the City of Watsonville. However, these top priority projects provide limited opportunities for coordination and multiple benefits and are not as likely to score as well as other proposed projects for IRWM funding using current program and local guidelines. Initial discussions were held with the Pajaro Valley Water Management Agency regarding options for inter-regional partnerships were positive. Partnership with the Pajaro Valley IRWM group should be considered for future applications.

Nitrate reduction in existing alternative water supply sources or development of new water supply resources are two possibilities could merit further research. Among potential opportunities are partnerships with agricultural water users, treatment technology vendors or research institutions to test new or recently recognized water treatment methodologies. The next DWR IRWM PSP and Santa Cruz IRWM solicitations should be reviewed closely to determine if the point guidelines will be modified for 2015/2016 in the area of regional and partnership emphasis in funding decision making.

### ***Other Sources of Funding (Non-IRWM)***

The primary source of state grant funding for drinking water projects in non-rural disadvantaged communities is the State Revolving Fund for Safe Drinking Water. Loans are made available at reduced rates for projects, typically half the bond rate or 1-3% depending on the State Bond rate in effect. The State Revolving Fund is also authorized to offer principal forgiveness for qualifying disadvantaged communities such as Watsonville. The program can cover pre-development costs including engineering and environmental review studies in addition to the cost of construction.

Responsibility for the state's SRF program was recently transferred from the Department of Public Health to the State Water Resources Control Board (Water Board) and program guidelines are being revised. The new guidelines and application handbook will be effective in January 2015 and are available in draft on the SWRCB website. The pros and cons of this program should be compared to that of the IRWM program to determine the most advantageous and appropriate source of funds to in order to prioritize the City's resources for preparing and administering funding under both programs.

The Clean Water State Revolving Loan Program is a similar program for which the City has pending applications in process as noted on the Table.

The California Financing Coordination Committee (CFCC) provides a method for local agencies to submit a single form to request information about funding available for a project or multiple projects from participating State and Federal funders. DWR, State Water Resources Control Board, USDA and HCD are among the agencies currently represented. A one page Common Funding Inquiry Form is completed by the jurisdiction and submitted electronically for review. Member agencies review the inquiry form and contact the appropriate staff at the locality to discuss additional assistance. A sample of the form is attached. The website for the CFCC is [cfcc.ca.gov](http://cfcc.ca.gov).

It is recommended that the City consider utilizing this resource to research additional funding resources.

### ***Longer Term Funding Opportunity***

The City of Watsonville receives an annual allocation of Community Development Block Grant (CDBG) funding through the US Department of Housing and Urban Development. Program expenditures are intended to primarily benefit lower income households. The City has an established citizen participation process and the City Council approves the proposed uses of grant and program income funding. Although funds are currently allocated for repayment of a Section 106 CDBG loan and for the operation of the City's ongoing Housing Programs, infrastructure improvement costs are also generally eligible under program regulations if they can be demonstrated to benefit lower income areas.

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#### **IV. Summary of recommendations and opportunities**

##### **1) AB 685: The Human Right to Water Bill**

- The Steering Committee should consider revising the SC IRWM Goals and Objectives to prioritize the Human Right to Water as a critical goal and set objectives and high priority strategies to meet these goals and objectives.

##### **2) Needs Between Urban/Rural:**

- EJCW recommends the SC IRWM recognize the unique needs in more urban disadvantaged communities like the City of Watsonville to include the water-related challenges of: water affordability, water quality, and lack of DAC participation in water governance forums.

##### **3) Definition of DACs needs to be reconsidered or expanded**

- EJCW highly recommends investing in research to enhance and expand the tools used in this pilot project that provides the SC IRWM the information necessary to properly identify community boundaries, municipal service boundaries, and to help understand the heterogeneity and intensity of the disadvantage experienced by each community.
- Consider accounting for various DAC characteristics, such as employment, poverty, education, linguistic isolation, health outcomes, and more, when reviewing and scoring DAC-prepared funding applications.
- Within the current MHI-based definition of DACs, EJCW hopes the Santa Cruz IRWM group will consider advocating for alternative methods of identifying DACs where insufficient information is available to determine the MHI in the community or jurisdiction of interest.

#### **4) Outreach Recommendations**

##### **a) Ongoing Outreach**

- Consider collaborating with local non-profit or community-based organizations to aid in ongoing outreach to local DACs. A regional IRWM message should be developed to address the specific regional conditions and communities of interest. Outreach efforts should be culturally competent (all outreach materials should be translated, outreach staff should be bi-lingual, etc.) and the Santa Cruz IRWM group should acknowledge the fact that there is not a one-size-fits-all approach to DAC outreach.

##### **b) Approaches for Outreach and Engagement:**

- Disseminate information and promote events, such as the workshops in the SC IRWM region, through informal networks and word-of-mouth. Again, utilizing non-profit and community-based agencies will aid in connecting IRMW staff to local informal networks that exist in each DAC community.
- SC IRMW community engagement efforts should emphasize grass roots network building as a means to connect DAC concerns, perspectives and opinions with decision-makers.
- Attempt to use mail, phone or in-person outreach to DACs as much as possible; email and other web-based social media tools should be utilized as a last option.
- Consider and encourage participation of DAC community groups and advocates to participate in IRWM meetings and, more importantly, as potential project partners for integration of proposals where practical.
- Disadvantaged community engagement in the SC IRWM region should be recognized as a process that takes time, follow-through, and community-specific knowledge. DAC outreach should be considered an ongoing need with emphasis on DAC community outreach and retention.

#### **5) Participation of DACs in Governance and Representation**

- The SC IRWM steering committee should consider approving a special process to integrate DACs as interested parties to encourage stakeholder participation and a seat at the table for DAC community-based representatives, specifically as a voting member on the IRWM steering committee.
- Provide a separate methodology and point spread for weighting projects that do not meet the criteria for integration and multiple partnerships and that support critical DAC water related health and needs as an alternative method to be compete fairly in the selection process.

#### **6) Water Affordability and Ensuring Adequate Rate Structures**

- The SC IRWM steering committee should consider ways to ensure affordability in DAC water systems, such as providing assistance to perform system-specific rate assessments.
- The SC IRWM steering committee should collaborate with Santa Cruz County in conducting rate studies and rate-structure analyses for the purpose of ensuring equitable rates for DAC members as well as identify areas of concerns (i.e. higher rates in DAC

communities, higher shut-off orders in DACs, lack of economies of scale, etc.) throughout the Santa Cruz IRWMP region.

## APPENDIX

### *Appendix*

Fig. 1.3 – 1.10—Particular contaminant data (arsenic, cadmium, etc): These data are derived from the CalEnviroScreen 2.0, developed by the CA Office of Environmental Health Hazard Assessment (OEHHA). The top 30% of values are displayed in color and lower values in gray tones; values are based on the statewide population weighted average for each contaminant over one compliance cycle (2005-2013). For a full discussion on methodology see: <http://oehha.ca.gov/ej/pdf/CES20FinalDWMMethodology2014.pdf>

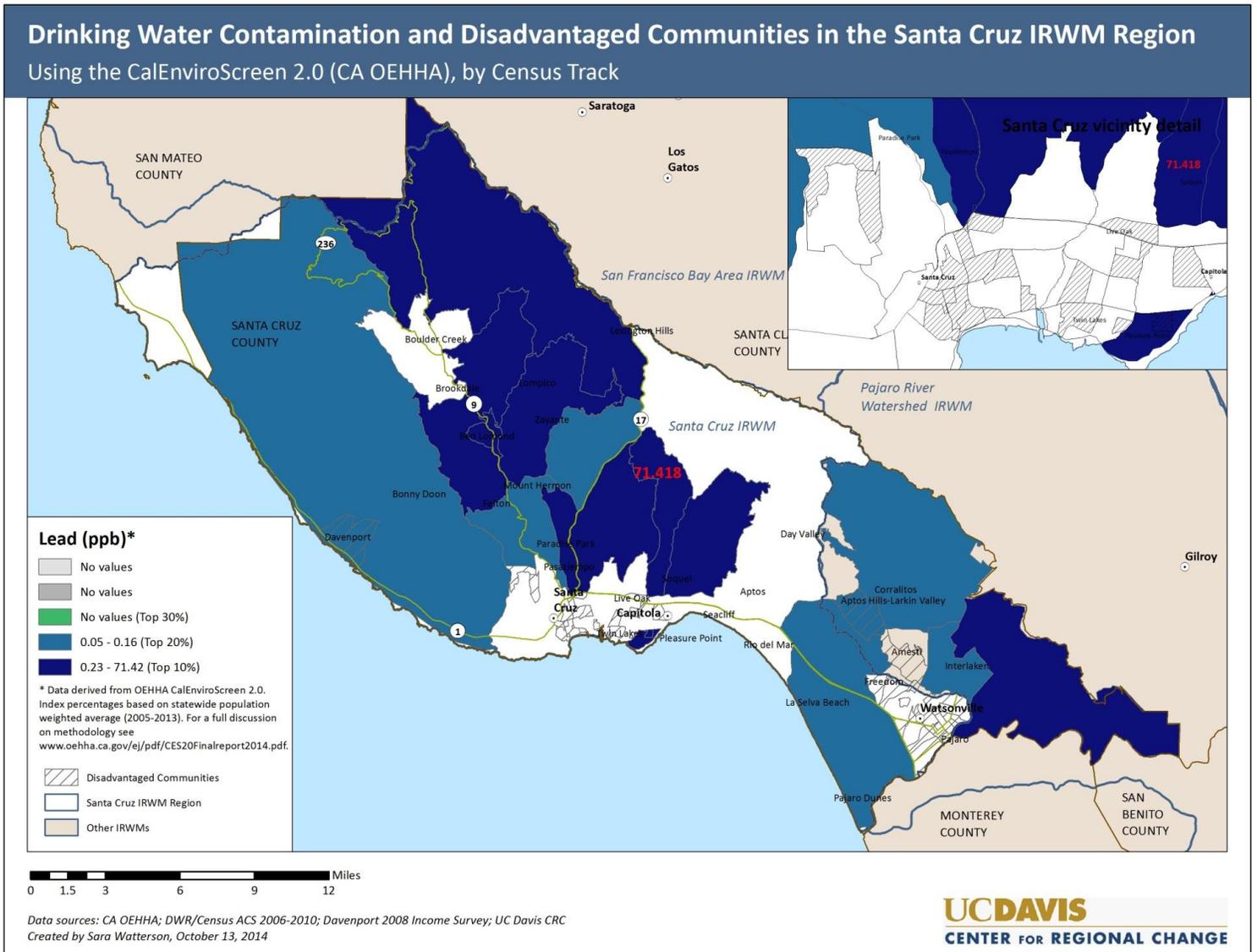


Fig. 1.3

# Drinking Water Contamination and Disadvantaged Communities in the Santa Cruz IRWM Region

Using the CalEnviroScreen 2.0 (CA OEHA), by Census Tract

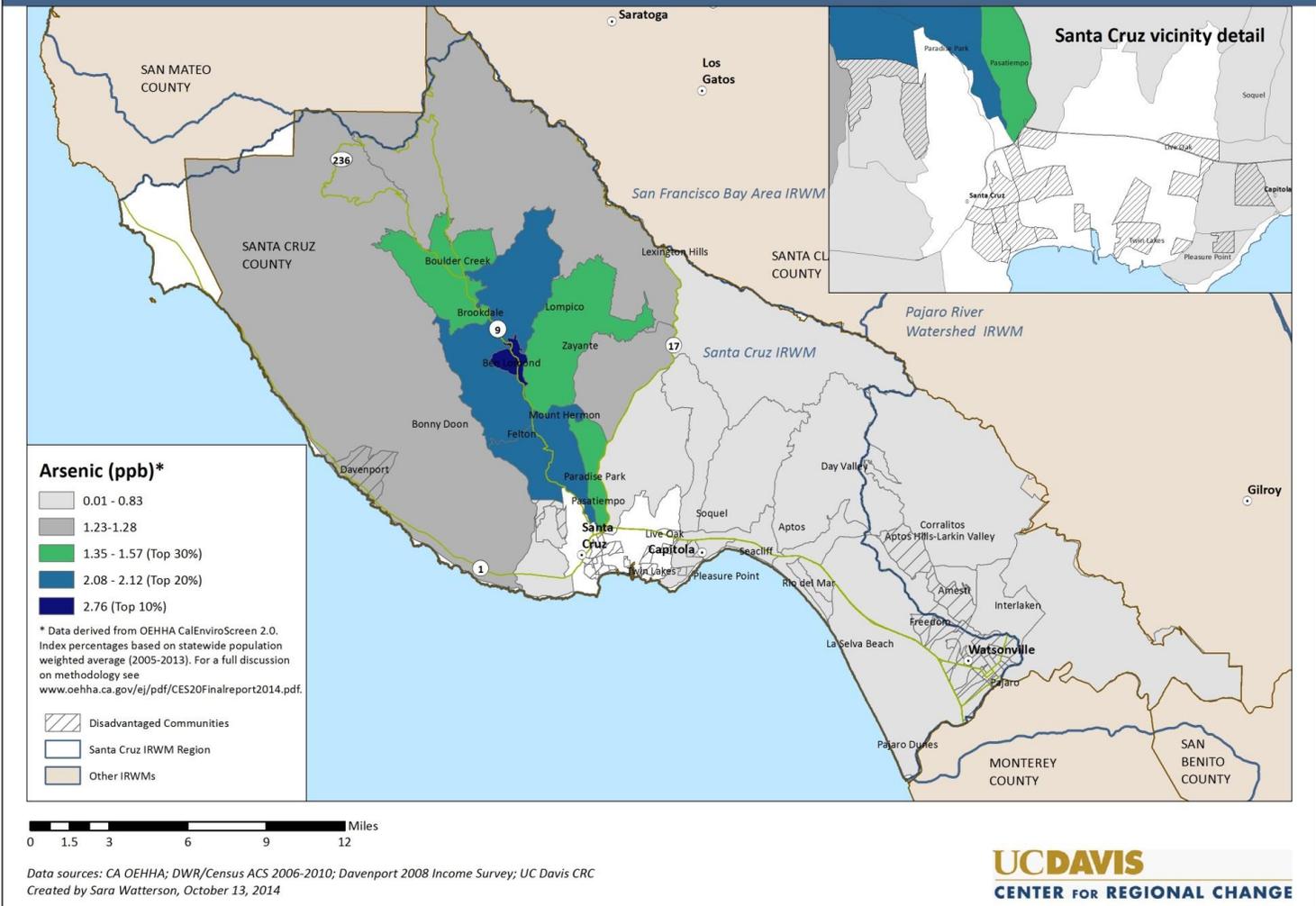


Fig. 1.4

# Drinking Water Contamination and Disadvantaged Communities in the Santa Cruz IRWM Region

Using the CalEnviroScreen 2.0 (CA OEHHA), by Census Tract

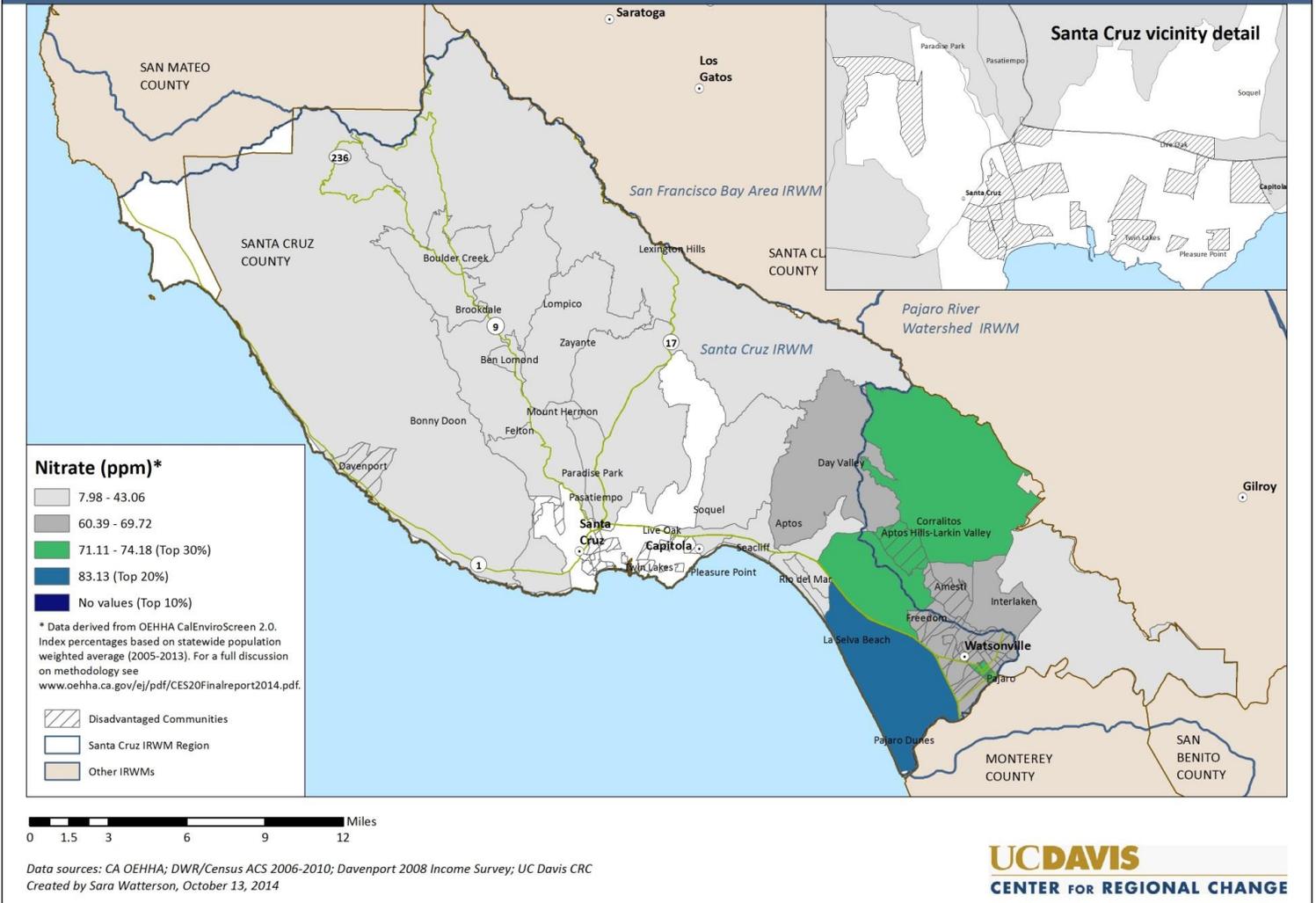


Fig. 1.5

# Drinking Water Contamination and Disadvantaged Communities in the Santa Cruz IRWM Region

Using the CalEnviroScreen 2.0 (CA OEHHA), by Census Tract

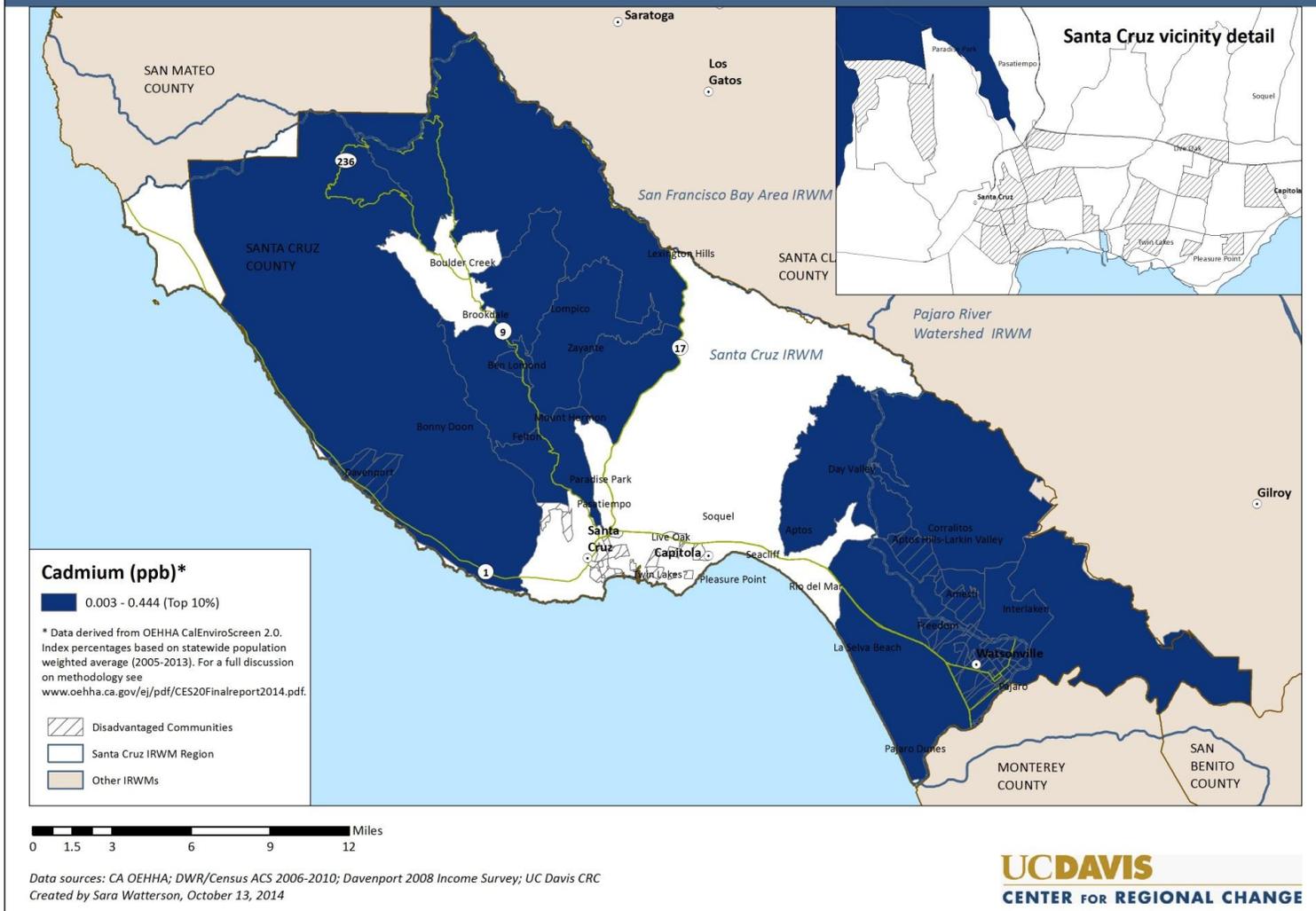


Fig. 1.6

# Drinking Water Contamination and Disadvantaged Communities in the Santa Cruz IRWM Region

Using the CalEnviroScreen 2.0 (CA OEHHHA), by Census Tract

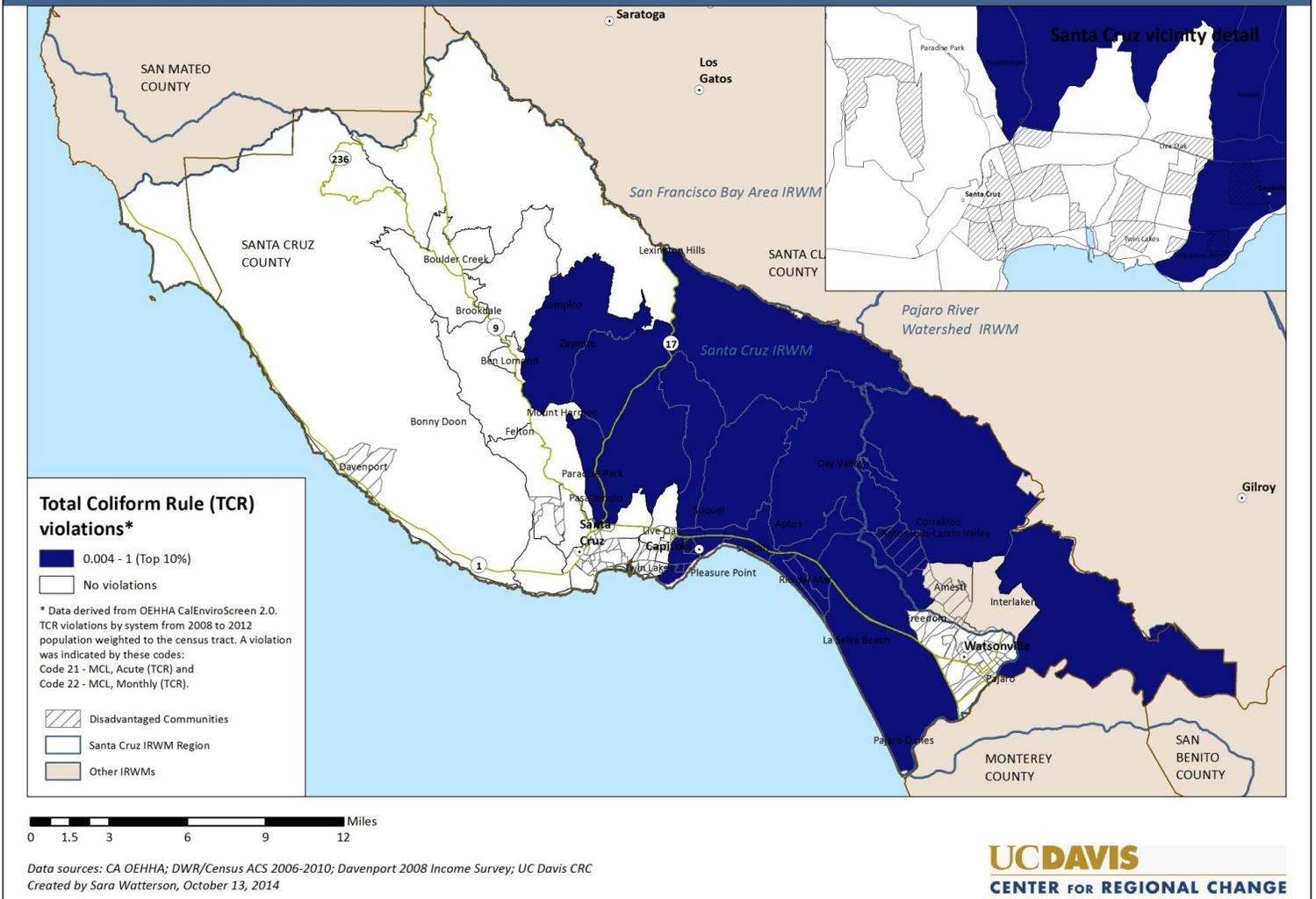


Fig. 1.7

# Drinking Water Contamination and Disadvantaged Communities in the Santa Cruz IRWM Region

Using the CalEnviroScreen 2.0 (CA OEHHA), by Census Tract

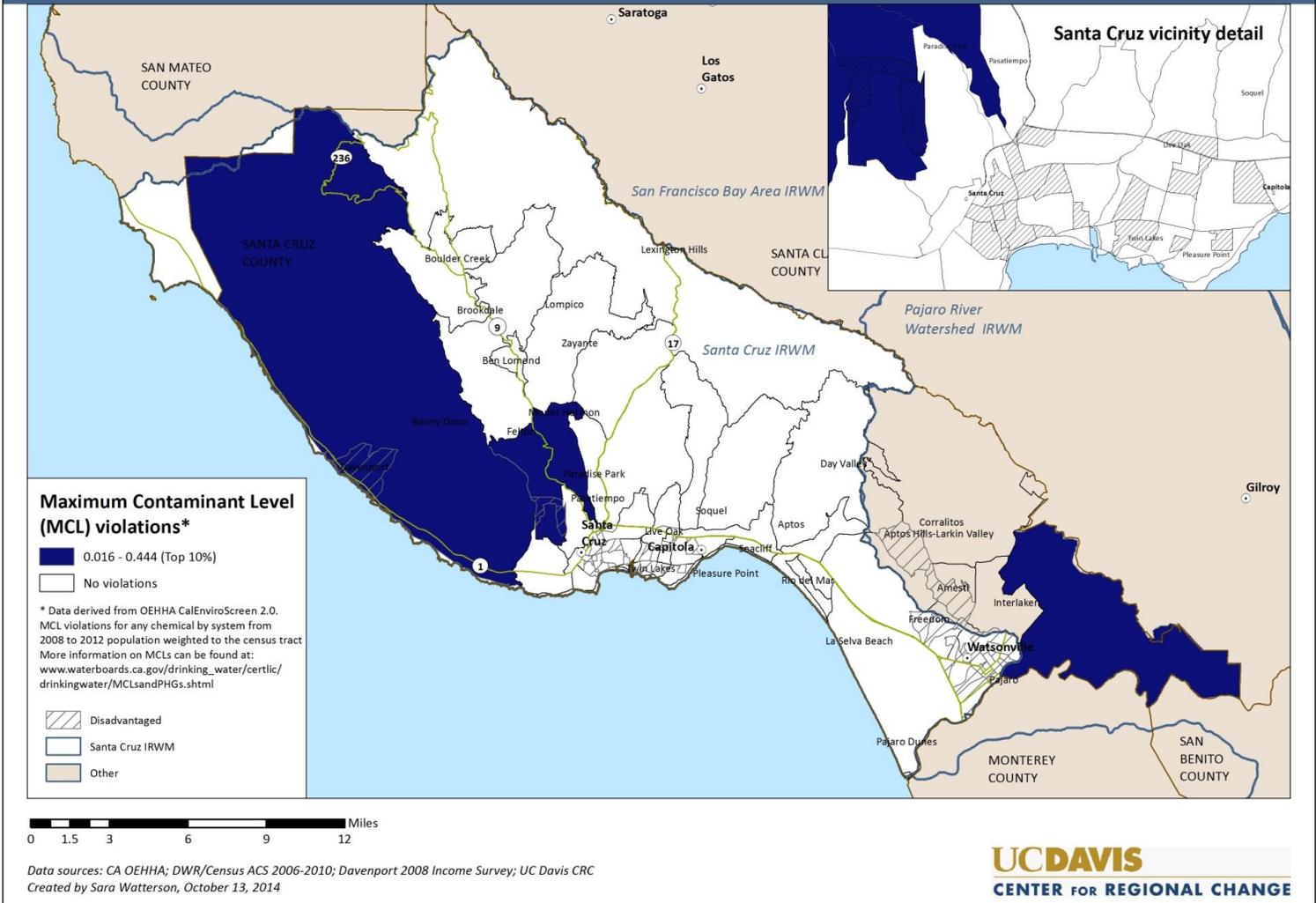


Fig. 1.8

# Drinking Water Contamination and Disadvantaged Communities in the Santa Cruz IRWM Region

Using the CalEnviroScreen 2.0 (CA OEHHA), by Census Tract

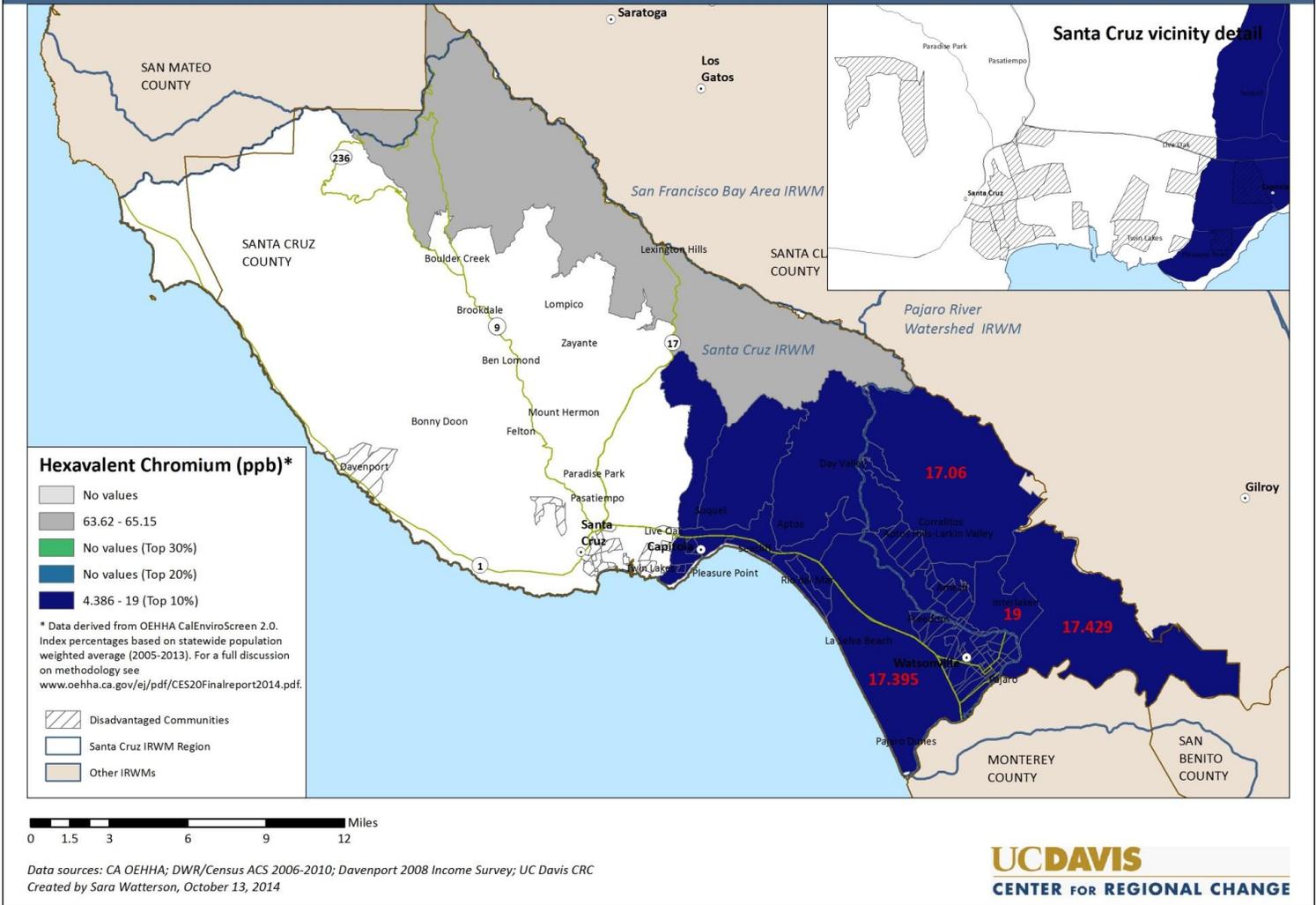


Fig. 1.9

# Drinking Water Contamination and Disadvantaged Communities in the Santa Cruz IRWM Region

Using the CalEnviroScreen 2.0 (CA OEHHA), by Census Tract

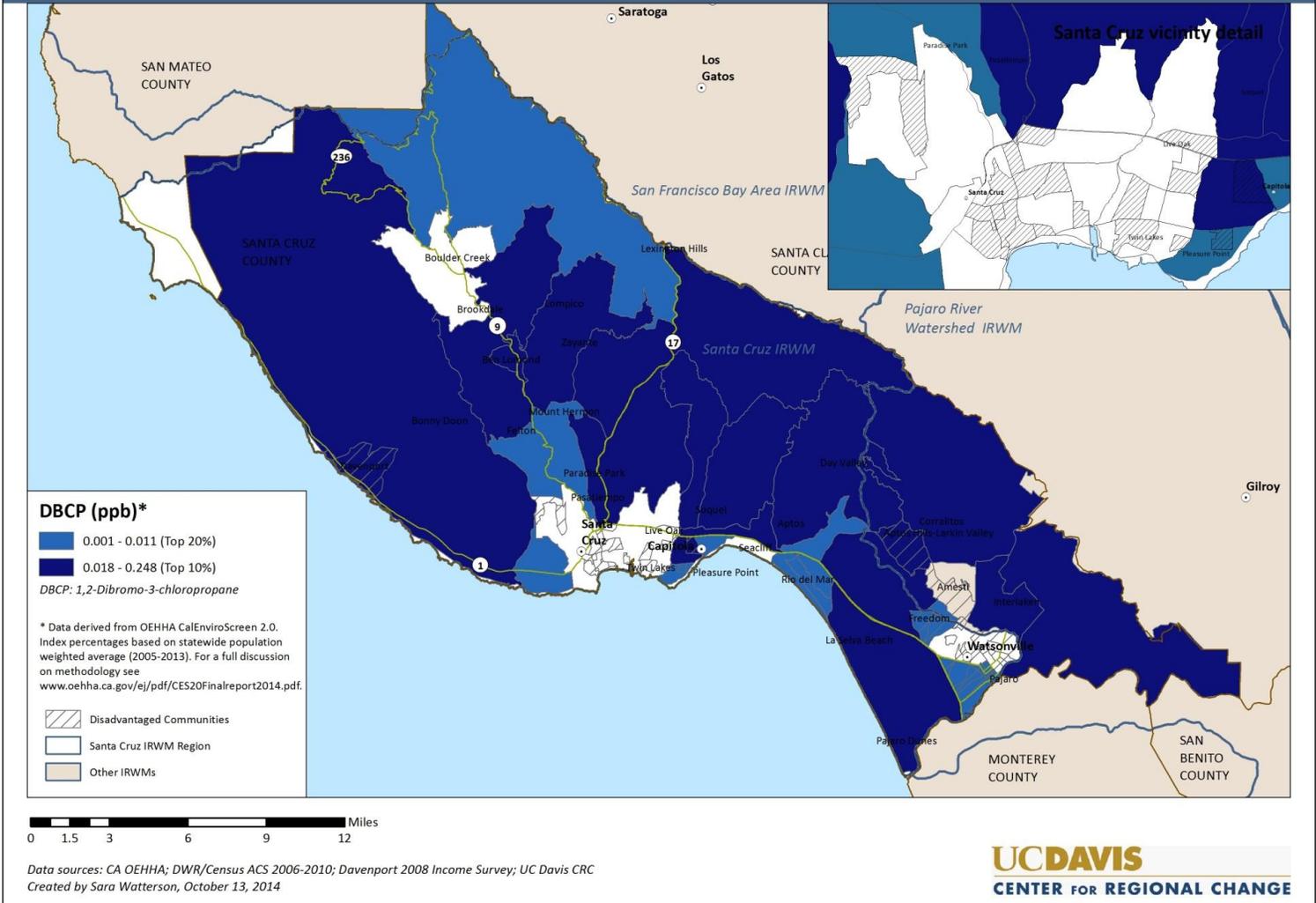


Fig. 1.10

**Appendix B**

**Santa Cruz Integrated Regional Water Management**

**2014 IRWM Plan Project Scoring Matrix**

Category	Criterion	Methodology	Max Points	Weighting
Principles of IRWM Planning and Integration	Supports high and medium-level priority objectives identified in the SC IRWM Conceptual Framework	10 points per high-priority strategy; 5 points per medium level strategy per objective - Max 40 points per objective; scores for each objective will be added to achieve total criterion score	200	43%
	Supports regional partnerships	20 points for 2 or more partners, 30 points for 3, 40 for four; 5 bonus points if an NGO is involved	45	10%
	Strategic considerations for IRWM Plan Implementation	1 point per each IRWM resource management strategy implemented	30	6%
	Land Use	Max points for when project increases coordination between water resources agencies and land use planning agencies	10	2%
Project Status and Feasibility	Technical Feasibility	Max points for documenting technical feasibility based on similar, successful past projects, site conditions known; fewer points no existing or known technology, but proponent has adequately documented project and site conditions are known	60	13%
	Economic Feasibility	Max points for economic assessment that can document and monetize benefits, and demonstrate that benefits exceed costs, and is supported with documentation provided by project proponent	20	4%
	Project Cost	Max points for demonstrating planning level cost estimates complete and matching funds are secured and adequately described (i.e. source, type (in-kind, cash, eligible grant)	10	2%
	Monitoring	Max points for adequately describing a monitoring program that will be sufficient to document project effectiveness	10	2%
	Status	Max points for documenting that all necessary permits secured and CEQA complete	10	2%
Climate Change Adaptation and Mitigation	Climate Change Adaptation	Max points for demonstrating how the project contribute to regional adaptation to vulnerabilities identified in the IRWM or other state or local climate change planning documents	15	3%
	GHG Reduction	Max points for when, compared to alternatives or to existing, does the project reduce GHG emissions or improve energy efficiency	15	3%
Disadvantaged community, tribal, and environmental justice considerations	Benefits a disadvantaged community (DAC)	Max points for project that demonstrates benefits to a DAC identified by the State or through the 2014 Plan update process	20	4%
	Benefits to Native American Tribal Community Water Issues	Max points for demonstrating that a project benefits a critical Native American tribal community water issue	10	2%
	Environmental Justice	Max points for projects that demonstrate mitigation of inequitable distribution of environmental burdens	10	2%
<b>Max Total Points</b>			<b>465</b>	<b>100%</b>

**Appendix C**

<b>CALIFORNIA FINANCING COORDINATING COMMITTEE (CFCC)</b> <b>COMMON FUNDING INQUIRY FORM</b>		
<i>Instructions:</i> An electronic copy of this form can be obtained at: <a href="http://www.cfcc.ca.gov">www.cfcc.ca.gov</a> Please provide the information below and e-mail the completed form to: <a href="mailto:ibank@ibank.ca.gov">ibank@ibank.ca.gov</a> If completing a hard copy of this form, attach responses where applicable and fax to (916) 322-6314.		
<b>Name of Applicant or Official System Name:</b>	<b>County:</b>	
<b>Check the box that best describes the applicant's organization:</b> <input type="checkbox"/> Municipal entity <input type="checkbox"/> Private entity, for profit <input type="checkbox"/> Private entity, nonprofit		
<b>Project OR problem description.</b> Describe the problem or the need for the project, the purpose of the project, the basic design features of the project and what the project will accomplish. (Attach documentation, if available)  _____		
<b>Estimated Project Schedule.</b> Provide a timeline that illustrates the estimated start and completion dates for each major phase or milestone of project development, construction and/or acquisition (including, for example, feasibility study, land acquisition, preliminary engineering, environmental review, final design and construction commencement and completion).  _____		
<b>Financing is needed for (check all that apply):</b> <input type="checkbox"/> Feasibility Study <input type="checkbox"/> Rate Study <input type="checkbox"/> Engineering/Architectural <input type="checkbox"/> Land Acquisition <input type="checkbox"/> Project Construction and Administration <input type="checkbox"/> Other, specify: _____		
<b>Estimated Total Project Costs</b> \$ _____	<b>Estimated amount of funding requested</b>	\$ _____
<b>Multiple funding sources anticipated:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No		
<i>For water/sewer projects only:</i> <b>System ID No.:</b> _____	<b>Service Area Population:</b> _____ <b>Number of Service Connections:</b> _____ <b>Estimated Median Household Income of service area:</b> \$ _____	
How did you hear about the California Financing Coordinating Committee?  _____		
All correspondence regarding this inquiry will be sent to the individual named below. You will receive a written acknowledgement of the receipt of this inquiry form and be contacted by staff of the appropriate CFCC member agencies to pursue additional assistance.		
Printed Name of Inquirer	Title	
Mailing Address (street)	City/State	Zip code
(____) _____	(____) _____	_____
Phone Number	FAX Number	e-mail
<i>For CFCC Use Only:</i>	<i>Date of Referral to CFCC Member Agencies:</i>	<i>Date Responded to Applicant Inquiry:</i>

**Appendix D**

<b>PRIORITY and PROJECT TITLE</b>	<b>CATEGORY</b>	<b>SC IRWM PROJECT #</b>	<b>2014 SC IRWM SCORE</b>	<b>Funding Status</b>	<b>Funding Opportunities</b>	<b>IRWM Application Enhancement Opportunities</b>	<b>Potential IRWM Challenges</b>
1. Chromium 6 Well Head Treatment	Water Supply	56	87	Not on State DWSRF List	Drinking Water SRF; suggest application and discussion of eligibility for planning grant	Explore joint application with PVWMA ; complete environmental and engineering documents if possible; document chromium test results per regs	May not be competitive for IRWM without exploration of inter-regional and NGO partnerships and other benefits
2. City of Watsonville Nitrate Treatment Plant	Water Supply	55	92	Not on State DWSRF List	Drinking Water SRF; suggest application and discussion of eligibility for planning grant	Explore joint application with PVWMA: Co-operative participation of Ag Community and Regional Board in Nitrate Mgmt	May not be competitive for IRWM without exploration of partnerships and other benefits
3. Manana Lane Sanitary Sewer Replacement Project	Watershed Stewardship/Aquatic Ecosystems	38	122	CWSRF in Process	To Be Determined if CWSRF not approved	Partnership opportunities for multiple agency participation and multiple benefits	Develop a revised project scope and budget, leverage resources and build upon related projects of prospective partner agencies
4. Lee Road Stormwater Control Measures Development	Flood & Storm Management	35	158	None Pending	Needs Additional Research; CCFC Inquiry Rec.	Involve other organizations to partner on related suite of projects	Application would need to be re-worked to address areas of low/no scoring as it has potential t score much higher

<b>PRIORITY and PROJECT TITLE</b>	<b>CATEGORY</b>	<b>SC IRWM PROJECT #</b>	<b>2014 SC IRWM SCORE</b>	<b>Funding Status</b>	<b>Funding Opportunities</b>	<b>IRWM Application Enhancement Opportunities</b>	<b>Potential IRWM Challenges</b>
5. Freedom Sanitation District Trunk Sewer Replacement Project	Watershed Stewardship/Aquatic Ecosystems	37	142	CWSRF in Process	To Be Determined if CWSRF not approved	Expand scope to include partner projects, revise budget and plans accordingly, Complete environmental docs if needed	Project service area likely to qualify as a DAC but must be confirmed
6. Santa Cruz Stormwater Residuals Disposal Site	Flood & Storm Management	36	107	None Pending	Needs Additional Research: CCFC Inquiry Rec.	Partner with County, Cities and transportation agency. Explore property owner outreach component with Ecology Action among other potential organizational partners.	Limited funding in next round and may have emphasis on drought projects- all projects share this challenge
7. Pajaro River Steelhead Enhancement	Watershed Stewardship/Aquatic Ecosystems	60	160	Funding Status Unknown	Needs Additional Research: CCFC Inquiry Rec.	Work with prospective partners to refine design budget and collaborative approach, Identify sources of funds, Consider new bond funding as appropriate, determine whether partnership with other steelhead projects within the County are feasible in combination	Limited funding in next round and may have emphasis on drought projects- all projects share this challenge



# TOWN OF DAVENPORT SMOKE TESTING AND LEAK DETECTION

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SANTA CRUZ COUNTY  
REGIONAL WATER MANAGEMENT FOUNDATION

June 2014



**SANTA CRUZ COUNTY  
REGIONAL WATER MANAGEMENT FOUNDATION  
SMOKE TESTING AND LEAK DETECTION  
DAVENPORT, CA**



Prepared for:  
Santa Cruz Regional Water Management Foundation  
7807 Soquel Dr.  
Aptos, CA 95003

Prepared by



June 2014

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## APPENDICES

Appendix A: Smoke Testing Setups
Appendix B: Smoke Testing Returns

## ABBREVIATIONS, TERMS AND DEFINITIONS USED IN THIS REPORT

**Table i.**  
**Abbreviations**

Abbreviation	Term
I/I	inflow and infiltration
Inflow	<b>Inflow</b> is defined as water discharged into the sewer system, including private sewer laterals, from <b>direct</b> connections such as downspouts, yard and area drains, holes in manhole covers, cross-connections from storm drains, or catch basins. Inflow creates a peak flow problem in the sewer system and often dictates the required capacity of downstream pipes and transport facilities to carry these peak instantaneous flows. SSOs are often attributable to high inflow rates.
Infiltration	Infiltration is groundwater or storm water that enters the collection system through pipe defects. For rainfall dependent infiltration, the storm water percolates into the soil, submerges more of the pipe system, and enters through pipe defects. The response time depends on the soil permeability and saturation levels. Rainfall responsive infiltration is storm water which enters the collection system through pipe defects, but normally in sewers constructed close to the ground surface such as private laterals. Rainfall responsive infiltration is independent of the groundwater table and reaches defective sewers via the pipe trench in which the sewer is constructed, particularly if the pipe is placed in impermeable soil and bedded and backfilled with a granular material. In this case, the pipe trench serves as a conduit similar to a French drain, conveying storm drainage to defective joints and other openings in the system.

## EXECUTIVE SUMMARY

V&A completed smoke testing of the Old Town Davenport sanitary sewer system on June 4, 2014. The system consists of approximately 5,170 linear feet of gravity sanitary sewer piping. V&A also completed leak detection for 85 water service connections in Old Town Davenport and New Town Davenport on June 5, 2014.

Smoke testing involves forcing non-toxic smoke-filled air into sanitary sewer lines. The smoke exits through openings into the sewer system, such as manholes, building roof vents, and defects. Defects may include catch basins, cross-connections from storm sewers, roof downspouts, basements and foundation drains, all of which may contribute to storm water inflow. Smoke may also locate defects in the pipe or laterals, following a path from the defect and exiting at the ground surface.

Leak detection involves using an electronic listening device that can audibly detect leaks from ground level.

## Findings

Two smoke returns were classified as “Severe”, “Moderate” or “Light” per the potential for inflow or infiltration into the collection system. The types and severity of the smoke returns found are summarized in Table 1.

**Table 1. Summary of Smoke Returns**

Type of Return	Light	Moderate	Severe	Total
Area Drain	-	-	-	-
Ground Surface	-	-	-	-
Manhole	-	-	-	-
Cleanout	2	-	-	2
	<b>Total</b>			<b>2</b>

The types of smoke return defects found during this project were open cleanouts. Cleanouts were only recorded if the cap was missing or broken and there was potential for inflow. One open cleanout was observed behind the Whale City Bakery at 490 Hwy 1. The severity of this open cleanout was light.

There is an open cleanout on the lawn of a home at 10 Davenport Ave. The severity of the open cleanout is rated as light because it is above grade.

Open cleanouts can be a source of added rain water to the sanitary sewer system. Figure 1 shows a map summarizing the smoke returns.

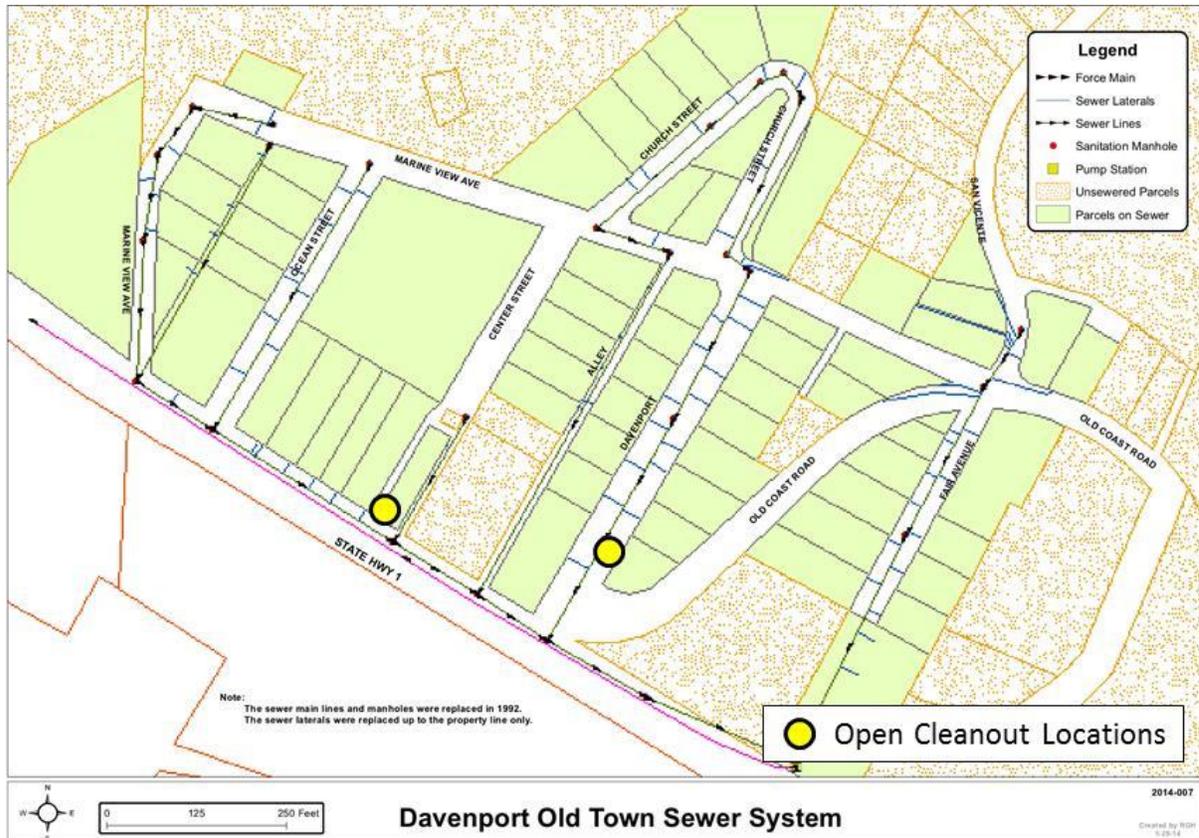


Figure 1. Map of Smoke Returns

### Leak Detection Findings

The leak detection was performed on the night of June 4, 2014 to early morning on June 5, 2014 in Old Town and New Town Davenport. This time frame was chosen in order to minimize background noises, such as vehicular traffic, that could impact the leak detection. The water meter lids were opened and an electronic listening device was used in order to determine if there were any leaks. During the time of the test, there were no leaks in the water system. The sounds produced by the equipment were hollow in nature due to the fact there was water use at night. A leak in the system would have produced a loud and sharp noise.

### Recommendations

- ❖ **Cleanouts:** Consider ways to ensure that homeowners maintain cleanouts on their property. At a minimum, missing or broken cleanout caps should be replaced. Instruct homeowners in New Town Davenport to maintain their cleanouts.

## INTRODUCTION

The Regional Water Management Foundation (RWMF) initiated this smoke testing project to identify potential sources of inflow and infiltration (I/I) into the sanitary sewer system. Smoke testing can be effective for identifying sources of direct inflow, which may be hard to find with other methods. Smoke testing is less effective at finding infiltration sources because they are usually deeper below grade and may not provide a direct path for the smoke to escape. RWMF was also interested in performing leak detection on the potable water laterals in both New Town and Old Town Davenport to identify any leaks in the water system.

V&A performed smoke testing on approximately 5,170 feet of sanitary sewer pipelines for RWMF in Old Town Davenport. The smoke testing was performed on June 4, 2014. V&A also performed leak detection on 85 water laterals in both New Town and Old Town Davenport on June 5, 2014. The general area of smoke testing for Old Town Davenport is shown in Figure 2. The water system for Old Town Davenport is shown in Figure 3 and the water system for New Town Davenport is shown in Figure 4.

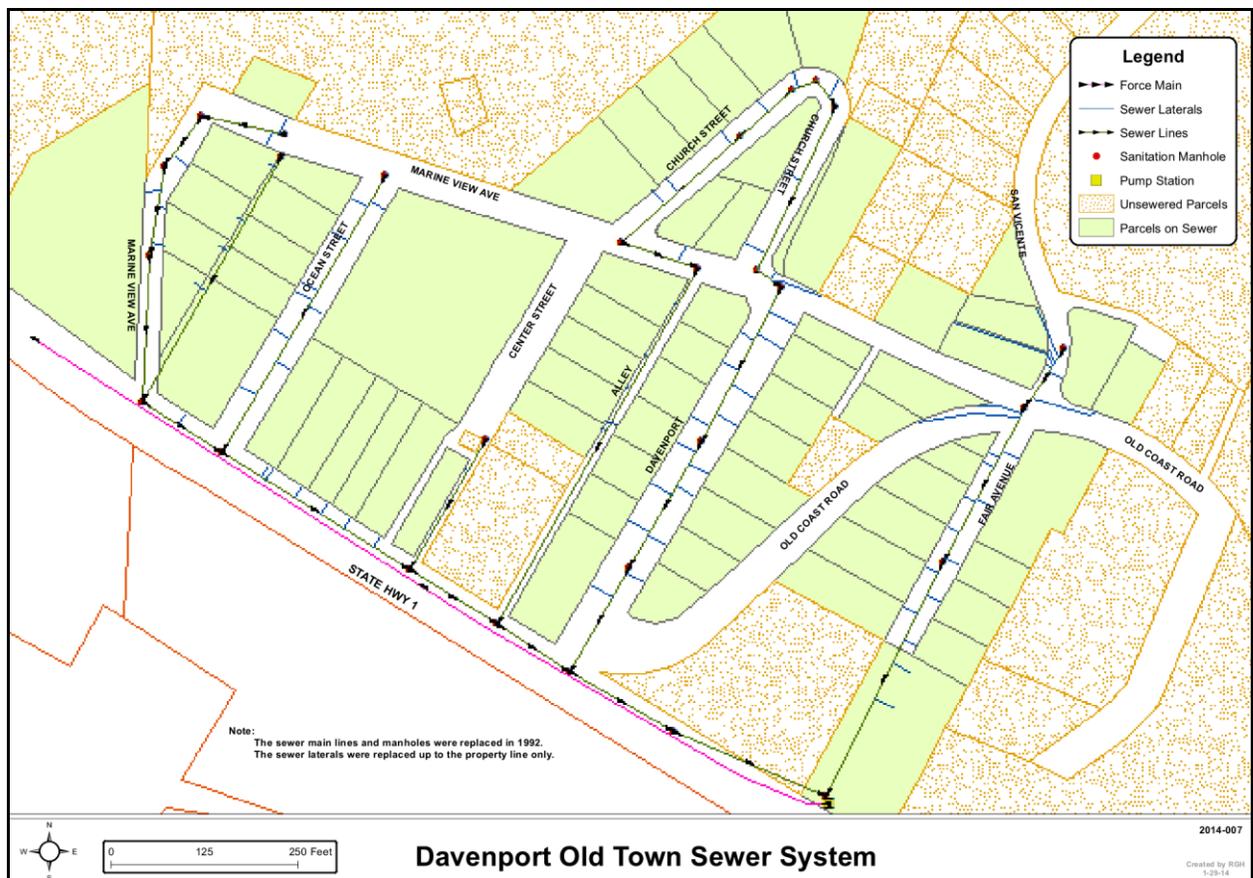


Figure 2. General Area of Old Town Davenport Smoke Testing

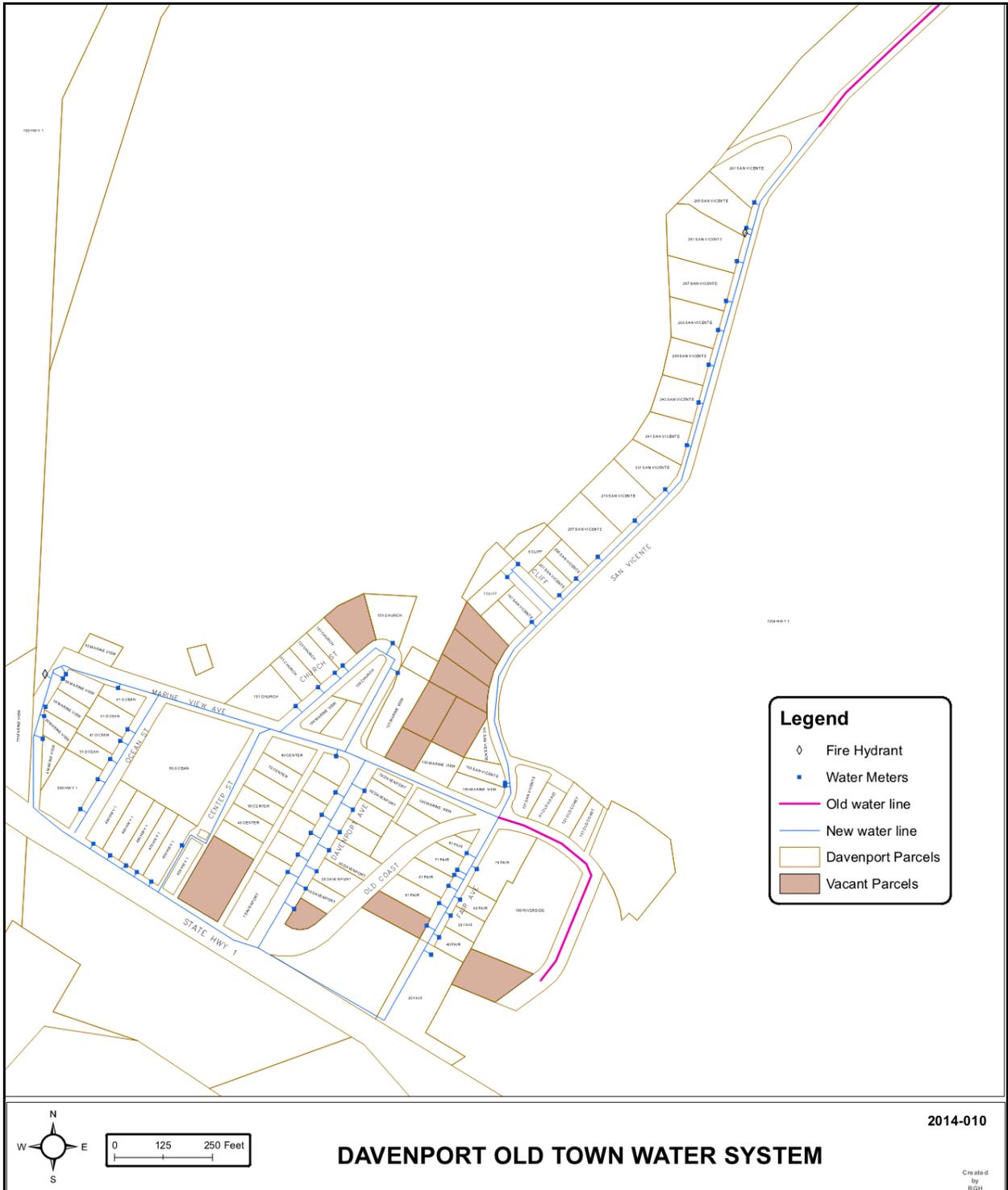
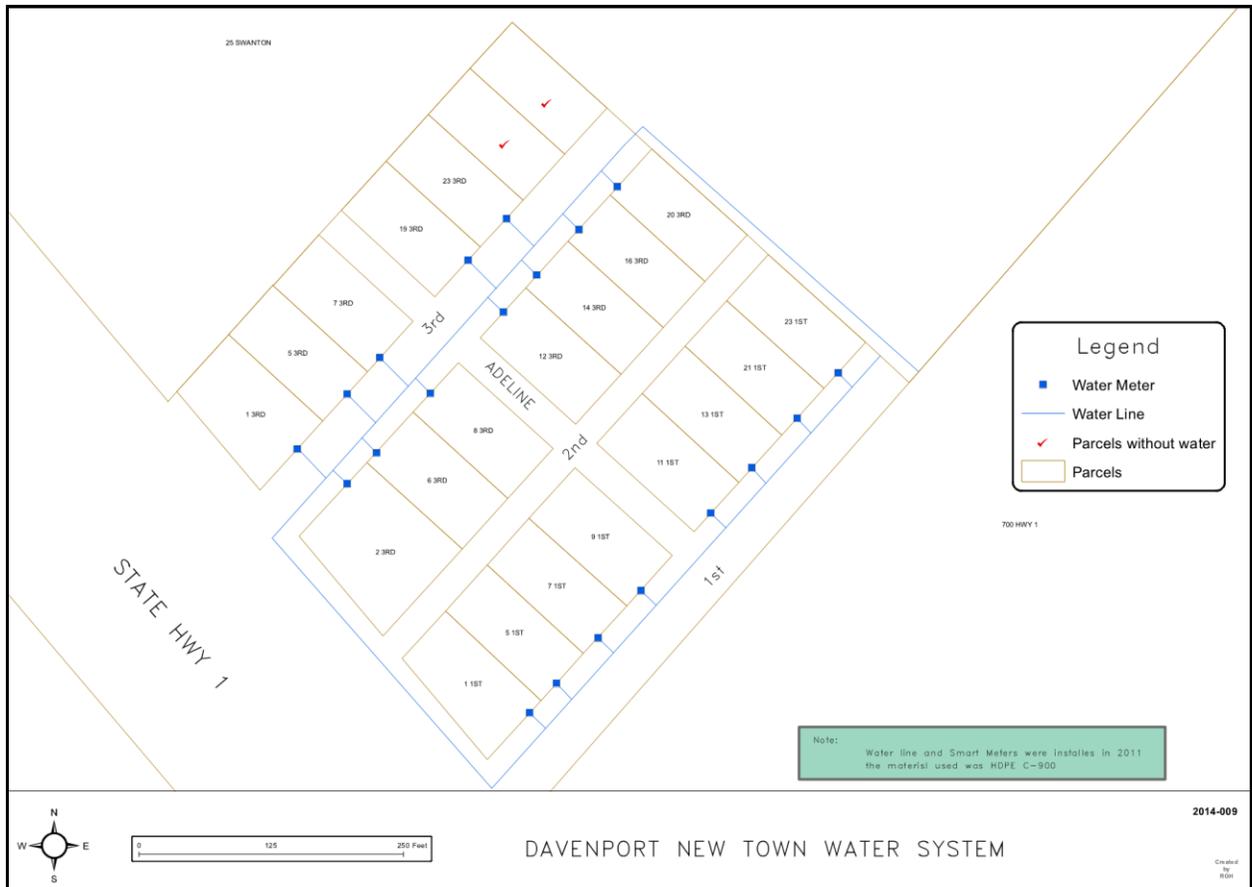


Figure 3. General Area of Old Town Davenport Leak Detection Testing



**Figure 4. General Area of New Town Davenport Leak Detection**

## SMOKE TESTING METHODS AND PROCEDURES

### General

Smoke testing involves forcing non-toxic smoke-filled air into sanitary sewer lines. The smoke exits through openings into the sewer system, such as manholes, building roof vents, and defects. Defects include catch basins, cross-connections from storm sewers, roof downspouts, basements, yard and foundation drains, all of which may contribute to storm water inflow. Smoke may also locate defects in the pipe or laterals, following a path from the defect and exiting at the ground surface.

A typical test setup consists of a few pipe segments with the blower at a manhole in the middle of the setups. Plugs can be placed in the sewer lines to confine the smoke to certain pipe segments in the event that the smoke spreads too far and appears to be thin. By choosing manholes with only one inlet and outlet, the smoke test crew is typically able to obtain sufficient smoke density without placing plugs.

As long as openings exist for the smoke to flow, smoke tests are effective regardless of surface type, soil characteristics and depth of sewer lines. The best results are obtained in dry weather because it

provides the best opportunity for smoke to pass through the ground if there are cracked or broken pipes, as well as minimum flow in the sewers. Surcharged conditions, siphons, and traps prevent the passage of smoke.

The smoke testing crew walks the area being tested and looks for smoke exiting from defects, referred to as “smoke returns.” Observed smoke returns are then documented and photographed. Limitations such as lighting conditions and access to private property can preclude the smoke test crew from finding all sources of smoke. The test crew did not enter private property without permission from the property owner.

### Equipment

Smoke is forced into the sewer line using a smoke test blower (Figure 5). The smoke test blower provides a high volume of air at low pressure and quickly fills the entire sewer segment being tested.

The smoke used in smoke testing is similar to theatrical smoke and is non-toxic. Smoke can be generated by smoke candles or by a fluid system. Smoke candles are similar to smoke bombs used for special effects and produce a dense white smoke, burning for about 2 to 3 minutes. The fluid smoke system uses a pressurized canister to spray refined petroleum oil through a nozzle into the exhaust manifold of the blower, where it is heated and turns into smoke. The fluid system is easier to operate than candles and can operate indefinitely, but under some circumstances the fluid smoke may be slightly less visible. Both fluid and candles were used in these tests and performed equally well.



**Figure 5. Smoke Blower with Fluid Sprayer**

### Lmic Electronic Acoustic Leak Detection

The Lmic (Figure 6) is an easy-to-use, electronic listening stick and ground microphone combined. It is ideal for general leak sounding operations and can be fitted with either a tripod foot (for use as a ground microphone) or probe rods (for sounding at fittings or in soft ground). The control unit is hand-held with a ‘trigger’ operation and a volume/sensitivity control. This lightweight unit can be used to confirm the position of underground leaks audibly from ground level. Sound pipe fittings penetrate soft ground to listen for leaks and carry out traditional acoustic surveys.



**Figure 6. Lmic Listening Device**

## **Advance Notice**

Due to the potential for public confusion and alarm, representatives of the Town of Davenport distributed notices in advance of the testing to inform residents in the smoke testing areas. The notices were distributed by hanging notices on doorknobs at the houses in the vicinity of the smoke testing.

The advance notices provided an overview of the testing and informed residents of what to expect in both English and Spanish. Residents were advised to fill all of their drain traps with water prior to the testing to prevent smoke from entering their houses. In the event that smoke did enter the house, the resident was advised to open windows and allow the smoke to dissipate to reduce any chance of respiratory irritation. Old Town Davenport provided contact information on the notices to allow residents to communicate any additional questions or concerns.

## **Inflow Severity Ratings**

The smoke sources were rated according to their potential inflow severity, not necessarily the magnitude of smoke observed. Rating classifications were light, moderate, or severe. These ratings primarily take into account the size of the opening to the sanitary sewer and the potential amount of runoff collected by the defect. For example, smoke returns such as cleanouts extending above grade were rated as light because there is little direct inflow potential unless flooding occurs. Conversely, cleanouts located below grade, in significantly damaged cleanouts, and in cleanouts with caps missing were typically rated as severe due to the greater inflow potential.

## **Smoke Test Locations**

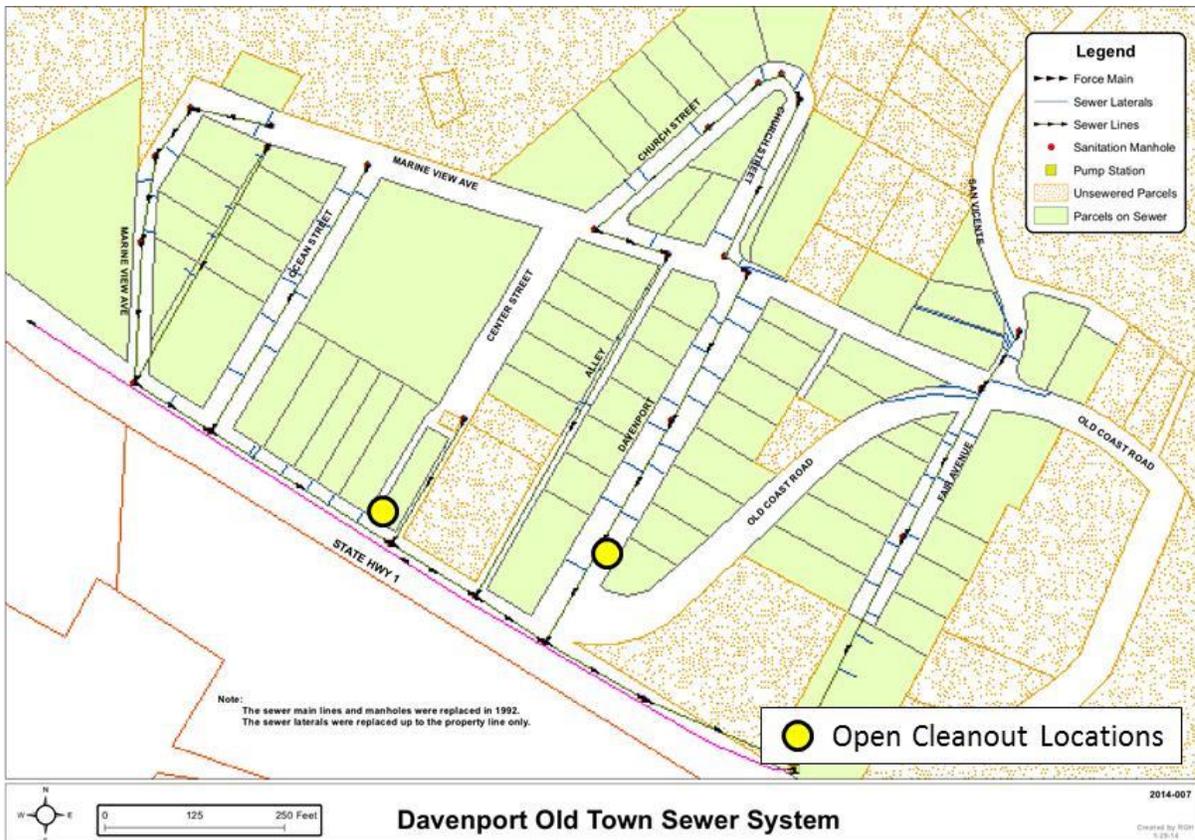
Due to the small pipe diameters in the Old Town Davenport sewer system (10 to 12 inches), the smoke from the blower was able to cover large amounts of ground. The set-up locations were decided based on the crew's discretion. The crew observed how far the smoke reached by watching the building vent stacks and made sure to perform an additional setup to test any segments with insufficient coverage. The smoke set-up locations are shown in Figure A-1 in Appendix A.

## FINDINGS

Two smoke returns were found. This total does not include backflow preventers that issued smoke; backflow preventers are unlikely to be a source of inflow. Smoke returns were classified as “Severe”, “Moderate” or “Light” per the potential for inflow or infiltration into the collection system. The types and severity of the smoke returns found are summarized in Table 2. Figure 7 shows a map summarizing the smoke returns observed within the smoke tested area.

**Table 2. Summary of Smoke Returns**

Type of Return	Light	Moderate	Severe	Total
Area Drain	-	-	-	-
Ground Surface	-	-	-	-
Manhole	-	-	-	-
Cleanout	2	-	-	2
			<b>Total</b>	<b>2</b>



**Figure 7. Map of Smoke Returns**

## Cleanouts

The most common smoke returns found during this project were defective cleanouts. Cleanouts were only recorded if the cap was missing or broken and there was potential for inflow. Photo 1 shows a cleanout behind Whale City Bakery. Photo 2 shows a close-up of an open cleanout behind the bakery. The severity of this is light because the small diameters of the openings would limit the amount of rainwater that can enter the sewer system. However, it is at grade which means there is a potential for rainwater to drain into it.

Photo 3 shows an open cleanout inside the lawn of a home which has the address of 10 Davenport Ave. Photo 4 shows a close-up of the open clean out inside the home. This cleanout is rated as light because it is above grade but the County should consider ways to ensure that homeowners maintain cleanouts on their property.



**Photo 1. Open cleanout behind Whale City Bakery Bar & Grill. 490 Hwy 1 Davenport, CA.**



**Photo 2. Close-up of open cleanout.**



**Photo 3. Open cleanout inside yard of home. 10 Davenport Ave.**



**Photo 4. Close-up of open cleanout inside yard of home. 10 Davenport Ave.**

## Leak Detection Findings

The leak detection was performed on the night of June 4, 2014 to early morning on June 5, 2014 in Old Town and New Town Davenport. This time frame was chosen in order to minimize background noises, such as vehicular traffic, that could impact the leak detection. The potable water meter lids were removed and the Lmic was used in order to determine the presence of any leaks. The results indicated that there were no leaks in the water system. The sounds produced by the Lmic were hollow in nature due to the fact that there was no use of water at night. A leak in the system would have produced a loud and sharp noise.

## RECOMMENDATIONS

- ❖ **Cleanouts:** Consider ways to ensure that homeowners maintain cleanouts on their property. At a minimum, missing or broken cleanout caps should be replaced. Also, homeowners in New Town Davenport should be notified on how to maintain cleanouts on their property.

APPENDIX A  
SMOKE TESTING SETUPS

### Smoke Testing Setup Locations

Setups were classified numerically by the setup number. Figure A- shows the locations of the individual smoke testing locations.

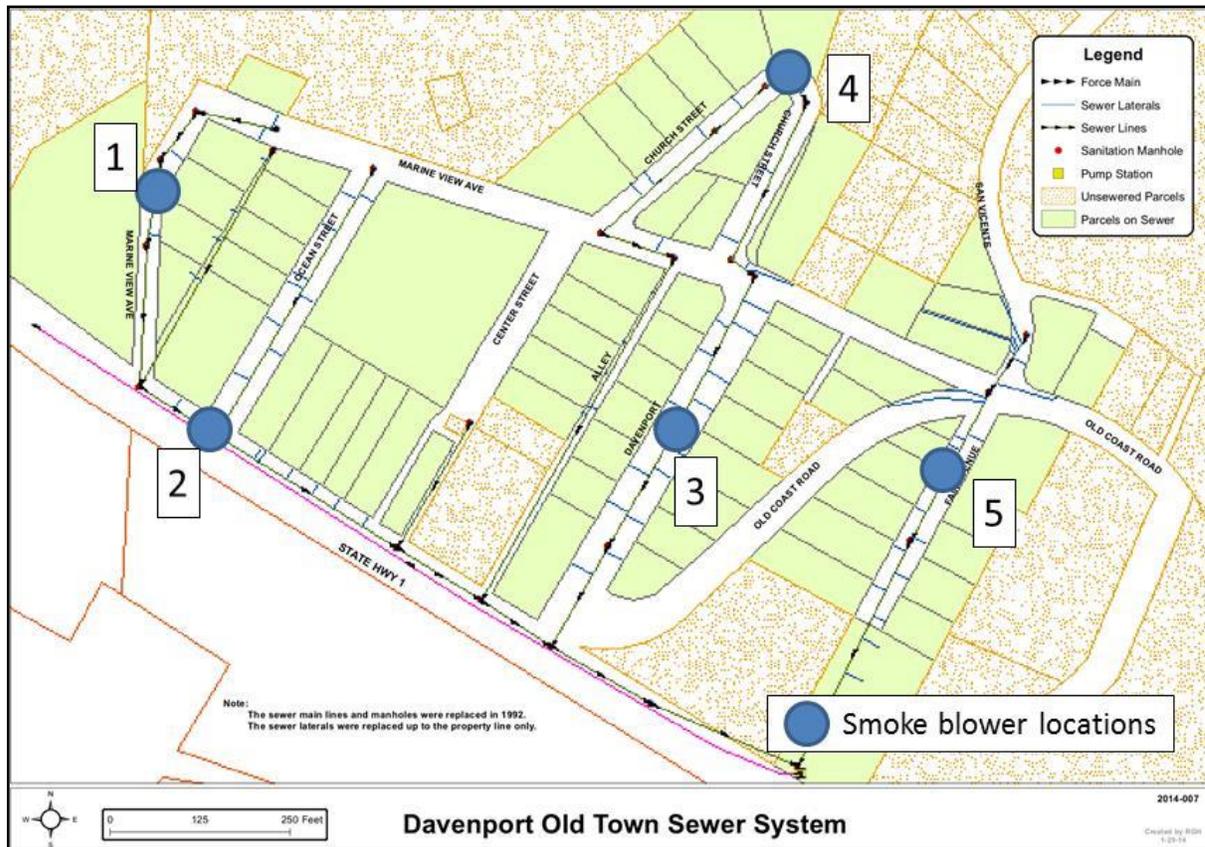
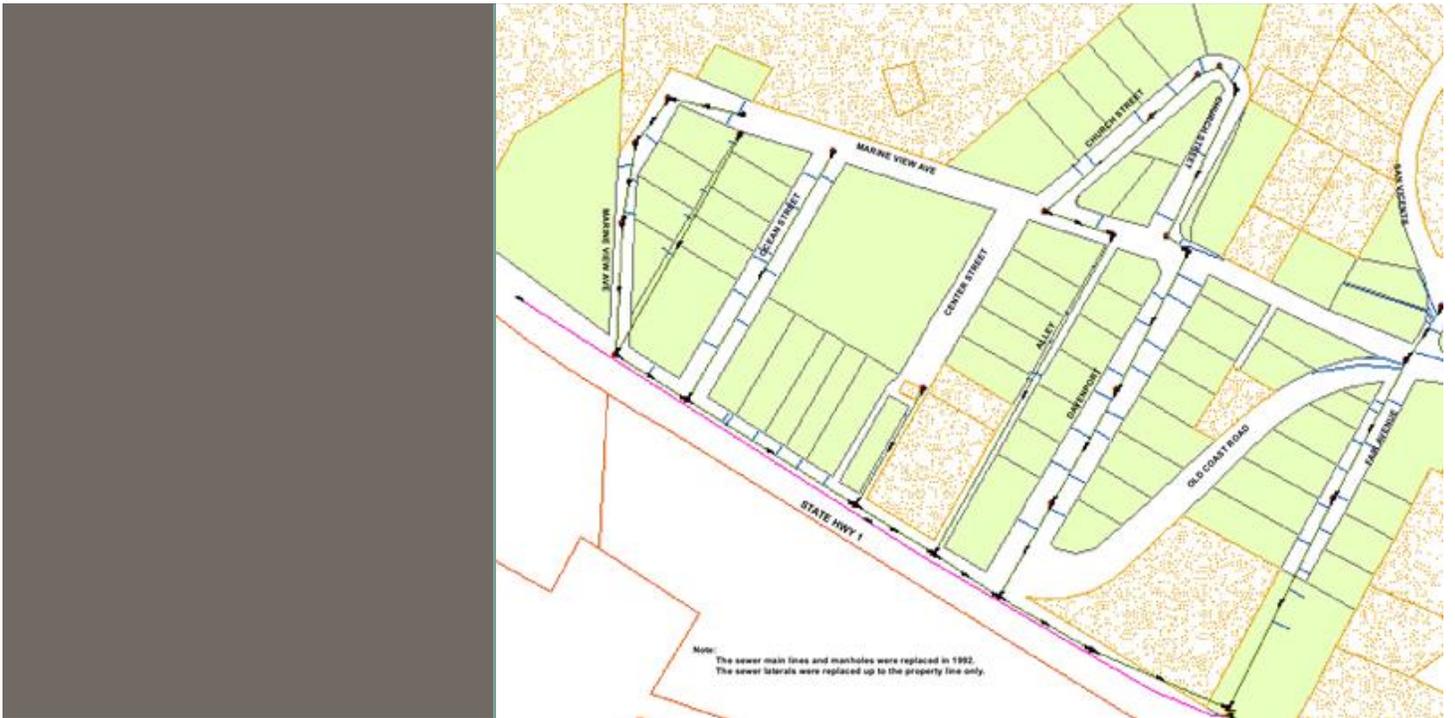


Figure A-1. Smoke Testing Locations

## APPENDIX B SMOKE RETURNS:

### CLEANOUTS

<u>No.</u>	<u>Address</u>	<u>Severity</u>
1	490 Hwy 1 Davenport, CA 95017	Light
2	10 Davenport Ave., Davenport, CA 95017	Light



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