



## SANTA CRUZ MID-COUNTY GROUNDWATER AGENCY

Thursday, July 19, 2018 - 6:30 p.m.

Simpkins Family Swim Center

979 17th Avenue, Santa Cruz, California

### JOINT MEETING OF THE BOARD AND THE GROUNDWATER SUSTAINABILITY PLAN ADVISORY COMMITTEE

#### AGENDA

1. **Call to Order**
2. **Roll Call**
3. **Elections (Pg. 4)**
  - 3.1 Elections for Chair, Vice Chair, and Secretary
4. **Oral Communications** - Community members may address matters not on the agenda and within the purview of the Agency. Guidelines are attached.
5. **Consent Agenda (Pg. 6)**
  - 5.1 Approve Minutes from May 17, 2018 Board Meeting (No Memo)
  - 5.2 Approve Assignment of Hydrometrics Contract to Montgomery & Associates and Approve Related Contract Modifications
  - 5.3 Approve Establishment of E-mail Accounts and Usage Guidelines
  - 5.4 Approve Communications and Engagement Plan
  - 5.5 Accept Treasurer's Report
6. **Informational Updates**
  - 6.1 Staff Reports (time permitting)
7. **7:00pm - Welcome and Roll Call of the Groundwater Sustainability Plan Advisory Committee**
8. **Potential Projects and Concepts to Support Recovery and Sustainability of the Santa Cruz Mid-County Groundwater Basin (Pg. 42)**
  - 8.1 Informational Presentation Summarizing Potential Projects and Concepts to Support Recovery and Sustainability of the Santa Cruz Mid-County Groundwater Basin
    - Overview of historical work (John Ricker, County of Santa Cruz)
    - Overview of current work (Rosemary Menard, City of Santa Cruz; Ron Duncan, Soquel Creek Water District)
    - Process and relation to the Groundwater Sustainability Plan development (Rosemary Menard)
    - Public input on projects and concepts

- Board discussion

**9. Future Agenda Items**

**10. Written Communications and Submitted Materials (Pg. 69)**

- 10.1 E-mail communication from B. Steinbruner, May 18, 2018, and response
- 10.2 E-mail communication from B. Steinbruner, June 17, 2018, and response
- 10.3 Materials from S. McGilvray submitted to the MGA Board on May 17, 2018

**11. Adjournment**

## **Guidance for Public Input during MGA Board Meetings**

All information furnished to the MGA Board of Directors with this agenda is provided on the MGA website located here: <http://www.midcountygroundwater.org/committee-meetings>.

### **Submittal of Written Correspondence and Informational Materials**

Submittal of written correspondence and/or informational materials (e.g., handouts) must be received by 5:00 pm on the Monday of the week prior to the scheduled board meeting (10 days prior to the meeting) to be included in the meeting materials for board review (commonly referred to as the board packet). Due to holidays and other factors there may be instances when even the above deadline is not adequate. Submittals received after the deadline but prior to the start of the board meeting will be included in the meeting materials for the next board meeting. Submittals received after the deadline may not have time to reach board members or be read by them prior to the consideration of an item. Materials may also be submitted in-person immediately preceding the start of a board meeting by giving those materials directly to the Board Chair. Organized groups wishing to make a presentation are asked to contact Darcy Pruitt at [dpruitt@cfsc.org](mailto:dpruitt@cfsc.org) or 831.662.2052 prior to the board meeting. Soquel Creek Water District serves as the designated administrative headquarters of the MGA. Written correspondence and materials may be directed to: Santa Cruz Mid-County Groundwater Agency, c/o Soquel Creek Water District, Attention: Karen Reese, 5180 Soquel Drive, Soquel, CA 95073.

### **Public Comments**

#### **Non-Agenda Items**

At the outset of the meeting during the time set aside for public comment, members of the public can comment on any item not on the agenda as long as it is related to the subject matter of the MGA. Each speaker will be limited to a single presentation of up to three minutes. The maximum time set aside for public comment will be 15 minutes total for all speakers. Time limits may be increased or decreased at the Board Chair's discretion. Those wishing to speak should come to the front of the room and be recognized by the Board Chair. Speakers must address the entire board: dialogue will not be permitted either between speakers and board members or amongst board members.

#### **Items on the Agenda**

Comments may also be given during the remainder of the meeting pertaining to each agenda item. For items listed on the agenda, the board will deliberate and take action after speakers have concluded their remarks. Each speaker will be limited to up to three minutes per agenda item. The maximum time set aside for public comment will be 15 minutes total for all speakers. Time limits may be increased or decreased at the Board Chair's discretion. Additional comments may be given at the Board Chair's discretion related to specific items listed on the agenda. Additional public comment will not be allowed during the board's deliberation unless the Board Chair specifically calls on someone in the audience.

#### **Disability Access**

The meeting room is wheelchair accessible. Please contact Darcy Pruitt at [dpruitt@cfsc.org](mailto:dpruitt@cfsc.org) or 831.662.2052 if you need assistance in order to participate in a public meeting or if you need the agenda and public documents modified as required by Section 202 of the Americans with Disabilities Act.

July 19, 2018

**MEMO TO THE MGA BOARD OF DIRECTORS AND MEMBERS OF THE  
GROUNDWATER SUSTAINABILITY PLAN ADVISORY COMMITTEE**

Subject: Agenda Item 8.1

Title: Informational Presentation Summarizing Potential Projects and  
Concepts to Support Recovery and Sustainability of the Santa Cruz  
Mid-County Groundwater Basin

Attachments:

Attachment A – Collaborative Plans and Processes (Historical Context)  
Attachment B – Working Draft/Water Supply Augmentation Options  
for the Santa Cruz Mid-County Groundwater Basin

**INTRODUCTION:** During the Mid-County Groundwater Agency (MGA) and Groundwater Sustainability Plan Advisory Committee (Advisory Committee) joint meeting on July 19, 2018, County of Santa Cruz (County) staff will present information about the history of regional water supply planning. Staff from Soquel Creek Water District (District) and City of Santa Cruz Water Department (City) will present information about the supplemental water supply projects being explored to address agency specific problems with potentially overlapping solutions. Information about the supplemental supply development efforts of the District and the City is being presented at this time because one or more of the approaches being explored, if approved and constructed, could possibly contribute to restoring the Basin.

Planned presentations include the following:

- County staff will present a historical overview of regional water supply planning;
- District staff will present information about approaches it is pursuing to prevent further seawater intrusion and replenish the Mid-County Groundwater Basin (Basin) to be sustainable; and
- City staff will present information about approaches it is pursuing to develop additional peak season supplies to improve its supply reliability during droughts, especially multi-year droughts.

Community members will also have an opportunity to present and discuss their ideas for improving water supply reliability and groundwater restoration and

sustainability during the joint session, and there will be an opportunity for Board and Advisory Committee questions and discussions.

The overall goal of the joint meeting is to familiarize the MGA Board, the Groundwater Sustainability Planning Advisory Committee and the community with the regional water management and water supply reliability information already developed for our basin. It is important to understand the history of water resources planning and management activities in the region and leverage this information in our current planning efforts. Utilizing the best of our existing knowledge and understanding our member agencies' efforts to address their individual water supply problems will improve groundwater sustainability planning for the Basin.

**BACKGROUND:** Although the Sustainable Groundwater Management Act (SGMA) was passed and signed into law in September 2014, the passage of SGMA was not the impetus for local water agencies in Santa Cruz County to work on groundwater management. Rather, local water districts dependent on groundwater have a long history of working on issues related to groundwater management that predates SGMA by decades.

The Santa Cruz Mid-County Groundwater Agency's predecessor, the Basin Implementation Group, was organized to develop and implement a local groundwater management plan under the provisions of the 1992 Groundwater Management Act (AB 3030). The founding member agencies of the Basin Implementation Group were Soquel Creek and Central Water districts. These two groundwater-dependent agencies have adjacent service areas and share resources in the Purisima/Aromas basin in what used to be called the Soquel-Aptos basin and is now called the Santa Cruz Mid-County Basin. The Basin Implementation Group oversaw the 1997 development and 2007 update of a local groundwater management plan. These plans included many elements required in the Mid-County Groundwater Sustainability Plan (GSP), including much of the Basin Setting descriptive material that will be updated and used in the upcoming GSP (see 2007 AB 3030 Plan at: <http://www.midcountygroundwater.org/sites/default/files/uploads/Groundwater%20Management%20Plan%202007%20Final%20Complete%20with%20Figures.pdf>).

The region's long history of groundwater planning and management activities indicates that the Mid-County Basin's historic overdraft and the Basin's vulnerability to seawater intrusion have been long understood and steps have been taken to both reduce pumping and move some municipal pumping inland to help maintain water levels at the coast. These actions have helped stabilize the Basin and provided the opportunity for local water agencies to undertake work to evaluate supplemental supply options.

In addition to the groundwater planning and management work of the Basin Implementation Group, both the City and Santa Cruz County have a long history of involvement in a broader range of water resources planning efforts and stretches back more than 60 years. Attachment A, Collaborative Plans and Processes, summarizes the long history of local water resources planning that end with the most recent efforts of both the District and the City.

**SUMMARY OF MGA MEMBER AGENCY CURRENT ACTIVITIES:**

Attachment B is a table summarizing the current water conservation programs and supplemental supply planning work of the MGA's member agencies: Central Water District, Soquel Creek Water District, City of Santa Cruz and Santa Cruz County. In addition to the supplemental supply planning efforts of the District and the City, Attachment B summarizes all the recent water supply and resource management and planning efforts being undertaken by the MGA's member agencies.

The table is arranged by potential source of supply and includes a summary of the water conservation activities of all the MGA's member agencies. These programs and the strong local commitment to efficient water use by members of our community have resulted in per capita water use regionally that is among the lowest in the state.

Another example of a MGA member agency's water resource management effort that is not directly related to supplemental supply is the County's managed groundwater recharge projects using stormwater runoff, which are designed to help reestablish groundwater recharge in developed areas such as Live Oak, which can also contribute to Basin recovery and to improved stream flows.

**SUPPLEMENTAL SUPPLY PLANNING EFFORTS BY THE DISTRICT AND THE CITY:** Building on a very long history of planning work, the City and the District are currently focusing in on very specific supply options that have been developed after thorough and highly public reviews of dozens of supplemental supply options that considered multiple approaches to make use of relatively limited local water resources which include surface water, groundwater, or purified wastewater or seawater.

The needs driving the supplemental supply planning efforts of Soquel Creek and Santa Cruz are different, but some of the options being explored by the two agencies overlap and could contribute in different ways to addressing the needs of both agencies.

Soquel Creek Water District is undertaking evaluation of new supplies to address the threat of seawater contamination reaching its municipal production wells in aquifers shared by others (private pumpers) that are also at-risk. In 2015, Soquel

Creek Water District completed its Community Water Plan identifying approaches it would pursue to address the threat of seawater intrusion and to contribute to the restoration of the Santa Cruz Mid-County Groundwater Basin as required by SGMA (see <https://www.soquelcreekwater.org/cwp>). The Community Water Plan identifies four supply options that the District is evaluating:

- Pure Water Soquel, a groundwater replenishment and seawater intrusion prevention project using purified water;
- Purchase of surface water (or participate in transfers) from the City of Santa Cruz's treated surface water sources;
- Purchase of desalinated water from Deep Water Desalination, a proposed privately developed project in Moss Landing; and
- Small-scale stormwater capture project for detention and groundwater replenishment.

The recent "critically over-drafted" designation applied by the state to the Santa Cruz Mid-County Groundwater Basin and the results of the innovative SkyTEM mapping data that confirmed seawater intrusion close to the entire coastline of the Basin have reinforced the finding that past groundwater management efforts were prudent but inadequate.

Supplemental supply planning efforts by the City are focused on improving the reliability of its largely surface water supplies. The City's system has limited storage and is vulnerable to droughts that can result in limited supply after even one dry winter.

In November, 2015, the Santa Cruz City Council approved and adopted the recommendations of the Council's Water Supply Advisory Committee (WSAC). The WSAC recommended that the City conduct detailed feasibility analyses on three supply alternatives to develop additional peak season supplies that improve its supply reliability during droughts, especially multiple-year droughts:

- Winter Harvest of Surface Water in which wet season flows would be captured and stored through either passive recharge by providing in-lieu supply to regional groundwater agencies such as Soquel Creek, Scotts Valley or San Lorenzo Valley water districts, or active recharge through aquifer storage and recovery facilities located in regional aquifers;
- Advanced treated recycled water to be used as a source for groundwater replenishment, surface water augmentation or, if or when regulations provide a framework to do so, direct potable reuse; or
- Seawater Desalination.

To review the WSAC's Final Report on Agreements and Recommendations see <http://www.santacruzwatersupply.com/meeting/wsac-final-reportrecommendation-appendices>.

**RELATIONSHIP OF SUPPLEMENTAL SUPPLY PLANNING TO GROUNDWATER SUSTAINABILITY PLAN DEVELOPMENT:** A major requirement of a GSP is that it identifies projects and management actions that will be implemented to achieve sustainability in the Basin by 2040. Supplemental water supply projects, when developed, would also increase water security in an uncertain climate future projected to reduce natural groundwater recharge.

Figure 1 below shows the relationships of the major elements of the GSP and provides perspective on the way that information about programs, projects and management actions will be used to establish and refine approaches to bring the Basin into sustainability.

**Figure 1**  
**RELATIONSHIPS OF GROUNDWATER SUSTAINABILITY PLAN ELEMENTS**

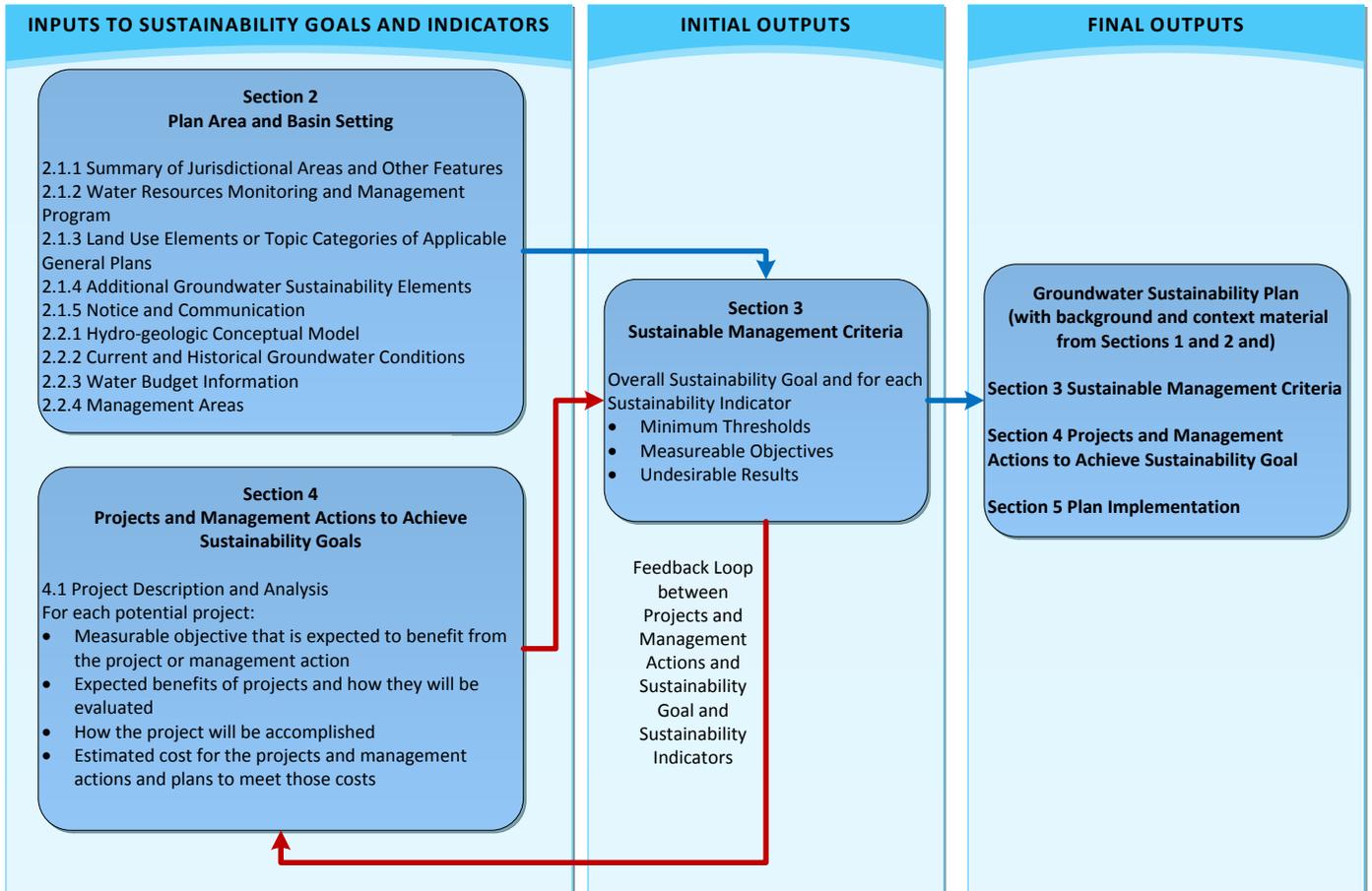
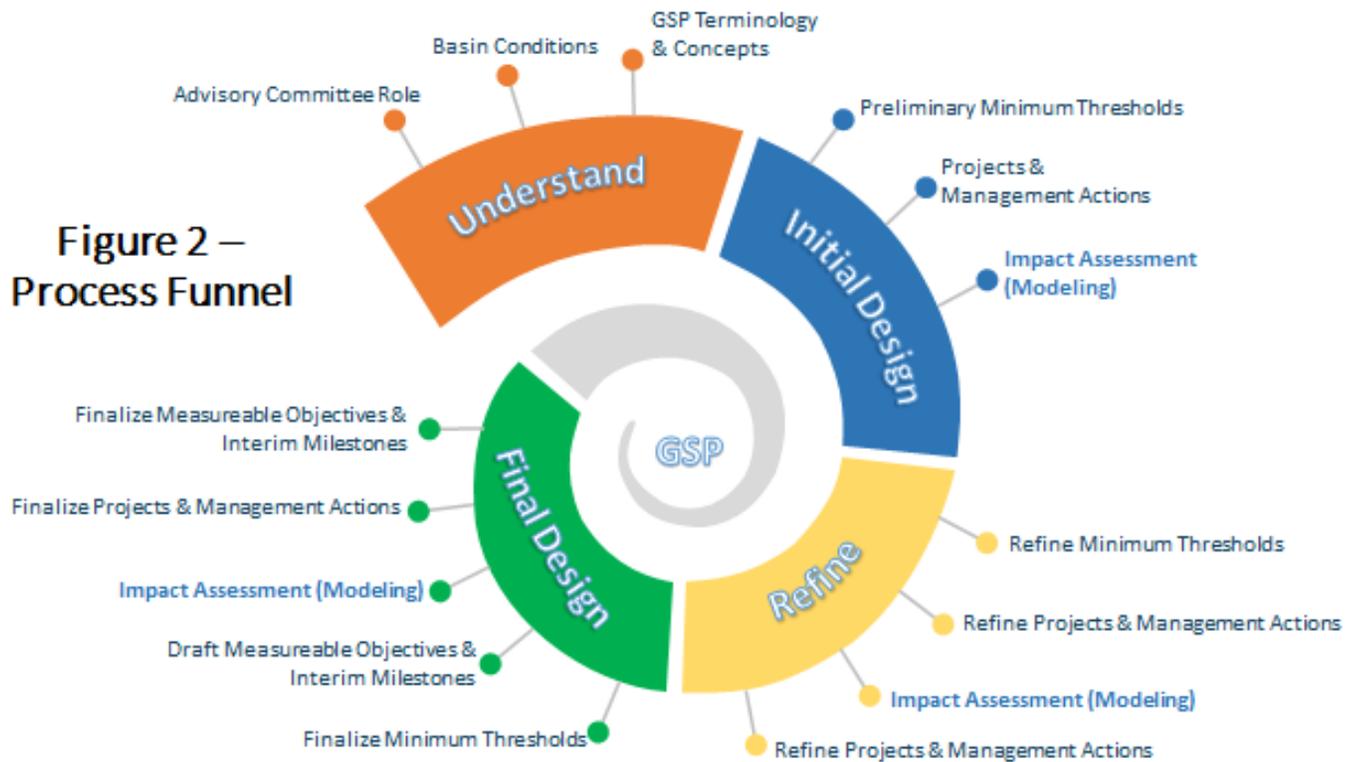


Figure 2, the Process Funnel graphic below is another way of presenting the iterative approach that the GSP planning process will follow as it considers how various management actions and projects can contribute to bringing the Basin into sustainability over time.



Both figures show that projects and management actions are necessary parts of creating a Groundwater Sustainability Plan for an over-drafted basin such as the Santa Cruz Mid-County Basin. Specifically, in a critically over-drafted basin such as the Mid-County Basin, it is not likely possible to achieve sustainability within the 20 year time frame without implementation of some combination of management actions and projects, which in this case would likely include supplemental water supplies. As noted earlier in this memo, the District and City have already implemented a number of management actions that have stabilized the Basin. Examples include reducing demand through water conservation efforts and moving pumping inland to reduce the potential for salt water intrusion to affect municipal wells closer to the coast. It is expected that groundwater modeling will indicate that it is not feasible to continuously meet the various sustainability indicators' minimum thresholds without providing additional sources of water supply to offset some ongoing demand on groundwater resources. Thus, additional management actions and projects will need to be identified, evaluated and incorporated into the GSP for it to meet the regulatory requirements the state has established for these plans.

During the last six months, the Advisory Committee has worked through the initial design phase of the Process Funnel and has identified preliminary minimum thresholds for the key Sustainability Criteria. Using the opportunity of the joint

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meeting to familiarize Board and Advisory Committee members with current work on potential projects and management actions is an important next step in the process of developing a GSP for the Basin.



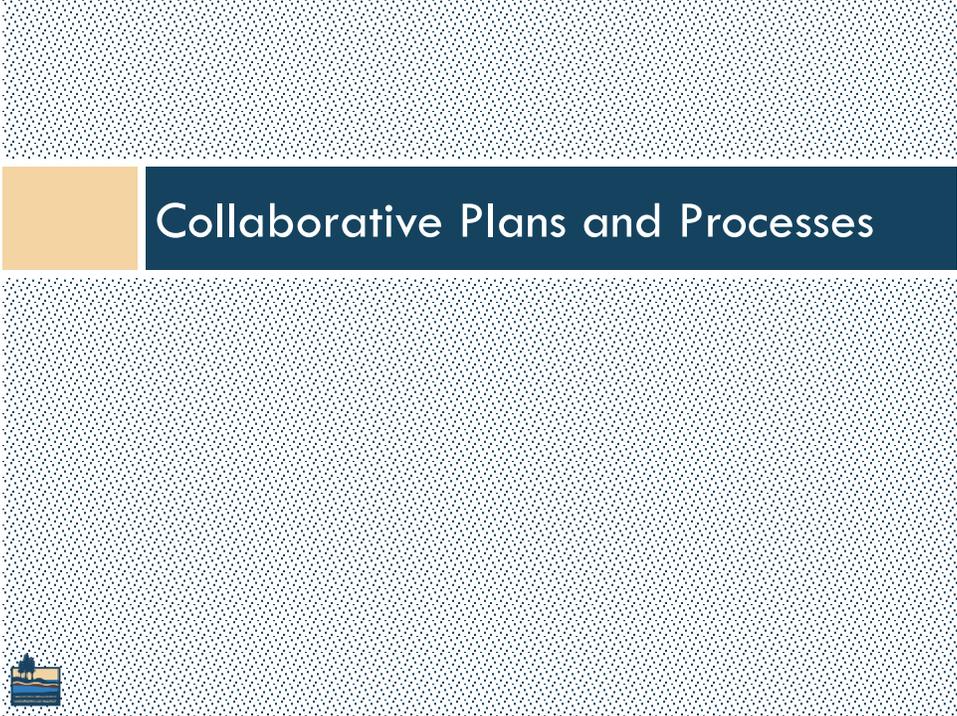
By

\_\_\_\_\_  
Rosemary Menard, Director  
City of Santa Cruz Water Department

Attachments:

Attachment A – Collaborative Plans and Processes (Historical Context)

Attachment B – July 2018 Table of Sources and Options



## Collaborative Plans and Processes



### Regional Water Supply Planning



- The County and local water agencies have worked together and independently on regional water supply planning since the 1950's. Generally Speaking:
  - Early studies focused on surface water storage.
  - Later studies acknowledge the need for water conservation and the development of supplemental water supplies.
- Recycled water and desalination projects were first introduced locally in the 1960s.



## 1957 Report on Santa Cruz County Master Plan of Water Development

- In 1957 the County of Santa Cruz Master Plan for Water Development identified these problems:
  - ▣ Water supplies for the City of Santa Cruz were only adequate in average or better rain years.
  - ▣ There were no water storage reservoirs.
  - ▣ The Pajaro Valley had a critical groundwater overdraft conditions.
    - The Master Plan recommended future planning for the Pajaro Valley area be considered separately from the rest of the County.
  - ▣ Basic data collection on rainfall, stream flow, and groundwater fluctuations throughout the County was inadequate.

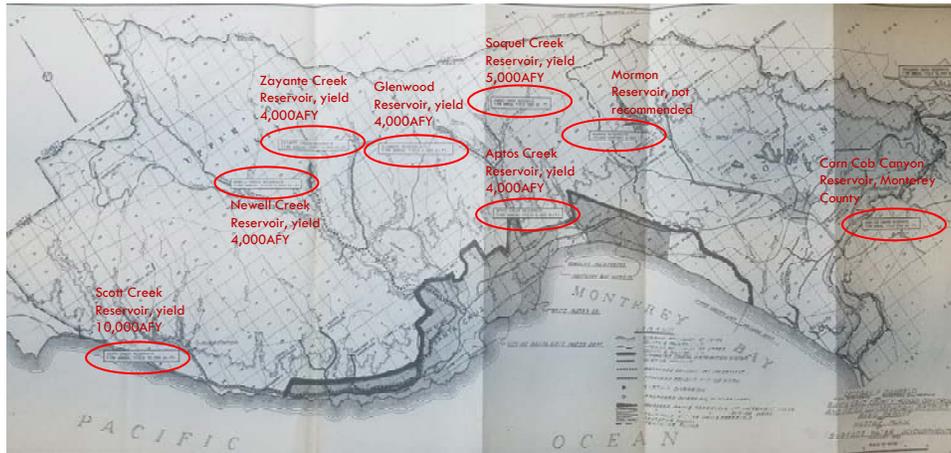


## 1957 Report on Santa Cruz County Master Plan of Water Development

- Suggested 6 storage reservoirs throughout the County:
  - ▣ Newell Creek (later dammed to create Loch Lomond)
  - ▣ Zayante Creek
  - ▣ Glenwood
  - ▣ Upper Soquel
  - ▣ Aptos
  - ▣ Scott Creek
- Suggested studying seawater intrusion in the Pajaro, which was already happening in the shallow aquifers, to protect the deeper aquifers and surface water sources.
- 1957 Master Plan gave no consideration to stream flows needed to support local fish life cycles.



## 6 Santa Cruz County Reservoirs Suggested in 1957 Report



## 1968 USGS Hydrogeologic Study of the Soquel-Aptos Area

- 1968 USGS Hydrogeologic Study developed in conjunction with Soquel Creek Water District, Santa Cruz County, and City of Santa Cruz.
- Intended to develop regional groundwater sources.
  - Considered the first definitive work on groundwater in the Soquel-Aptos area.
  - Identified the Purisima Formation as the predominant geologic unit, and subunits B and C as aquifers capable of producing large quantities of water.
  - Authors concluded the position of the saltwater wedge, though not onshore at that time, had likely moved landward because of groundwater pumping.
  - The risk of seawater intrusion is mentioned as the principle problem in the area.



## 1968 USGS Hydrogeologic Study of the Soquel-Aptos Area (Continued)

HYDROGEOLOGY

Table 3.--Pumping-water levels in selected wells near the coast

Well number	: Distance : from coast : (ft)	: Discharge : (gpm)	: Water-surface : altitude below : m.s.l. (ft)
11S/1W-11L1	3,800	700-800	10
11S/1W-11N1	2,000	400	10-20
11S/1W-13G1	1,000	95-230	50-60
11S/1W-15L1 and -15L2 <sup>1</sup>	1,000	300-600	20-40
11S/1E-18F1	2,700	780	150
11S/1E-20E1	1,000	210-240	10-20
11S/1E-20G1	3,200	430-445	20

<sup>1</sup>11S/1W-15L1 is within 100 feet of 11S/1W-15L2.



## County Water Advisory Commission

- Established to Develop County Water Master Plan
  - Regional Water Advisory Commission.
  - Originally composed of all water management agencies in Santa Cruz County.
  - Included one member of the public.
- During the 1960's the Commission oversaw development of 1968 County Water Master Plan.
  - 1968 Master Plan built upon recommendations suggested in 1957 County Report on Water Development.



## City of Santa Cruz Projects

- 1948–City of Santa Cruz Water Commission established.
- 1960s–Newell Creek Dam Completed to form Loch Lomond Reservoir; Graham Hill Water Treatment Plant (GHWTP) constructed (1960) and expanded (1968); Newell Creek Pipeline constructed to deliver water from Loch Lomond to GHWTP; Acquisition of Zayante watershed land; Purchase of Beltz Water company.
- 1970s–Felton Diversion Station completed to increase rainy season water diversions from the San Lorenzo River to Loch Lomond Reservoir.



## 1968 County Water Master Plan

- County Water Master Plan projected and planned water supply and demand through 2020.
  - Built on the 1957 report.
- Demand forecasts projected significant population growth.
  - Projections did not include significant water conservation or water efficiency improvements as an offset to forecasted demand.
- In addition to surface water reservoirs and increased groundwater pumping, the Master Plan identified:
  - 17,000 AFY of San Felipe imported water to be available by 1977.
  - 17,000 AFY of Waste Water Reclamation available by 2020 in Santa Cruz and 5,000 AFY for Watsonville.
  - Desalted seawater was also recommended but at the time the technology was too new to be reliable.



## 1968 County Water Master Plan

Table S-1

SUMMARY OF RESIDENT POPULATION

Area	1960	1970	1980	1990	2000	2010	2020
Soquel Unit	19,200	27,000	36,500	49,000	65,000	79,000	91,000

Table S-3

TOTAL WATER REQUIREMENTS  
 (Acre Feet per Year)

Unit	Use	Year						
		1966	1970	1980	1990	2000	2010	2020
Soquel	Residential	2,870	3,230	4,500	6,100	8,000	11,000	12,700
	Commercial	490	490	1,040	1,400	1,530	1,950	2,300
	Industrial	370	370	610	850	1,080	1,200	1,300
	Agricultural	1,730	1,420	1,600	1,660	1,990	2,010	2,210
	Park and Beaches	20	20	70	90	90	90	90
	Class B Lands	-	-	-	-	-	-	-
	Subtotal	5,480	5,530	7,820	10,100	12,600	16,250	18,600



## 1971 Distilled Seawater Analysis

- 1971- Master Plan of Water Development Using Distilled Seawater for Santa Cruz City and County.
- Written to address questions raised by 1968 County Water Master Plan regarding conditions under which desalted seawater could be economically feasible.
- Analyzed desalination plant constructed near either Davenport or Moss Landing.
- Concluded a desalination plant located in Davenport that would blend water at the Graham Hill Treatment Plant was a viable option, but desalination plant development should not delay other actions in the 1968 plan.



## 1985 North Santa Cruz County Water Master Plan

- 1985 - A Joint Powers Authority prepared the North Santa Cruz County Water Master Plan.
- Observed regional opportunities to augment water supply and proposed City-only alternatives, including:
  - ▣ Develop conservation and leak control programs
  - ▣ Develop interties between water agencies
  - ▣ Develop a dam at Zayante Creek
  - ▣ Develop Scotts Vally/SLV groundwater wells
  - ▣ Develop Baldwin Creek off stream reservoir
  - ▣ Develop pump station at Majors Creek diversion
  - ▣ Develop City of Santa Cruz groundwater wells
  - ▣ Develop a dam at Glenwood



## 1989 City of Santa Cruz Master Plan

- 1989 - The Master Plan looked at water supply and water demand through 2005.
  - ▣ Determined existing supplies were adequate during all but the driest years.
  - ▣ Focused alternatives on increasing dry year yield.
  - ▣ Plan optimized existing City of Santa Cruz water supplies and those of neighboring water districts.
  - ▣ Takes into account water conservation to reduce per unit demands to nearly offset population growth.



## 1989 City of Santa Cruz Master Plan

- Recommended water supply alternatives, including:
  - Upgrades to the existing supply system
  - Increase in the Felton Diversion's capacity
  - North coast pump stations
  - Additional groundwater wells
  - Wastewater Reclamation
  - Enlarging Loch Lomond
  - Interties with Scotts Valley Water District and Soquel Creek Water District
  - A reservoir project on a small waterway either in the upper San Lorenzo River Watershed or on the North Coast



## 1994 City of Santa Cruz Water Supply Alternative Study

- The 1994 Water Supply Alternative Study was conducted to build on the City of Santa Cruz 1989 Water Master Plan.
- The study included three phases:
  - 1) Identify and reach consensus on water supply alternatives
  - 2) Screen the identified alternatives for fatal flaws
  - 3) Develop potential water supply plans.



## The BIG and SAGMC

- The Basin Implementation Group (BIG) was created to oversee management in the Soquel-Aptos area in the 1990s
- Original members were Soquel Creek Water District, and Central Water District
- Later, the City of Santa Cruz and Private Well Owners joined the group to become the Soquel-Aptos Groundwater Management Committee (SAGMC)
- In 2016, SAGMC voted to become the Groundwater Sustainability Agency (GSA) for the newly-titled Santa Cruz Mid-County Groundwater basin, and the MGA was formed to implement SGMA's state mandates.



## 2000 City of Santa Cruz Alternative Water Supply Study

- In 2000 the City's Alternative Water Supply Study evaluated ten potential water supply alternatives to increase water supplies that could not be addressed through conservation and existing supply management, especially during drought shortfalls:
  - Brackish groundwater from wells the San Lorenzo River Alluvial Plain
  - Fresh groundwater supplies from wells in the San Lorenzo River Alluvial Plain
  - Maximized use of existing sources and storage in Loch Lomond Reservoir
  - Groundwater supply near Wilder Ranch gravel quarry
  - Salt Water Desalination
  - Conjunctive Use with Soquel Creek Water District
  - Groundwater Supply from Purisima Aquifer near Beltz Wells
  - Groundwater Supply from Santa Margarita Aquifer
  - Wastewater Reclamation
  - Reservoir storage in the Olympia Quarry



## 2000 City of Santa Cruz Alternative Water Supply Study

- The City’s 2000 evaluation focused on two criteria:
  - Reliable and sustainable water supply
  - Project feasibility (cost, public acceptance and environmental considerations)
- Five of the City’s ten Alternative Water Supply Study projects made it through the City’s initial evaluation:
  - Maximized use of existing sources and storage in Loch Lomond Reservoir
  - Salt Water Desalination
  - Groundwater Supply from Purisima Aquifer near Beltz Wells
  - Groundwater Supply from Santa Margarita Aquifer
  - Wastewater Reclamation



## 2000 City of Santa Cruz Alternative Water Supply Study – Results Matrix

Alternative	Preliminary Screening <sup>(1)</sup>	Comment	Considered for Further Evaluation?
Groundwater from Santa Margarita Aquifer near Wilder Ranch	Viability is Questionable	<ul style="list-style-type: none"> <li>• Existing users present institutional constraints</li> <li>• Quantity limited; uncertain reliability during drought</li> <li>• Supply not reliable or sustainable during drought</li> </ul>	Yes <sup>(1)</sup>
Fresh Groundwater from the San Lorenzo Alluvium	Not Viable	<ul style="list-style-type: none"> <li>• Quantity limited</li> <li>• Conflict with water rights at Tait Street</li> <li>• Supply not reliable or sustainable during drought</li> </ul>	No
Brackish Groundwater from the San Lorenzo Alluvium	Not Viable	<ul style="list-style-type: none"> <li>• Fatal flaw conflict with existing water rights</li> </ul>	No
Groundwater Supply from Purisima Aquifer near Beltz/Live Oak Area	Viability is Questionable	<ul style="list-style-type: none"> <li>• Existing users present institutional constraints</li> <li>• Quantity uncertain</li> <li>• Supply not reliable or sustainable during drought</li> </ul>	Yes <sup>(2)</sup>
Groundwater Supply from Santa Margarita Aquifer Near Beltz/Live Oak Area	Viability is Questionable	<ul style="list-style-type: none"> <li>• Quantity uncertain</li> <li>• Supply not reliable or sustainable during drought</li> </ul>	Yes <sup>(2)</sup>
Conjunctive use with Soquel Creek Water District	Not Viable	<ul style="list-style-type: none"> <li>• Fatal flaw water rights constraint</li> <li>• Limited available surface water supplies</li> </ul>	No
Maximized Use of Existing sources and storage in Loch Lomond Reservoir	Potentially Viable	<ul style="list-style-type: none"> <li>• Benefit in drought and non-drought years</li> <li>• Improves system reliability and operation</li> </ul>	Yes
Desalination	Potentially Viable	<ul style="list-style-type: none"> <li>• Reliable and sustainable supply</li> <li>• Improved redundancy of supply</li> </ul>	Yes
Wastewater Reclamation	Potentially Viable	<ul style="list-style-type: none"> <li>• Net supply gain may be limited and cost high</li> </ul>	Yes
Reservoir Storage in Olympia Quarry	Not Viable	<ul style="list-style-type: none"> <li>• Numerous technical and institution issues to overcome</li> </ul>	No

Notes:

(1) Preliminary "fatal flaw" screening based on ability of supply source to provide reliable and sustainable supply during drought. Includes also consideration of implementation issues (e.g., potential conflicts with existing water rights, potential conflicts with existing users (for groundwater), etc.)

(2) Based on discussion of alternatives with Santa Cruz City Council, March 15, 2000. Several groundwater alternatives that are considered to be of questionable viability based on preliminary screening have been included for further evaluation because groundwater supply may be more feasible if combined with other supply or demand offset strategies; to be determined as part of the City's proposed Integrated Water Plan.

(3) Due to limited supply and potential conflicts with existing users, this supply alternative is considered to be most viable only if an alternative supply can be provided to existing agricultural users (i.e., reclaimed water for irrigation in exchange for City's use of groundwater; see discussion under Project P5).



## 2002- Evaluation of Regional Water Supply Alternatives

- The 2002 evaluation reports on the City of Santa Cruz's and Soquel Creek Water District's need for a new water supply to maintain service to its customers during both regular service and drought conditions.
- 2002 Evaluation further studied two of the three Water Supply Alternatives identified as “potentially viable” in the 2000 study.
  - Ocean-water Desalination, and
  - Wastewater Reclamation.
- The City continues to evaluate and implement maximizing existing water sources and Loch Lomond storage (the third “potentially viable” alternative) as well as investigate wastewater reclamation and ocean water desalination.



## 2007-2013 SCWD<sup>2</sup>

- 2007 - The SCWD<sup>2</sup> Task Force was formed between the City of Santa Cruz Water Department (City) and Soquel Creek Water District (District). Their purpose was to collaborate on desalination to conserve, protect, and create reliable water resources.
- 2008-2009 - City and District operate a desalination pilot plant.
- 2010 - City and District jointly endorse and memorialize an agreement to further evaluate and develop SCWD<sup>2</sup> desalination.
- 2012 - Measure P, passed by City voters in November's general election, amended the City Charter to require majority voter approval of all aspects of desalination project acquisition and funding.
- 2013 – The City paused its involvement in the SCWD<sup>2</sup> partnership to pursue consensus building in the Water Supply Advisory Committee based on community opposition to the desalination project. The District and City re-started efforts to develop new water supply sources.



## Integrated Regional Water Management Plan (IRWM Plan)

- Written in 2005 and updated in 2014 in response to Prop 50 funding requirements.
- IRWM Plan created a partnership among the County, water agencies, and non-profits to identify, fund, and develop water projects that improve water supply reliability and habitat restoration.
- IRWM Planning included technical studies:
  - To examine conjunctive use and water transfer projects, and
  - To update the Santa Margarita basin groundwater model.



## 2012 Soquel Creek Water District Integrated Resources Plan

- 2012 Integrated Resources Plan
  - Goal to reduce groundwater pumping to 2,900 AFY to achieve basin recovery
  - Once recovery is achieved, limit pumping to 4,000 AFY
- Additional Planning Objectives included:
  - Ongoing Conservation
  - Evaluate Recycled Water
  - Promote Groundwater Recharge
  - Redistribute Groundwater Pumping inland to reduce seawater intrusion risks
  - Prioritized SCWD<sup>2</sup> Desalination and Water Exchange Projects with the City of Santa Cruz.



## 2014 City of Santa Cruz Water Supply Advisory Committee

- In 2014, the Santa Cruz City Council established a 14-member Water Supply Advisory Committee (WSAC).
- WSAC's intended purpose was to observe long-term solutions to Santa Cruz's drought problems and prioritize ways to make the City of Santa Cruz's water supply "drought resistant."



## 2014 City of Santa Cruz Water Supply Advisory Committee

- WSAC identified three strategies that the City Water Department should pursue in order:
  - Strategy 0 - Continue Conservation,
  - Strategy One - Explore Groundwater Storage, In-Lieu Water Exchanges, and Aquifer Storage and Recovery with Soquel Creek Water District and Scotts Valley Water District, and
  - Strategy Two – Advanced Treated Recycled Water or Desalinated Water “would be developed as a supplemental or replacement supply if groundwater storage strategies...prove to be inadequate to meet the plan's goals of cost-effectiveness, timeliness or yield. If it is determined that recycled water cannot meet our needs, then desalinated water would be used.”



## Soquel Creek Water District Community Water Plan

- In 2013 and 2014 Soquel Creek Water District conducted a 13-month community engagement process
  - The purpose was to develop projects and strategies to reach water supply sustainability
- The community engagement process resulted in the District's action-oriented Community Water Plan.
- The community identified three critical water supply values:
  1. Timeliness (we must act now to secure our water supply)
  2. Water quality (meet or exceed State standards)
  3. Reliability (even during times of drought)



## Soquel Creek Water District Community Water Plan

- The Community Water Plan includes strategies and projects to pursue.
  - Save Water - Conservation
  - Manage Water – Move water production wells inland and optimize pumping
  - Develop New Projects/Water Supplies:
    - Groundwater Replenishment and Seawater Intrusion Barrier with Purified Water
    - River Water Transfers/Purchase from City of Santa Cruz
    - Desalination (from Deep Water Desal in Moss Landing)



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**Working Draft**

**Water Supply Augmentation Options for the Santa Cruz Mid-County Groundwater Basin**

<b>Source</b>	<b>Agency</b>	<b>Opportunity</b>	<b>Constraint(s)</b>	<b>Status</b>
Water Conservation	Soquel Creek Water District Program	Reduce demand through increasing the efficiency of water use by existing and future water users	The success of existing SqCWD demand management programs may limit the potential for achieving future savings.	Soquel Creek Water District's (SqCWD) 2015 Urban Water Management Plan shows an actual 2015 system wide gallons per capita per day (gpcd) of 69, with a residential gpcd of 50. The projected system wide gpcd in 2035 is estimated to be 67, with a residential gpcd of 49. New water demand is offset through the Water Demand Offset program which uses development fees for conservation projects which save approximately two times the development's expected demand.
	City of Santa Cruz Program	Reduce demand through increasing the efficiency of water use by existing and future water users	No significant constraints.	The City's 2015 Urban Water Management Plan documents the current system wide gallons per capita per day (gpcd) of 70, with a residential gpcd of 43. For 2035 the projected system wide gpcd is estimated to be 80, with a residential gpcd of 46. <sup>1</sup>
	Central Water District Program	Reduce demand through increasing the efficiency of water use by existing and future water users	No Significant Constraints	Central Water District's (CWD) water conservation program includes the following elements: <ul style="list-style-type: none"> <li>• Enforcement of an ordinance on all residential users prohibiting wasteful uses of water.</li> <li>• Participation in the Water Conservation Coalition of Santa Cruz County to provide outreach and education to residents.</li> <li>• Maintains/enforces the CWD "Drought/Water Shortage Contingency Plan"; the Plan includes Four Stages of drought response with escalating water use restrictions at each stage.</li> <li>• Provides rebate programs for installation of water efficient toilets and clothes washing machines.</li> <li>• Provides water efficient hose timers.</li> </ul>
	County of Santa Cruz Programs for Small Water Systems and Private Wells	Reduce demand through increasing the efficiency of water use by existing and future water users.	The County has no ratepayers and therefore is not able to provide rebates, relying on State rebate programs and grants to offer incentives.	The County participates in the Water Conservation Coalition of Santa Cruz County to provide outreach and education to residents. The County requires source metering and reporting of monthly usage on all public water systems with 5 or more connections. Systems with 15 or more connections are required to meter individual connections, but are not required to report individual connection usage to the County. County staff will offer well soundings to private well owners who want to see if their water levels have changed. The County's water conservation program includes the following elements: <ul style="list-style-type: none"> <li>• Enforcement of an ordinance on all residential users prohibiting wasteful uses of water.</li> <li>• Requirement for replacement of inefficient toilet and showerheads at time of property sale.</li> <li>• Implementing building code requirements for efficient fixtures for all new construction and remodels.</li> <li>• Requiring water conservation forms as part of any new well permits for wells expected to use over 2 AFY.</li> <li>• Implementing a currently grant-funded program to do water conservation assessments for of private well owner's properties.</li> </ul>

<sup>1</sup> Note – the data used to calculate gpcd for the 2015 update to the City's Urban Water Management Plan was heavily influenced by water restrictions associated with the drought. Future estimated gpcd are higher because water restrictions aren't assumed to be in place and therefore wouldn't influence the projected figures.

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**Water Supply Augmentation Options for the Santa Cruz Mid-County Groundwater Basin**

Source	Project/Program	Opportunity	Constraint(s)	Status
Surface Water	In Lieu Recharge (passive recharge) and Water Transfers	<p>Near term – now to 5 years: Provide surface water from the City’s North Coast sources to off-set part of the Soquel Creek Water District’s wet season demand to rebuild groundwater resources by eliminating or reducing pumping during some part of the year. Rebuilding groundwater resources is an important because it ultimately would create an opportunity to supply water back to the City for use as a drought supply. Without this opportunity, this Project/Program would be a Water Transfer project only.</p>	<ul style="list-style-type: none"> <li>• Volume of the City’s available water from its North Coast Sources is limited due to fish flows, although it is not constrained by water right Place of Use restrictions.</li> <li>• Water quality issues involving the mixing of treated drinking water from surface water and groundwater sources were identified and have been evaluated and full scale testing is the next step.</li> <li>• Potential volume of the District’s wet season demand that could be off-set by providing treated surface water is a limiting factor and may not provide for enough of an increase in groundwater levels within a desired time frame to address the City’s need for drought supplies.</li> </ul>	<ul style="list-style-type: none"> <li>• Soquel and the City of Santa Cruz have an existing agreement to explore a small scale in lieu exchange with an estimated volume of about 300 acre feet/year. The term of the agreement is for 5 years with a current ending date of 12/31/2020, but a time extension is feasible and has been preliminarily discussed.</li> <li>• Water Quality analyses and planning for initiation of water transfer is underway. Bench scale testing confirmed both water qualities are compatible; however, additional full scale testing and monitoring will be the next step to confirm. As per the agreement, there are several conditions that must be met for the water transfer to be permissible in any given year, drought conditions being one of them. Earliest initiation is winter of 2018/19.</li> </ul>
		<p>Long term – 5 years into the future Provide surface water from the City’s North Coast sources and the San Lorenzo River to off-set some or all of the Soquel Creek Water District’s wet season demand and rebuild groundwater resources by eliminating or reducing pumping during some part of the year. Similar to the near term project described above, rebuilding groundwater resources is an important component as it relates to the opportunity to supply water back to the City. Without this opportunity, this Project/Program would be a Water Transfer project only.</p>	<ul style="list-style-type: none"> <li>• Potential volume of wet season demand that could be off-set by providing treated surface water is a limiting factor and may not provide for restoration of the basin within a desired time frame.</li> <li>• Water rights – the Place of Use for the City of Santa Cruz surface water rights from the San Lorenzo River do not include the Soquel Creek Water District or the parts of the Santa Cruz Mid-County Groundwater Basin that are outside the City’s current water service area.</li> <li>• Current infrastructure allows about 1 to 1.5 mgd capacity – could be enlarged if determined to be cost-effective. Estimated annual capacity of existing infrastructure during could be approximately 800 acre feet during the wet season.</li> </ul>	<ul style="list-style-type: none"> <li>• The City has initiated work to modify its San Lorenzo River water rights to open up the place of use so that water from San Lorenzo River sources could be used in providing long term in lieu to the District. Estimated time for resolution – 1 to 2 years.</li> <li>• Modeling and other studies are needed to determine limitations of the City and District infrastructure and identify where improvements may be needed to convey additional water.</li> </ul>
	Aquifer Storage and Recovery (active recharge)	<p>Create an underground reservoir of stored treated surface water using available winter flows (above those required for ongoing operations, water rights, and fish flows). Stored water would provide drought supply for Santa Cruz and could be designed with additional capacity to contribute to the restoration of the Santa Cruz Mid-County Groundwater Basin and provide drought storage for Santa Cruz. (Note: An ASR project using surface water from the San Lorenzo River source to store water in the Santa Margarita Groundwater Basin is also being evaluated.)</p>	<ul style="list-style-type: none"> <li>• The technical feasibility of storing and retrieving stored water from the Santa Cruz Mid-County Groundwater Basin may be a constraint.</li> <li>• The adequacy of existing infrastructure to deliver available water to potential injection wells as well as the sizing and location of wells to extract water needed to meet Santa Cruz’s drought needs are being evaluated.</li> <li>• Availability of appropriate and available real property parcels or rights of way for the development of necessary wells and delivery infrastructure may be a constraint.</li> </ul>	<ul style="list-style-type: none"> <li>• The City of Santa Cruz is working to assess the feasibility of injecting treated drinking water from its surface water sources into regional groundwater aquifers. Phase I of the work is nearing completion; Phase II, which includes pilot testing injection in each aquifer, will begin in 2019 and be completed in 2 to 3 years.</li> <li>• Information generated by these evaluations will be used to determine the degree to which ASR is a feasible part of the City’s strategy to improve the reliability of its water supply and will be used as part of the City’s planned supplemental supply decision process in 2020..</li> </ul>
		<p><b>General Constraint for surface water options:</b></p> <ul style="list-style-type: none"> <li>• City’s need to build drought supply through a combination of passive and/or active recharge could result in significant future withdrawals from the basin that may interfere with the timeframe or even ultimate success of reaching basin recovery goals.</li> <li>• Long term reliability of surface water as a supply may be an issue if climate change results in some shift in the amount or pattern of precipitation and/or if multi-year drought conditions occur.</li> </ul>		

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**Water Supply Augmentation Options for the Santa Cruz Mid-County Groundwater Basin**

Source	Project/Program	Opportunity	Constraint(s)	Status
Storm Water	Distributed Storm Water Managed Aquifer Recharge (DSWMAR)	Where feasible, install small to medium scale (10 acre feet/year up to 1000 acre feet/year/site) facilities to capture storm water and recharge more shallow zones of aquifers through surface spreading and/or constructed dry wells. <sup>2</sup>	<ul style="list-style-type: none"> <li>The scale of recharge DSWMAR may be a constraint to achieving timely recharge of the Mid-County Basin.</li> <li>Topographic, ground cover and local vegetation, and surface and sub-surface geology/hydrogeology can provide significant constraints for siting DSWMAR.</li> <li>DSWMAR introduces water to the upper levels of aquifers and most drinking water production draws from deeper levels. Depending on the configuration of aquifers, DSWMAR may never reach the aquifers drinking water is being drawn from.</li> </ul>	<ul style="list-style-type: none"> <li>UCSC Professor Andrew Fisher has initiated work on this approach working with land owners in the Pajaro Valley Water Management Agency on several surface spreading projects and has good data about the effectiveness of this approach given the right surface and subsurface hydro-geologic conditions.</li> <li>Santa Cruz County has installed dry wells to capture and recharge storm water in Live Oak and Aptos.</li> <li>Soquel Creek Water District and the County of Santa Cruz partnered to identify potential sites and conducted geophysical surveys (using DualEM technology) of eight potential sites to assess recharge suitability. Results indicate that three sites warrant further evaluation. HydroMetrics calculated stormwater runoff volume estimates and evaluated infiltration rates and recharge to the aquifer at these three sites.</li> </ul>
Recycled Waste-water	Non-Potable Reuse (NPR)	Off-set peak season irrigation demand by replacing use of treated drinking water with treated wastewater	<ul style="list-style-type: none"> <li>Existing infrastructure does not allow for the distribution of NPR, so new infrastructure would be required to develop this alternative.</li> <li>Peak season irrigation demand is time limited (typically no more than 4 to 6 months) and there are relatively few concentrated centers of irrigation demand that would allow for the cost of distribution infrastructure to be spread across a large enough rate base to make NPR a cost-effective alternative for the user.</li> <li>Active water conservation programs in both the Soquel Creek and Santa Cruz water service areas are targeting irrigation demand and working to reduce this demand through incentive programs, making an effort to produce a new product to replace existing potable demand likely to be even less effective over time.</li> <li>The Santa Cruz Wastewater Treatment Facility currently does not treat the majority of the wastewater it receives to the treatment standard required for non-potable reuse. Expansion of the plants facilities to treat additional water to a tertiary level is under consideration, and at least a partial expansion is planned.</li> </ul>	<ul style="list-style-type: none"> <li>As part of the implementation of the Water Supply Advisory Committee's recommendations, the City of Santa Cruz has completed an evaluation of a whole range of opportunities for greater future utilization of recycled water in its water service area including an evaluation of opportunities for NPR use, IPR and DPR as described below. As a next step, the City will evaluate several recycled water projects in more detail, and do a comparative analysis with ASR, In lieu and desalination, as per the WSAC recommendations.</li> <li>Soquel Creek Water District has completed two feasibility studies evaluating NPR; including a market study evaluation of potential irrigation demands as well as a satellite reclamation facility to offset groundwater pumping of Seascope Golf Course.</li> </ul>

<sup>2</sup> see further information at <http://www.cityofsantacruz.com/home/showdocument?id=46143>

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**Water Supply Augmentation Options for the Santa Cruz Mid-County Groundwater Basin**

Source	Project/Program	Opportunity	Constraint(s)	Status
Recycled Waste-water	Indirect Potable Reuse (IPR) – Groundwater Augmentation (the <b>Pure Water Soquel</b> project is an example of this approach)	<p>Provide advanced purification (AWP) to existing secondary- treated wastewater effluent that is currently being sent out into the Monterey Bay National Marine Sanctuary and store purified water into the aquifer to ultimately mix with native groundwater and contribute to the restoration of the groundwater basin, provide a barrier to seawater intrusion, and provide a sustainable source of supply.</p> <p>The National Water Research Institute (NWRI) was brought on by SqCWD as an independent panel to evaluate their proposed project’s evaluation and “The Panel concludes that the Project is plausible, feasible, and protective of public health, with respect to the following elements: quality of the source water that would be provided by the SCWWTF and use of proven advanced treatment technologies to produce water that meets all drinking water requirements and is protective of public health and the environment.” -NWRI Report (Dec. 2017)</p>	<ul style="list-style-type: none"> <li>• In general there are few technological constraints of this approach. The treatment techniques and processes used to produce drinking water from this supply source have a proven track record of performance and are already widely in use in California and elsewhere.</li> <li>• To the degree that there are constraints, they are more likely to be potential perception that there are public health issues associated with using waste water as a source; as many people don’t realize that the water quality of purified water is cleaner than existing groundwater and surface water that goes through only conventional filtration.</li> </ul>	<ul style="list-style-type: none"> <li>• As part of the implementation of the Water Supply Advisory Committee’s recommendations, the City of Santa Cruz has completed an evaluation of a whole range of opportunities for greater future utilization of recycled water in its water service area.</li> <li>• The Soquel Creek Water District is in Year 4 of its evaluation of an IPR project and has been coordinating with the City of Santa Cruz (City Manager, Public Works, and Water Departments) regarding the secondary treated wastewater that would be used as the source water for this project.</li> <li>• The draft EIR was released in July 2018 and the District has received over \$2M in planning grants from the State Water Resources Control Board and a \$150,000 planning grant from the US Bureau of Reclamation. The District is eligible to compete for implementation money should the Pure Water Soquel Project go forward (\$50M under Prop 1 and \$20M under Title XVI).</li> <li>• It is anticipated that the final EIR will be released in late 2018/early 2019 with the Board to consider whether to go into permitting and construction.</li> </ul>
	Indirect Potable Reuse – Reservoir Water Augmentation	<p>Provide advanced purification of wastewater and pump treated water back to Loch Lomond Reservoir to mix with existing surface water providing the water necessary for the City to meet its drought supply needs and/or to allow long term water service from surface water sources to the Soquel Creek Water District, thus substantially reducing or eliminating groundwater pumping in the Santa Cruz Mid-County Groundwater Basin.</p>	<ul style="list-style-type: none"> <li>• The first bullet from the option immediately above is relevant here as well.</li> <li>• In surface water augmentation, a constraint can be achieving necessary reservoir residence time as the dynamics of mixing and water movement in a reservoir are substantially different from those in aquifers.</li> <li>• If a reservoir is full due to natural run off, it is not feasible to add additional water to the system, which may limit the benefit from this approach. Policy issues may include potential perception that there are public health issues associated with using waste water as a source.</li> </ul>	<ul style="list-style-type: none"> <li>• The City of Santa Cruz’s recycled water study is complete. See notes above for next steps.</li> </ul>
Recycled Wastewater	Direct Potable Reuse	<p>Provide advanced purification of wastewater and pump treated water back to the Graham Hill Water Treatment Plant to mix with existing surface water providing the water necessary for the City to meet its drought supply needs and/or allow long term water service from surface water sources to the Soquel Creek Water District, thus substantially reducing or eliminating groundwater pumping in the Santa Cruz Mid-County Groundwater Basin.</p>	<ul style="list-style-type: none"> <li>• While under development, the regulatory framework for direct potable reuse in California is not yet in place and some estimates are that it will be as long as 10 years before it is.</li> <li>• The policy and political issues associated with the various approaches to indirect potable reuse are certainly relevant here.</li> </ul>	<ul style="list-style-type: none"> <li>• The City of Santa Cruz’s recycled water study is complete. See notes above for next steps.</li> <li>• Soquel Creek Water District’s recycled water feasibility study has evaluated this option using assumptions about what the regulatory framework would involve as well.</li> </ul>

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**Water Supply Augmentation Options for the Santa Cruz Mid-County Groundwater Basin**

Source	Project/Program	Opportunity	Constraint(s)	Status
Sea Water	Deep Water Desal <sup>3</sup>	<p>Contract for the purchase of desalinated water from a privately developed and financed desalination facility at a site in Moss Landing. Desalinated water would replace water pumped from groundwater, which would allow the basin to recover.</p> <p>The proposed Deep Water Desal Plant would have a reduced energy requirement (compared to a regular desal plant) due to warming the sea water by using it to cool a proposed data center before it is desalinated. In addition, the Moss Landing site offers the opportunity to bring sea water into the facility from a deeper intake in the off-shore Monterey Canyon, which may reduce or eliminate any possible impacts of a facility intake.</p>	<ul style="list-style-type: none"> <li>• A constraint of this option is uncertainty about whether such a facility will actually be developed.</li> <li>• Water would need to be piped from Moss Landing to at least the Soquel-Aptos area, likely with those costs borne directly by Mid-County groundwater users.</li> <li>• Likely structure of any contract would be long term “take or pay,” for the contracted amount. May or may not be flexibility to restructure contract in future to provide more or less water should needs change.</li> </ul>	<ul style="list-style-type: none"> <li>• The Soquel Creek Water District has signed a non-binding letter of interest with Deep Water Desal and has provided some funding to have evaluation of a potential pipeline between Moss Landing and Soquel included in any EIR prepared by Deep Water Desal for its proposed project.</li> <li>• It is anticipated that DWD will be seeking more formal involvement of water agencies as this project develops.</li> <li>• A draft EIR for the DWD project is anticipated to be released in Fall 2018.</li> </ul>
	Local Desal	<p>Construct a local desalination plant that would supply an alternate source of water, which would allow the basin to recover.</p>	<ul style="list-style-type: none"> <li>• In general there are few technological constraints of desalination. The treatment techniques and processes used to produce drinking water from sea water have a track record of performance and are in use in California and elsewhere in the US and the world.</li> <li>• Concerns raised during the consideration of an earlier local desal project jointly sponsored by the City of Santa Cruz and the Soquel Creek Water District included both the energy intensive nature desalination facilities as well as the potential for impacts to marine life due to the project intake.</li> </ul>	<ul style="list-style-type: none"> <li>• For six years (2007-2013), the City of Santa Cruz and the Soquel Creek Water District jointly financed and explored development of a desal plant, completing many studies, including developing and issuing a draft environmental impact report and receiving public comment on this report.</li> <li>• In the fall of 2013, the Santa Cruz City Council directed staff to discontinue working on this effort while it explored other alternatives.</li> <li>• As a result of the City’s actions, Soquel Creek Water District looked into solely financing and developing the scwd2 desalination project on its own as well as a local-only desal facility developed within the mid-county region. Based on political nature and constraints, including the City’s Charter amendment, a local only project was not selected by SqCWD to further pursue at this time.</li> <li>• Ultimately the Water Supply Advisory Committee (WSAC) recommendations included a local desal project similar to that under consideration as the joint project with the District was included as one of the back-up options for meeting Santa Cruz’ water supply needs. The WSAC recommendations were adopted by the City Council in November 2015..</li> </ul>
			<p><b>General Constraint for desalination options:</b></p> <ul style="list-style-type: none"> <li>• As a result of the November 2012 passage of (City of Santa Cruz Charter Amendment) Measure P, requires that no legislative action to authorize, permit construction, operate and/or acquire a desal plant or incur any indebtedness for that purpose shall be valid unless authorized by an affirmative vote of qualified electors in the City of Santa Cruz.</li> </ul>	

<sup>3</sup> See also <http://www.deepwaterdesal.com/>