SANTA CRUZ MID-COUNTY GROUNDWATER AGENCY

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TO: Members of the Groundwater Sustainability Plan (GSP) Advisory Committee

FROM: David Baskin, Jon Kennedy, Allyson Violante

RE: Direction from the MGA Board Regarding GSP Development

DATE: December 10, 2018

At its November 15, 2018 meeting, the MGA Board took the following action in order to provide direction to the Advisory Committee. Please review the motion and the attached materials prior to the meeting. Any questions or concerns regarding this direction from the Board can be discussed at the Advisory Committee Meeting.

Board Motion: Mr. Baskin; Second: Mr. Kennedy. To acknowledge the Board's current sense of the MGA's role is as the basin planning agency that could play a limited role in funding projects and/or management actions. Section 4.0 [Projects and Management Actions to Achieve Sustainability Goal] of the MGA's Groundwater Sustainability Plan will include, but not be limited to, all projects and management actions presented in Attachment B (Agenda Item 5.1.2, Working Draft Water Supply Augmentation Options for the Santa Cruz Mid-County Groundwater Basin). Section 5.0 [Plan Implementation] of the MGA's Groundwater Sustainability Plan will focus on those member agency programs and projects that are currently being implemented or are in development including, but not limited to, river water transfers, in lieu recharge, Pure Water Soquel, aquifer storage and recovery, and managed aquifer recharge. Motion approved unanimously.

In the board's discussion of this item, these points were agreed upon:

1. MGA role: is not to be the lead implementation entity of major projects; that role resides with the agencies. But the MGA role is to weigh in on management measures and environmental actions. Big picture, the agencies/entities creating the impacts are responsible for addressing these impacts.
2. Section 4 of the GSP should include a comprehensive list of management measures and projects.
3. Section 5 of the GSP should include both PureWater Soquel and Santa Cruz Winter Water Harvest (in lieu and ASR) and start with a focus on these

Please review the related attachments:

1. Staff Memo on Board Direction and Discussion
2. Groundwater Sustainability Plan Annotated Outline
3. Projects Matrix Water Supply Augmentation Options

November 15, 2018

MEMO TO THE MGA BOARD OF DIRECTORS

Subject: Agenda Item 5.1

Title: Board Discussion and Direction to Staff and the Groundwater Sustainability Plan (GSP) Advisory Committee on the Board's Thinking about the MGA's Role in Developing and Implementing Projects and Management Actions to Achieve Basin Sustainability and How the Advisory Committee Should Deal with Projects and Management Actions as it Works on Developing Advice to the Board on the Content of GSP Sections 4 and 5.

Attachments:

1. Groundwater Sustainability Plan Annotated Outline (DWR: December 2016)
2. Projects Matrix: Water Supply Augmentation Options for the Santa Cruz Mid-County Groundwater Basin

INTRODUCTION: As part of implementing the Sustainable Groundwater Management Act (SGMA), the California Department of Water Resources (DWR) has developed detailed guidelines about what content has to be covered in the required Groundwater Sustainability Plan (GSP). A required element of the GSP is a description and analysis of the management actions and projects that may need to be implemented to achieve basin sustainability by 2040, as well as a plan and financing strategy to support GSP implementation. Attachment 1 to this memo is DWR's Annotated Outline of the required GSP content.[1]

As presented and discussed at the July 19, 2018 meeting of the Santa Cruz Mid-County Groundwater Agency (MGA) Board meeting, MGA member agencies have been actively exploring a variety of supplemental supply projects over the past several decades. Projects under current consideration are reflected in the matrix table provided as part of the July 19th MGA Board packet (Item 8.1.2), which is attached here as Attachment 2. In addition, member agencies have also been exploring and implementing various management actions such as managing water demand through conservation programs and pricing structures and moving some

[1] For detailed regulations on the required elements of a GSP see: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Groundwater-Sustainability-Plans/Files/GSP/Final-GSP-Emergency-Regulations.pdf

pumping inland to reduce pumping along the coast, which helps hinder the further advancement of seawater intrusion.

This memo is intended to provide the context needed to inform and support a discussion by the MGA Board about how the Board wants the Groundwater Sustainability Plan Advisory Committee (Advisory Committee or Committee) to address two specific GSP requirements. The two GSP requirements are:

1. The requirement that the GSP must identify and evaluate management actions and projects (Section 4 of the GSP); and
2. The requirement that the GSP identify actions to be taken during plan implementation (Section 5 of the GSP), including how implementation of the plan will be financed.

Staff's assessment is that before the MGA Board can decide what direction to provide to the Advisory Committee on these topics, it must first discuss how the MGA Board currently sees its potential role in implementing projects needed to achieve basin sustainability. If the Board is in agreement about what role the MGA is going play in implementing and/or financing management actions and projects that will be included in the GSP, that agreement should help the Board provide direction to the Advisory Committee that is consistent with the MGA Board's vision for its role and the roles of its member agencies in bringing the basin into sustainability.

In sections A through D below, background information on key topics is provided, and where appropriate to the content of the sections, questions that the Board could discuss as part of its deliberations are included.

A. BACKGROUND – Discussion of MGA Role in Implementing Projects During Groundwater Sustainability Agency Formation

During the 2015-2016 process for creating the new SGMA agency, board members of the Soquel-Aptos Groundwater Management Committee (SAGMC) had several discussions about what was envisioned to be the role of the MGA in planning and implementing projects.

The SGMA clearly envisions that the newly created Groundwater Sustainability Agencies (GSAs) would be capable of implementing projects. However, SAGMC members participating in the GSA Formation Subcommittee expressed concerns about both the practical reality of that approach as well as about the potential financial implications to individual member agencies of having the GSA develop and implement projects.

The practical reality issue focused mostly on what the staffing requirements would need to be for the MGA to oversee project development and implementation and whether creating an agency that was capable of doing so would be redundant considering the capabilities of the member agencies. The financially related concern was mostly focused on any potential liability that might accrue to the member agencies from the actions of the MGA.

SAGMC board members acknowledged these concerns and took two specific steps to respond:

1. They proposed and adopted a Joint Powers Agreement (JPA) that was written to support a broad and comprehensive purpose statement:

   > "The purpose of this Agency is to serve as the GSA for the Basin and to develop, adopt, and implement the GSP for the Basin pursuant to SGMA and other applicable provisions of law."[2]

2. They included the following statement in section 6.3 of their bylaws:

   > STAFFING STRATEGY REVIEW UPON COMPLETION OF THE GROUNDWATER SUSTAINABILITY PLAN. The collaborative staffing model for the Agency will be reviewed and revised if or as needed upon completion of the development of the Groundwater Sustainability Plan. In particular, the performance of the collaborative staffing model in meeting the Agency's needs and the proposed role of the Agency in implementing projects identified and recommended for implementation in the GSP will be considered when determining the potential need (sic) future staffing needs of the Agency.[3]

These two decisions left the door open to the potential that the MGA would play a role in implementing projects, but called for a specific discussion of that role and its implications for agency staffing needs once the GSP requirements were better understood. The thought was that the future role of the MGA in financing GSP implementation would be discussed when the details of the GSP were better understood.

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[2] See the JPA Section 2.2 at: http://www.midcountygroundwater.org/sites/default/files/uploads/Signed%20JPA%20Effective%20March%2017%202016.pdf

[3] See the Bylaws at: http://www.midcountygroundwater.org/sites/default/files/uploads/MGA-Bylaws.pdf

The work products described above were developed approximately two years ago, which was also a time when there SGMA rules, regulations, and requirements were rapidly developing. In addition, work on various supplemental supply options by member agencies was certainly underway but the potential benefits and challenges of those supplemental supply options with respect to addressing the threat of sea water intrusion and the need for sustainable supplies were not as well understood as they are today. The questions below are being raised in light of the current status of the work Soquel Creek Water District (District) and the City of Santa Cruz (City) are doing on supplemental supply projects.

Questions about the MGA's Current Thinking about its Potential Role in Project Implementation:

1. What is the Board's current thinking about the role of the MGA in implementing projects? Options seem to include at least the following possibilities:
   a. The MGA will limit its role to that of a basin planning agency and will look to member agencies for developing, implementing and financing management actions and/or projects needed to achieve basin sustainability.
   b. The MGA will be the basin planning agency and could play a role in funding projects but that role would likely be limited to generating revenues needed to fund management actions or projects from the potential implementation of something like a basin management fee.
   c. The MGA could play a role in funding, financing and implementing projects if projects need to be done and none of the member agencies are willing or able to do what is needed.
   d. The MGA will play a role in funding, financing, and developing and implementing management actions and projects needed to achieve basin sustainability.
2. Does the Board have agreement on an approach that it favors at this time? If so, to what degree does (or should) that approach influence the Board's direction to the Advisory Committee on the questions raised in Section E below?

B. BACKGROUND – MGA Member Agency Efforts to Develop and Implement Projects to Improve Groundwater Sustainability

As noted in the Introduction, MGA member agencies, in particular the District and the City have been involved during recent years in evaluating options for supplemental water supplies.

For the District, the issue they have identified as the key need to be met is the critical overdraft of the Santa Cruz Mid-County Groundwater Basin, which has created a serious threat of saltwater intrusion into the aquifer, as well as needing to take action to meet the goals of sustainable groundwater management. For the City, the issues are increasing drought supply and substantially reducing the water system's vulnerability to drought as well as ensuring the sustainability of the City's Beltz well field groundwater supply in the Santa Cruz Mid-County Groundwater Basin.

The District conducted a very public review process of its options to address the challenges it identified during its 2015 Community Water Plan development process. The Community Water Plan[4] identified a range of potential projects to explore including continuing water conservation efforts, the Pure Water Soquel groundwater replenishment project, surface water transfers from the City of Santa Cruz, the Deep Water Desalination project, and stormwater capture.

The City's 2014-2015 Water Supply Advisory Committee[5] (WSAC) process recommended to the City Council a five year work plan to explore the technical feasibility of a range of water supply augmentation strategies including continuing water conservation efforts, harvesting available surface water flows during the rainy season and storing it underground through both passive and active recharge strategies, advanced treated recycled water for potable reuse, and desalination. In November 2015, the Santa Cruz City Council unanimously adopted the recommendations of the Water Supply Advisory Committee, and Water Department staff is three years in to the implementation of the five year work plan with a recommendation of a supplemental supply project or portfolio of projects due to the Council in 2020.

Soquel Creek Water District, the MGA member agency with the greatest risk and the most to lose from salt water intrusion impacting its municipal production wells, has made significant progress on exploring projects included in its Community Water Plan, with current efforts focused on initiating a pilot project for in lieu water transfers with the City later in November and working to finalize an Environmental Impact Report for the Pure Water Soquel project in the coming months.

A key design condition of the Pure Water Soquel project is to halt the further progress of sea water intrusion in the District's service area. Modeling results showing how the project could achieve this goal are covered in the published draft

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[4] See the Soquel Creek Water District's Community Water Plan at: https://www.soquelcreekwater.org/cwp

[5] See the Water Supply Advisory Committee's Final Report on Agreements and Recommendations at: http://www.santacruzwatersupply.com/meeting/wsac-final-reportrecommendation-appendices

EIR. If the Pure Water Soquel project ultimately proceeds to construction, the project timeline indicates that it could be on line as early as 2022.

Preliminary modeling results for the City's potential to develop a groundwater storage project in the Santa Cruz Mid-County Basin using some combination of in lieu and aquifer storage and recovery (ASR) recharge projects were presented to the Advisory Committee at its October 24, 2018 meeting. Those results showed how various combinations of in lieu and ASR would affect groundwater levels with a focus on the effects on protective groundwater elevations for the salt water intrusion sustainability indicator. Because the City's focus has been on developing drought storage for its customers, preliminary analyses focus on how water stored through in lieu and aquifer storage and recovery could contribute to the City's need for improved supplies during periods of drought. Some modeling results presented to the Advisory Committee indicated water levels in key monitoring wells dropping below protective elevations during periods of drought withdrawals.

The City is also evaluating potential for drought storage and withdrawal in the Santa Margarita Basin, which may prove more or less suitable than the Mid-County Basin for the development of drought storage.

As the City's timeline for decision-making on its supplemental supply project is still a couple of years off, work is continuing on defining and refining potential approaches that would meet both the City's need for drought supply and contribute to achieving the sustainability goal for the Santa Cruz Mid-County Groundwater Basin.

C. BACKGROUND – Status Report on GSP Advisory Committee Process and Next Steps

The Advisory Committee has reached the stage in its process where preliminary metrics for key parameters, such as minimum thresholds and undesirable results for the six sustainability indicators have been identified. The sea water intrusion sustainability indicator and the coastal groundwater level indicator have been identified as being strongly linked. This means that achieving protective groundwater levels will be critically important to reducing the threat of further sea water intrusion into the aquifers.

Modeling work is being done and presented to the Committee to demonstrate how management actions, such as reducing pumping or relocating pumping inland and projects such as water transfers and water exchanges could influence groundwater levels along the coast where the threat of sea water intrusion is most critical. This work is designed to provide Advisory Committee members with a feel for how the model can be used to inform decision making.

The next steps call for modeling simulations based upon actual project proposals as part of the Committee's work. In theory at least, there are at least two options for how projects could be identified for the next steps of the Advisory Committee's work:

1. The Committee could pick from among any (or all) of the potential options described at the July 19th MGA meeting and/or any other ideas that might come to light through other means and the technical consultants would use the chosen management actions and projects in the modeling; or

2. The MGA Board could direct the Advisory Committee to specifically include one or more management action or projects being explored by a MGA member agency for implementation.

D. BACKGROUND – Details of the Specific Requirements for GSP Sections 4 and 5

The Advisory Committee needs to begin working with specific management actions and projects and some or all of those projects will end up in the GSP as items in Section 4, which requires listing, describing and analyzing projects and management actions needed to achieve the GSP's sustainability goal. Presumably, projects and management actions that end up being included in Section 5, the GSP's required section on Plan Implementation, which includes information about the cost of and schedule for implementation, will be drawn from those included in Section 4.

For context, the following is a detailed list of the information about each project and management action needed to achieve the basin's sustainability goal that must be included in **Section 4 of the GSP**.[6] For each potential management action or project included discussed in the GSP, DWR guidance requires:

4.1 Project description

- Measureable objective that is expected to benefit from the project or management action;
- Circumstances for implementation;
- Public noticing;
- Overdraft mitigation projects and management actions;
- Permitting and regulatory process;
- Time-table for initiation and completion and the accrual of expected benefits;
- Expected benefits and how they will be evaluated;

[6] CCR Title 23, Division 2 Chapter 1.5 Subchapter 2 Article 5 Subarticle 5, Section 354.44

- How the project or management action will be accomplished. If the project or management actions rely on water from outside the jurisdiction of the Groundwater Sustainability Agency, an explanation of the source and reliability of that water shall be included;
- Legal authority required;
- Estimated costs for the projects and management and plans to meet those costs (economic analysis and finance strategy for projects and management actions);
- Management of groundwater extractions and recharge; and
- Relationship to additional GSP elements as described in water code §10727.4.

The information listed above must be provided on each of the projects or management actions included in GSP Section 4.

Section 5 of the GSP focuses on Plan Implementation. Specifically Section 5 must cover the following:

5.1 Estimate of GSP Implementation Costs (Reg. §354.6)
5.2 Schedule for Implementation
5.3 Annual Reporting
- GSA's plan for required annual reporting

5.4 Periodic Evaluations
- GSA's process for required periodic evaluations.

Section 5 of the GSP needs to identify and lay out a schedule for implementing projects and management actions that will achieve and maintain basin sustainability within 20 years.

Discussion Questions for the MGA Board related to Projects and Management Actions to Include in the GSP

To assist the Advisory Committee in moving ahead with its work, staff suggests the MGA Board discuss and see if the Board has agreement on the following questions:

Management Actions and Projects to include in GSP Section 4[7]

1. Given the District's various projects in its Community Water Plan and particularly the Pure Water Soquel project's level of development and its

[7] See details of required elements of Sections 4 and 5 at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/GSP-Annotated-Outline.pdf

timeline for potential implementation, does the MGA Board want the Community Water Plan Projects included in those potential management actions and projects to be described in Section 4 of the GSP?
2. Given the City's various projects from the Council adopted recommendations of the WSAC and particularly water transfer/water exchange projects involving in lieu and ASR projects, does the MGA Board want WSAC recommended projects included in those potential projects to be described in Section 4 of the GSP?
3. Are there any other projects or management actions from Attachment 2 or from other sources that the MGA Board wants included in those potential projects to be described in Section 4 of the GSP?

For the Board's consideration, staff's perspective is that being inclusive in the projects and management actions described in Section 4 is probably a wise approach for a variety of reasons. First, given the various levels of project development, associated uncertainties, and the local history of projects that were pursued but ultimately not implemented, keeping the options open is probably a good idea. Second, having a wide range of potential projects and management actions included in the GSP may make it easier to acquire funding for future projects because the project or management action was included in the list of projects in an approved, adopted GSP. And, third, while the list of projects included in Attachment 2 is large, the exercise of completing the required project description in Section 4 will have the advantage, at a minimum, of developing common descriptive information for all the options that have been being worked on over the last few years.

Management Actions and Projects to Include in GSP Section 5, Plan Implementation

1. Given the District's various projects in its Community Water Plan, does the MGA Board want to direct the Advisory Committee to include one or more of the projects in the Soquel Creek Water District's Community Water Plan in the implementation focused Section 5 of the GSP?
2. Given the City's various projects from the Council adopted recommendations of the Water Supply Advisory Committee (WSAC) does the MGA Board want to direct the Advisory Committee to include one or more of the projects WSAC's recommendations in the implementation focused Section 5 of the GSP?
3. Are there any other projects or management actions from Attachment 2 or from other sources that the MGA Board wants included in the implementation focused Section 5 of the GSP?

Staff does not have a recommendation for the Board for either the Board's discussion of its potential role in developing and implementing projects or for the Board's potential direction to the Advisory Committee on projects or management actions to include in Section 5 of the GSP. Board action on both of these topics

needs to emerge from Board discussion of the questions provided here as well as any others that may arise as part of the Board's discussion. There is no right or wrong answer to either question.

Following the relevant discussions, staff recommends that the Board provide direction to staff and the Advisory Committee in each of the following areas:

1. By MOTION, provide direction to staff on the Board's current thinking of the MGA's role in developing and implementing projects; and

2. By MOTION, provide direction to the Advisory Committee on the Board's preferred approach to including projects and management actions in GSP Sections 4 and 5.

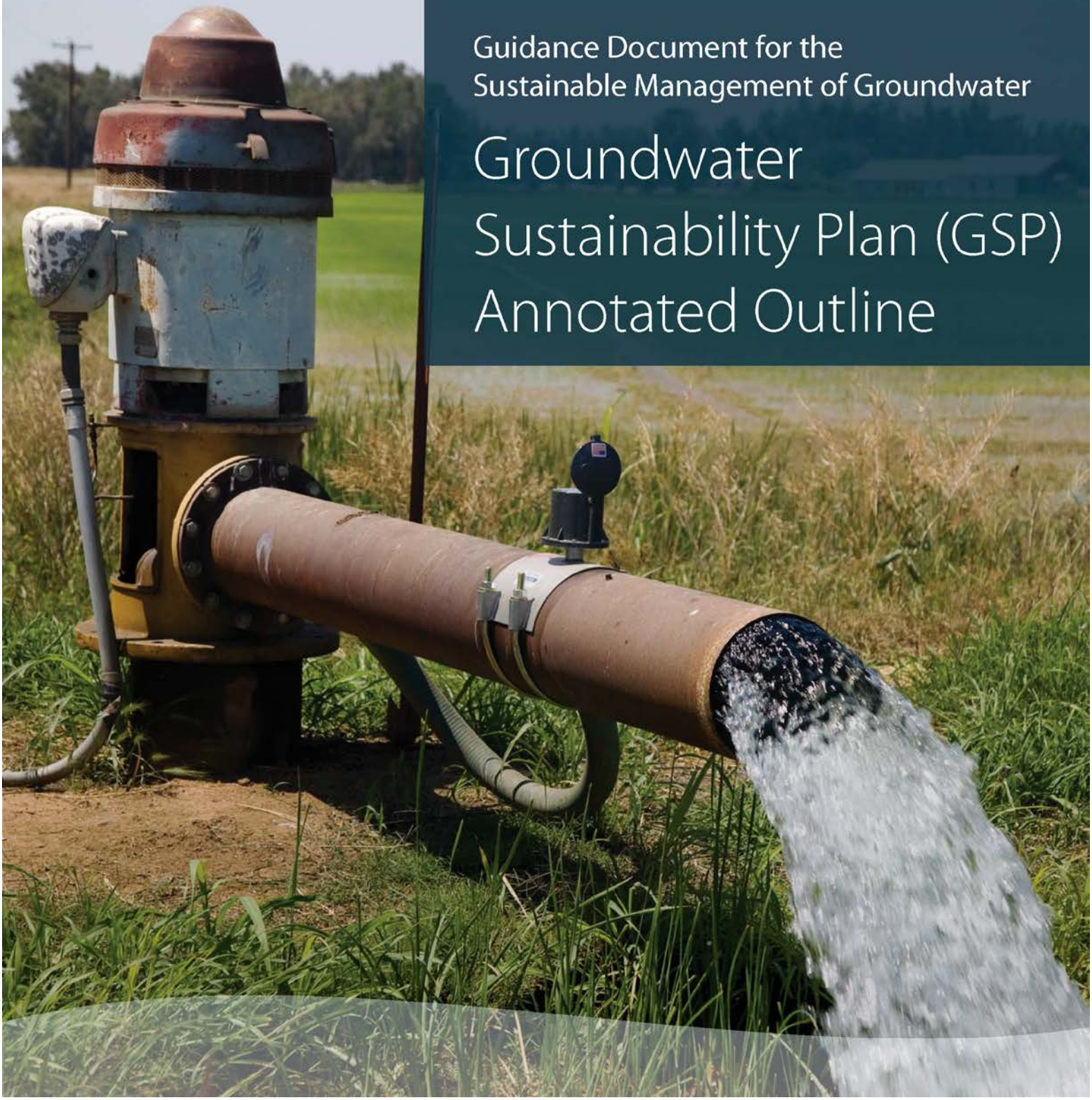
By _____
Rosemary Menard, Director
City of Santa Cruz Water Department

California Department of Water Resources
Sustainable Groundwater Management Program

December 2016

Guidance Document for the
Sustainable Management of Groundwater

Groundwater Sustainability Plan (GSP) Annotated Outline



Guidance Document for the Sustainable Management of Groundwater

Groundwater Sustainability Plan (GSP) Annotated Outline

December 2016

The objective of this Guidance Document is to provide Groundwater Sustainability Agencies (GSAs) and other stakeholders an example **Groundwater Sustainability Plan (GSP) Annotated Outline** to aid in GSP development and standardize future reporting.

The GSP Annotated Outline is only intended to be a guide. GSAs have the option of using this information as they develop a GSP. The content provided here does not create any new requirements or obligations for the GSA or other stakeholders.

Guidance Documents are not a substitute for the GSP Emergency Regulations (GSP Regulations) or the Sustainable Groundwater Management Act (SGMA). Those GSAs developing a GSP are strongly encouraged to fully read the GSP Regulations and SGMA. In addition, using this Guidance Document to develop a GSP does not equate to an approval determination by DWR.

Context with GSP Regulations and SGMA

The GSP Annotated Outline can be used by GSAs, in conjunction with the *Preparation Checklist for GSP Submittal Guidance Document*, to develop a GSP and determine if the GSP (or coordinated GSPs) meets the minimum requirements of the GSP Regulations and statutory provisions of SGMA. The detailed requirements of a GSP may be found in the GSP Regulations, primarily in Article 5 – Plan Contents, and in SGMA, primarily in Chapter 6 beginning with California Water Code Section 10727. All references to GSP Regulations relate to Title 23 of the California Code of Regulations, Division 2, Chapter 1.5, and Subchapter 2. All references to SGMA relate to California Water Code sections in Division 6, Part 2.74.

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Potential Groundwater Sustainability Plan Outline

Executive Summary *(Reg. § 354.4)*

1.0 Introduction

1.1 Purpose of the Groundwater Sustainability Plan (GSP or Plan)

1.2 Sustainability Goal

1.3 Agency Information *(Reg. § 354.6)*

1.3.1 Organization and Management Structure of the Groundwater Sustainability Agency (GSA or Agency)

1.3.2 Legal Authority of the GSA

1.3.3 Estimated Cost of Implementing the GSP and the GSA's Approach to Meet Costs

1.4 GSP Organization

- Description of how the GSP is organized
- Preparation Checklist for GSP Submittal

2.0 Plan Area and Basin Setting

2.1 Description of the Plan Area *(Reg. § 354.8)*

2.1.1 Summary of Jurisdictional Areas and Other Features *(Reg. § 354.8 b)*

- Map(s) *(Reg. § 354.8 a)*:
  - Area covered by GSP
  - Adjudicated areas, other Agencies within the basin, and areas covered by an Alternative
  - Jurisdictional boundaries of federal or State land
  - Existing land use designations
  - Density of wells per square mile

2.1.2 Water Resources Monitoring and Management Programs *(Reg. § 354.8 c, d, e)*

- Description of water resources monitoring and management programs
  - Description of how monitoring networks of those programs will be incorporated into the GSP
  - Descriptions of how those programs may limit operation flexibility in the basin
  - Description of conjunctive use programs

2.1.3 Land Use Elements or Topic Categories of Applicable General Plans *(Reg. § 354.8 f)*

- Summary of general plans and other land use plans
  - Information could include crop types and acreages, urban land designation, and identification of open spaces.
- Description of how implementation of the GSP may change water demands or affect achievement of sustainability and how the GSP addresses those effects
- Description of how implementation of the GSP may affect the water supply assumptions of relevant land use plans
- Summary of the process for permitting new or replacement wells in the basin
- Information regarding the implementation of land use plans outside the basin that could affect the ability of the Agency to achieve sustainable groundwater management

2.1.4 Additional GSP Elements *(Reg. § 354.8 g)*

- Control of saline water intrusion
- Wellhead protection
- Migration of contaminated groundwater
- Well abandonment and well destruction program
- Replenishment of groundwater extractions
- Conjunctive use and underground storage
- Well construction policies

- Groundwater contamination cleanup, recharge, diversions to storage, conservation, water recycling, conveyance, and extraction projects
- Efficient water management practices
- Relationships with State and federal regulatory agencies
- Land use plans and efforts to coordinate with land use planning agencies to assess activities that potentially create risks to groundwater quality or quantity
- Impacts on groundwater dependent ecosystems

2.1.5 **Notice and Communication *(Reg. § 354.10)***

- Description of beneficial uses and users in the basin
- A Communications Section that describes:
  - Decision-making processes
  - Public engagement opportunities
  - Encouraging active involvement
  - Informing the public on GSP implementation progress

2.2 Basin Setting

2.2.1 **Hydrogeologic Conceptual Model *(Reg. § 354.14)***

- Graphical and narrative description of the physical components of the basin
- At least two scaled cross-sections
- Map(s) of physical characteristics
  - Topographic information
  - Surficial geology
  - Soil characteristics
  - Delineation of existing recharge areas that substantially contribute to the replenishment of the basin, potential recharge areas, and discharge areas
  - Surface water bodies
  - Source and point of delivery for local and imported water supplies

2.2.2 Current and Historical Groundwater Conditions *(Reg. § 354.16)*

- Groundwater elevation data
- Estimate of groundwater storage
- Seawater intrusion conditions
- Groundwater quality issues
- Land subsidence conditions
- Identification of interconnected surface water systems
- Identification of groundwater-dependent ecosystems
    - Including potentially related factors such as instream flow requirements, threatened and endangered species, and critical habitat.

2.2.3 Water Budget Information *(Reg. § 354.18)*

- Description of inflows, outflows, and change in storage
- Quantification of overdraft (as applicable)
- Estimate of sustainable yield
- Quantification of current, historical, and projected water budget
- Description of surface water supply used or available for use for groundwater recharge or in-lieu use

2.2.4 Management Areas (as Applicable) *(Reg. § 354.20)*

- Reason for creation of each management area
- Level of monitoring and analysis
- Description of management areas
- Explanation of how management of management areas will not cause undesirable results outside the management area

3.0 Sustainable Management Criteria

3.1 Sustainability Goal *(Reg. § 354.24)*

- Description of sustainability goal, including:
    - Information from the basin setting used to establish the sustainability goal
    - Discussion of the measures that will be implemented to ensure that the basin will be operated within its sustainable yield

- Explanation of how the sustainability goal is likely to be achieved within 20 years of Plan implementation and is likely to be maintained through the planning and implementation horizon

3.2 Measureable Objectives *(Reg. § 354.30)*

- Description of each measureable objective and how the measurable objectives were established for each relevant sustainability indicator
- Description of how a reasonable margin of safety was established for each measureable objective
- Description of a reasonable path to achieve and maintain the sustainability goal including a description of interim milestones for each relevant sustainability indicator
  - Measurable Objective for Sustainability Indicator 1
    - Interim Milestone at 5 years
    - Interim Milestone at 10 years
    - Interim milestone at 15 years
    - Milestone at 20 years
  - Measurable Objective for Sustainability Indicator 2
    - Interim Milestone at 5 years
    - Interim Milestone at 10 years
    - Interim milestone at 15 years
    - Milestone at 20 years
  - Measurable Objective for Sustainability Indicator X
- If management areas are used, a description of *(Reg. § 354.20 b)*:
  - The measurable objectives established for each management area, and an explanation of the rationale for selecting those values, if different from the basin at large.
  - An explanation of how the management area can operate under different measurable objectives without causing undesirable results outside the management area, if applicable.

3.3 Minimum Thresholds *(Reg. § 354.28)*

- Description of each minimum threshold and how they were established for each relevant sustainability indicator

- Relationship for each sustainability indicator
- Description of how minimum thresholds have been selected to avoid causing undesirable results
- Description of how minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests.
- Standards related to sustainability indicators
- How each minimum threshold will be quantitatively measured for each relevant sustainability indicator
- If management areas are used, a description of *(Reg. § 354.20 b)*:
    - The minimum thresholds established for each management area, and an explanation of the rationale for selecting those values, if different from the basin at large.
    - An explanation of how the management area can operate under different minimum thresholds without causing undesirable results outside the management area, if applicable.

3.4 Undesirable Results *(Reg. § 354.26)*

- Description of undesirable results for any of the sustainability indicators
- Cause of groundwater conditions that would lead to undesirable results
- Criteria used to define undesirable results based on minimum thresholds
- Potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results

3.5 Monitoring Network

3.5.1 Description of Monitoring Network *(Reg. § 354.34)*

- Description of how the monitoring network is capable of collecting sufficient data to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions, and yield representative information about

groundwater conditions as necessary to evaluate Plan implementation

- Description of monitoring network objectives including explanation of how the network will be developed and implemented to monitor:
    - Groundwater and related surface conditions
    - Interconnection of surface water and groundwater
- Description of how implementation of the monitoring network objectives demonstrate progress toward achieving the measureable objectives, monitor impacts to beneficial uses or users of groundwater, monitor changes in groundwater conditions, and quantify annual changes in water budget components
- Description of how the monitoring network is designed to accomplish the following for each sustainability indicator:
    - Chronic Lowering of Groundwater Levels. Demonstrate groundwater occurrence, flow directions, and hydraulic gradients between principal aquifers and surface water features
    - Reduction of Groundwater Storage. Estimate the change in annual groundwater in storage
    - Seawater Intrusion. Monitor seawater intrusion
    - Degraded Water Quality. Determine groundwater quality trends
    - Land Subsidence. Identify the rate and extent of land subsidence
    - Depletions of Interconnected Surface Water. Calculate depletions of surface water caused by groundwater extractions
- Description of how the monitoring plan provides adequate coverage of the sustainability indicators
- Density of monitoring sites and frequency of measurements required to demonstrate short-term, seasonal, and long-term trends

- Scientific rational (or reason) for site selection
- Consistency with data and reporting standards
- Corresponding sustainability indicator, minimum threshold, measureable objective, and interim milestone
- Location and type of each site on a map
- If management areas are used, a description of the level of monitoring and analysis appropriate for each management area. *(Reg. § 354.20 b)*

3.5.2 Monitoring Protocols for Data Collection and Monitoring *(Reg. § 352.2)*

- Description of technical standards, data collection methods, and other procedures or protocols to ensure comparable data and methodologies.

3.5.3 Representative Monitoring *(Reg. § 354.36)*

- Description of representative sites if designated
- Demonstration of adequacy of using groundwater elevations as proxy for other sustainability indicators
- Adequate evidence demonstrating site reflects general conditions in the area

3.5.4 Assessment and Improvement of Monitoring Network *(Reg. § 354.38)*

- Review and evaluation of the monitoring network
- Identification and description of data gaps
- Description of steps to fill data gaps
- Description of monitoring frequency and density of sites

4.0 Projects and Management Actions to Achieve Sustainability Goal *(Reg. § 354.44)*

4.1 Project #1 Description

- Measureable objective that is expected to benefit from the project or management action
- Circumstances for implementation

- Public noticing
- Overdraft mitigation projects and management actions
- Permitting and regulatory process
- Time-table for initiation and completion, and the accrual of expected benefits
- Expected benefits and how they will be evaluated
- How the project or management action will be accomplished. If the projects or management actions rely on water from outside the jurisdiction of the Agency, an explanation of the source and reliability of that water shall be included.
- Legal authority required
- Estimated costs for the projects and managements and plans to meet those costs (economic analysis and finance strategy for projects and management actions)
- Management of groundwater extractions and recharge
- Relationship to additional GSP elements as described in Water Code §10727.4.

4.2 Project #2 Description

4.3 Project #X Description

5.0 Plan Implementation

5.1 Estimate of GSP Implementation Costs *(Reg. § 354.6)*

5.2 Schedule for Implementation

5.3 Annual Reporting

- GSA's plan for required annual reporting

5.4 Periodic Evaluations

- GSA's process for required periodic evaluations

6.0 References and Technical Studies *(Reg. § 354.4)*

Appendices

- Interbasin and Coordination Agreements (as applicable) *(Reg. § 357)*
- Contact Information for Plan Manager and GSA Mailing Address *(Reg. § 354.6)*
- List of Public Meetings *(Reg. § 354.10)*
- Technical Appendices
- Groundwater Model Documentation
- Comments and Responses *(Reg. § 354.10)*

ATTACHMENT 2

Working Draft

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

Source	Agency	Opportunity	Constraint(s)	Status
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.[1]
	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: • Enforcement of an ordinance on all residential users prohibiting wasteful uses of water. • Participation in the Water Conservation Coalition of Santa Cruz County to provide outreach and education to residents. • 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. • Provides rebate programs for installation of water efficient toilets and clothes washing machines. • Provides water efficient hose timers.
	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: • Enforcement of an ordinance on all residential users prohibiting wasteful uses of water. • Requirement for replacement of inefficient toilet and showerheads at time of property sale. • Implementing building code requirements for efficient fixtures for all new construction and remodels. • Requiring water conservation forms as part of any new well permits for wells expected to use over 2 AFY. • Implementing a currently grant-funded program to do water conservation assessments for of private well owner's properties.

[1] 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.

ATTACHMENT B

Working Draft

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	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.	• 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. • 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. • 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.	• 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. • 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.
		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.	• 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. • 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. • 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.	• 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. • 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.
	Aquifer Storage and Recovery (active recharge)	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.)	• The technical feasibility of storing and retrieving stored water from the Santa Cruz Mid-County Groundwater Basin may be a constraint. • 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. • 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.	• 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. • 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..
			General Constraint for surface water options: • 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. • 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.	

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.[2]	• The scale of recharge DSWMAR may be a constraint to achieving timely recharge of the Mid-County Basin. • Topographic, ground cover and local vegetation, and surface and sub-surface geology/hydrogeology can provide significant constraints for siting DSWMA. • 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.	• 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. • Santa Cruz County has installed dry wells to capture and recharge storm water in Live Oak and Aptos. • 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.
Recycled Waste-water	Non-Potable Reuse (NPR)	Off-set peak season irrigation demand by replacing use of treated drinking water with treated wastewater	• Existing infrastructure does not allow for the distribution of NPR, so new infrastructure would be required to develop this alternative. • 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. • 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. • 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.	• 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. • 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 Seascape Golf Course.

[2] see further information at http://www.cityofsantacruz.com/home/showdocument?id=46143

ATTACHMENT B

Working Draft

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 **Pure Water Soquel** project is an example of this approach)	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. 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)	• 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. • 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.	• 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. • 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. • 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). • 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.
	Indirect Potable Reuse – Reservoir Water Augmentation	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.	• The first bullet from the option immediately above is relevant here as well. • 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. • 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.	• The City of Santa Cruz's recycled water study is complete. See notes above for next steps.
Recycled Wastew ater	Direct Potable Reuse	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.	• 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. • The policy and political issues associated with the various approaches to indirect potable reuse are certainly relevant here.	• The City of Santa Cruz's recycled water study is complete. See notes above for next steps. • Soquel Creek Water District's recycled water feasibility study has evaluated this option using assumptions about what the regulatory framework would involve as well.

ATTACHMENT B

Working Draft

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

Source	Project/Program	Opportunity	Constraint(s)	Status
Sea Water	Deep Water Desal[3]	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. 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.	• A constraint of this option is uncertainty about whether such a facility will actually be developed. • 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. • 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.	• 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. • It is anticipated that DWD will be seeking more formal involvement of water agencies as this project develops. • A draft EIR for the DWD project is anticipated to be released in Fall 2018.
	Local Desal	Construct a local desalination plant that would supply an alternate source of water, which would allow the basin to recover.	• 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. • 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.	• 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. • In the fall of 2013, the Santa Cruz City Council directed staff to discontinue working on this effort while it explored other alternatives. • 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. • 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..
			General Constraint for desalination options: • 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.	

[3] See also http://www.deepwaterdesal.com/