County of Santa Cruz

PLANNING DEPARTMENT
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ALVIN D. JAMES, DIRECTOR

March 14, 2001

AGENDA: March 27, 2001

Board of Supervisors
County of Santa Cruz
701 Ocean Street
Santa Cruz, CA 95060

PROGRESS REPORT ON WATER RESOURCES MANAGEMENT

Members of the Board:

On November 14, 2000, your Board received a status report on Water Resources Management and directed the Planning Department to return to your Board on March 6, 2001 with a comprehensive progress report on Water Resources Management. The March 6 scheduled report was deferred to today's meeting. The last comprehensive progress report was brought to your Board on April 11, 2000. That report included a table with a summary of recommendations and timelines for implementation of work program items as previously outlined by your Board. This report brings another comprehensive update to your Board and includes the table, for your reference, as Attachment 1. A review of the tables high priority recommendations with the content of this report would suggest that staff is moving forward in an organized manner on a broad range of water resource issues.

Staff has also developed a standardized format to utilize in this report and in subsequent progress reports. The structure of this and following reports will address similar topic headings which are identified in bold type. As usual, information is presented and recommendations offered for your Board's consideration and direction.

Work Program Status

Water resource planning and management activity in this last reporting period has been dominated by activity in the fields of conservation, watershed management, anadromous fisheries planning issues and in the application and administering of grants, including the San Lorenzo River Watershed Management Plan Update and the Watsonville Slough Assessment and Enhancement Project. A comprehensive approach to coordinating erosion control programs with other agencies has not yet been developed, however, the foundation for such a comprehensive approach is being developed through the San

Lorenzo River Watershed Management Plan Update. This Update is targeted for completion by the end of March.

Water Conservation has been an important issue for your Board. Two issues are worth noting regarding water conservation activity. Both activities relate to your Board's recommendation to **"promote coordinated water conservation efforts".** The first of these activities is the exchange of letters between the Interagency Water Resource Working Group and the County's Water Advisory Commission. Board members may recall this exchange began with a discussion on the need for a countywide Water Conservation Plan. The Water Advisory Commission has been wrestling with this idea for months and now has acknowledged that a "one size fits all" approach is not appropriate. However, they do support low flow and high efficiency washer rebates, excessive use penalties, and commercial account water efficiency audits. The Water Managers would like your Board to understand that they must address these three approaches and all the 16 Urban Water Best Management Practices (BMP's) identified by the State as they prepare their Urban Water Management Plans. Your Board should also note that the major water districts and county staff are collaborating on a retrofit upon re-sale ordinance as a joint work program item. Completion of a draft ordinance is anticipated in late May.

A second activity related to promoting water conservation for larger water users will require approval by your Board at today's meeting. This action involves the retrofitting of plumbing fixtures in County owned buildings. Staff has completed an inventory of the plumbing fixtures in County owned facilities which is included as Attachment 2. There are many flush valve facilities in County buildings that are not included on this inventory although they are eligible for rebates under commercial toilet rebate programs. Planning staff is seeking direction to work with General Services and the Cities of Santa Cruz and Watsonville to retrofit high water using plumbing devices in County owned facilities and to incorporate this activity as a work program item for County staff. Rebates are currently available from the two cities to help cover replacement costs. Your Board should note that the Scotts Valley Water District and the Soquel Creek Water District also offer rebate programs for their customers. A recommendation regarding the County is offered for your Board's consideration.

Regional Coordination

This section of the progress report is intended to inform your Board regarding recent activities of the various water related committees or commissions supported by County staff. The objectives for staff activity in this arena are to **increase County support of coordinated water resources development and management,** and to **promote a regional approach to water supply planning.** An update on two committees is presented in this progress report.

Interagency Water Resources Working Group

The Interagency Water Resources Working Group continues to meet monthly as necessary. The County Water Resource Manager provides staff support to the group. You may recall that the group adopted a Mission Statement which was included in a prior report. In the mission statement, the purpose of the group included reviewing County water resource programs, recommending actions to consider, and identification of opportunities for interagency collaboration on regional water resource issues.

Regarding interagency collaboration, staff believes that the exchange of information and ideas at the group's meetings has helped to reduce concerns that may have existed when the County first increased its' involvement in water resource management. Over the last year the group has worked together on: conservation outreach, review of the well ordinance, conservation ordinances, and the draft meter ordinance which was later discontinued. At the request of the group, county staff is currently reviewing assumptions related to the linkage between land-use planning, population projections, and demand forecasting for water resources.

This last example of reviewing assumptions and the following example of committee work is related to the adopted countywide **goal: Through water conservation, maximizing and sharing existing supplies, and developing new sources, balance available supply and demand.**

Santa Margarita Groundwater Basin Advisory Committee

The Santa Margarita Groundwater Basin Advisory Committee was established to promote cooperative, regional management of local water resources. Some members of your Board may recall that the Santa Margarita Groundwater Basin Advisory Committee has been meeting monthly since January 2000 to consider the merits and issues of forming a Replenishment District to recharge the areas aquifers. Discussion at the Committee has focused on identifying potential boundary issues and upon establishing the various types of authority which would need to be defined in a legislative act creating such a district.

A countywide objective has been **to promote opportunities for regional approaches and interagency cooperation when planning to correct water deficiencies in individual subbasins..** To further this objective within the context of the Santa Margarita Groundwater Basin, a technical support committee was formed to evaluate basin conditions. A consensus white paper was prepared. Limited as the paper was in its effort to quantify the magnitude of the problem, it is noteworthy that consensus was reach across jurisdictional boundaries recognizing a problem. A copy of the white paper is included as Attachment 3.

In other action, the Committee directed staff to write other stakeholders inviting them to enter the dialogue on managing the areas water resources. To date the outreach to additional stakeholders has not been successful in bringing new parties to the meetings. Efforts to inform individual committee members of basin conditions were renewed after November elections, which altered the composition of Committee membership and seemed to have altered the topical focus of the Committee. With the change in Committee composition, the energy and motivation to evaluate forming a Replenish District appears to have waned. At February's meeting, individual member agencies agreed to refocus on their agency's objectives and expectations for the Committee. Meaningful progress by this Committee has been an area of concern for your Board in the past. It is hoped that this new period of review and re-evaluation will lead to a mission statement for this group and a new resolve to consider alternatives for cooperative management of the areas' water resources.

In January 1999, your Board adopted the following specific objective: **Form a workable management structure, with adequate funding to develop and implement a comprehensive water supply plan for the watershed within 5 years which addresses both surface and groundwater use, and optimizes the efficient use of resources, including maintaining and enhancing stream baseflows.** To directly address

this specific objective, staff continues to assess the collective use, availability and distribution of surface water and groundwater resources throughout the San Lorenzo River watershed. This information is being collected for analysis in support of promoting a watershed-wide perspective on management and use of the areas' water resources. Part of this analysis is being completed in the update of the San Lorenzo River Watershed Management Plan.

On February 12, 200 1 the study, "Identifying Potential Locations For Artificial Groundwater Recharge", was completed and delivered to county staff. Your Board may recall that the study was formalized in an "Agreement Between The County Of Santa Cruz And Bay Area Shared Information Consortium Regarding The Identification Of Potential Groundwater Recharge Areas For The Santa Margarita Groundwater Basin" on March 23, 1999.

This report was done as pilot study, at no expense to the County. The effort has helped to build County GIS capabilities to analyze groundwater resources in the Santa Margarita area (Item H. 1 on Attachment 1). The Bay Area Shared Information Consortium (BASIC) is funded through the NASA Earth Science Information Partnership program. The reports preparers were specifically charged in this effort to use satellite imagery and remote sensing technology coupled to a Geographic Information System to identify potential groundwater recharge locations and identify lands worthy of protection for their natural recharge characteristics. A copy of the report is included as Attachment 4 and has been placed for your review on file with the Clerk of the Board.

With the completion of the study, staff is investigating options to protect land identified for its natural recharge characteristics, and will continue to identify unique opportunities such as this one to promote a regional, cooperative approach to augmenting the areas groundwater resources. A draft proclamation expressing gratitude to BASIC for their efforts has been prepared and is included as Attachment 5. A recommendation to approve and transmit the proclamation is offered for your Board's consideration.

Other Agency Activities

All the major water districts are engaged in efforts to manage and augment their respective water supplies. These actions are generally independent efforts although regional approaches to water supply planning are also being discussed. The following describes noteworthy efforts in both areas.

Water Agency Independent Efforts

The City of Santa Cruz Water Department is noteworthy for recent independent efforts evaluating water supply, urban water management, and a possible use curtailment plan. A report on each topic was brought to the City Council on February 6, 2001. In discussing water supply issues, the Council, following consideration of many options, showed a predisposition to explore developing tertiary reclamation of the city's wastewater for agricultural use on the North Coast. Should this option gain formal approval, the City would solicit rights to the areas groundwater resources, currently used for irrigation, in return for providing recycled water for agricultural irrigation.

County water resource staff has met with City water resource staff to discuss this option. In a letter dated February 14, 200 1, the City has requested assistance from County staff to characterize the groundwater

conditions (of the North Coast) using the County's GIS. This effort would be similar to the one county staff just completed in the Santa Margarita Area. A copy of the City's letter is included as Attachment 6. The request is compatible with work program item A.7. on the table; **Promote use of reclaimed water.** A recommendation is offered to include this request as a work program item for County water resource staff.

Cooperative Regional Efforts

Several major water Districts along with County staff are also engaged in exploring opportunities for regional approaches and interagency cooperation on water supply and water management efforts. Issues in the Santa Margarita area were discussed above. The City of Santa Cruz is also in communication with the Soquel Creek Water District regarding potential for a jointly developed desalination plant. The Soquel Creek Water District has also been communicating with the Pajaro Valley Water Management Agency about potential joint efforts. Two cooperative water management efforts involving County staff are noteworthy for your Board at this time.

The first of these cooperative efforts is the implementation of a jointly funded project of the County and Soquel Creek Water District to investigate the interaction of groundwater and surface water along Soquel Creek. (This item corresponds with item B.4 and B.5 on Attachment 1). Your Board may recall from budget narrative that the County and Soquel Creek are each contributing $20,000 to drill and install five monitoring wells in close proximity to the Creek. Each location will be surveyed for elevation of the groundwater and the streambed. Surveyed elevations will allow for an analysis of whether water is moving out of the ground into the stream or percolating out of the stream into the groundwater basin. Site selection and background agreements have been completed. Drilling has commenced at two locations on March 14, 2001 and, will continue at others when the ground dries.

The area of concern regarding possible impacts of groundwater levels on the baseflow of Soquel Creek is a four mile stretch of the mainstem beginning about one-mile above the mouth. Reduced baseflow in this reach, especially during the late summer through early fall, could impact steelhead and coho salmon habitat. It is envisioned that this joint effort will help clarify over time issues surrounding perceived declines in the baseflow of Soquel Creek.

A second cooperative effort worthy of mention began in controversy and ended in consensus. The effort in question was the water management plan submitted by the Mount Hermon Association (MHA) as part of its' Master Plan Update and Use Permit amendment. The core of the controversy was Mount Herrnon's desire to reclaim the use of its' spring sources. The MHA wanted to treat and utilize their spring sources to reduce groundwater pumping in an area known to be overdrafted. The Association even offered to inject surplus spring flow back into the aquifer. The San Lorenzo Valley Water District (SLVWD) opposed the MHA's attempt to reclaim use of its' spring sources because they were previously given up as a mitigation to the development of MHA's well #2. Besides opposing reclaiming the spring sources, the SLVWD objected to the proposed injection of spring water due to concerns related to water quality. All parties agreed to meet and confer about their differences.

The County Water Resource Manager facilitated discussions between SLVWD and MHA over a three month period. MI-IA consultants provided water quality assurances to the SLVWD by presenting information on the different levels of water quality treatment which would be utilized on site prior to

injection. The plan to inject spring water was postponed for an interim period, although a third well would be designed for both injection and extraction to go forward as a collaborative injection project at a later time. At the SLVWD's request, it was also agreed that the spring sources would be treated and could be used directly to meet Mount Hermon's needs and as a means to reduce overall groundwater pumping. The effort was deemed noteworthy by staff because coordinated agreements about difficult water resource matters were obtained and the effort to coordinate was consistent with adopted County policy which: seeks **"to insure support for coordinated water resources development and management". .**

Interface with Land-Use Issues

An evaluation of land-use, housing, and water resource policy issues raised by the new Watsonville City Water Policy initially scheduled to be heard by your Board at the March 20, 2001 meeting has been deferred for sixty days for additional consultation with the City and Pajaro Valley Water Management Agency staff. As previously mentioned, County staff is reviewing assumptions in the linkage between land-use planning, population projections, and demand forecasting for water resources. This will likely be done within the context of the update to the County General Plan.

Other Activities

A grant application for a Soquel Creek Watershed Enhancement Plan was jointly proposed by the Resource Conservation District and the Soquel Creek Watershed Group. It was funded through grants with the California Department of Fish and Game (SB271) and the State Coastal Conservancy. The scope of work on the Enhancement Plan will address salmonid requirements, a hydrologic assessment, a geomorphic and erosiondeposition assessment, a vegetation/riparian corridor integrity assessment, and a fishery assessment. It will also provide for preparation of recommendations/designs/monitoring programs, and environmental review documents.

County staff currently participates on the Soquel Creek Watershed Group and in other watershed groups as a means to serve as a resource, as well as work with other agencies and stakeholders to develop watershed assessments and promote implementation of programs for protection and restoration of salmon and steelhead. Action to provide oversight and evaluation of water resource protection efforts using a watershed approach is consistent with adopted countywide objectives for water quality, fisheries, and channel conditions also contained in the January 1999 Board adopted Water Resource Management Goals, Objectives, and Strategies.

An ongoing regulatory-related activity by staff involves oversight and protection of lands designated as primary recharge areas. It is an adopted countywide objective to **"review adequacy of current policies, ordinances, and practices for protection and enhancement of groundwater recharge".** This problem is most acute in the Pajaro Valley. These matters are covered in the County's General Plan under **Objective 5.8a, Groundwater Protection** and **Objective 5.8b, Overdrafted Groundwater Basins. General Plan policy 58.1** designates primary recharge areas on the General Plan Resource Maps. **General Plan policy 5.8.2** designates Land Division and Density Requirements in Primary Groundwater Recharge Areas. The latter policy "requires new parcel sizes to be an average of at least 10 gross acres for parcels with building sites located in primary groundwater recharge areas and allows a maximum average residential density of one dwelling unit per 10 gross acres for parcels which are not divided. Exceptions are allowed only where

the development is:

a) located within the Rural Services Line or within the Urban Services Line; and
b) served by a sewage disposal system operated by a County Service Area or public services district which provides at least secondary treatment with nitrogen removal or which disposes of effluent outside the primary groundwater recharge area.

There are occasional requests from land owners or developers to consider exceptions to allow lot splits in designated recharge areas into smaller than 10 acre parcels in the rural areas of Pajaro Valley. The water supply imbalance in the Pajaro Valley is so significant that the policy to protect primary recharge areas should be allowed to remain steadfast without exception. If your Board so chooses, the matter as one of policy, can be revisited in the next General Plan update.

It is therefore RECOMMENDED that your Board:

1) Accept and file this Progress Report On Water Resources Management; and

2) Direct Planning staff to work with General Services and water conservation staff from the Cities of Santa Cruz and Watsonville to utilize their commercial toilet rebate programs as an incentive to retrofit high water using plumbing devices in County owned facilities served by the respective cities; and

3) Approve the draft proclamation to the Bay Area Shared Information Consortium recognizing their efforts and development of a report entitled, "Identifying Potential Locations for Artificial Recharge"; and

4) Direct the Water Resources Manager to draft a sample Mission Statement for the Santa Margarita Groundwater Basin Advisory Committee that clearly identifies the County's objectives and expectations for the Committee and to continue to work with individual member agencies of the Committee to identify and implement tasks required to improve the focus of the Committee; and

5) Direct Planning staff to include in the work program, providing assistance to the City of Santa Cruz Water Department by using the Geographic Information System to characterize and analyze north coast groundwater conditions.

Sincerely,

ALVIN D. JAMES
Planning Director

RECOMMENDED

SUSAN A. MAURIELLO
County Administrative Officer

Blc/WRM01-03c

Attachments:
1) Table with Summary of Recommendations and Timelines for Implementation.
2) Inventory of plumbing devices in County owned facilities.
3) Santa Margarita Groundwater Basin Advisory Committee - White Paper.
4) Report entitled "Identifying Potential Locations for Artificial Recharge", (BASIC, 2001) - on file with Clerk of the Board.
5) Draft Proclamation.
6) February 14, 2001 letter from Bill Kocher, Director, City of Santa Cruz Water Department.

cc: Interagency Water Resources Working Group
Santa Margarita Groundwater Basin Advisory Committee
Soquel Creek Water District
City of Santa Cruz Water Department
City of Watsonville Water Department
County General Services

ATTACHMENT 1

Santa Cruz County Water Resources Management
Summary of Recommendations and timelines for implementation

Date: March 16, 2000

Recommendations	Agency	Nor Coast	SLR SV	Soquel Aptos	Paj	FY 99-00	FY 00-01	3 yr	5 yr	10 yr
A. Water Supply Management										
1. Increase County support of coordinated water resources development and management.	Planning (EHS)	3	1	2	1	x	x	x	x	x
2. Promote regional water supply planning	Pln,Board Districts	3	1	1	2-1	x	x	x		
3. Promote coordinated water conservation efforts.	Pln,EHS, Districts	3	1	1	2	x	x	x	x	x
4. Consider formation of a countywide water management agency, if other efforts fail.	Board	3	2	3	3			x		
5. Increase County monitoring and management of non-district water use, including inventory of large users, requirement of meters and adoption of specific conditions for wells in critical groundwater basins.	EHS (Planning)	3	2	1	2	x	x 12/00	x	x	x
6. Ensure impacts of water consumption is adequately addressed in development review.	Planning Cities	3	1	1	2	0	12/00	x	x	x
7. Promote use ofreclaimed water.	Pln,Dists+	3	1	3	2	Hansen Quarry	x	x	x	
B. Streamflow Monitoring										
1. Maintain and enhance ALERT flood warning system.	Pln	3	2	2	2	x	x	x	x	x
2. Maintain current USGS stream gages.	Pln,Dists		1	1	1	x	x	x	x	x
3. Assess data on water rights and diversions.	Pln,State	1	3	2	3		x	x		
4. Assess extent and causes of Soquel Cr. flow decline.	Pln,Dist+			2	-	x	x			
5. Monitor and investigate baseflows of critical streams.	Pln,EHS	2	1	1	2-1	x	x	x		
5. Ensure groundwater models address baseflow.	Pln,Dists		1	1	2			x	x	
C. Groundwater Monitoring										
1. Monitor and evaluate water levels and pumpage outside water districts and nondistrict uses within districts.	EHS,Pln	2	1	1	3	x	12/00	x		
2. Consider evaluation of groundwater resources in other rural areas (Bonny Doon, Summit, Glen Canyon).	Pln, EHS	2	3	2	3	*Bonny-Doon*	Other Areas x	x	x	x
3. Evaluate and resolve quarry impacts on groundwater and surface water quality and quantity.	Pln+	1	1	3	3	x	x	x	x	x

Santa Cruz County Water Resources Management
Summary of Recommendations and Timelines for Implementation

Date: March 16, 2000

Recommendations	Agency	Nor Coast	SLR SV	Soquel Aptos	Paj	FY 99-00	FY 00-01	3 yr	5 yr	10 yr
D. Erosion Control										
1. Implement a comprehensive erosion control program with other agencies.	Pln,RCD, NRCS+	2	1	2	2		12/00 x	x	x	x
a. Inventory major erosion problems. **(Soquel & San Lorenzo)** ,	Pln, RCD					x	x	x		
b. Provide education, outreach, and technical assistance	Pln, RCD					x Training	and grants	with/ RCD		
c. Provide cost-sharing incentives.	Pln,NRCS						x	x	x	x
d. Increase enforcement of erosion problems	Pln					x	x	x	x	x
e. Strengthen timber regs and reduce county oversight.(County done-Board of Forestry-next)	Pln, BS, State					x				
2. Provide improved erosion control along public roads.	DPW						x	x	x	
3. Monitor stream bed conditions and sedimentation. (Pajaro & San Lorenzo)	Pln, EHS?	2	1	2	1	x		x		
E. Watershed Management										
1. Support watershed management efforts in the following areas: - San Lorenzo Watershed Management Plan - Done - Water Qual. Protec. Program -12/00 - Water supply protection programs (DHS) - Soquel Cr, Corralitos, North Coast Streams	Pln,EHS RCD NOAA Districts DHS	2	1	2	2	x	 x x x	 x x x		
2. Establish mechanisms for interdepartmental and interagency coordination. - Done	Pln,EHS, DPW,+					x	x	x	x	x
3. Provide education and outreach on watershed protection and water resources management.	Pln,EHS RCD+					x		x	x	x
4. Develop funding mechanisms for increased watershed and water resources management efforts.	Pln,EHS, RCD,+					x	x	x	x	x
F. Fishery Habitat										
1. Support ongoing steelhead and habitat monitoring.	Pln,Dist+	2	1	2	2	x	x	x	x	x
2. Work with CDFG, USNMFS, USFWS to evaluate stream clearance practices and develop measures for habitat protection and improvement	Pln,DFG, NMFS, Dist,+	1	1	2	2	x	x	x	x	
3. Consider preparation of a habitat conservation plan for listed aquatic species.	Pln							x	x	

Santa Cruz County Water Resources Management
Summary of Recommendations and Timelines for Implementation

Date: March 16, 2000

Recommendations	Agency	Nor coast	SLR s v	soquel Aptos	Paj	FY 99-00	FY 00-01	3 yr	5 yr	10 yr
C. Water Quality										
1. Maintain nitrate monitoring in San Lorenzo Watershed.	EHS		1	-	-	O	x	x	x	x
2. Evaluate groundwater data for additional water quality monitoring and management needs. (Pajaro Valley Nitrates)	EHS,Pln, PVWMA	2	3	2	1	x	x	x		
3. Expand bacteria and nitrate monitoring in rural areas. - Done	EHS	2	1	2	2	x				
4. Expand bacteria monitoring of storm drains.	EHS,DPW		2	1	2	x	x	x	x	x
5. Characterize sources of bacteria.	EHS	3	2	2	2		x	x	x	
6. Consider additional urban runoff quality monitoring. (Stormwater)	EHS,DPW	4	3	2	3		x	x	x	
7. Consider additional coastal lagoon monitoring.	EHS,State	4	4	2	3				x	
8. Expedite upgrade of sewage collection systems.	DPW	1	2	1	2	x	x	x	x	x
9. Evaluate stormwater management measures.	DPW,Pln	4	3	2	3			x		
10. Work with growers and agencies to improve quality of agricultural runoff and percolation. (Monterey Bay Water Quality Protection Plan)	Pln,State, EHS,NOAA	2	4	3	1	x	x	x	x	x
11. Expand bacteria monitoring of public beaches. Expansion Done	EHS	3	2	1	3	x	x	x	x	x
12. Review available information on overall ocean health.	EHS,NOAA					O	x	x	x	x
H. Data Management and Coordination										
1. Improve current county databases and GIS.	EHS,Pln					x	x	x	x	x
2. Coordinate data gathering with other agencies.	EHS					x	x	x	x	x
3. Provide a biannual review of data.	EHS,Pln+							x	x	
4. Prepare and maintain annotated bibliography.	Pln,EHS+								x	x
TOTALS										

Notes: Priorities: 0- Ongoing; E- Could be done with existing staff.; 1 - High Priority; 2- Medium Priority,; 3 - Lower Priority. Multiple priorities may be shown if there are several stages.

ATTACHMENT 2

COUNTY FACILITY INVENTORY - PLUMBING DEVICES

0632

Facility	4.5 gal. flow Toilet	1.6 gal. flow Toilet	7 gal. flow Toilet	3.5 gal. Shower	TOTAL
259 Water Street Jail and Courts	230			26	256
141 Blaine Street - Women's Detention	8	1		8	17
30 Rountree Lane - Medium Security	19			8	27
100 Rountree Lane - Rehab	24			30	54
3050 Graham Hill - Juvenile Hall, Probation, Redwoods	60		5	10	75
701 Ocean St. - Government Center	50			4	54
Courts - Portables	28				28
1000 Emeline Avenue	5				5
1010 Emeline Avenue	2				2
1020 Emeline Avenue	17	5			22
1030 Emeline Avenue	2	1			3
1040 and 1100 Emeline Avenue	10				10
1060 Emeline Avenue	6				6
1080 Emeline Avenue	22				22
1082 Emeline Avenue	2				2
1110 Emeline Avenue - Maintenance	1				1
1200 Emeline Avenue - Maintenance Shop	1				1
1400 Emeline Avenue - HSA/HRA	24				24
640 Capitola Road		2			2
1430 Freedom Blvd. Suite 101, Watsonville	2				2
1432 Freedom Blvd. - Ag Extension	2				2
1430 Freedom Blvd. - Courthouse	10				10
9 Crestview - Health Clinic	8				8
691 Ocean St. - Fleet Center	3				3
842 Front St. Veterans Center	4	5			9
TOTAL	540	14	5	86	645

Santa Margarita Groundwater Basin Advisory Committee White Paper

October 20, 2000

Introduction

Water agencies and stakeholders in the Santa Margarita Groundwater Basin of Santa Cruz County recognize that the groundwater basin and associated streams are a shared resource with multiple beneficial uses. To ensure effective and coordinated management of these resources, a shared understanding of the state of the groundwater basin is needed.

Currently, there is general agreement among technical experts and policy makers that an imbalance of groundwater recharge and pumping exists in portions of the Santa Margarita groundwater basin of the Scotts Valley area, and that this imbalance is problematic for local groundwater users and should be remedied without delay. However, the magnitude of the problem (i.e., the amount of groundwater storage decline over time) is a topic of debate, reflecting differing perspectives on the basin and data insufficiencies. Agreement among the technical experts on critical data gaps, efforts needed to diminish these data gaps, and studies and methods needed to interpret the data would be beneficial to all parties.

Accordingly, the goal of this white paper is to support a shared understanding of the groundwater basin and provide a foundation for coordinated management. A specific objective of the white paper is consideration of the technical viability of a proposed special district that would promote replenishment of the groundwater basin. Specific topics in this white paper include:

- The nature and magnitude of the problem,
- Data gaps,
- Efforts to diminish data gaps and interpret data,
- Potential boundaries of a replenishment district, and
- Potential solutions/ replenishment projects.

This white paper is intended to be succinct and focused; thus findings are presented as statements with minimal elaboration. Contributors to this white ‘paper are:

Michael Cloud, Hydrologist, Santa Cruz County Planning Department,
Nicholas Johnson, Water Resources Consultant to San Lorenzo Valley Water District, and
Iris Priestaf, Todd Engineers, on behalf of Scotts Valley Water District.

This document reflects the respective focus of each contributor in terms of the geographic areas managed by the above water agencies and their specific issues of concern. All findings, conclusions, and recommendations in this white paper are based on complete consensus of all contributors.

Nature and Magnitude of the Problem

Definition of what we know about the nature and magnitude of the problem is fundamental to defining critical data gaps (what we don't know) and to planning effective management actions to remedy the problem. The following statements summarize the key interlocking elements that define the problem.

- Groundwater level declines in and around major production wells are a concern in terms of reliability of groundwater supply through drought and long-term sustainability given continuing pressure for increased water supplies.
- It is reasonable to assume that groundwater level declines have diminished the natural groundwater discharge that helps sustain Bean Creek base flow. Although impacts on base flow are not apparent now, future cessation of Watkins-Johnson releases to the creek may reveal adverse impacts,
- Contaminant plumes represent a continuing constraint on groundwater development and management.

Data Gaps and Actions to Diminish Data Gaps

Important data gaps that hinder understanding and management of groundwater resources are listed below. Each identified data gap is followed by a recommended action for its mitigation. Increased sharing of data among water entities and coordination of the following actions are encouraged recognizing that a comprehensive and unified effort will yield greater benefits to all

Amounts of groundwater pumping remain unknown for a number of producers in the vicinity of the documented groundwater level declines.

A comprehensive program should be developed to quantify groundwater pumping and provide the. basis for estimating consumption. All groundwater pumping should be measured or reported regularly through description of groundwater use (e.g., domestic use and landscape irrigation of a specified acreage). Amounts of pumping by all groundwater users potentially benefiting from groundwater replenishment actions should be metered.

Amounts of springflow from the groundwater basin are poorly documented.

A survey of springs should be conducted to identify substantial springs and a program initiated to periodically measure their flow. Emphasis should be placed on springs within the basin but located downstream of the stream gages on Bean and Carbonera creeks, such that their flow is not included in the baseflow of those creeks. The discharge of Eagle Creek should be measured regularly above the San Lorenzo River confluence.

Documented aquifer parameters are scanty for all aquifers. The lack of storage coefficients for the Santa Margarita and Lompico aquifers is particularly important.

Aquifer tests (with suitable observation wells) should be conducted to document storage coefficients, with an emphasis on the Santa Margarita and Lompico aquifers. Aquifer tests should be carefully planned and conducted so that procedures and analyses are coordinated and findings are comparable. Aquifer tests should be conducted at several locations (including Well 7A or 3B, Well 11 Well Field, and Pasatiempo or Mount Hermon well fields).

Lack of water level measurements in particular areas of the basin significantly hinder our ability to understand groundwater flow directions, level changes over time, and vertical gradients.

Additional wells should be added to the water level monitoring program. Key locations for the Santa Margarita Sandstone include the areas between Bean and Carbonera creeks, and along Bean Creek tributaries. If possible, dedicated monitoring wells should be installed. It would be beneficial also to have nested piezometers to document vertical groundwater relationships, particularly between the Santa Margarita, Monterey, and Lompico zones. Water level measurement procedures should be coordinated and consistent. The water level database should be updated with all available information and should continue to be shared among cooperating agencies. The Santa Margarita groundwater basin model should be applied to defining key monitor well sites.

Well data are imperfect, as the locations and wellhead elevations of many wells are estimated.

All well locations and wellhead elevations should be verified to the extent possible. All wells in the water level monitoring program should be surveyed for geographic location coordinates and wellhead elevation. These data should be entered into the GIS well inventory. The GIS should be used to generate groundwater level contour and other maps, thus providing consistency in well locations and nomenclature. The existing well inventory database should be reviewed and updated for use by cooperating agencies.

Streamflow and channel conditions along Bean and Carbonera creeks require better documentation.

Synoptic streamflow and groundwater level surveys should be conducted on a regular basis along Bean and Carbonera creeks. Watkins-Johnson discharge data for Bean Creek should be compiled and maintained on a regular basis. A walking survey of Camp Evers tributary to Carbonera Creek also should be conducted, with measurements of flow and noting inflow points, lined portions, and ponded areas. Outflow of Camp Evers tributary should be monitored regularly. A GPS survey of Bean Creek should be conducted to establish accurate channel bed elevations.

Data Analysis

Specific data analyses, building on the above actions, are needed to address critical water management issues, as described below. Consensus on the methods of data analysis is desirable.

Groundwater Storage. Accurate estimates of the annual change and long-term trend in groundwater storage are needed to design and size appropriate replenishment projects. An improved water level monitoring network and additional storage coefficients determined from properly conducted aquifer tests can provide a higher degree of confidence in groundwater storage estimates.

Water Budgets. Subarea water budgets are needed to better understand the current imbalance of groundwater supply and demand. Additional documentation of pumping, springflow, baseflow, and changes in groundwater storage will improve estimates of recharge and subsurface inflow/outflow terms.

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Factors Controlling Groundwater Occurrence and Movement. Improved interpretations of the occurrence and movement of groundwater are needed to understand current conditions and predict the potential benefits of replenishment projects, especially across aquifer and subarea boundaries. Factors requiring further interpretation include hydrogeologic structures, aquifer and aquitard properties, and hydraulic gradients.

Groundwater/Surface Water Interactions. Analysis of streamflow, springflow, and groundwater level data are needed to better understand groundwater/surface water interactions along Bean and Carbonera creeks. For example, such analysis can help predict whether Bean Creek flows may be impacted when the discharge of remediated groundwater into Bean Creek ends.

Groundwater Model Calibration. Data are needed to improve and refine the calibration and validation of groundwater models used in the area. Modeling can serve as an important method for achieving the needed analyses discussed above.

Potential Boundaries

If a special replenishment district for the Santa Margarita groundwater basin is established, it should focus on areas of intensive groundwater supply development, documented impacts on streamflow, and groundwater quality problems. In general, the boundaries also should encompass areas that contribute surface water and/or groundwater flow to the focus areas. Specific boundaries are suggested below.

- The boundaries of the replenishment district should encompass the Bean Creek watershed extending north to the limits of the Lompico aquifer and west to the watershed divide with Zayante Creek.
- With regard to Carbonera Creek, the boundaries should include at a minimum the watershed above the confluence with Camp Evers tributary and also should extend southward to include portions of the Santa Margarita aquifer that drain northward. This groundwater divide roughly bisects T10SR2E Section 25 in an east-west direction.
- The boundaries also should extend southward to the groundwater divide that separates flow north toward Pasatiempo wells and flow south to springs draining into Eagle Creek.
- The boundaries also should encompass portions of the Branciforte watershed to include areas underlain by Lompico Sandstone.

Potential Solutions/Replenishment Projects

Listed below are potential replenishment projects that may be undertaken by a replenishment district and/or by existing water agencies. The options listed below involve improved management of local water resources; in the event that such options are infeasible and/or supply insufficient water to correct current imbalances, water importation into the area may need to be considered.

Water Conservation and Management of Pumping. A replenishment agency or existing water district should recognize that keeping water in the ground is more efficient than putting water in

the ground. Accordingly, a conservation element should be incorporated, including:

- Promotion of individual metering of customers of water purveyors,
- Encouragement of water conservation best management practices (BMPs), and
- Support for redistribution of pumping out of stressed areas and definition of sustainable pumping rates in areas of groundwater level decline.

Water Recycling. Reuse of local water sources should be encouraged, including expansion of water recycling for landscaping use and potential use of graywater. Any increased discharge of local wastewater to the Santa Cruz ocean outfall should be considered in terms not only of water quality but also water quantity, as discharge to the outfall represents a loss of recharge to the basin. If onsite disposal systems (e.g., septic tanks) present a water quality problem, wastewater treatment and disposal alternatives that include in-basin disposal should be given preference.

Conjunctive Use. Conjunctive use involves coordinated management of surface water and groundwater supplies. This could include the following:

- Development of artificial recharge projects using Carbonera Creek as a source and employing in-channel recharge, recharge basins, or injection wells,
- Recharge projects diverting Bean Creek high flows and using nearby quarries for storage with subsequent conveyance to treatment and/or recharge facilities,
- Development of a surface water reservoir for treatment and direct potable use, or for artificial recharge, and
- Importation of water for use in conjunction with local groundwater resources.

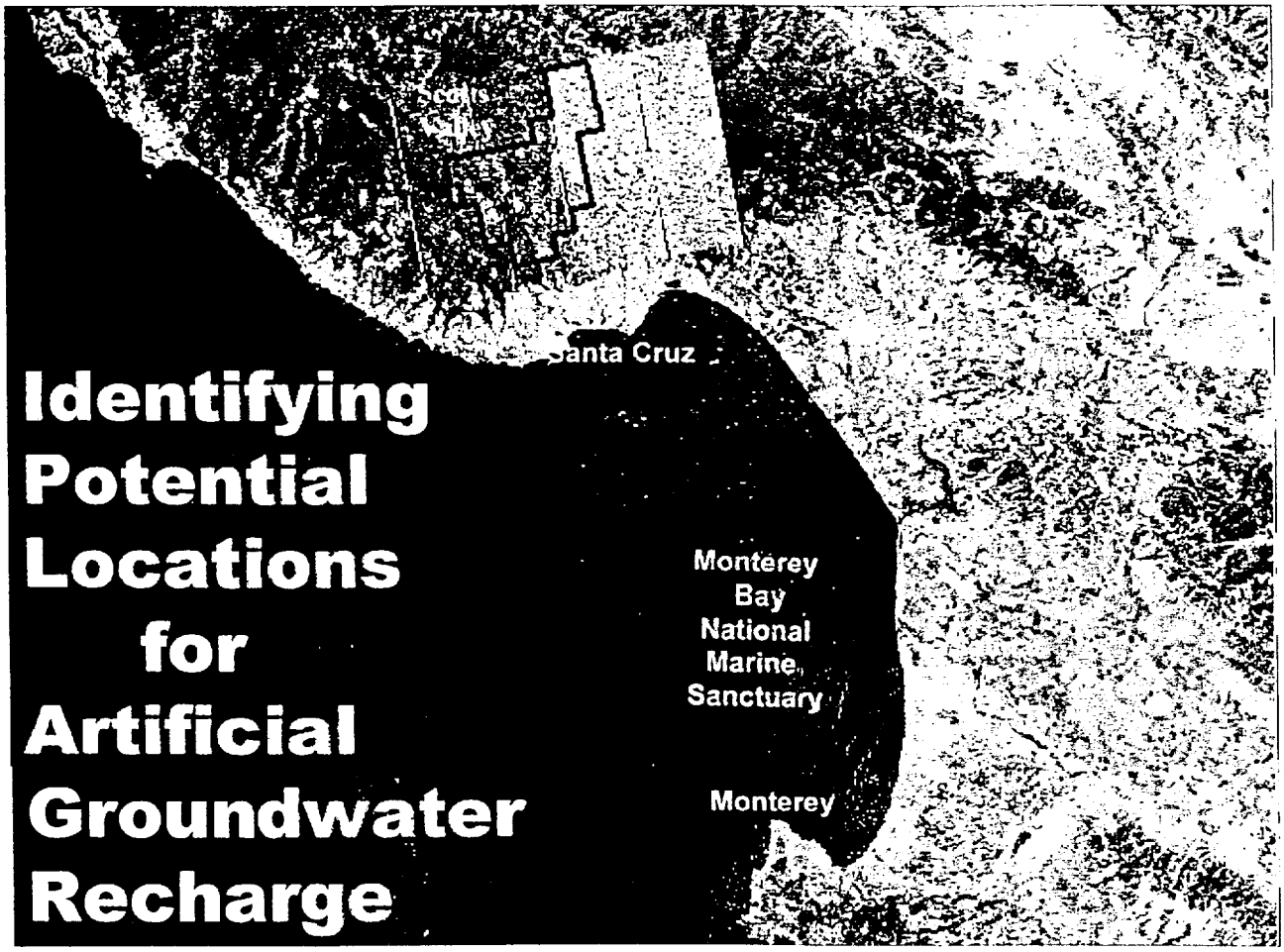
Closing

The contributors to this White Paper concur that groundwater problems exist in portions of the Santa Margarita basin in the Scotts Valley area, and that efforts should be taken forthwith to remedy those problems. At this time, it is our opinion that actions should focus on improved management and understanding of local water resources. These actions can be undertaken independently by local water agencies or by a special replenishment district. In either case, we encourage involved parties to work together toward coordinated water management to ensure local water supply reliability and sustainability.

ON File with Clerk

ATTACHMENT 4

Santa Cruz County Board of Supervisors



Identifying Potential Locations for Artificial Groundwater Recharge

BASIC
Bay Area Shared
Information Consortium
650 N. Winchester Blvd., Ste. 4
San Jose, CA 95128
408-845-I 570

January 2001

DRAFT

A PROCLAMATION BY THE SANTA CRUZ COUNTY BOARD OF SUPERVISORS

WHEREAS, an agreement was made on the 23rd day of March, 1999, by and between the Santa Cruz County Board of Supervisors and the Bay Area Shared Information Consortium regarding the Identification of Potential Groundwater Recharge Areas for the Santa Margarita Groundwater Basin; and

WHEREAS, the County sponsored the Bay Area Shared Information Consortium to conduct a study to identify potential artificial groundwater recharge areas under the National Aeronautics and Space Administration's Earth Science Enterprise program; and

WHEREAS, the Bay Area Shared Information Consortium developed their study using remote sensing technology and satellite imagery coupled to a Geographic Information System and brought the information, as it was developed, through the Santa Margarita Groundwater Basin Advisory Committee; and

WHEREAS, the Bay Area Shared Information Consortium sought and received technical assistance from County staff, from Winner's Circle Consulting, and from the Spatial- Information, Visualization, and Analysis Resources Center at California State University at Monterey Bay; and

WHEREAS, the study was successfully completed and transmitted to the County on February 12, **2001;**

NOW, THEREFORE, THE SANTA CRUZ COUNTY BOARD OF SUPERVISORS DO PROCLAIM their gratitude to the Bay Area Shared Information Consortium, and all other parties providing technical assistance to the completed study, "Identifying Potential Locations for Artificial Recharge" in the Santa Margarita Groundwater Basin.

ATTACHMENT 6

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CITY OF SANTA CRUZ

WATER DEPARTMENT

809 Center Street, Room 102, Santa Cruz, CA 95060 • (831) 420-5200 • Fax (831) 420-5201

February 14, 2001

Bruce Laclergue, Water Resources Manager
County of Santa Cruz Planning Department
701 Ocean Street, Room 400
Santa Cruz, CA 95060

Dear Bruce:

I would like to thank you and John Ricker for meeting with my staff and me last Friday to discuss the City's possible reclaim-for-groundwater project on the North Coast.

Clearly, you and your staff have knowledge of groundwater conditions in this area that is of great value to the City of Santa Cruz as it considers a water supply project there. I would like to request your assistance as we proceed with our planning by helping us to better characterize the groundwater conditions using GIS. Additionally, any help you could lend in determining the existing irrigated acres and applied water would help, as we must estimate the amount of potential demand for our reclaimed water.

Please let me know if you think you'll be able to help us with these tasks. Thank you again, for meeting with us and I look forward to working with you on this project.

Sincerely,

Bill Kocher, Director
City of Santa Cruz Water Department

cc: Alvin James, Planning Director
Linette Abbott, Deputy Director/Engineering Manager

laclergue