SEASIDE GROUNDWATER BASIN WATERMASTER
REGULAR MEETING OF THE BOARD OF DIRECTORS

Wednesday, October 5, 2022 – 2:00pm Virtual Meeting
Agenda

YOU MAY ATTEND AND PARTICIPATE IN THE MEETING BY JOINING FROM A PC, MAC, IPAD, IPHONE OR ANDROID DEVICE AT THIS WEB ADDRESS:
https://us02web.zoom.us/j/82107605848?pwd=SXdMdWUyRGFFM0RmM1d5UVAwTXJ0dz09
Or use the following information in your Zoom screen:
Meeting ID: 821 0760 5848 **Password:** 991169
If joining the meeting by phone, dial either: +1 408 638 0968 (San Jose) or **+1 669 900 6833 (San Jose)**

Watermaster Board
Coastal Subarea Landowner – Director Paul Bruno
City of Seaside – Mayor Ian Oglesby
California American Water – Director Christopher Cook
City of Sand City – Mayor Mary Ann Carbone
Monterey Peninsula Water Management District (MPWMD) – Director George Riley
Laguna Seca Subarea Landowner – Director Wesley Leith
City of Monterey – Councilmember Dan Albert
City of Del Rey Oaks – Councilmember John Gaglioti
Monterey County/Monterey County Water Resources Agency – Supervisor Wendy Root Askew, District 4

I. CALL TO ORDER

II. ROLL CALL

III. PUBLIC COMMUNICATIONS
Oral communications are on each meeting agenda in order to provide members of the public an opportunity to address the Watermaster on matters within its jurisdiction. Matters not appearing on the agenda will not receive action at this meeting but may be referred to the Watermaster Administrator or may be set for a future meeting. Presentations will be limited to three minutes or as otherwise established by the Watermaster. In order that the speaker may be identified in the minutes of the meeting, it is helpful if speakers state their names.

IV. REVIEW OF AGENDA
A vote may be taken to add to the agenda an item that arose after the 72-hour posting deadline pursuant to the requirements of Government Code Section 54954.2(b). (A 2/3-majority vote is required).

V. ORAL PRESENTATION – None

VI. CONSENT CALENDAR

A. Consider Approving Minutes of Regular Board meeting held September 7, 2022 3
B. Consider Approving Summary of Payments made May through August 2022 totaling **$101,895.90** 7
C. Consider Approving Fiscal Year 2022 Financial Reports through August 31, 2022 13

VII. NEW BUSINESS

A. Consider Approving Fiscal Year 2023 Annual Budgets:

1. Proposed Fiscal Year 2023 (January–December) Administrative Budget 19
2. Proposed Fiscal Year 2023 (January–December) Monitoring and Management Program (M&MP); and M&MP Fund-Operations and M&MP Fund-Capital Budgets..... 21
3. Proposed 2023 Replenishment Assessment Fund Budget – No Action Required..... 37

B. Consider Approving the Proposed 2023 Replenishment Assessment Unit Costs for Natural Safe Yield and Operation Yield Overproduction..... 39

VIII. OLD BUSINESS

A. Results from Flow Direction/Flow Velocity Modeling and Recommendation to Perform Additional Analysis..... 43

IX. INFORMATIONAL REPORTS (No Action Required)

A. Technical Advisory Committee (TAC) draft meeting minutes August 10, 2022..... 51

B. Watermaster Report of Production of the Seaside third quarter Water Year 2022 (April 1, 2022 – June 30, 2022)..... 61

C. MPWMD Correspondence to Watermaster Chair dated September 29, 2022 Re: August 5, 2022 Draft Technical Memorandum – Hybrid Water Budget Analyses of Basin Replenishment Options and Alternate Assumptions..... 63

X. DIRECTOR'S REPORTS

XI. STAFF COMMENTS

XII. NEXT REGULAR MEETING DATE

A. Consider cancelling the **November 2, 2022** meeting and setting the next regular meeting date for **December 7, 2022 - 2:00 P.M.**

XIII. ADJOURNMENT

This agenda was forwarded via e-mail to the City Clerks of Seaside, Monterey, Sand City and Del Rey Oaks; the Clerk of the Monterey Board of Supervisors, the Clerk to the Monterey Peninsula Water Management District; the Clerk at the Monterey County Water Resources Agency, Monterey One Water and the California American Water Company for posting on September 29, 2022 per the Ralph M. Brown Act, Government Code Section 54954.2(a).

SEASIDE GROUNDWATER BASIN WATERMASTER
REGULAR MEETING MINUTES
Wednesday, September 7, 2022 Via Zoom Teleconference

I. CALL TO ORDER – Director Bruno called the meeting to order at 2:00pm

II. ROLL CALL

Coastal Subarea Landowner – Director Paul Bruno – Chair
City of Monterey – Council Member Dan Albert – Vice Chair
City of Seaside – Mayor Ian Oglesby
City of Sand City – Mayor Mary Ann Carbone
Laguna Seca Subarea Landowner – Director Wesley Leith
California American Water (CAW) – Director Christopher Cook
Monterey Peninsula Water Management District (MPWMD) – Director George Riley
City of Del Rey Oaks – Council Member John Gaglioti
Monterey County/Monterey County Water Resources Agency – Supervisor Mary Adams (Alternate)

Absent: None

Others Present:
Robert Jaques, Watermaster Technical Program Manager (TPM)
Laura Paxton, Watermaster Administrative Officer (AO)
Michael Paxton, Assistant AO
Alvin Edwards, Chair, MPWMD Board of Directors
David Stoldt, MPWMD
Jonathan Lear, MPWMD
Maureen Hamilton, MPWMD
Aiko Yamakawa, Attorney, CAW
Sarah Hardgrave, Policy Analyst, Office of Supervisor Adams / Chair, Monterey Subbasin Committee
Yuri Anderson, Chief of Staff, District 4
Pascual Benito, Montgomery & Associates
Sheri Damon, City Attorney, City of Seaside
Will Pickering, General Manager, The Club at Pasadera (Pasadera)
Vince Balestreri, Pasadera
Brad Coleman, Golf Course Superintendent, Pasadera
Bob Rosenthal, Pasadera
Melodie Chrislock, Public Water Now
Nolan Fargo
John Tilley Lucas Quass
David P. Matt

III. PUBLIC COMMUNICATIONS – There were no public communications.

IV. REVIEW OF AGENDA

It was moved by Mayor Oglesby and seconded by Director Riley to add to the agenda an item regarding The Club of Pasadera potential overproduction. Director Bruno – Aye; Mayor Oglesby – Aye; Director Cook – Aye; Councilmember Gaglioti – Aye; Mayor Carbone – Aye; Director Riley – Aye; Director Leith – Aye; Councilmember Albert – Aye; Supervisor Adams - Aye. Motion carried.

V. CONSENT CALENDAR

A. Consider Adopting Watermaster Resolution 22-03 finding that continuing Covid pandemic state of emergency declared by Governor Newsom directly impacts ability of board to meet safely in person

B. Consider Approving Minutes of Regular Board meeting held June 1, 2022

It was moved by Councilmember Albert and seconded by Mayor Carbone to approve the consent calendar as presented. Director Bruno – Aye; Mayor Oglesby – Aye; Director Cook – Aye; Councilmember Gaglioti – Aye; Mayor Carbone – Aye; Director Riley – Aye; Director Leith – No; Councilmember Albert – Aye; Supervisor Adams - Aye. Motion carried.

VIII. NEW BUSINESS (Added item per Review of Agenda motion above)

The Club at Pasadera Avoidance of Replenishment Assessment

AO Paxton introduced the issue. The Club at Pasadera is an Alternative Producer as described in the Court Decision with a fixed production allocation of 251 acre-feet per year (AFY) that has not been exceeded since Amended Decision inception in 2007 through Water Year (October-September) 2021. Pasadera has under pumped on average 72AFY for a total of approximately 1,080AF. In this Water Year 2021-22 that ends September 30th, Pasadera is on course to exceed its allocation by up to 15 acre-feet that would incur an Overproduction Replenishment Assessment totaling $55,276.80. Pasadera has been monitoring usage closely and keeping in touch with AO, and is now coming to the board preemptively seeking relief from the potential assessment due to the unexpected hot weather this month and to extenuating operational circumstances that have occurred over the course of the current water year. Mission Memorial Park (MMP), an Alternative Producer to the Adjudication, earlier in the year sought relief from replenishment assessment due to its over production of allocation in water year 2021 to green its cemetery grounds. In comparison, MMP had no extenuating circumstances for its overproduction and had recently relandscaped requiring intensified watering. Pasadera General Manager and its Golf Course Superintendent are in attendance requesting allowance to accrue any overproduction through the end of this month to the 2022-23 allocation allotment of 251AF available October 1, 2022. (Laguna Seca Golf Resort has graciously offered to transfer 15AF of its still available allocation to Pasadera however Alternative Producers are not allowed to apply water to any property besides their own.) Watermaster staff finds no wording in the Decision that prohibits accruing overproduction to a future water year. There is no material injury to the Basin foreseen to occur from this arrangement. After hearing from Pasadera, it was recommended that the Board consider the information from The Club at Pasadera and render a decision on the request to accrue the potential overproduction or relieve replenishment assessment.

The Club at Pasadera General Manager, Will Pickering, addressed the board, seeking relief from assessment amenable to the Watermaster board. Golf Course Superintendent, Brad Coleman provided information on circumstances beyond the recent hot weather that has led to potential overproduction, and detailed water savings plans for the upcoming water year and for the foreseeable future that will allow it to under pump its allocation even more. Mr. Rosenthal gave details of the pursuit to obtain 15 acre-feet from other sources. Director Cook emphasized the need to examine each of these types of situations individually and that he would not look favorably upon a repeat occurrence by the same producer.

It was moved by Director Riley and seconded by Mayor Oglesby to deny The Club at Pasadera relief from overproduction assessment with the proviso if a standard producer willing to provide them 15 acre-feet is found the fee would be waived/rescinded. Director Bruno – No (1/2 vote); Mayor Oglesby – Aye (2 votes); Director Cook – No (3 votes); Councilmember Gaglioti – No (1 vote); Mayor Carbone – No (1 vote); Director Riley – Aye (2 votes); Director Leith – No (1/2 vote); Councilmember Albert – No (1 vote); Supervisor Adams – Aye (2 votes). Motion failed.

It was moved by Councilmember Gaglioti and seconded by Director Leith to approve adding 15 acre-feet to The Club at Pasadera 2021/22 allocation if necessary to be repaid by reducing by 15 acre-feet its 2022/23 allocation to 236 acre-feet. Director Bruno – Aye; Mayor Oglesby – Aye; Director Cook – Aye; Councilmember Gaglioti – Aye; Mayor Carbone – Aye; Director Riley – No; Director Leith – Aye; Councilmember Albert – Aye; Supervisor Adams – (showed connected to meeting however there was no response to the vote call). Motion carried.

IX. ORAL PRESENTATION – none

X. OLD BUSINESS

A. TECHNICAL ADVISORY COMMITTEE (TAC)

i. Results of Additional Analyses of the Replenishment Water Modeling Work

TPM Jaques gave highlights from his transmittal. Benito Pascual, Ph.D., Senior Hydrogeologist, Montgomery and Associates provided an Executive Summary of Replenishment Modeling & Analysis of Alternate Supply & Demand Assumptions and presented slides. Baseline scenario included 700 acre-feet per year (AFY) CAW payback plus 1,000AFY additional replenishment. Basin water level sensitivity to drought and Aquifer Storage and Recovery (ASR) injection was evident in modeling results.

Director Cook noted the significant difference between Baseline Scenario replenishment need of 1,000AFY versus Scenario 1 replenishment need of 3,700AFY. Director Riley requested presentation charts be labeled and pages be numbered; Kmart should be re-labeled Home Depot. He surmised from the presentation that injection closer to the coast would be more protective of the Basin, and that the value of adding i.e., 1,000AFY and losing 500AFY to outflow would equate to paying twice for recharge water; varying injection times and locations appears to optimize retention. Director Carbone commented on the need for a wet water source no matter assumptions or scenarios put forth. Melodie Chrislock, Public Water Now, inquired if the amount of water annually lost from the Basin was known, to which Mr. Jaques estimated 1,100AFY for both inland and northern subarea boundaries. Mayor Oglesby left the meeting at this point.

David Stoldt, MPWMD General Manager expressed objection to continued use of the CAW Urban Water Management Plan (UWMP) as a basis for modeling assumptions. He felt much thought needed to be given before using the ASR field for additional injection due to capacity and commitment constraints, stating additional infrastructure may be needed. Mr. Tilly addressed the board stating he felt the detailed analysis provided important information: that hoping for rain and delivery of contracted amounts from ASR and PWM&X creates potential for failure. The Monterey Peninsula Water Supply Project was determined to need all three components – ASR, PWM&X, and desalination – to ensure Peninsula communities have a sufficient and sustainable water supply, something ASR and PWM&X alone have been demonstrated not to achieve. A healthy Seaside Basin protected from seawater intrusion should be of top priority since without it, storage of injected or in-lieu water supplied by the 3-faceted water project could not occur. Director Riley expressed his concern with the loss of Seaside Basin groundwater into the Monterey Subbasin and felt expanded interaction with surrounding basins should be undertaken. He felt Watermaster should focus on the financing of any additional water supply.

Director Gaglioti pointed out the purpose of the report was to understand how the Basin responds to certain environmental conditions; what is unfortunate is that the results are presented as a time series: follow a certain scenario and protective levels will be reached in "x" years without any proactive measures taken. The report serves to quantify the amount of replenishment needed if other sources are found, important data yet an aside from the growing realization that another water source is needed independent from rain, especially as the drought continues and is forecasted in future years. Director

Gaglioti noted that the modeling assumptions, formulated over many months with MPWMD and other expert input, are conservative, padded by using the lower end project delivery values and higher demand values. Mr. Jaques summed up that the report and the surrounding basins' inability to achieve sustainability has led him to believe Basin protective water levels will never be achieved. Further, he supported Director Riley's past suggestion that the Basin be abandoned to recharge naturally and water supply be shifted to a non-native source. He felt desalination was the only viable non-native source.

It was moved by Director Riley and seconded by Mayor Carbone to accept the Consolidated Technical Memorandum on the Results of Additional Analyses of the Replenishment Water Modeling Work. Director Bruno – Aye; Director Cook – Aye; Councilmember Gaglioti – Aye; Mayor Carbone – Aye; Director Riley – Aye; Councilmember Albert – Aye; Director Leith – Aye; Supervisor Adams – (no response to the vote call). Motion carried.

ii. Results from Flow Direction/Flow Velocity Modeling and Recommend Additional Analysis
Due to the length of the current meeting, this item was deferred to a future board meeting.

iii. Consider Approval of Consulting Services for Replacement of Well FO-9 Shallow
Mr. Jaques gave highlights of his transmittal. Director Gaglioti noted there were likely grant funds available to other agencies for the project (Watermaster is not eligible to receive grants).

It was moved by Councilmember Albert and seconded by Councilmember Gaglioti to approve Montgomery & Associates RFS No. 2022-05 to provide consulting services for replacement of Monitoring Well FO-9 Shallow. Director Bruno – Aye; Director Cook – Aye; Councilmember Gaglioti – Aye; Mayor Carbone – Aye; Director Riley – Aye; Councilmember Albert – Aye; Director Leith – Aye; Supervisor Adams – (no response to the vote call). Motion carried.

XI. NEW BUSINESS

A. Monterey County Board of Supervisors Invitation to Speak at Regional Water Forum September 20th
President Bruno noted he would ensure that a Watermaster representative would be present.

IX. INFORMATIONAL REPORTS (No Action Required)

A. Technical Advisory Committee (TAC) meeting minutes July 27 (review on website at https://www.seasidebasinwatermaster.org/sbwmARC.html) and Draft August 10, 2022
B. Watermaster Report of Production third quarter Water Year 2022 (April 1, 2022 – June 30, 2022)
C. Watermaster Correspondence to MPWMD/PWM/CAW regarding Well ASR-01 Issues
D. Informational - Salinas Valley Basin Groundwater Sustainability Agency Budget & Finance Committee Staff Report regarding SGMA $7.6 Million Round 1 Implementation Grant

X. DIRECTOR'S REPORTS – Director Riley requested a document detailing the history of Watermaster replenishment be drawn up, perhaps by convening a strategic or goals workshop, to aid in the board member knowledge succession process. He felt the need for a corporate knowledge succession process. Director Cook reported that the Coastal Commission deemed the desalination component of the Monterey Peninsula Water Supply Project application complete; a hearing will be scheduled. Director Bruno announced a Watermaster Christmas party to be held at his home on December 15th at 6:00 p.m.

XI. STAFF COMMENTS – There were no staff comments.

XII. NEXT REGULAR MEETING DATE - July 6, 2022 - 2:00 p.m.

XIII. ADJOURNMENT – There being no further business, the meeting was adjourned at 5:00 p.m.

ITEM VI.B.

SEASIDE GROUNDWATER BASIN WATERMASTER **10/5/22**

TO:	Board of Directors
FROM:	Laura Paxton, AO
DATE:	October 5, 2022
SUBJECT:	Summary of Payments made from May through August 2022

RECOMMENDATIONS:

Consider approving payment of bills submitted and authorized to be paid May - August 2022

Summary of Payments Made May 2022

Paxton Associates (Administrative Officer (AO))

April 26, 2022 through May 25, 2022	57.5	**$ 5,545.00**

Responded to telephone inquiries, e-mail, and other correspondence as needed regarding the Seaside Basin; Revise agenda/closing December financials/prepare March financials/transmittals to Campbell for review; follow up w/MMP on court date extension/then w/Campbell to instruct not to prepare for 5/10 court date; arrange Zoom meet w/ Askew; follow up on production non-rpters; emails; mail; Complete summary of payments; finalize web page transmittal; assemble board mtg pkt; distribute; Meeting agenda for posting; Complete full and summary packets/distribute; orientation Zoom mtg Supervisor Askew/Jaques/Eric Mora; Prep for/attend board mtg; Process invoices/send to Seaside; process data collection contract revenues/take to Seaside; Req financials from Seaside for recon to WM books; LSGR 2nd qrtr production followup; revised Rules & Regs for web posting; ck w/D Albert re: using MST for meetings; Process Feeney invoice; reconcile Seaside WM financials to QB; post LSGR 2nd qtr production; Review TAC packet; review letter to DWR & give suggestions; Determine board mtgs MST or Zoom; MMP RA pymt arrangements/pumping limit action plan; Campbell invoice review; TAC minutes review; download 25 docs re: ASR-01; ASR-01 dispute mtg scheduled 5/27 10a; Prep/send letter to DWR; receive agenda transmittals from Jaques; prep MMP invoice/credit memo stmt & send to MMP; Email & youtube from Georgina; rep minutes of 5/4 board mtg; Draft agenda for 6/1 board mtg; review Jaques replenishment needs transmittal; review draft PAC presentation from Georgina; Summary of payments; revise draft board mtg agenda; Confer w/Georgina on PAC presentation/3D model; Finalize agenda & distribute; 3D model work for web page; Routinely picked up mail from PO Box; reconciled accounts to the City of Seaside Watermaster accounts; prepared financial reports; processed invoices; reviewed and posted items to web site.

Robert Jaques (Technical Program Manager)

May 1 through May 31, 2022	37.5	**$ 5,625.00**

Responded to emails, telephone inquiries, and other correspondence on a variety of Watermaster issues. Prepare Board Agenda Transmittals; Prepare for/attend SVBGSA Advisory/TAC meetings 5/11, 5/19. Work on TAC agenda packet. Prepare TAC mtg minutes; Prep for/attend 5/4 Board mtg; Work on monthly meeting summary; Work on M&A RFS No. 2022-04; Review/approve L. Paxton invoice; Review Monterey Subbasin GSP re: "Project" and "No Project" water budgets; Review P. Benito's revised Scope and Cost Proposal for replenishment water analyses and telecon with him re: same; discuss WM agenda issues with L. Paxton; Start/continue/finish work on letter to DWR re: Monterey Subbasin GSP and email to J. Gaglioti and L. Paxton for their review; Finalize letter to DWR re: Monterey Subbasin GSP and send to L. Paxton for signature by P. Bruno; Research Water Purchase Agreement issues re: Dave Stoldt letter; attend dispute resolution video conference between MPWMD and Cal Am re: Well ASR-1; Review Decision re: Material Injury and PWM impacts on Well ASR-1

Montgomery & Associates (Technical Consultant)			
May 1 through May 31, 2022	16.0		**$ 3,455.50**
RFS 2022-01, General Hydrogeologic Consulting			
Professional services: review and respond to B. Jaques email on reduction of induction logging frequency.			
RFS 2022-03, Public Awareness Committee Support			
Professional services: prepare draft presentation for Watermaster staff review; senior review of presentation; and finalize draft presentation based on feedback received and email to Watermaster staff.			
Christopher Campbell, Baker Manock & Jensen (WM Legal Counsel)	1.5	300	**$ 450.00**
	13.6	200	**$ 2,720.00**
Payments through April 30, 2022	Telepone & Postage		**$ 30.90**
			$ 3,200.90

Review of the MMP attorney concerning the way to proceed; e-mail to Ms. Paxton concerning same. Review of question from Bob about the ability of pumping beyond safe yield and call with Laura Paxton. concerning same; e-mai with Laura Paxton concerning the new project of developing an agreement on how to proceed withoutl the expected supplemental water supply and review the Judgment concerning same. Call with Ms. Paxton to discuss potential resolutions for the Mission Memorial exceeding its allocation. E-mail with Laura concerning the potential Legal opinion concerning the lack of supplemental water after the ramp down; call with Ms. Paxton concerning same; review of relevant sections of the judgment; zoom meeting with Bob, Laura and Chris Cook concerning how the Watermaster should approach the use of credits and other issues now that the ramp down has been completed but no additional water supply has been created. E-mail to in house attorney from CalAm concerning the post ramp down issues. E-mail with Laura Paxton concerning MMP over producing and the potential approaches to address the issue; review of, and significant edits to, the Rules and Regulations of the Watermaster to clarify the Water-masters dispute resolution procedures; teams Meeting with Aiko; research concerning her interpretation of the Judgment and memo to Laura and Bob concerning Aiko's interpretation of the Judgment. E-mails with Ms Paxton concerning the amendments to the Watermaster Terms and Conditions; e-mails concerning the Close Session meeting of the Watermaster Board concerning the MMP excess pumping and email with Ms. Paxton for the preview for my discussion with Aiko concerning allocation questions. Discussion with Laura Paxton prior to meeting with Cal Am to discuss allocation issues; review of cemetery standards for landscaping. Preparation for meeting with Aiko attorney for California water to discuss the issues of the lack of supplemental water and the question of priority for water use and review of sections of the Judgment that she believes supports her arguments; e-mail to Ms. Paxton to report on the meeting. Review of the judgment to apply to the question of how the watermaster uses or does not use credits and other issues concerning how the Watermaster will function after the ramp down of pumping without obtaining supplemental Water; review of the Watermaster protocols and the Judgment to finalize a Dispute procedure for the Watermaster. Review of the final proposed changes for the Rules and Regulations and review of the agenda items especially concerning the Closed session protocol; detailed review and comment on the transmittals for

Monterey Peninsula Water Management District	18.8	196	**3,675.00**
Jan through Mar 2022 RFS 2022-01	48.0	136	**6,528.00**
		Direct costs	**1,380.00**
Monitoring Jan-Mar 2022			**11,583.00**
Monitoring Jan-Mar 2022 additional amount			**245.00**
			11,828.00
	Total for May 2022		**$ 29,654.40**
Summary of Payments Made June 2022			
Paxton Associates (Administrative Officer (AO))			
May 26, 2022 through June 25, 2022	82.5		**$ 6,800.00**

Responded to telephone inquiries, e-mail, and other correspondence as needed regarding the Seaside Basin. Compile/finalize agenda packet for 6/1 board mtg; Notify Lindberg to report monthly; Notify Pasadera of heavy production first 2 qtrs; rcv $25k ck from MMP; Review updated PAC presentation from King; Discuss 3D model adaptation to presentation w/ designer; Prep for/attend board mtg; Post M&A RFS 04-2022 to web; Review CAW UWMP; Review MPWMD 6/6 Water Supply Com mtg agenda pkt; Suggested edits to Jaques email to Riley re: 6/6 Water supply mtg; Revise presentation slides; Prepare presentation for King review; Prepare pkt for 6/4 PAC mtg; Process $25k pymt to Seaside; review Production MMP & Pasadera-contact MMP; letter re: ASR-1; Complete PAC pkt & distribute; Process invoices; distribute ASR-1 letter; response re: May 27th ASR-01 mtg; Prep notes for mtg; production reporting notice; Prep for/attend/follow up PAC mtg; Revise PAC presentation outline; request MPWMD invoice format change; post production; Cancel 7/6 Board mtg; review MPWMD mtg pkt; Meeting w/ webmaster re: obtaining proposal to reconstruct site; Observe PWM Ops/Qual meeting; SVBGSA public board member application; Email to Oglesby re: SVBGSA public member; 3D Model/Animation Work; Confer w/ Jaques regarding Watermaster Issues; Collect/follow up/post production and level reporting. Routinely picked up mail from PO Box; reconciled accounts to the City of Seaside Watermaster accounts; prepared financial reports; processed invoices; reviewed and posted items to web site.		
Robert Jaques (Technical Program Manager)		
June 1, 2022 through June 30, 2022	29	**$ 4,350.00**
Responded to emails, telephone inquiries, and other correspondence on a variety of Watermaster issues. Prepare for/attend SVBGSA Advisory committee meetings 6/2, 6/27; Prepare TAC 7/13 meeting agenda packet; Work on monthly mtg summary; Research Water Code requirements re: Urban Water Management Plans; review agenda packet for MPWMD Water Supply Planning Committee 6/6/22 meeting and email comments to G. Riley; Start work on draft letter for P. Bruno re: Material Injury and ASR-1 well issues; Finish draft letter for P. Bruno re: Material Injury; discuss Watermaster issues w/ L. Paxton; Review MPWMD invoice and send comments to L. Paxton; work on Draft 2023 M&MP; Review and approve revised MPWMD invoice; Telecon w/ M. Feeney re: MW FO-9 Shallow and review reports from him on same; review MSB GSP re: proposed new monitoring wells MCWD plans to install; Telecon w/ J. Epp @ RWQCB re: ASR-1 and PWM questions; Review PWM letter to Cal Am re: ASR-1 well issues; review/approve L. Paxton invoice		
Montgomery & Associates (Technical Consultant)		
June 1, 2021 - June 30, 2021	19.0	**$ 3,925.00**
RFS 2022-01 General Hydrogeologic Consulting		
Professional services: Prepare cost estimates for 2023 annual contract		
Public Awareness Committee Support		
Professional Services: participate in Public Awareness Committee to review draft presentation.		
Additional Hybrid Analyses of Replenishment Options		
Professional services: review baseline model setup and run initial water budget processing export test; review Cal-Am UWMP assumptions and tabulate annual demand numbers and prepare formulas for interpolating annually; prepare spreadsheet supply demand model for incorporating Cal-Am demand assumptions; and incorporate UWMP demand projections and assumptions in to MPWMD spreadsheet supply demand model.		
Total for June 2022		**$ 15,075.00**
Summary of Payments Made July 2022		
Paxton Associates (Administrative Officer (AO))		
June 26 through July 25, 2022	42.5	**$ 3,407.50**

Responded to telephone inquiries, e-mail, and other correspondence as needed regarding the Seaside Basin; Implementation cmtee mtg; Post production; Begin minutes of 6/1 Board mtg; begin minutes of 6/14 PAC mtg; Review Jaques invoice; process invoices to Seaside; SVBGSA public member app, query PAC members for interest; rcv 3rd qtr production reporting; Cancel 8/3 board mtg; inquire of Victor for 8/18 Budget/Finance mtg; review 3D model; PAC presentation slide revisions; 3D Animations; Confer with Jaques about various issues; Collect/follow up/post production and level reporting. Routinely picked up mail from PO Box; reconciled accounts to the City of Seaside Watermaster accounts; prepared financial reports; processed invoices; reviewed and posted items to web site.								
Robert Jaques (Technical Program Manager)								
July 1 through July 31, 2022						42		**$ 6,300.00**
Responded to emails, telephone inquiries, and other correspondence on a variety of Watermaster issues; Prepare TAC meeting agenda packet. Prepare for/attend SVBGSA Advisory/TAC meetings 7/6, 7/13, 7/21; Work on TAC meeting minutes; Work on 2023 M&MP and 2023 M&MP budgets; Work on issues pertaining to replacement of monitoring well FO- 3.0 9 Shallow; review/approve M&A invoice; Work on replenishment water info requsted by C. Cook; discuss WM issues w/ L. Paxton; Telecon w/ D. Holland @ MBAS re: barium and chloride analytical costs and research history on this in the M&MP; Visit site of well FO-9 to familiarize with the site and take photos for inclusion in August TAC agenda packet; Participate in DWR AEM workshop; Review M1W PWM Intrinsic Tracer Study report; Review/approve L. Paxton invoice								
Montgomery & Associates (Technical Consultant)								
July 1 though July 31, 2022						78.5		**$ 15,879.50**
RFS 2022-01, General Hydrogeologic Consulting								
Professional services: respond to B. Jaques questions about replacing well FO-9 shallow; provide support to B. Jaques on geologic maps and information related to well screens; respond to B. Jaques regarding barium and iodide samples; coordinate with B. DeBoer on wells cost requested by Watermaster for replacement of FO-9 shallow; respond to emails from B. Jaques; call with B. Jaques regarding DWR AEM flight plan and Watermaster areas of interest; and coordinate with A. Ostovar on Monterey Subbasin areas of interest overlap with the Seaside Basin.								
RFS 2022-04, Additional Hybrid Analyses of Replenishment Options								
Professional services: process and analyze water budget data for Northern Coastal Subarea; attend July 13 TAC meeting and respond to questions; develop expanded water budget zone that includes PWM Expanded area; prepare script for processing water budget by zones; set up new spatial zones and zone budget input files and processing scripts for water budget analysis; prepare water budget analysis; analyze ASR availability and changes in historical water year type trends and frequency; integrate UWMP assumptions in supply/demand model; process and review results of water budget analysis; and prepare draft tech memo text and figures.								
						Total for July 2022		**$ 25,587.00**

Summary of Payments Made August 2022			
Paxton Associates (Administrative Officer (AO))			
July 26, 2022 through August 25, 2022	31.5		**$ 3,205.00**
Responded to telephone inquiries, e-mail, and other correspondence as needed regarding the Seaside Basin; Confer w/ Jaques re: Sept & Oct board mtgs; Review 3D progress/slides; email to Oglesby to cancel 9/13 PAC mtg; observe 180/400 impl mtg; Draft agenda for 9/7 board mtg; Confer w/ Jaques F09 replacement well; Post production; Revised draft agenda for 9/7 board mtg; edit/complete 6/1 minutes; CAW allotment discussion; Riley req for Campbell info; Distribution of email for SVBGSA public board member solicitation; collect invoices; Review minutes of 8/10 TAC mtg; PAC mtg cancellation; invoices to Seaside; 3D model cone of depression/groundwater movement; Routinely picked up mail from PO Box; reconciled accounts to the City of Seaside Watermaster accounts; prepared financial reports; processed invoices; reviewed and posted items to web site.			
Robert Jaques (Technical Program Manager)			
August 1 through August 31, 2022	45		**$ 6,750.00**
Responded to emails, telephone inquiries, and other correspondence on a variety of Watermaster issues. Prepare Board Agenda Transmittals; Prepare for/attend SVBGSA Advisory/TAC meetings 8/10, 8/18. Work on TAC agenda packet. Prepare TAC mtg minutes; Participate in Zoom meeting discussing ASR-1 Well issues; review proposal from M&A re: Replacement of Monitoring Well FO-9 Shallow; telecon w/ Bill DeBoer of M&A re: same; provide suggested edits and cost reductions to him; Prepare M&A RFS No. 2022-05; discuss WM issues with L. Paxton; Telecon w/ T. O'Halloran re: his questions about water budget, replenishment water, and PWM issues; update 2023 M&MP Capital Budget; review and provide edits to L. Paxton re: Draft Minutes from June Board meeting; send out Draft Replenishment Water Tech Memo to TAC; Begin review of Replenishment Water Tech Memo; Prepare suggested edits to Tech Memo and send to P. Benito; Conference call w/ C. Cook, I. Crooks, T. O'Halloran and P. Benito re: replenishment water Tech Memo issues/questions; Review PWM Extrinsic Tracer Study and underground travel time reports; Process permit renewal from State Parks for Sentinel Well induction logging work; Telecon w/ P. Benito re: replenishment water Tech Memo; Review information re: well drilling procedures and issues pertaining to replacement of Monitoring Well FO-9 Shallow; Telecon w/ M. Feeney re: well drilling issues; review FO-9 Well Completion Report and Feeney Memo re: FO-9 and FO-10 well issues			
Montgomery & Associates (Technical Consultant)			
August 1 through August 31, 2022	105.0		**$ 21,624.50**
RFS 2022-01, General Hydrogeologic Consulting			
Professional services: prepare map and description of AEM areas of interest; and email to B. Jaques.			
RFS 2022-04, Additional Hybrid Analyses of Replenishment Options			
Professional services: prepare draft tech memo text, figures and tables; integrate results of updated supply/demand model with UWMP & Seaside assumptions; senior review of draft tech memo summary and email to B. Jaques; process alternate water budget zone for layers 2-4 separate from layer 1; meet with B. Jaques and Cal-Am to review initial draft memo conclusions; prepare draft TAC presentation slides; review B. Jaques comments on draft memo and figures; participate in TAC meeting and present results of water budget analysis and alternative scenario 1; review suggested edits; correct Figure 19 for presentation; prepare figures for total replenishment under 1,000 AFY scenario; prepare revised memo text, figures, and conclusions; and prepare combined conclusions summary tech memo.			
Total for August 2022			**$ 31,579.50**
Grand Total May - August 2022			**$ 101,895.90**

Seaside Groundwater Basin Watermaster

Budget vs. Actual Administrative Fund

Fiscal Year (January 1 - December 31, 2022)
Balance through August 31, 2022

	2022 Adopted Budget	Contract Amount	Year to Date Revenue / Expenses
Available Balances & Assessments			
Other Assessments	-		8,500.00
FY (Rollover)	34,500.00		52,000.00
Admin Assessments	65,500.00		65,500.00
Available	**100,000.00**		**126,000.00**
Expenses			
Contract Staff	55,000.00	55,000.00	39,072.50
Legal counsel	20,000.00	20,000.00	6,343.90
Filing fees and postage			-
Total Expenses	**75,000.00**	**75,000.00**	**45,416.40**
Total Available	25,000.00		
Dedicated Reserve	25,000.00		25,000.00
Net Available	**-**		**55,583.60**

Seaside Groundwater Basin Watermaster

Budget vs. Actual Monitoring & Management - Operations Fund

Fiscal Year (January 1 - December 31, 2022)

Balance through August 31, 2022

	2022 Adopted Budget	Contract Encumbrance	Year to Date Revenue/Expenses
Available Balances & Assessments			
Operations Fund Assessment	$ 232,878.00	$ -	$ 232,878.00
Pass Through		-	3,342.00
FY 2021 Rollover	38,000.00	-	50,950.00
Total Available	**$ 270,878.00**	**$ -**	**$ 287,170.00**
Appropriations & Expenses			
GENERAL			
Technical Project Manager*	$ 75,000.00	$ 75,000.00	$ 44,775.00
Contingency @ 10% (not including TPM)	17,807.00	-	
Total General	**$ 92,807.00**	**$ 75,000.00**	**$ 44,775.00**
CONSULTANTS (Montgomery; Web Site Database)			
Program Administration	$ 21,940.00	$ 24,340.00	$ 70,060.50
Production/Lvl/Qlty Monitoring	2,400.00		
Basin Management	30,000.00		
Seawater Intrusion Analysis Report	26,290.00	26,290.00	-
Total Consultants	**$ 80,630.00**	**$ 50,630.00**	**$ 70,060.50**
MPWMD			
Production/Lvl/Qlty Monitoring	$ 68,876.00	68,876.00	6,524.00
Pass Through 2021		-	5,304.00
Basin Management	-		-
Seawater Intrusion	-	-	-
Direct Costs	-	-	-
Total MPWMD	**$ 68,876.00**	**$ 68,876.00**	**$ 11,828.00**
CONTRACTOR (Martin Feeney)			
Hydrogeologic Consulting Services	$ 4,000.00	4,000.00	-
Production/Lvl/Qlty Monitoring	20,565.00	20,565.00	9,251.37
	$ 24,565.00	**$ 24,565.00**	**$ 9,251.37**
CONTRACTOR (Todd Groundwater)			
Hydrogeologic Consulting Services	**$ 4,000.00**	**$ 4,000.00**	-
Total Appropriations & Expenses	**$ 270,878.00**	**$ 223,071.00**	**$ 135,914.87**
Total Available	**-**		**151,255.13**

Seaside Groundwater Basin Watermaster
Budget vs. Actual Monitoring and Management - Capital Fund
Fiscal Year (January 1 - December 31, 2022)
Balance through August 31, 2022

	2022 Adopted Budget	Contract Encumbrance	Year to Date Revenue / Expense
Available Balances and Assessments:			
Monitoring & Management Fund - Capital	$ 66,667		$ 66,667
FY 2007-2014 Rollover to 2015	-		-
Transfer out to Operations Fund	-		-
Subtotal	66,667		66,667
Appropriations & Expenses:			
Professional Services			
Project Management	-	-	-
Subtotal	-	-	
Direct Costs			
Well Drilling -	-	-	-
Subtotal	-	-	-
Total Appropriations and Expenses	$ -	$ -	$ -
Total Available	**$ 66,667.00**		**$ 66,667.00**

Seaside Groundwater Basin Watermaster

Replenishment Fund

10/5/22

Water Year 2022 (October 1 - September 30) / Fiscal Year (January 1 - December 31, 2022)

Balance through August 31, 2022

Replenishment Fund		**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Assessment Water Year		WY 05/06	WY 06/07	WY 07/08	WY 08/09	WY 09/10	WY 10/11	WY 11/12	WY 12/13	WY 13/14	WY 14/15	WY 15/16
Unit Cost:	a	$1,132 / $283	$1,132 / $283	$2,485 / 621.25	$3,040 / $760	$2,780 / $695	$2,780 / $695	$2,780 / $695	$2,780 / $695	$2,702/$675.50	$2,702/$675.50	$2,702/$675.50
Cal-Am Water Balance Forward	b	**$ -**	**$ 1,641,004**	**$ 4,226,710**	**$ (2,871,690)**	**$ (2,839,939)**	**$ (3,822,219)**	**$ (6,060,164)**	**$ (8,735,671)**	**$ (6,173,771)**	**$ (3,102,221)**	**$ (676,704)**
Cal-Am Water Production (AF)	c	*3,710.00*	*4,059.90*	*3,862.90*	*2,966.02*	*3,713.52*	*3,416.04*	*3,070.90*	*3,076.61*	*3,232.10*	*2,764.73*	*1,879.21*
Cal-Am Water NSY Over-Production (AF)	d	*1,862.69*	*2,266.32*	*2,092.16*	*1,241.27*	*1,479.47*	*1,146.71*	*820.48*	*856.42*	*1,032.77*	*782.17*	-
Exceeding Natural Safe Yield Considering Alternative Producers	e	$ 2,106,652	$ 2,565,471	$ 5,199,014	$ 3,773,464	$ 4,112,933	$ 3,187,854	$ 2,280,943	$ 2,380,842	$ 2,790,539	$ 2,113,414	$ -
Operating Yield Overproduction Replenishment	f	$ -	$ 20,235	$ 8,511	$ -	$ -	$ -	$ 154,963	$ 181,057	$ 281,012	$ 312,103	$ -
Total California American	g	**$ 2,106,652**	**$ 2,585,706**	**$ 5,207,525**	**$ 3,773,464**	**$ 4,112,933**	**$ 3,187,854**	**$ 2,435,907**	**$ 2,561,899**	**$ 3,071,550**	**$ 2,425,516**	
CAW Credit Against Assessment	h	$ (465,648)		$ (12,305,924)	$ (3,741,714)	$ (5,095,213)	$ (5,425,799)	$ (5,111,413)				
CAW Unpaid Balance	i	***$ 1,641,004***	***$ 4,226,710***	***(2,871,690)***	***$ (2,839,939)***	***$ (3,822,219)***	***$ (6,060,164)***	***$ (8,735,671)***	***$ (6,173,771)***	***$ (3,102,221)***	***$ (676,704)***	***$ (676,704)***
City of Seaside Balance Forward	j	**$ -**	**$ 243,294**	**$ 426,165**	**$ 1,024,272**	**$ 1,619,973**	**$ 891,509**	**$ (110,014)**	**$ (773,813)**	**$ (1,575,876)**	**$ (2,889,325)**	**$ (3,346,548)**
City of Seaside Municipal Production (AF)	k	*332.00*	*287.70*	*294.20*	*293.44*	*282.87*	*240.68*	*233.72*	*257.73*	*223.64*	*185.01*	*195.16*
City of Seaside NSY Over-Production (AF)	l	*194.07*	*153.78*	*161.99*	*153.06*	*113.21*	*50.84*	*58.82*	*85.17*	*52.71*	*25.77*	*37.87*
Exceeding Natural Safe Yield Considering Alternative Producers	m	$ 219,689	$ 174,082	$ 402,540	$ 465,300	$ 314,721	$ 141,335	$ 163,509	$ 236,782	$ 142,410	$ 69,630	$ 102,330
Operating Yield Overproduction Replenishment	n	$ 12,622	$ 85	$ 4,225	$ 16,522	$ 20,690	$ -	$ 1,689	$ 27,007	$ 3,222	$ 38	$ 11,959
Total Municipal	o	$ 232,310	$ 174,167	$ 406,764	$ 481,823	$ 335,412	$ 141,335	$ 165,198	$ 263,788	$ 145,631	$ 69,667	$ 114,290
City of Seaside - Golf Courses (APA - 540 AFY)												
Exceeding Natural Safe Yield - Alternative Producer	p	$ -	$ -	$ 131,705	$ 69,701	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Yield Overproduction Replenishment	q	$ -	$ -	$ 32,926	$ 17,427	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Golf Courses	r	$ -	$ -	$ 164,631	$ 87,128	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total City of Seaside*	s	**$ 232,310**	**$ 174,167**	**$ 571,395**	**$ 568,951**	**$ 335,412**	**$ 141,335**	**$ 165,198**	**$ 263,788**	**$ 145,631**	**$ 69,667**	**$ 114,290**
City of Seaside Late Payment 5%	t	$ 10,984	$ 8,704	$ 26,712	$ 26,750	$ 15,737						
In-lieu Credit Against Assessment	u					$ (1,079,613)	$ (1,142,858)	$ (828,996)	$ (1,065,852)	$ (1,459,080)	$ (526,890)	$ (162)
City of Seaside Unpaid Balance	v	***$ 243,294***	***$ 426,165***	***$ 1,024,272***	***$ 1,619,973***	***$ 891,509***	***$ (110,014)***	***$ (773,813)***	***$ (1,575,876)***	***$ (2,889,325)***	***$ (3,346,548)***	***$ (3,232,420)***
Mission Memorial Park												
Mission Memorial Park Production (AF)	w			*20.80*	*26.40*	*12.80*	*22.40*	*27.00*	*24.95*	*24.89*	*17.97*	*13.67*
Mission Memorial Park NSY Over-Production (AF)	x	-	-	-	-	-	-	-	-	-	-	-
Exceeding Natural Safe Yield - Alternative Producer	y	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Yield Overproduction Replenishment	z	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Mission Memorial Park	aa	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Replenishment Fund Balance	bb	**$ 1,884,298**	**$ 4,652,874**	**$ (1,847,417)**	**$ (1,219,966)**	**$ (2,930,710)**	**$ (6,170,178)**	**$ (9,509,483)**	**$ (7,749,648)**	**$ (5,991,546)**	**$ (4,023,252)**	**$ (3,909,125)**
Replenishment Fund Balance Forward	cc	$ -	**$ 1,884,298**	**$ 4,652,874**	**$ (1,847,417)**	**$ (1,219,966)**	**$ (2,930,710)**	**$ (6,170,178)**	**$ (9,509,483)**	**$ (7,749,648)**	**$ (5,991,546)**	**$ (4,023,252)**
Total Replenishment Assessments	dd	$ 2,349,946	$ 2,768,576	$ 5,805,632	$ 4,369,165	$ 4,464,082	$ 3,329,189	$ 2,601,104	$ 2,825,688	$ 3,217,182	$ 2,495,183	$ 114,290
Total Paid and/or Credited	ee	$ (465,648)	$ -	$ (12,305,924)	$ (3,741,714)	$ (6,174,826)	$ (6,568,657)	$ (5,940,409)	$ (1,065,852)	$ (1,459,080)	$ (526,890)	$ (162)
Grand Total Fund Balance	ff	**$ 1,884,298**	**$ 4,652,874**	**$ (1,847,417)**	**$ (1,219,966)**	**$ (2,930,710)**	**$ (6,170,178)**	**$ (9,509,483)**	**$ (7,749,648)**	**$ (5,991,546)**	**$ (4,023,252)**	**$ (3,909,125)**

** 2010 = 319.55 AF golf course in-lieu replenishment and 68.8 AF 4-party agmt in-lieu replenishment*

2011 = 411.1 AF golf course in-lieu replenishment

2012 = 298.2 AF golf course in-lieu replenishment

2013 = 383.4 AF golf course in-lieu replenishment

2014 = 552.4 AF golf course in-lieu capped at 540 AF

2015 = 195.0 AF golf course in-lieu

2016 = 00.06 AF golf course in-lieu

2017 = 00.00 AF golf course in-lieu

Seaside Groundwater Basin Watermaster
Replenishment Fund
Water Year 2022 (October 1 - September 30) / Fiscal Year (January 1 - December 31, 2022)
Balance through August 31, 2022

Replenishment Fund		2017	2018	2019	2020	WY 2021	Totals WY 2006 Through 2021	Budget WY 2022	Projected Totals Through WY 2022
Assessment Water Year		WY 16/17	WY 17/18	WY 18/19	WY 19/20	WY 20/21		WY 21/22	
Unit Cost:	a	$2,872 / $718	$2,872 / $718	$2,872 / $718	$2,872 / $718	$2,947 / $737		$3,260/ $815	
Cal-Am Water Balance Forward	b	**$ (676,704)**	**$ (491,747)**	**$ (48,797,949)**	**$ (47,979,852)**	**$ (46,855,121)**		**$ (46,855,121)**	
Cal-Am Water Production (AF)	c	*2,029.51*	*2,229.45*	*2,120.22*	*2,245.88*	*1,664.04*	*46,041.03*		
Cal-Am Water NSY Over-Production (AF)	d	*64.40*	*374.65*	*284.85*	*334.21*	-	*14,638.57*		
Exceeding Natural Safe Yield Considering Alternative Producers	e	$ 184,957	$ 1,075,995	$ 818,097	$ 959,859	$ -	$ 33,550,034	$ 100,000	$ 33,650,034
Operating Yield Overproduction Replenishment	f				$ 164,872	$ -	$ 1,122,753	$ 20,000	$ 1,142,753
Total California American	g	**$ 184,957**	**$ 1,075,995**	**$ 818,097**	**$ 1,124,731**	**$ -**	**$ 34,672,786**	**$ 120,000**	**$ 34,792,786**
CAW Credit Against Assessment	h		$ (49,382,196)	$ -	$ -	$ -	$ (81,527,907)	$ -	$ (81,527,907)
CAW Unpaid Balance	i	***$ (491,747)***	***$ (48,797,949)***	***$ (47,979,852)***	***$ (46,855,121)***	***$ (46,855,121)***	***$ (46,855,121)***	***$ (46,735,121)***	***$ (46,735,121)***
City of Seaside Balance Forward	j	**$ (3,232,420)**	**$ (3,142,500)**	**$ (3,022,249)**	**$ (2,919,806)**	**$ (2,802,831)**		**$ (2,708,828)**	
City of Seaside Municipal Production (AF)	k	*188.31*	*184.63*	*178.40*	*181.65*	*174.69*	*3,733.83*		
City of Seaside NSY Over-Production (AF)	l	*30.47*	*32.46*	*27.82*	*32.06*	*25.52*	*1,235.62*		
Exceeding Natural Safe Yield Considering Alternative Producers	m	$ 87,512	$ 93,225	$ 79,893	$ 92,089	$ 75,197	$ 2,860,242	$ 100,000	$ 2,960,242
Operating Yield Overproduction Replenishment	n	$ 2,409	$ 27,026	$ 22,550	$ 24,886	$ 18,806	$ 193,734	$ 10,000	$ 203,734
Total Municipal	o	$ 89,920	$ 120,251	$ 102,443	$ 116,975	$ 94,003	$ 3,053,977	$ 110,000	$ 3,163,977
City of Seaside - Golf Courses (APA - 540 AFY)									
Exceeding Natural Safe Yield - Alternative Producer	p	$ -	$ -	$ -	$ -	$ -	$ 201,406		$ 201,406
Operating Yield Overproduction Replenishment	q	$ -	$ -	$ -	$ -	$ -	$ 50,353		$ 50,353
Total Golf Courses	r	$ -		$ -	$ -	$ -	$ 251,759		$ 251,759
Total City of Seaside*	s	**$ 89,920**	**$ 120,251**	**$ 102,443**	**$ 116,975**	**$ 94,003**	**$ 3,305,736**	**$ 110,000**	**$ 3,415,736**
City of Seaside Late Payment 5%	t						$ 88,887		$ 88,887
In-lieu Credit Against Assessment	u					-	$ (6,103,451)	-	$ (6,103,451)
City of Seaside Unpaid Balance	v	***$ (3,142,500)***	***$ (3,022,249)***	***$ (2,919,806)***	***$ (2,802,831)***	***$ (2,708,828)***	***$ (2,708,828)***	***$ (2,598,828)***	***$ (2,598,828)***
Mission Memorial Park (APA - 31 AFY)									
Mission Memorial Park Production (AF)	w	*13.74*	*14.43*	*16.07*	*20.00*	*46.77*	*301.89*		
Mission Memorial Park NSY Over-Production (AF)	x	-	-	-	-	*15.77*	*15.77*		
Exceeding Natural Safe Yield - Alternative Producer	y	$ -	$ -	$ -	$ -	$ 46,488	$ 46,488		$ 46,488
Operating Yield Overproduction Replenishment	z	$ -	$ -	$ -	$ -	$ 11,626	$ 11,626		$ 11,626
Board Approved (5/4/22) Credit Against Assessment						(33,114)	$ (33,114)	-	$ (33,114)
Mission Memorial Park Unpaid Balance	aa	$ -		$ -	$ -	**$ -**	$ -		$ -
Total	o	$ -	$ -	$ -	$ -	$ 25,000.00	$ 25,000	$ -	
									$ 25,000
Total Replenishment Fund Balance	bb	**$ (3,634,247)**	**$ (51,820,198)**	**$ (50,899,658)**	**$ (49,657,952)**	**$ (49,563,949)**	**$ (49,563,949)**	**$ (49,333,949)**	**$ (49,333,949)**
Replenishment Fund Balance Forward	cc	**$ (3,909,125)**	**$ (3,634,247)**	**$ (51,820,198)**	**$ (50,899,658)**	**$ (49,657,952)**		**$ (49,588,949)**	
Total Replenishment Assessments	dd	$ 274,877	$ 1,196,246	$ 920,540	$ 1,241,706	$ 94,003	$ 38,067,410	$ 230,000	**$ 38,297,410**
Total Paid and/or Credited	ee		$ (49,382,196)			$ (25,000)	$ (87,656,358)	$ -	**$ (87,656,358)**
Grand Total Fund Balance	ff	**$ (3,634,247)**	**$ (51,820,198)**	**$ (50,899,658)**	**$ (49,657,952)**	**$ (49,588,949)**	**$ (49,588,949)**	**$ (49,358,949)**	**$ (49,358,949)**

SEASIDE GROUNDWATER BASIN WATERMASTER

TO: Watermaster Board of Directors

FROM: Laura Paxton, Administrative Officer (AO)

DATE: October 5, 2022

SUBJECT: Proposed Fiscal Year (Calendar Year) 2023 Annual Administrative Fund Budget

RECOMMENDATION:
Recommended the Board approve the attached proposed Administrative Fund Budget for FY 2023.

DISCUSSION:
The court decision states that next fiscal year's budgets must be approved by the Board of Directors no later than the end of October each year in order for tentative budgets to be circulated to each adjudication Party "no earlier than November 1 and no later than November 15" each fiscal year.

The need for legal services in 2022 has been minimal with $6,500 spent to date. There is nothing foreseen for 2023 of legal significance. A $25,000 administrative reserve is in place that could cover unforeseen legal issues that may arise. Therefore, the Legal line item has been reduced to $12,000.

The Watermaster Public Awareness Committee approved developing a 3D rendering of the Seaside Groundwater Basin for presentations and ultimate placement on the Watermaster website. $3,000 was committed to that effort in 2022, and $3,000 more is being proposed to keep the 3D model updated and revised so it can be tailored to meet the needs of what is presented by the committee, and for the web administrator to develop the web page and post the 3D model.

At its September 19, 2022 meeting the Budget and Finance Committee reviewed, discussed, and approved this Budget.

FISCAL IMPACT:
An estimated $39,500 in unspent 2022 funds are expected to be carried over to 2023.

An Administrative Fund Assessment of $60,500 is proposed:
$60,000(AO)+$12,000(Legal)+$3,000(PAC)+$25,000(Reserve) = $100,000-$39,500(Carryover) = $60,500

The assessments for the parties required to contribute to the Administrative Fund are:

California American Water 83.0%	$50,215
City of Seaside 14.4%	8,712
City of Sand City 2.6%	1,573
	$60,500

ATTACHMENTS
1) Proposed Administrative Fund Budget for FY (Calendar Year) 2023

Seaside Groundwater Basin Watermaster
Administrative Fund Budget
Proposed Budget September 19, 2022
Administrative Year 2023

	2022 Adopted Adjusted Budget 5/4/2022	2022 Estimated Total	2023 Adopted Budget
Assessment Income			
Reserve/Rollover*	$ 34,500	$ 52,000	$ 39,500
Administrative Assessment	65,500	65,500	60,500
Mission Memorial Legal Costs		8,500	
Totals	100,000	126,000	100,000
Expenditures			
Contractual Services - Administrative	55,000	55,000	60,000
Legal Services	20,000	6,500	12,000
Public Awareness Committee	3,000	3,000	3,000
Total Expenses	78,000	61,500	75,000
Total Available	22,000	64,500	25,000
Less Reserve	22,000	25,000	25,000
Net Available	$ -	$ 39,500	$ -

** Note: The reserve/rollover balance of $39,500 was determined upon completion by Watermaster staff of a detailed reconciliation from 2006 through August 2022 of the Administrative Fund financial records held at the Watermaster office.*

SEASIDE GROUNDWATER BASIN
WATERMASTER

TO: Board of Directors

FROM: Robert S. Jaques, Technical Program Manager

DATE: October 5, 2022

SUBJECT: Proposed Fiscal Year 2023 Monitoring and Management Program (M&MP) and the 2023 and 2024 M&MP Operations and Capital Budgets

- -

RECOMMENDATIONS:
Approve, or make changes to and then approve, the below:

1. FY 2023 M&MP
2. FY 2023 M&MP Operations Fund Budget
3. FY 2023 M&MP Capital Fund Budget

The projected 2024 Operations and Capital Fund Budgets are informational only, and no action on those budgets is required.

BACKGROUND:
At its August 10, 2022 meeting the TAC reviewed, discussed, and approved the attached FY 2023 M&MP and its associated Operations and Capital Budgets. At its September 19, 2022 meeting the Budget and Finance Committee reviewed, discussed, and approved these Budgets.

DISCUSSION
2023 M&MP:
Most of the differences between the 2022 M&MP and the proposed 2023 M&MP are relatively minor. The one item which had a modest change made to it was Task I. 2. b. 3 (Collect Water Quality Samples). As a cost-savings measure, the TAC discussed the potential to discontinue sampling for barium and iodide at six wells along the coastline where these two parameters were added to the water quality program in 2012. Barium and chloride data has been useful in analyzing seawater intrusion potential in other vulnerable coastal groundwater basins, and these parameters are briefly mentioned in the Watermaster's annual Seawater Intrusion Analysis Reports. I contacted Montgomery & Associates for their recommendation on this matter, and the response from Derrik Williams was:

> *I looked back at our earliest Seawater Intrusion memoranda. They mention the fact that other investigators have used barium and iodide in seawater intrusion investigations, but don't go into detail.*
>
> *Reviewing the original USGS report, it looks like both barium and iodide are used to discriminate between sources of saline water once it has been observed, not to identify incipient intrusion. We can identify higher salinity without barium or iodide. If we see increasing salinities, and if it is important to discriminate the source of salinity, we can restart sampling barium and iodide at that time. And discriminating the source of salinity might be unnecessary.*
>
> *Therefore, I think we can stop sampling for barium and iodide at this time.*

If analysis of these two parameters was discontinued the annual cost savings for the reduction in laboratory work would be approximately $2,160. The TAC therefore recommended discontinuing the

analysis for these parameters, and the language in Task I. 2. b. 3 was revised to reflect this.

2023 M&MP Budgets:
Attached are the proposed M&MP Operations and Capital Budgets for 2023 and 2024. The Board has asked that two-year budgets be developed to alert the Board to potential changes in scope and/or cost in near future years. The projected 2024 Operations and Capital Fund Budgets are informational only, and no action on those budgets is required.

The following are comments and/or principal revisions from the 2022 M&MP Budget:
Technical Program Manager: Although the Groundwater Sustainability Plan for the adjacent Monterey Subbasin has been completed and was submitted in early 2022 by the Salinas Valley Basin and the Marina Coast Water District Groundwater Sustainability Agencies, there will continue to be regular meetings of their GSP-related committees that I serve on representing the Watermaster. Also, there will likely be further work related to obtaining replenishment water for the Basin, as well as the installation of a monitoring well to replace FO-9 Shallow. It is anticipated that the 2023 workload will be similar to that of 2022, so the proposed line-item budget amount has been maintained at $75,000 in 2023.

Tasks Involving MPWMD Montgomery & Associates: The scopes-of-work for both MPWMD and Montgomery & Associates are essentially unchanged from 2022. However, both will have hourly-rate increases in 2023, so the costs of the Tasks in which they are involved will all reflect somewhat higher dollar amounts in 2023 compared to 2022. MPWMD's costs are expected to be about $920 higher in 2023 and Montgomery & Associates' costs are expected to be about $1,690 higher in 2023.

Task I.2.a.1 (Conduct Ongoing Data Entry/Database Maintenance Enhancement: Dean Paxton has been maintaining the Watermaster's website since its inception and his costs are covered in this line-item. Laura Paxton has asked that in 2023 he convert the format on the website from its current format to the WordPress format which she reports is now the industry standard for websites. If at some time in the future maintenance of the website passes from Mr. Paxton to someone else, it would be much more expensive to have the current format maintained. In addition, the graphics being developed for the Watermaster's Public Awareness Committee are better suited for WordPress than the current format. Included in the proposed budget for this Task is $5,000 to make the format conversion, and an additional $100/month (from $200/month in 2022 to $300/month in 2023) for Mr. Paxton to maintain the website. His $200 monthly fee has not been increased in many years.

Task I.2.b.3 (Collect Water Quality Samples): Task I.2.b.3 reflects reducing the induction logging of the Sentinel Wells from twice per year to once per year, as approved by the TAC and the Board earlier this year. The cost for this Task will be slightly reduced from the amount shown in the attached budget, once MPWMD revises its costs to reflect discontinuing the analysis for barium and iodide in the three monitoring wells where these two parameters have been historically monitored.

Task I.3.a.3 (Evaluate Replenishment Scenarios and Develop Answers to Basin Management Questions): The amount budgeted for this Task is unchanged from the 2022 amount. Included in this Task is an estimated $30,000 to perform additional Flow Direction/Flow Velocity analyses, if the Board wishes to perform such work, and $30,000 for other work the Board may wish to undertake related to basin management.

SUMMARY:
As a result of the changes described above, as indicated by the right-hand column titled "Comparative Costs from 2022 Budget" in Attachment 1, the proposed 2023 Budget is $10,052 higher ($324,930 - $314,878) than the 2022 Budget.

It is anticipated that a new well to replace monitoring well FO-9 Shallow will be constructed in 2023, and the costs to install that well are included in the 2023 M&MP Capital Budget. The 2022 M&MP

Capital Budget will cover the costs to plan and design that well, which is expected to be performed in late 2022.

ATTACHMENTS:

1. Proposed 2023 M&MP
2. M&MP: Operations Fund Budget Proposed for 2023
3. M&MP: Operations Fund Budget Projected for 2024
4. M&MP: Capital Fund Budgets Proposed for 2023 and Projected for 2024

ATTACHMENT 1

Seaside Groundwater Basin
2023 Monitoring and Management Program

The tasks outlined below are those that are anticipated to be performed during 2023. Some Tasks listed below are specific to 2023, while other Tasks are recurring such as data collection, database entry, and Program Administration Tasks.

Within the context of this document the term "Consultant" refers either to a firm providing professional engineering or other types of technical services, or to the Monterey Peninsula Water Management District (MPWMD). The term "Contractor" refers to a firm providing construction or field services such as well drilling, induction logging, or meter calibration.

M.1 Program Administration

M. 1. a **Project Budget and Controls** **($0)**	Consultants will provide monthly or bimonthly invoices to the Watermaster for work performed under their contracts with the Watermaster. Consultants will perform maintenance of their internal budgets and schedules, and management of their subconsultants. The Watermaster will perform management of its Consultants.
M. 1. b **Assist with Board and TAC Agendas** **($0)**	Watermaster staff will prepare Board and TAC meeting agenda materials. No assistance from Consultants is expected to be necessary to accomplish this Task.
M. 1. c., M. 1. d, & M.1.e **Preparation for and Attendance at Meetings, and Peer Review of Documents and Reports** **($28,280)**	The Consultants' work will require internal meetings and possibly meetings with outside governmental agencies and the public. For meetings with outside agencies, other Consultants, or any other parties which are necessary for the conduct of the work of their contracts, the Consultants will set up the meetings and prepare agendas and meeting minutes to facilitate the meetings. These may include planning and review meetings with Watermaster staff. The costs for these meetings will be included in their contracts, under the specific Tasks and/or subtasks to which the meetings relate. The only meeting costs that will be incurred under Tasks M.1.c, M.1.d, and M.1.e will be: • Those associated with attendance at TAC meetings (either in person or by videoconference connection), including providing periodic progress reports to the Watermaster for inclusion in the agenda packets for the TAC meetings, when requested by the Watermaster to do so. These progress reports will typically include project progress that has been made, problem identification and resolution, and planned upcoming work. • From time-to-time when Watermaster staff asks Consultants to make special presentations to the Watermaster Board and/or the TAC, and which are not included in the Consultant's contracts for other tasks. Appropriate Consultant representatives will attend TAC meetings (either in person or by videoconference connection) when requested to do so by Watermaster Staff, but will not be asked to prepare agendas or meeting minutes. As necessary, Consultants may provide oral updates to their progress reports (prepared under Task M.1.d) at the TAC meetings. When requested by the Watermaster staff, Consultants may be asked to

	assist the TAC and the Watermaster staff with peer reviews of documents and reports prepared by various other Watermaster Consultants and/or entities.
M. 1. f **QA/QC** **($0)**	A Consultant (MPWMD) will provide general QA/QC support over the Seaside Basin Monitoring and Management Program. These costs are included in the other tasks.
M.1.g **Prepare Documents for SGMA Reporting** **($2,464)**	Section 10720.8 of the Sustainable Groundwater Management Act (SGMA) requires adjudicated basins to submit annual reports. Most of the documentation that needs to be reported is already generated by the Watermaster in conjunction with preparing its own Annual Reports. However, some information such as changes in basin storage is not currently generated and will require consultant assistance to do so. This task will be used to obtain this consultant assistance, as needed.

I. 2 Comprehensive Basin Production, Water Level and Water Quality Monitoring Program

I. 2. a. Database Management	
I. 2. a. 1 **Conduct Ongoing Data Entry and Database Maintenance/ Enhancement** **($32,238)**	The database will be maintained by a Consultant (MPWMD) performing this work for the Watermaster. MPWMD will enter new data into the consolidated database, including water production volumes, water quality and water level data, and such other data as may be appropriate. Other than an annual reporting of data to another Watermaster Consultant at the end of the Water Year, as mentioned in Task I.4.c below, no reporting of water level or water quality data during the Water Year is required. However, MPWMD will promptly notify the Watermaster of any missing data or data collection irregularities that were encountered. Under this Task, when requested MPWMD will also respond to requests from consultants and others for data from the database. At the end of the Water Year MPWMD will prepare an annual water production, water level, and water quality tabulation in Access format and will provide the tabulation to another Watermaster Consultant who will use that data in the preparation of the SIAR under Task No. I.4.c of the Monitoring and Management Program. No enhancements to the database are anticipated during 2023. A separate consultant will maintain the Watermaster's website.
I. 2. a. 2 **Verify Accuracy of Production Well Meters** **($0)**	To ensure that water production data is accurate, the well meters of the major producers were verified for accuracy during 2009 and again during 2015. No additional work of this type is anticipated during 2023.
I. 2. b. Data Collection Program	
I. 2. b. 1 **Site Representation and Selection** **($0)**	The monitoring well network review that was started in 2008 has been completed, and sites have been identified where future monitoring well(s) could be installed, if it is deemed necessary to do so in order to fill in data gaps. No further work of this type is anticipated in 2023.

I. 2 b. 2
Collect Water Levels
($20,042)

Each of the monitoring wells will be visited on a regular basis. Water levels will be determined by either taking manual water levels using an electric sounder, or by dataloggers. The wells where the use of dataloggers is feasible or appropriate have been equipped with dataloggers. All of the other wells will be manually measured.

This Task includes the purchase of one datalogger and parts for the datalogger to keep in inventory as a spare if needed

I. 2. b. 3
Collect Water Quality Samples.
($28,210)

Water quality data will be collected quarterly from certain of the monitoring wells, but will no longer be collected from the four coastal Sentinel Wells. Discontinuing water quality sampling in those wells is the result of the finding made in 2018 that the water quality samples being extracted from those wells are not representative of the aquifer. Those wells were designed for the purpose of electric induction logging, and have historically been logged twice a year. Because many years of logging data have shown essentially no change in aquifer water quality, beginning in WY2023 the frequency of induction logging of the Sentinel Wells will be reduced to once per year.

In 2012 water quality analyses were expanded to include barium and iodide ions, to determine the potential benefit of performing these additional analyses. These two parameters have been useful in analyzing seawater intrusion potential in other vulnerable coastal groundwater basins, and are briefly mentioned in the Watermaster's annual Seawater Intrusion Analysis Reports. These parameters were added to the annual water quality sampling list for the 3 most coastal MPWMD monitoring wells (MSC, PCA, and FO-09). Since these analyses have now created 10 years of data, the analyses will no longer be performed starting in WY 2023, and will only be resumed if the other water quality parameters are indicative of seawater intrusion.

As discussed in the 2013 Annual Report, the Watermaster reduced the frequency of water quality sampling at monitoring well SBWM-5 (the Camp Huffman well) to once every 3 years beginning in WY 2014. This was based on the January 2010 well construction report in which the well installation hydrogeologic consultant (Martin Feeney) recommended doing initial sampling annually for several years, then reducing the frequency of sampling once it was felt that the water chemistry had been established. Mr. Feeney suggested going to once every five years after initial water quality had been established. Starting with WY 2014 the Watermaster elected to go to once every three years as a more conservative approach. The results from water quality sampling that has performed to date on these wells shows there has been little change in water quality at these wells. Therefore, the sampling frequency was reduced to once every five years beginning in 2022.

Water quality data may come from water quality samples that are taken from these wells and submitted to a State Certified analytic laboratory for general mineral and physical suite of analyses, or the data may come from induction logging of these wells and/or other data gathering techniques.

	The Consultant or Contractor selected to perform this work will make this judgment based on consideration of costs and other factors. Under this Task in 2013 retrofitting to use the low-flow purge approach for getting water quality samples was completed on all of the wells that are sampled. This sampling equipment sits in the water column and may periodically need to be replaced or repaired. Accordingly, an allowance to perform maintenance on previously installed equipment has been included in this Task. Also, in the event a sampling pump fails or is found to be no longer adequate due to declining groundwater levels, an allowance of $900 to purchase a replacement sampling pump has been included in this Task. Improvements to the QA/QC program for the water quality sampling work were adopted in mid-2017 and will be included in this work in 2023.
I. 2. b. 4 Update Program Schedule and Standard Operating Procedures. ($0)	All recommendations from prior reviews of the data collection program have been implemented. No additional work of this type is anticipated in 2023.
I. 2. b. 5 Monitor Well Construction ($0)	A well to replace Monitoring Well FO-9 Shallow, which in 2021 was found to have a leaking casing, is expected to be installed in 2023. The costs for this work were included in the 2022 M&MP Capital Budget, and funds from that Budget will be used to perform the planning, design, and permitting for this work in 2022. The cost to install the is included in the 2023 M&MP Capital Budget. No costs for this work are included in the 2023 Operations Budget.
I. 2. b. 6 Reports ($3,568)	This task was essentially eliminated starting in 2020 by having the data collected by MPWMD under tasks I.2.b.1, I.2.b.2, and I.2.b.3 reported in the SIAR under Task I.4.c. The work remaining under this task is for MPWMD to prepare and provide the data appendix to the Consultant that prepares the SIAR. No formalized reporting on a quarterly basis is required. However, MPWMD will promptly notify the Watermaster and the Consultant that prepares the SIAR of any missing data or data collection irregularities in the water quality and water level data collected under Tasks I.2.b.2 and I.2.b.3.
I.2.b.7 CASGEM Data Submittal ($5,352)	On the Watermaster's behalf MPWMD will compile and submit data on the Watermaster's "Voluntary Wells" into the State's CASGEM groundwater management database. The term "Voluntary Well" refers to a well that is not currently having its data reported into the CASGEM system, but for which the Watermaster obtains data. This will be done in the format and on the schedule required by the Department of Water Resources under the Sustainable Groundwater Management Act.

I. 3 Basin Management

I. 3. a. Enhanced Seaside Basin Groundwater Model (Costs listed in subtasks below)	The Watermaster and its consultants use a Groundwater Model for basin management purposes.
I.3.a.1 Update the Existing Model ($0)	The Model, described in the report titled "Groundwater Flow and Transport Model" dated October 1, 2007, was updated in 2009 in order to develop protective water levels, and to evaluate replenishment scenarios and develop answers to Basin management questions. The Model was again updated in 2014. In 2018 the Model was recalibrated and updated. No further work of this type is anticipated in 2023.
I. 3. a. 2 Develop Protective Water Levels ($0)	A series of cross-sectional models was created in 2009 in order to develop protective water levels for selected production wells, as well as for the Basin as a whole. This work is discussed in Hydrometrics' "Seaside Groundwater Basin Protective Water Elevations Technical Memorandum." In 2013 further work was started to refine these protective water levels, but it was found that the previously developed protective water levels were reasonable. Protective water levels will be updated, if appropriate, as part of the work of Task I.3.c.
I. 3. a. 3 Evaluate Replenishment Scenarios and Develop Answers to Basin Management Questions ($60,000)	In 2009 the updated Model was used to evaluate different scenarios to determine such things as the most effective methods of using supplemental water sources to replenish the Basin and/or to assess the impacts of pumping redistribution. This work is described in HydroMetrics' "Seaside Groundwater Basin Groundwater Model Report." In 2010, 2013, and again in 2022, the updated Model was used to develop answers to some questions associated with Basin management. Modeling performed to date indicates that the solution to the problem of water levels in the Seaside Basin being below Protective Water Levels will be to inject replenishment water. Within the next few years there may be the ability of either or both of two projects to provide additional water for Basin replenishment. One of these is the Monterey Peninsula Water Supply Project's (MPWSP) desalination plant. The other is the Pure Water Monterey (PWM) Expansion Project. Growth is built into each of these projects' plant capacity, and the full capacity of these plants will likely not all be needed for some years into the future. During the time period that these projects would have excess capacity, they could potentially provide water for Basin replenishment.

	Montgomery & Associates agrees that injection is the quickest way to bring groundwater levels up in the Seaside Basin. The original 3,500 AFY PWM Project is already in operation, and construction of the PWM Expansion Project and/or the MPWSP desalination plant is expected to begin within the next few years. Modeling to determine the additional amount of replenishment water needed to achieve protective groundwater level elevations throughout the Basin, after either or both of those projects are constructed, was performed in 2022 to aid the Watermaster in pursuing approaches to obtain that additional water for Basin replenishment. Modeling performed in 2014, 2015, and 2016 led to the conclusion that groundwater levels in parts of the Laguna Seca Subarea will continue to fall, even if all pumping within that subarea is discontinued, because of the influence of pumping from areas near to, but outside of, the Basin boundary. Additional modeling or other work may be performed in 2023 to update the previous work. This Task includes a $60,000 allowance to perform further modeling or analyses pertaining to Basin management issues if so directed by the Watermaster Board.
I. 3. b. **Complete Preparation of Basin Management Action Plan** **($0)**	The Watermaster's Consultant completed preparation of the Basin Management Action Plan (BMAP) in February 2009. The BMAP serves as the Watermaster's long-term seawater intrusion prevention plan. The Sections that are included in the BMAP are: Executive Summary Section 1 – Background and Purpose Section 2 – State of the Seaside Groundwater Basin Section 3 – Supplemental Water Supplies Section 4 –Groundwater Management Actions Section 5 – Recommended Management Strategies Section 6 – References
I. 3. c. **Refine and/or Update the Basin Management Action Plan** **($0)**	In 2019 the BMAP was updated based on new data and knowledge that has been gained since it was prepared in 2009. No further work of this type is anticipated in 2023. However, although no funds are budgeted for this Task in 2023, since the Groundwater Sustainability Plan (GSP) for the adjacent Monterey Subbasin of the Salinas Valley Groundwater Basin was completed in early 2022, at some point it may be appropriate to further update the BMAP to reflect the impacts of implementing that GSP.
I. 3. d. **Evaluate Coastal Wells for Cross-Aquifer Contamination Potential** **($0)**	If seawater intrusion were to reach any of the coastal wells in any aquifer, and if a well was constructed without proper seals to prevent cross-aquifer communication, or if deterioration of the well led to casing leakage, it would be possible for the intrusion to flow from one aquifer to another. An evaluation of this was completed in 2012 and is described in MPWMD's Memorandum titled "Summary of Seaside Groundwater Basin Cross-Aquifer Contamination Wells Investigation Process and Conclusions" dated August 8, 2012. This Memorandum did not recommend performing any further work on this matter, other than to incorporate into the Watermaster's Database data from wells that were

newly identified by the work performed in 2012. That data has now been incorporated into the Database. In 2021 the Watermaster TAC examined the feasibility of performing conductivity profiling of certain of the near-coastal wells that were evaluated in the 2012 Memorandum, as a method of determining if any of those wells was allowing downward migration of intruded water from the shallow dunes aquifer to enter the Paso Robles aquifer. However, it was concluded that conditions in those wells would make it infeasible to perform such work.

In late 2017 a request was made to MPWMD to destroy one of its no-longer-used monitoring wells that is perforated in multiple aquifers (Well PCA-East Multiple). MPWMD performed this work in 2018.

No further work of this type is anticipated in 2023.

I.3. e.
Seaside Basin Geochemical Model
($10,000)

When new sources of water are introduced into an aquifer, with each source having its own unique water quality, there can be chemical reactions that may have the potential to release minerals which have previously been attached to soil particles, such as arsenic or mercury, into solution and thus into the water itself. This has been experienced in some other locations where changes occurred in the quality of the water being injected into an aquifer. MPWMD's consultants have been using geochemical modeling to predict the effects of injecting Carmel River water into the Seaside Groundwater Basin under the ASR program.

In order to predict whether there will be groundwater quality changes that will result from the introduction of desalinated water and additional ASR water (under the Monterey Peninsula Water Supply Project) and advance-treated water (under the Pure Water Monterey Project) geochemical evaluations, and potentially modeling, will be performed in the areas of the Basin where injection of these new water sources will occur.

In 2019 a geochemical evaluation of introducing advance-treated water from the Pure Water Monterey Project was performed. That evaluation concluded that there would be no adverse geochemical impacts as a result of introducing that water into the Basin. A similar evaluation of the impact of introducing ASR water also concluded that there would be no adverse geochemical impacts. An evaluation of introducing desalinated water will be performed, if the Monterey Peninsula Water Supply Project's desalination plant proceeds into the construction phase.

If the geochemical evaluation of injecting desalinated water indicates the potential for problems to occur, then Montgomery and Associates may use the Watermaster's updated groundwater model, and information about injection locations and quantities, injection scheduling, etc. provided by MPWMD for each of these projects, to develop model scenarios to see if the problem(s) can be averted by changing delivery schedules and delivery quantities. This Task includes an allowance of $10,000 to have Montgomery and Associates perform such modeling, if necessary.

	If the modeling predicts that there may be adverse impacts from introducing these new sources of water, measures to mitigate those impacts will be developed under a separate task that will be created for that purpose when and if necessary.

I. 4 Seawater Intrusion Response Plan (formerly referred to as the Seawater Intrusion Contingency Plan)

I. 4. a. **Oversight of Seawater Intrusion Detection and Tracking** **($0)**	Consultants will provide general oversight over the Seawater Intrusion detection program under the other Tasks in this Work Plan.
I. 4. c. **Annual Report- Seawater Intrusion Analysis** **($27,176)**	At the end of each water year, a Consultant will reanalyze all water quality data. Water level and water quality data will be provided to the Consultant in MS Access format. The Consultant will put this data into a report format and will include it as an attachment to the Seawater Intrusion Analysis Report. If possible, semi-annual chloride concentration maps will be produced for each aquifer in the basin. Time series graphs, trilinear graphs, and stiff diagram comparisons will be updated with new data. The induction logs will be analyzed to identify changes in seawater wedge locations. All analyses will be incorporated into an annual report that follows the format of the initial, historical data report. Potential seawater intrusion will be highlighted in the report, and if necessary, recommendations will be included. The annual report will be submitted for review by the TAC and the Board. Modifications to the report will be incorporated based on input from these bodies, as well as Watermaster staff.
I. 4. e. **Refine and/or Update the Seawater Intrusion Response Plan** **($0)**	At the beginning of 2009, and again in 2021, it was thought that it might be beneficial or necessary to perform work to refine the SIRP and/or to update it based on new data or knowledge that was gained subsequent to the preparation of the SIRP. However, this did not prove to be necessary, and no further work of this type is anticipated in 2023.
I. 4. f. **If Seawater Intrusion is Determined to be Occurring, Implement Contingency Response Plan** **($0)**	The SIRP will be implemented if seawater intrusion, as defined in the Plan, is determined by the Watermaster to be occurring.

ATTACHMENT 2

Monitoring and Management Program Operations Budget For Tasks to be Undertaken in 2023								Comparative Costs from 2022 Budget
Task	Subtask	Sub-Subtask	Cost Description	CONSULTANTS & CONTRACTORS[3]			Total	
				MPWMD	Private Consultants	Contractors		
			Labor					
			Technical Project Manager	$0	$75,000	$0	$75,000	$75,000
M.1 Program Administration								
	M.1.a		Project Budget and Controls	$0	$0	$0	$0	$0
	M.1.b		Assist with Board and TAC Agendas	$0	$0	$0	$0	$0
	M.1.c, M.1.d, & M.1.e		Preparation for and Attendance at Meetings and Peer Review of Documents and Reports[8]	$0	$28,280	$0	$28,280	$27,560
	M.1.f		QA/QC	$0	$0	$0	$0	$0
	M.1.g		SGMA Documentation Preparation	$0	$2,464	$0	$2,464	$2,380
I.1 Initial Phase 1 Monitoring Well Construction (Task Completed in Phase 1)								
I.2 Production, Water Level and Quality Monitoring								
	I. 2. a.		Database Management					
		I. 2. a. 1.	Conduct Ongoing Data Entry/ Database Maintenance/Enhancement[15]	$23,638	$8,600	$0	$32,238	$23,176
		I. 2. a. 2.	Verify Accuracy of Production Well Meters	$0	$0	$0	$0	$0
	I. 2. b.		Data Collection Program					
		I. 2. b. 1.	Site Representation and Selection[7]	$0	$0	$0	$0	$0
		I. 2. b. 2.	Collect Water Levels[6]	$20,042	$0	$0	$20,042	$21,490
		I. 2. b. 3.	Collect Water Quality Samples and Perform Sentinel Well Induction Logging[1][5]	$17,196	$0	$11,014	$28,210	$39,335
		I. 2. b. 4.	Update Program Schedule and Standard Operating Procedures.	$0	$0	$0	$0	$0
		I. 2. b. 5.	Monitor Well Construction[7]	$0	$0	$0	$0	$0
		I. 2. b. 6.	Reports	$3,568	$0	$0	$3,568	$3,136
		I. 2. b. 7.	CASGEM Data Submittal for Watermaster's Voluntary Wells	$5,352	$0	$0	$5,352	$4,704
I.3 Basin Management								
	I. 3. a.		Enhanced Seaside Basin Groundwater Model	(Costs Shown in Subtasks Below)				
		I. 3. a. 1	Update the Existing Model[11]	$0	$0	$0	$0	$0
		I. 3. a. 2	Develop Protective Water Levels[12]	$0	$0	$0	$0	$0
		I. 3. a. 3	Evaluate Replenishment Scenarios and Develop Answers to Basin Management Questions[10]	$0	$60,000	$0	$60,000	$60,000
	I. 3. b.		Complete Preparation of Basin Management Action Plan	$0	$0	$0	$0	$0
	I. 3. c.		Refine and/or Update the Basin Management Action Plan	$0	$0	$0	$0	$0
	I. 3. d		Evaluate Coastal Wells for Cross-Aquifer Contamination Potential	$0	$0	$0	$0	$0
	I. 3. e		Seaside Basin Geochemical Model[13]	$0	$10,000	$0	$10,000	$10,000
I.4 Seawater Intrusion Contingency Plan								
	I. 4. a.		Oversight of Seawater Intrusion Detection and Tracking[17]	$0	$0	$0	$0	$0
	I. 4. c.		Annual Report- Seawater Intrusion Analysis[16]	$0	$27,176	$0	$27,176	$26,290
	I. 4. e.		Refine and/or Update the Seawater Intrusion Response Plan[2][9]	$0	$0	$0	$0	$0
	I. 4. f.		If Seawater Intrusion is Determined to be Occurring, Implement Contingency Response Plan[2]	(No Costs are Included for This Task, as This Task Will Likely Not be Necessary During 2021. If it Does Become Necessary, Use of Contingency Funds or a Budget Modification Will Likely be Necessary)				
		TOTALS CONSULTANTS & CONTRACTORS		**$69,796**	**$211,520**	**$11,014**		
			SUBTOTAL not including Technical Program Manager =				$217,330	$218,071
			Contingency (not including Technical Program Manager) @ 15%[4]=				$32,600	$21,807
			Technical Program Manager =				$75,000	$75,000
			TOTAL=				**$324,930**	**$314,878**

Footnotes:
(1) Under this Subtask the Watermaster will directly contract with an outside contractor to perform the Sentinel Well induction logging work, and to also collect water level data in conjunction with doing the induction logging. MPWMD will perform the other portions of the work of this Subtask. As reported in the 2022 Annual Report, starting in WY 2023 the Sentinel Wells will be induction logged once per year (in September) rather than twice per year as had been the practice in preceding years.
(2) The response plan would only be implemented in the event sea water intrusion is determined to be occurring.
(3) Within the context of this document the term “Consultant” refers either to a Private Consultant providing professional engineering or other types of technical services, or to the Monterey Peninsula Water Management District (MPWMD). The term “Contractor” refers to a firm providing construction or field services such as well drilling, induction logging, or meter calibration.
(4) Due to the uncertainties of the exact scopes of some of the larger Tasks listed above at the time of preparation of this Budget it is recommended that a Contingency of approximately 15% be included in the Budget.
(5) The MPWMD portion of this Task includes: (1) $900 to purchase a new sampling pump if an existing one needs to be replaced, (2) $476 for vehicle mileage costs for both this Task and Task I.2.b.2, (3) $6,200 for laboratory analytical costs, (4) $150 for CO2 bottles to run the sample pumps, and (5) $712 of administrative support costs for preparing billings and processing invoices from the water quality laboratory.
(6) Does not include costs for MPWMD to collect water level data or water quality samples from wells other than those that are part of the basic monitoring well network, i.e. for private well owners who have requested that the Watermaster obtain this data for them. Costs to obtain that data are to be reimbursed to the Watermaster by those well owners, so there should be no net cost to the Watermaster for that portion of the work under these Tasks. Includes the purchase and installation of one new replacement datalogger at a price of $850 including installation parts, or to keep in inventory as a spare if needed,
(7) A replacement for monitoring well FO-9 Shallow is expected to be constructed in 2023, but the planning and design of the well is expected to be performed in 2022. All of the costs for this work were contained in the Capital Budget for 2022, but only the planning and design work is expected to be charged to the 2022 Capital Budget. The costs for installation of the well have been included in the Capital Budget for 2023. No costs for any work on this well are included in the Operations Budget, all costs are included in the Capital Budgets.
(8) This cost is for Montgomery and Associates, Todd Groundwater, and Martin Feeney to provide hydrogeologic consulting assistance to the Watermaster, beyond that associated with performing other specified Tasks, when requested to do so by the Technical Program Manager. This work may include, but not be limited to, participation in conference calls and reviewing documents prepared by others.
(9) If work under this Task is found to be necessary, it will be funded through the Contingency line item in this Budget.
(10) This Task is included to provide funds for the Watermaster to perform modeling and other investigative work to aid in making Basin management decisions. The line-item budget for this Task includes an estimated $30,000 to perform additional modeling to refine the evaluation performed in 2022 regarding the flow direction and flow velocity of seawater intrusion, if it were to occur. It includes an additional $30,000 for other work that the Board may wish to perform in 2023.
(11) The Model was updated and recalibrated in 2018, so no costs for this Task are anticipated in 2023.
(12) The protective water levels developed in 2009 were examined in 2013 to see if they needed to be updated. It was concluded that the 2009 protective levels were still satisfactory for Basin management purposes, and that no revisions were needed. No work under this Task is anticipated in 2023.
(13) This was a new Task that was started in 2018, and was completed for the PWM AWT water in 2019. Funds allocated for this Task in 2023 would only be used if geochemical modeling is performed in 2023 for the MPWSP desalination plant water, and if that modeling indicates the need to have Montgomery and Associates use the Seaside Basin groundwater model to provide additional information needed by the geochemical model to develop miitgation measures for any adverse water quality impacts the geochemical model predicts could occur from introducing desalinated water into the Basin.
(14) Not used.
(15) Includes $300/month for an outside consultant to maintain the Watermaster's website and post documents on it, and a one-time amount of $5,000 for him to reformat it into theWordPress format, which is now is the industry standard.. Also includes $2,230 for MPWMD to respond to requests from consultants and others for data from the database.
(16) MPWMD's costs to assist in this Task are included in its costs under Task I.2.b.6.
(17) MPWMD's and Montgomery & Associates' costs to provide oversight in this Task are included under their other Tasks.

ATTACHMENT 3

Monitoring and Management Program Operations Budget
For Tasks to be Undertaken in 2024[12]

Task	Subtask	Sub-Subtask	Cost Description	CONSULTANTS & CONTRACTORS[3]			Total
				MPWMD	Private Consultants	Contractors	
Labor							
			Technical Project Manager	$0	$75,000	$0	$75,000
M.1 Program Administration							
	M.1.a		Project Budget and Controls	$0	$0	$0	$0
	M.1.b		Assist with Board and TAC Agendas	$0	$0	$0	$0
	M.1.c, M.1.d, & M.1.e		Preparation for and Attendance at Meetings and Peer Review of Documents and Reports[8]	$0	$29,128	$0	$29,128
	M.1.f		QA/QC	$0	$0	$0	$0
	M.1.g		SGMA Documentation Preparation	$0	$2,538	$0	$2,538
I.1 Initial Phase 1 Monitoring Well Construction (Task Completed in Phase 1)							
I.2 Production, Water Level and Quality Monitoring							
	I. 2. a.		Database Management				
		I. 2. a. 1.	Conduct Ongoing Data Entry/ Database Maintenance/Enhancement	$24,347	$8,858	$0	$33,205
		I. 2. a. 2.	Verify Accuracy of Production Well Meters	$0	$0	$0	$0
	I. 2. b.		Data Collection Program				
		I. 2. b. 1.	Site Representation and Selection[7]	$0	$0	$0	$0
		I. 2. b. 2.	Collect Monthly Water Levels[6]	$20,643	$0	$0	$20,643
		I. 2. b. 3.	Collect Quarterly Water Quality Samples[1][5][6]	$17,712	$0	$11,344	$29,056
		I. 2. b. 4.	Update Program Schedule and Standard Operating Procedures.	$0	$0	$0	$0
		I. 2. b. 5.	Monitor Well Construction[7]	$0	$0	$0	$0
		I. 2. b. 6.	Reports	$3,675	$0	$0	$3,675
		I. 2. b. 7.	CASGEM Data Submittal for Watermaster's Voluntary Wells	$5,513	$0	$0	$5,513
I.3 Basin Management							
	I. 3. a.		Enhanced Seaside Basin Groundwater Model	(Costs Shown in Subtasks Below)			
		I. 3. a. 1	Update the Existing Model	$0	$0	$0	$0
		I. 3. a. 2	Develop Protective Water Levels	$0	$0	$0	$0
		I. 3. a. 3	Evaluate Replenishment Scenarios and Develop Answers to Basin Management Questions	$0	$20,000	$0	$20,000
	I. 3. b.		Complete Preparation of Basin Management Action Plan	$0	$0	$0	$0
	I. 3. c.		Refine and/or Update the Basin Management Action Plan [11]	$0	$0	$0	$0
	I. 3. d		Evaluate Coastal Wells for Cross-Aquifer Contamination Potential[13]	$0	$0	$0	$0
	I. 3. e		Seaside Basin Geochemical Model[14]	$0	$0	$0	$0
I.4 Seawater Intrusion Contingency Plan							
	I. 4. a.		Oversight of Seawater Intrusion Detection and Tracking	$0	$0	$0	$0
	I. 4. b.		Analyze and Map Water Quality from Coastal Monitoring Wells	(Costs Included Under I.4.a)			
	I. 4. c.		Annual Report- Seawater Intrusion Analysis	$0	$27,991	$0	$27,991
	I. 4. e.		Refine and/or Update the Seawater Intrusion Response Plan[2][9]	$0	$0	$0	$0
	I. 4. f.		If Seawater Intrusion is Determined to be Occurring, Implement Contingency Response Plan[2]	(No Costs are Included for This Task, as This Task Will Likely Not be Necessary During 2019. If it Does Become Necessary, Use of Contingency Funds or a Budget Modification Will Likely be Necessary)			
		TOTALS CONSULTANTS & CONTRACTORS		**$71,890**	**$88,516**	**$11,344**	
						SUBTOTAL not including Technical Program Manager =	$171,750
						Contingency (not including Technical Program Manager) @ 15%[4]=	$25,762
						Technical Program Manager	$75,000
						TOTAL=	**$272,512**

Footnotes:						

(1) Under this Subtask the Watermaster will directly contract with an outside contractor to perform the Sentinel Well induction logging work, and to also collect water level data in conjunction with doing the induction logging. MPWMD will perform the other portions of the work of this Subtask.

(2) The response plan would only be implemented in the event sea water intrusion is determined to be occurring.

(3) Within the context of this document the term "Consultant" refers either to a Private Consultant providing professional engineering or other types of technical services, or to the Monterey Peninsula Water Management District (MPWMD). The term "Contractor" refers to a firm providing construction or field services such as well drilling, induction logging, or meter calibration.

(4) Due to the uncertainties of the exact scopes of some of the Tasks listed above at the time of preparation of this Budget, it is recommended that a 15% Contingency be included in the Budget.

(5) A portion of this cost is for maintaining sampling equipment that was installed in prior years.

(6) Does not include costs for MPWMD to collect water level data or water quality samples from wells other than those that are part of the basic monitoring well network, i.e. for private well owners who have requested that the Watermaster obtain this data for them. Costs to obtain that data are to be reimbursed to the Watermaster by those well owners, so there should be no net cost to the Watermaster for that portion of the work under these Tasks.

(7) No additional monitoring well is expected to be constructed in 2024.

(8) For Montgomery and Associates, Todd Groundwater, and Martin Feeney to provide hydrogeologic consulting assistance to the Watermaster, beyond that associated with performing other specified Tasks, when requested to do so by the Technical Program Manager.

(9) If work under this Task is found to be necessary, it will be funded through the Contingency line item in this Budget.

(10) Not used.

(11) If necessary to reflect knowledge gained from modeling work or other data sources. Since the BMAP was updated in 2018, no work on this Task is anticipated in 2024.

(12) Includes a 3% inflation factor on most annually recurring costs in the 2023 Budget, except the Technical Program Manager cost which has no inflation factor applied to it.

(13) No further work on this Task is anticipated in 2024.

(14) It is assumed that all work of this Task will be completed in 2023 and that no further work on this Task will be performed in 2024.

ATTACHMENT 4

Monitoring and Management Program Capital Budget For Tasks to be Undertaken in 2023

A replacement for monitoring well FO-9 Shallow was initially expected to be installed in 2022, but is now not expected to be installed until 2023. The consultant is expected to plan and design the well in 2022 and for those costs to be paid out of the 2022 Capital Budget. However, the actual installation of the well is not expected to be performed until 2023, and for the installation work to be paid for out of the 2023 M&MP Capital Budget. The estimated cost for the well drilling contractor to install the well, and consultant costs to oversee that work, are included in this 2023 Capital Budget. It is hoped that there will be a 3-way cost sharing agreement between the Watermaster, MPWMD, and MCWD for that work. However, the Watermaster will likely have to pay the largest share of the cost. A scope and cost proposal provided to the Watermaster by its consultant, Montgomery & Associates, indicates that the well installation costs that are expected to be incurred in 2023 will be approximately $240K. This figure includes the well driller's costs, consultant costs for construction management, preparation and filing of the necessary Well Installation Report, and a small allowance for miscellaneous costs such as providing a source of water to the drilling site, permits, and approvals, etc. To ensure that the well can be installed in 2023, the amount budgeted for this Task is the full $240K. Assuming that a 3-way cost-sharing agreement can be achieved, the Watermaster's actual costs would be lower than this by some amount, depending on the agreement for allocating costs between the three parties.

Monitoring and Management Program Capital Budget For Tasks to be Undertaken in 2024

No Capital projects are anticipated to be undertaken in 2024, so this budget is $0.

Seaside Groundwater Basin Watermaster

Replenishment Fund

10/5/22

Water Year 2023 (October 1 - September 30) / Fiscal Year (January 1 - December 31, 2023)

Proposed 2023 Budget

Replenishment Fund		**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Assessment Water Year		WY 05/06	WY 06/07	WY 07/08	WY 08/09	WY 09/10	WY 10/11	WY 11/12	WY 12/13	WY 13/14	WY 14/15	WY 15/16
Unit Cost:	a	$1,132 / $283	$1,132 / $283	$2,485 / 621.25	$3,040 / $760	$2,780 / $695	$2,780 / $695	$2,780 / $695	$2,780 / $695	$2,702/$675.50	$2,702/$675.50	$2,702/$675.50
Cal-Am Water Balance Forward	b	**$ -**	**$ 1,641,004**	**$ 4,226,710**	**$ (2,871,690)**	**$ (2,839,939)**	**$ (3,822,219)**	**$ (6,060,164)**	**$ (8,735,671)**	**$ (6,173,771)**	**$ (3,102,221)**	**$ (676,704)**
Cal-Am Water Production (AF)	c	*3,710.00*	*4,059.90*	*3,862.90*	*2,966.02*	*3,713.52*	*3,416.04*	*3,070.90*	*3,076.61*	*3,232.10*	*2,764.73*	*1,879.21*
Cal-Am Water NSY Over-Production (AF)	d	*1,862.69*	*2,266.32*	*2,092.16*	*1,241.27*	*1,479.47*	*1,146.71*	*820.48*	*856.42*	*1,032.77*	*782.17*	-
Exceeding Natural Safe Yield Considering Alternative Producers	e	$ 2,106,652	$ 2,565,471	$ 5,199,014	$ 3,773,464	$ 4,112,933	$ 3,187,854	$ 2,280,943	$ 2,380,842	$ 2,790,539	$ 2,113,414	$ -
Operating Yield Overproduction Replenishment	f	$ -	$ 20,235	$ 8,511	$ -	$ -	$ -	$ 154,963	$ 181,057	$ 281,012	$ 312,103	$ -
Total California American	g	**$ 2,106,652**	**$ 2,585,706**	**$ 5,207,525**	**$ 3,773,464**	**$ 4,112,933**	**$ 3,187,854**	**$ 2,435,907**	**$ 2,561,899**	**$ 3,071,550**	**$ 2,425,516**	
CAW Credit Against Assessment	h	$ (465,648)		$ (12,305,924)	$ (3,741,714)	$ (5,095,213)	$ (5,425,799)	$ (5,111,413)				
CAW Unpaid Balance	i	***$ 1,641,004***	***$ 4,226,710***	***(2,871,690)***	***$ (2,839,939)***	***$ (3,822,219)***	***$ (6,060,164)***	***$ (8,735,671)***	***$ (6,173,771)***	***$ (3,102,221)***	***$ (676,704)***	***$ (676,704)***
City of Seaside Balance Forward	j	**$ -**	**$ 243,294**	**$ 426,165**	**$ 1,024,272**	**$ 1,619,973**	**$ 891,509**	**$ (110,014)**	**$ (773,813)**	**$ (1,575,876)**	**$ (2,889,325)**	**$ (3,346,548)**
City of Seaside Municipal Production (AF)	k	*332.00*	*287.70*	*294.20*	*293.44*	*282.87*	*240.68*	*233.72*	*257.73*	*223.64*	*185.01*	*195.16*
City of Seaside NSY Over-Production (AF)	l	*194.07*	*153.78*	*161.99*	*153.06*	*113.21*	*50.84*	*58.82*	*85.17*	*52.71*	*25.77*	*37.87*
Exceeding Natural Safe Yield Considering Alternative Producers	m	$ 219,689	$ 174,082	$ 402,540	$ 465,300	$ 314,721	$ 141,335	$ 163,509	$ 236,782	$ 142,410	$ 69,630	$ 102,330
Operating Yield Overproduction Replenishment	n	$ 12,622	$ 85	$ 4,225	$ 16,522	$ 20,690	$ -	$ 1,689	$ 27,007	$ 3,222	$ 38	$ 11,959
Total Municipal	o	$ 232,310	$ 174,167	$ 406,764	$ 481,823	$ 335,412	$ 141,335	$ 165,198	$ 263,788	$ 145,631	$ 69,667	$ 114,290
City of Seaside - Golf Courses (APA - 540 AFY)												
Exceeding Natural Safe Yield - Alternative Producer	p	$ -	$ -	$ 131,705	$ 69,701	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Yield Overproduction Replenishment	q	$ -	$ -	$ 32,926	$ 17,427	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Golf Courses	r	$ -	$ -	$ 164,631	$ 87,128	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total City of Seaside*	s	**$ 232,310**	**$ 174,167**	**$ 571,395**	**$ 568,951**	**$ 335,412**	**$ 141,335**	**$ 165,198**	**$ 263,788**	**$ 145,631**	**$ 69,667**	**$ 114,290**
City of Seaside Late Payment 5%	t	$ 10,984	$ 8,704	$ 26,712	$ 26,750	$ 15,737						
In-lieu Credit Against Assessment	u					$ (1,079,613)	$ (1,142,858)	$ (828,996)	$ (1,065,852)	$ (1,459,080)	$ (526,890)	$ (162)
City of Seaside Unpaid Balance	v	***$ 243,294***	***$ 426,165***	***$ 1,024,272***	***$ 1,619,973***	***$ 891,509***	***$ (110,014)***	***$ (773,813)***	***$ (1,575,876)***	***$ (2,889,325)***	***$ (3,346,548)***	***$ (3,232,420)***
Mission Memorial Park												
Mission Memorial Park Production (AF)	w			*20.80*	*26.40*	*12.80*	*22.40*	*27.00*	*24.95*	*24.89*	*17.97*	*13.67*
Mission Memorial Park NSY Over-Production (AF)	x	-	-	-	-	-	-	-	-	-	-	-
Exceeding Natural Safe Yield - Alternative Producer	y	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating Yield Overproduction Replenishment	z	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Mission Memorial Park	aa	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Replenishment Fund Balance	bb	**$ 1,884,298**	**$ 4,652,874**	**$ (1,847,417)**	**$ (1,219,966)**	**$ (2,930,710)**	**$ (6,170,178)**	**$ (9,509,483)**	**$ (7,749,648)**	**$ (5,991,546)**	**$ (4,023,252)**	**$ (3,909,125)**
Replenishment Fund Balance Forward	cc	$ -	**$ 1,884,298**	**$ 4,652,874**	**$ (1,847,417)**	**$ (1,219,966)**	**$ (2,930,710)**	**$ (6,170,178)**	**$ (9,509,483)**	**$ (7,749,648)**	**$ (5,991,546)**	**$ (4,023,252)**
Total Replenishment Assessments	dd	$ 2,349,946	$ 2,768,576	$ 5,805,632	$ 4,369,165	$ 4,464,082	$ 3,329,189	$ 2,601,104	$ 2,825,688	$ 3,217,182	$ 2,495,183	$ 114,290
Total Paid and/or Credited	ee	$ (465,648)	$ -	$ (12,305,924)	$ (3,741,714)	$ (6,174,826)	$ (6,568,657)	$ (5,940,409)	$ (1,065,852)	$ (1,459,080)	$ (526,890)	$ (162)
Grand Total Fund Balance	ff	**$ 1,884,298**	**$ 4,652,874**	**$ (1,847,417)**	**$ (1,219,966)**	**$ (2,930,710)**	**$ (6,170,178)**	**$ (9,509,483)**	**$ (7,749,648)**	**$ (5,991,546)**	**$ (4,023,252)**	**$ (3,909,125)**

** 2010 = 319.55 AF golf course in-lieu replenishment and 68.8 AF 4-party agmt in-lieu replenishment*

2011 = 411.1 AF golf course in-lieu replenishment

2012 = 298.2 AF golf course in-lieu replenishment

2013 = 383.4 AF golf course in-lieu replenishment

2014 = 552.4 AF golf course in-lieu capped at 540 AF

2015 = 195.0 AF golf course in-lieu

2016 = 00.06 AF golf course in-lieu

2017 = 00.00 AF golf course in-lieu

Seaside Groundwater Basin Watermaster
Replenishment Fund
Water Year 2023 (October 1 - September 30) / Fiscal Year (January 1 - December 31, 2023)
Proposed 2023 Budget

Replenishment Fund		2017	2018	2019	2020	WY 2021	Budget WY 2022	Totals WY 2006 Through 2022	Budget WY 2023	Projected Totals Through WY 2022
Assessment Water Year		WY 16/17	WY 17/18	WY 18/19	WY 19/20	WY 20/21	WY 21/22		WY 22/23	
Unit Cost:	a	$2,872 / $718	$2,872 / $718	$2,872 / $718	$2,872 / $718	$2,947 / $737	$3,260/ $815		$3,461/ $865	
Cal-Am Water Balance Forward	b	**$ (676,704)**	**$ (491,747)**	**$ (48,797,949)**	**$ (47,979,852)**	**$ (46,855,121)**	**$ (46,855,121)**		**$ (46,735,121)**	
Cal-Am Water Production (AF)	c	*2,029.51*	*2,229.45*	*2,120.22*	*2,245.88*	*1,664.04*		*46,041.03*		
Cal-Am Water NSY Over-Production (AF)	d	*64.40*	*374.65*	*284.85*	*334.21*	-		*14,638.57*		
Exceeding Natural Safe Yield Considering Alternative Producers	e	$ 184,957	$ 1,075,995	$ 818,097	$ 959,859	$ -	$ 100,000	$ 33,650,034	$ 100,000	$ 33,750,034
Operating Yield Overproduction Replenishment	f				$ 164,872	$ -	$ 20,000	$ 1,142,753	$ 20,000	$ 1,162,753
Total California American	g	**$ 184,957**	**$ 1,075,995**	**$ 818,097**	**$ 1,124,731**	**$ -**	**$ 120,000**	**$ 34,792,786**	**$ 120,000**	**$ 34,912,786**
CAW Credit Against Assessment	h		$ (49,382,196)	$ -	$ -	$ -	$ -	$ (81,527,907)	$ -	$ (81,527,907)
CAW Unpaid Balance	i	***$ (491,747)***	***$ (48,797,949)***	***$ (47,979,852)***	***$ (46,855,121)***	***$ (46,855,121)***	***$ (46,735,121)***	***$ (46,735,121)***	***$ (46,615,121)***	***$ (46,615,121)***
City of Seaside Balance Forward	j	**$ (3,232,420)**	**$ (3,142,500)**	**$ (3,022,249)**	**$ (2,919,806)**	**$ (2,802,831)**	**$ (2,708,828)**		**$ (2,598,828)**	
City of Seaside Municipal Production (AF)	k	*188.31*	*184.63*	*178.40*	*181.65*	*174.69*		*3,733.83*		
City of Seaside NSY Over-Production (AF)	l	*30.47*	*32.46*	*27.82*	*32.06*	*25.52*		*1,235.62*		
Exceeding Natural Safe Yield Considering Alternative Producers	m	$ 87,512	$ 93,225	$ 79,893	$ 92,089	$ 75,197	$ 100,000	$ 2,960,242	$ 100,000	$ 3,060,242
Operating Yield Overproduction Replenishment	n	$ 2,409	$ 27,026	$ 22,550	$ 24,886	$ 18,806	$ 10,000	$ 203,734	$ 10,000	$ 213,734
Total Municipal	o	$ 89,920	$ 120,251	$ 102,443	$ 116,975	$ 94,003	$ 110,000	$ 3,163,977	$ 110,000	$ 3,273,977
City of Seaside - Golf Courses (APA - 540 AFY)										
Exceeding Natural Safe Yield - Alternative Producer	p	$ -	$ -	$ -	$ -	$ -		$ 201,406		$ 201,406
Operating Yield Overproduction Replenishment	q	$ -	$ -	$ -	$ -	$ -		$ 50,353		$ 50,353
Total Golf Courses	r	$ -		$ -	$ -	$ -		$ 251,759		$ 251,759
Total City of Seaside*	s	**$ 89,920**	**$ 120,251**	**$ 102,443**	**$ 116,975**	**$ 94,003**	**$ 110,000**	**$ 3,415,736**	**$ 110,000**	**$ 3,525,736**
City of Seaside Late Payment 5%	t							$ 88,887		$ 88,887
In-lieu Credit Against Assessment	u					-	-	$ (6,103,451)	-	$ (6,103,451)
City of Seaside Unpaid Balance	v	***$ (3,142,500)***	***$ (3,022,249)***	***$ (2,919,806)***	***$ (2,802,831)***	***$ (2,708,828)***	***$ (2,598,828)***	***$ (2,598,828)***	***$ (2,488,828)***	***$ (2,488,828)***
Mission Memorial Park (APA - 31 AFY)										
Mission Memorial Park Production (AF)	w	*13.74*	*14.43*	*16.07*	*20.00*	*46.77*	*31.00*	*332.89*		
Mission Memorial Park NSY Over-Production (AF)	x	-	-	-	-	*15.77*	-	*15.77*		
Exceeding Natural Safe Yield - Alternative Producer	y	$ -	$ -	$ -	$ -	$ 46,488	$ -	$ 46,488		$ 46,488
Operating Yield Overproduction Replenishment	z	$ -	$ -	$ -	$ -	$ 11,626	$ -	$ 11,626		$ 11,626
Board Approved (5/4/22) Credit Against Assessment						(33,114)		$ (33,114)	-	$ (33,114)
Mission Memorial Park Unpaid Balance	aa	$ -		$ -	$ -	***$ -***	$ -	$ -		$ -
Total Replenishment Fund Balance	bb	**$ (3,634,247)**	**$ (51,820,198)**	**$ (50,899,658)**	**$ (49,657,952)**	**$ (49,563,949)**	**$ (49,333,949)**	**$ (49,333,949)**	**$ (49,103,949)**	**$ (49,103,949)**
Replenishment Fund Balance Forward	cc	**$ (3,909,125)**	**$ (3,634,247)**	**$ (51,820,198)**	**$ (50,899,658)**	**$ (49,657,952)**	**$ (49,588,949)**		**$ (49,358,949)**	
Total Replenishment Assessments	dd	$ 274,877	$ 1,196,246	$ 920,540	$ 1,241,706	$ 94,003	$ 230,000	$ 38,297,410	$ 230,000	**$ 38,527,410**
Total Paid and/or Credited	ee		$ (49,382,196)			$ (25,000)	$ -	$ (87,656,358)	$ -	**$ (87,656,358)**
Grand Total Fund Balance	ff	**$ (3,634,247)**	**$ (51,820,198)**	**$ (50,899,658)**	**$ (49,657,952)**	**$ (49,588,949)**	**$ (49,358,949)**	**$ (49,358,949)**	**$ (49,128,949)**	**$ (49,128,949)**

SEASIDE GROUNDWATER BASIN WATERMASTER

TO: Watermaster Board of Directors
FROM: Laura Paxton, Administrative Officer
DATE: October 5, 2022
SUBJECT: Consider Approval of Unit Costs for Water Year 2022/23 Over Production Replenishment Assessment

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RECOMMENDATION:
Recommend to the Watermaster board at its October 5, 2022 board meeting to adopt a Replenishment Assessment Unit Cost of $3,461/AF and $865/AF for Natural Safe Yield and Operating Yield Overproduction, respectively, for Water Year 2023.

BACKGROUND:
Per page 33 of the Decision, "The per acre-foot (AF) amount of the Replenishment Assessments shall be determined and declared by Watermaster in October of each Water Year in order to provide Parties with advance knowledge of the cost of Over-Production in that Water Year." Thus, the per acre-foot amount determined by the Board on or before October of 2022 will be used to calculate Replenishment Assessments for pumping that occurs during Water Year 2023 (October 1, 2022 through September 30, 2023).

For Water Years 2014, 2015, and 2016 the Board adopted a Replenishment Assessment Unit Cost of $2,702/AF for Natural Safe Yield Overproduction. This unit cost was developed starting with Water Year 2014 by taking the average of the Base Unit Cost ($/AF) of the four potential water supply projects that the Board felt were the most likely to be implemented. For Water Year 2017 the Board adopted a revised Replenishment Assessment Unit Cost of $2,872. This revised Unit Cost was calculated using updated unit cost data for the three projects which the Board at that time felt were the most likely to be implemented. The number of projects was reduced from four to three, because when the WY 2017 Unit Cost was being calculated, it was determined that two of the previous four projects (Regional Desalination and the Pure Water Monterey Groundwater Replenishment Projects) would be part of a combined project referred to as the Monterey Peninsula Water Supply Project (MPWSP). The unit cost for Water Year 2017 was carried over to the three subsequent Water Years because no updated cost data was available for those projects, and no other viable projects could be identified. In 2020, a blended unit cost value was provided for the Monterey Peninsula Water Supply Project based on a reduced size desalination plant offset by water to be provided by the Pure Water Monterey Project. Based on the updated Pure Water Monterey Project's unit cost, the blended unit cost for that combined project was updated from $4,591/AF to $4,817/AF, resulting in a Water Year 2021 Replenishment Assessment Unit Cost of $2,947/AF. In 2022, a blended unit cost value was calculated for the MPWSP based on an updated PWM unit cost. The blended unit cost for that combined project was updated from $4,817/AF to $4,948/AF. For purposes of the 2022 Replenishment Assess Unit Cost calculation, $2,808 was used as the RUWAP cost/AF. Monterey Peninsula Water Management District had not yet provided updated costs for Aquifer Storage and Recovery expansion.

DISCUSSION:
The attached Table includes updated cost data for the Pure Water Monterey Project (PWM) and its expansion (PWMX) as the expected delivery from both projects is 5,750AFY, up from 3,500AFY. In the attached Table, a blended unit cost value is provided for the MPWSP based on the updated PWM/PWMX unit cost. The blended unit cost for that combined project was updated from $$4,948/AF to $4,872/AF. For purposes of the 2023 Replenishment Assess Unit Cost calculation, $3,486 was used as the RUWAP cost/AF.

The updated Unit Cost would therefore be $3,461/AF, calculated as: ($4,872+$2,025+$3,486)/3. These are the three **bold-faced** unit costs in the attached Table. The Operating Yield Over Production Replenishment Assessment Unit Cost is 25% of that amount, or $865.

ATTACHMENTS: Updated Unit Cost Data Table 2023; Water Year 2022 Unit Cost Data

WATER YEAR 2023 (October 1, 2022-September 30, 2023)

ANTICIPATED UNIT COSTS OF WATER THAT COULD POTENTIALLY BE USED FOR REPLENISHMENT OF THE SEASIDE BASIN

POTENTIAL SOURCE OF REPLENISHMENT WATER	POTENTIAL DATE REPLENISHMENT WATER COULD BECOME AVAILABLE	POTENTIAL VOLUME OF WATER THAT COULD BE SUPPLIED BY THE PROJECT (AFY) [1]	BASE UNIT COST ($/AF)	BASE UNIT COST YEAR
Regional Desalination [2]	2024	6,250	$6,147	2021
Pure Water Monterey & PWMX [6]	2020	5,750	3,486	2021
Monterey Peninsula Water Supply Project (Combined Regional Desalination with Groundwater Replenishment Project)	PWM in 2020; Regional Desalination in 2024	12,000	**$4,872[3]**	2022
Seaside Basin ASR Expansion [4]	2021	1,000	**$2,025**	2016
Regional Urban Water Augmentation Project [5]	2021	1,400-1,700	**$3,486**	2021

($4,872 + $2,025 + $3,486) / 3 =

$3,461 = 2023 Replenishment Assessment Unit Cost for NSY Overproduction

$3,461/4 = $865 Replenishment Assessment Unit Cost for OY Overproduction

FOOTNOTES:

(1) For the Regional Desalination Project this is the total amount of water from this source which could potentially come to the Cal Am distribution system, based on the sesalination plant having a 6.4 MGD capacity equivalent to 7,169 AFY. Only a portion of this amount might be available as initially unused capacity that could be used to help replenish the Seaside Basin For the RUWAP this is the total amount of non-potable water from this source. Only a portion of this amount might be used for in-lieu replenishment of the Seaside Basin. For the ASR Expansion Project this is the additional amount of water that could potentially be provided by this project (see footnote 4). For the PWM & PWMX this is the quantity of water that is being planned at this time by CAW for inclusion in its Monterey Peninsula Water Supply Project.

(2) Base unit cost data based on PUC filing documents and provided by Dave Stoldt of MPWMD. This unit cost was confirmed in August 2021 by Ian Crooks of Cal Am as being the latest unit cost available for this project.

(3) Flow-weighted average unit cost of the combined desalination and groundwater replenishment projects, calculated as:
(6,250x$6,147 + 5,750x$3,486)/12,000 = $4,872

(4) Base unit cost data provided by MPWMD in 2016. No updated unit cost was provided for this project. The 1,000 AFY of potential water that this project could supply would be in addition to the 1,300 AFY included as part of the Monterey Peninsula Water Supply Project, and would be an annual average taking into account river flow and hydrologic conditions that change from year to year.

(5) Project data updated in 2022. Patrick Breen of MCWD noted that to determine total cost per acre-foot, use the $3,486-acre foot cost from Pure Water Monterey (which would be RUWAP cost as well) and add MCWD O&M and Financing costs to be determined.

(6) Base unit cost effective September 19, 2022 based on information provided by Ian Crook of Cal Am.

WATER YEAR 2022 (October 1, 2021-September 30, 2022)

ANTICIPATED UNIT COSTS OF WATER THAT COULD POTENTIALLY BE USED FOR REPLENISHMENT OF THE SEASIDE BASIN

POTENTIAL SOURCE OF REPLENISHMENT WATER	POTENTIAL DATE REPLENISHMENT WATER COULD BECOME AVAILABLE	POTENTIAL VOLUME OF WATER THAT COULD BE SUPPLIED BY THE PROJECT (AFY) (1)	BASE UNIT COST ($/AF)	BASE UNIT COST YEAR
Regional Desalination (2)	2024	6,250	$6,147	2021
Groundwater Replenishment Project (Pure Water Monterey) (6)	2020	3,500	2,808	2021
Monterey Peninsula Water Supply Project (Combined Regional Desalination with Groundwater Replenishment Project)	GWRP in 2020; Regional Desalination in 2024	9,750	**$4,948(3)**	2021
Seaside Basin ASR Expansion (4)	2021	1,000	**$2,025**	2016
Regional Urban Water Augmentation Project (5)	2021	1,400-1,700	**$2,808+TBD**	2021

($4,948 + $2,025 + $2,808) / 3 =
$3,260 = 2022 Replenishment Assessment Unit Cost for NSY Overproduction
$3,260/4 = $815 Replenishment Assessment Unit Cost for OY Overproduction

FOOTNOTES:

(1) For the Regional Desalination Project this is the total amount of water from this source which could potentially come to the Cal Am distribution system, based on the desalination plant having a 6.4 MGD capacity equivalent to 7,169 AFY. Only a portion of this amount might be available as initially unused capacity that could be used to help replenish the Seaside Basin for the RUWAP this is the total amount of non-potable water from this source. Only a portion of this amount might be used for in-lieu replenishment of the Seaside Basin. For the ASR Expansion Project this is the additional amount of water that could potentially be provided by this project (see footnote 4). For the GWRP this is the quantity of water that is being planned at this time by CAW for inclusion in its Monterey Peninsula Water Supply Project.

(2) Base unit cost data based on PUC filing documents and provided by Dave Stoldt of MPWMD. This unit cost was confirmed in August 2021 by Ian Crooks of Cal Am as being the latest unit cost available for this project.

(3) Flow-weighted average unit cost of the combined desalination and groundwater replenishment projects, calculated as: (6,250x$6,147 + 3,500x$2,808)/9,750 = $4,948

(4) Base unit cost data provided by MPWMD in 2016. No updated unit cost was provided for this project. The 1,000 AFY of potential water that this project could supply would be in addition to the 1,300 AFY included as part of the Monterey Peninsula Water Supply Project, and would be an annual average taking into account river flow and hydrologic conditions that change from year to year.

(5) Project data updated by MCWD in 2021. Patrick Breen of MCWD noted that to determine total cost per acre-foot, use the $2,808-acre foot cost from Pure Water Monterey (which would be RUWAP cost as well) and add MCWD O&M and Financing costs to be determined fall of 2021.

(6) Base unit cost effective July 1, 2021 based on information provided by Ian Crook of Cal Am.

ITEM VIII.A

SEASIDE GROUNDWATER BASIN
WATERMASTER

TO: Board of Directors

FROM: Robert S. Jaques, Technical Program Manager

DATE: September 25, 2022

SUBJECT: Results from Flow Direction/Flow Velocity Modeling and Recommendation to Perform Additional Analysis

- -

RECOMMENDATIONS:

1. Accept the flow direction/flow velocity Technical Memorandum of February 25, 2022 as a preliminary evaluation of how potential seawater intrusion would move in the Seaside Basin
2. Perform additional analyses of this topic in the 2023 Monitoring and Management Program using somewhat different assumptions than those used in the February 2022 work

BACKGROUND:
At its September 1, 2021 meeting the Board approved a contract with Montgomery & Associates to perform flow direction/flow velocity modeling. The objective of this work was to estimate the velocities, travel times, and directions of the potential movement of seawater intrusion inland from the coast into the Northern Coastal Subarea of the Seaside basin, where the majority of the production wells are located. The analysis considered both current conditions and projected potential future conditions.

This work has been completed and consisted of these Tasks:

- Developing Groundwater Elevation Surface Map Snapshots of the Shallow Aquifer
- Performing Particle Tracking and a Travel Time Analysis on the Developed Water Elevation Maps
- Preparing a Technical Memorandum
- Making a presentation to the TAC

Attached is information and graphics excerpted from the Flow Direction/Flow Velocity Modeling Technical Memorandum that describe its findings and conclusions. The full document is 30 pages in length, and is posted on the Watermaster's website at this link
http://www.seasidebasinwatermaster.org/Other/Flow%20Direction-Flow%20Velocity%20Tech%20Memo%20Final%20Version%202-25-22.pdf

DISCUSSION:
The TAC received a full presentation on this work at its March 9, 2022 meeting.

Some of the key issues and concerns raised by the TAC at its March 9 meeting were:

- The hydrologic conditions that are assumed in the modeling have a significant impact on travel times.
- The modeling is based on repeating historical hydrology patterns which may be overly optimistic. Future years may be drier than the historical patterns. The Mid-Coast Basin in Santa Cruz County is using more conservative (drier) future hydrology projections for purposes of managing its basin.
- The amount of water injected via ASR has a strong impact on the projected rates of movement of seawater intrusion. If ASR amounts are less than those that were used in this modeling, the rates of movement would be greater than projected.
- The assumptions used in the modeling work may be reflective of a best-case scenario. Concern was expressed that there may be a delay in when Cal Am can begin its projected 700 AFY overpumping payback program.
- The time-series graphics in the Technical Memorandum should be recognized as being very climate dependent. These graphics could give the reader a misleading impression, because they are based on assuming that the climate pattern will repeat itself and that everything will be fine with the Pure Water Monterey Expansion and Cal Am's payback program taking place starting in 2024.

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At the March 9 meeting there was discussion about potentially performing additional analyses to determine what the impacts would be of using different assumptions. Specifically, the issues pertaining to assumptions that were discussed included:

- Whether using a repeat of historical hydrology might underestimate the effects of climate change, and that in future years there might be less than the historical pattern of rainfall. This could result in:
    - Less water available for ASR injection into the Basin
    - An increase in water demands for irrigation within the Castroville Seawater Intrusion Project and Cal Am service areas and other urban water suppliers
    - A reduction in the amount of Pure Water Monterey water that could be supplied to the Basin due to that project having to provide more water to the Castroville Seawater Intrusion Project because of increased irrigation demands there
- The timing of the start of using recycled water on the Seaside golf courses
- The timing of the start of Cal Am's overpumping payback program of 700 AFY

At its July 13, 2022 meeting the TAC revisited this topic and passed a motion recommending that in the 2023 Monitoring and Management Program Operations Budget (which will come to the Board for consideration at its October 2022 meeting) money be included for performing additional flow direction/flow velocity analytical work.

At today's meeting Pascual Benito of Montgomery & Associates, the principal author of this Technical Memorandum, will provide a PowerPoint presentation describing the work that has been completed, and will respond to questions from the Board.

ATTACHMENT: Information and Graphics Excerpted from the Technical Memorandum

Methodology Used

The modeling analyzed the movement of seawater by simulating the release of "particles" along the coastline of the Seaside Subbasin and portions of the neighboring Monterey Subbasin. The movement of these particles was then tracked to see how flow velocities and flow directions vary along the coastline under different conditions. Groundwater travel velocity is very sensitive to the effective porosity of the aquifer. Upper and lower estimates of the travel times were developed based on a reasonable range of assumed aquifer effective porosities to provide a range of possible inland travel velocities.

Inland flow velocities

A view of the area of fastest inland seawater intrusion movement in the lower portion of the Paso Robles aquifer is shown in the figure below. The map on the left of the figure shows seawater intrusion movement starting from a series of locations along the coast. The location of the fastest rate of movement is highlighted in the rectangular box drawn around the particle track trace in that map. In the graph on the right of the figure, values greater than zero represent the velocity of travel when seawater is traveling inland from the coastline, and negative values represent the velocity of travel when it is moving toward the coastline. The numbered points on the map and the graph represent time periods with different operational and hydrologic conditions in the basin as described below:

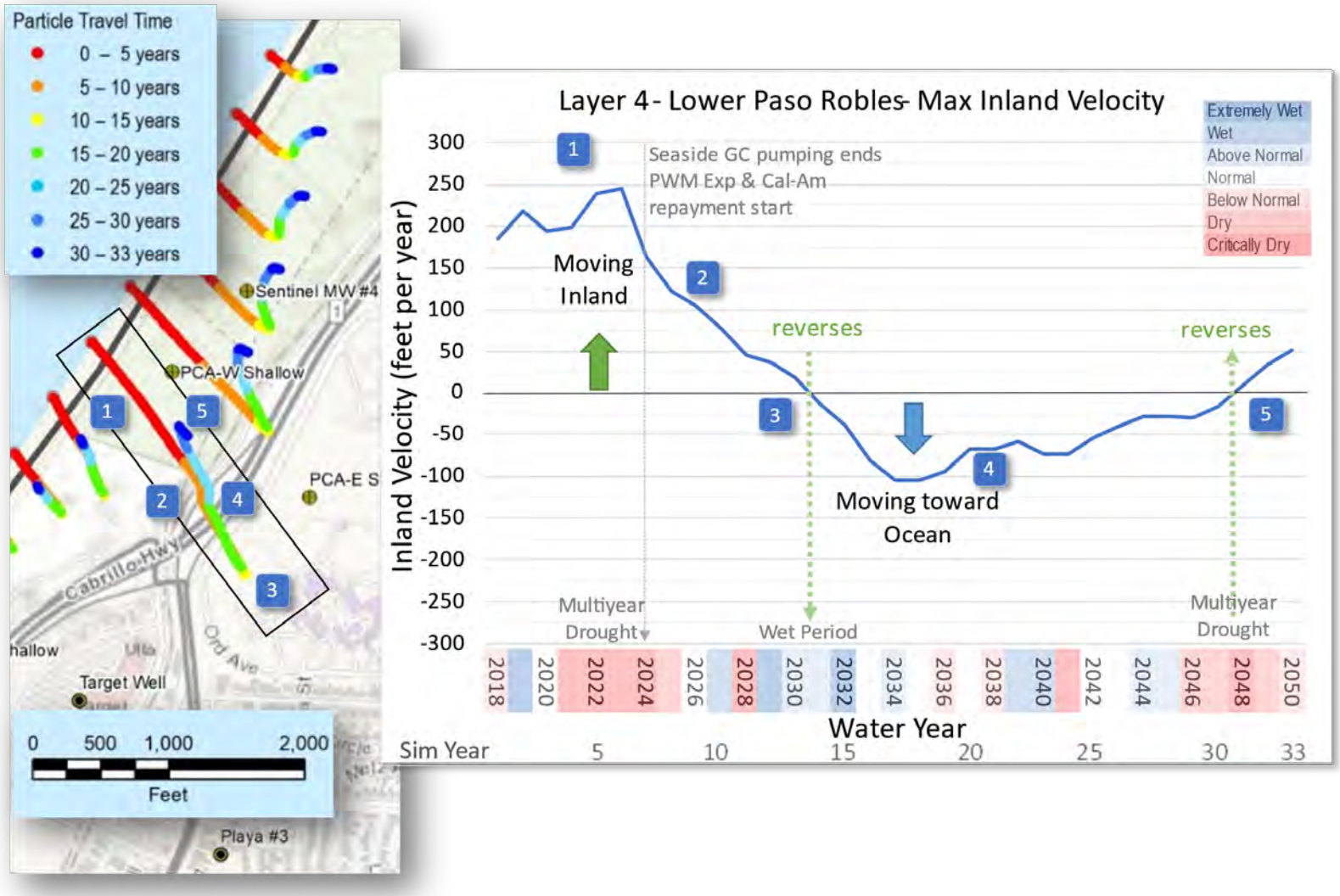
Period 1: This first period represents current conditions in the basin before the simulated planned projects begin in WY 2024. It reflects the impact of the recently experienced prolonged multi-year drought which limited natural and ASR recharge. Inland groundwater levels are at their lowest, creating conditions of maximum seawater intrusion potential with the highest inland flow velocity (as high as 250 feet inland per year). On the map this period is shown as the red color-coded portion of the particle paths.

Period 2: This period represents when the projects come online in WY 2024 and after the multi-year drought period ends. The particles are still moving inland from the coast, but at increasingly slower velocity as groundwater levels in the basin rise reducing the inland hydraulic gradients. This is shown as the orange and yellow segments on the particle path map.

Period 3: This period represents the transition period when the gradient reverses from a condition of inflow from the offshore area to one of outflow toward the ocean. During this period the groundwater levels reach their highest simulated points, buoyed by five back-to-back extremely wet and above-normal wet years that allow for large amounts of ASR recharge. The particles no longer move any further inland and begin moving back toward the ocean.

Period 4: This period represents conditions when flow gradients are still in the offshore direction, and the particles move back toward the ocean at a generally steady rate that fluctuates with the hydrology and begins to decrease after a critically dry year in WY 2041 (shown in the green, cyan, and light blue particle colors on the map).

Period 5: This final period represents the effects of a new multi-year drought that significantly reduces ASR and PWM recharge and allows groundwater levels to drop to the point that the flow gradient reverses again. The particles begin to move inland again, though at a much slower rate than during the earlier inland flow period, ending at rate of 50 feet of inland travel per year in WY 2050.



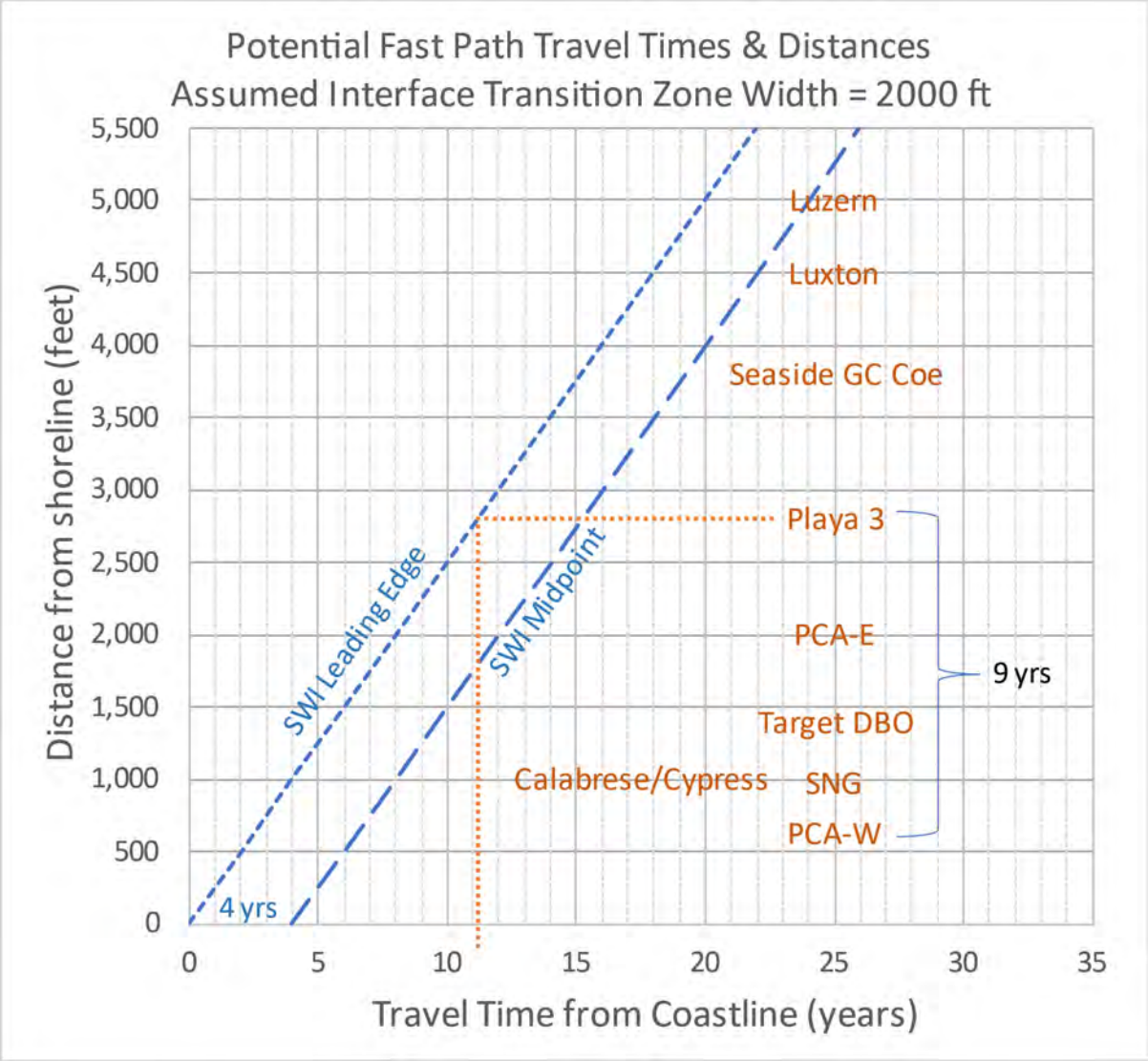
Particle Flow Paths and the Flow Velocities Along the Pathway of Fastest Movement

Potential Inland Travel Times of Seawater Intrusion Interface Along a Preferential Flow Path

From the perspective of the threat posed by potential seawater intrusion, the history of movement of seawater intrusion in the Salinas Valley suggests that seawater intrusion occurs not as a uniform front moving inland across the entire coastline at one rate, but rather occurs and advances largely as localized fingers or lobes where the combination of both inland gradients and aquifer properties create preferential pathways for inland intrusion. For this reason this analysis focused on evaluating how quickly and how far seawater intrusion could move inland from the coastline along one such fast pathway under conservative worst-case conditions.

The seawater intrusion interface moves not as a sharp interface, but rather as a diffuse transition zone between freshwater and full-strength seawater. The seawater intrusion interface transition zone is the distance between the leading edge at some threshold salinity level that is much lower than full strength seawater, but above the native groundwater salinity, and a midpoint between the leading edge and full-strength seawater. The midpoint would represent a very high salinity concentration that is much greater than groundwater quality objectives for the basin.

The figure below is based on assuming that the basin conditions that resulted in the fastest simulated pre-WY 2024 travel rates were held constant, and that the seawater intrusion interface moved inland from the coast at that same maximum rate of 250 feet per year. It should be noted that the analysis did not account for the fact that the travel velocity will accelerate closer to an active production well because of the exponential steepening of the hydraulic gradients around the cone of depression that forms around a pumping well. The figure shows a graph of distance traveled inland from the coastline versus travel time. For a given distance inland on the vertical axis, one can read off the estimated travel time from the coastline on the horizontal axis. For reference, the names of several production and monitoring wells are shown, placed vertically at their respective distances inland from the coastline. In this scenario it could take as little as one year between when the leading edge of seawater interface is observed at a coastal monitoring well located very near the shoreline, such as PCA-W, and when the seawater interface would reach other wells located slightly further inland, such as the small SNG or Calabrese/Cypress wells located only 1,000 feet from the coastline. For a well a bit further inland, such as Cal Am's Playa 3 production well at a distance of 3,800 feet from the coastline, it could take on the order of nine years of travel time to arrive after detection of the leading edge at a coastal monitoring well. If it were assumed that the seawater intrusion interface transition zone had a width of 2,000 feet, and that the midpoint of the interface moved at the same rate as the leading edge, it would take as little as four years between when the leading edge of the interface would be observed at a well and when the very high concentration of the midpoint would arrive at that well.



Potential Maximum Inland Travel Times and Distances Along a Preferential Flow Path

Conclusions & Considerations

- In the shallow Aromas Sands & Older Dune Deposits and the upper and middle portions of the Paso Robles aquifer, flow in the basin is predominantly in the offshore direction during the time period that was modeled.

- Offshore flow rates increase and accelerate as recharge operations in the basin increase after WY 2024 because of planned project operations and periods of wetter simulated hydrologic conditions that allow for increased net recharge.

- The most significant inland flows (in terms of both rates and distance) occur in the lower portion of the Paso Robles aquifer in the Northern Coastal Subarea. The fastest travel times are concentrated in line with the main pumping depression where production wells are screened in the lower Paso Robles and where model calibration also has resulted in higher hydraulic conductivity values.

- Maximum inland flow velocities of up to 250 feet per year are simulated under current and near-term basin conditions (e.g., pre-WY 2024), and are shown to decrease as basin groundwater levels rise. The movement of the seawater intrusion interface can reverse direction as gradients change from an inland to an offshore direction due to rising water levels in the basin. Faster travel rates are possible depending on the nature of preferential flow paths, and future hydrology.

- The inland velocities and travel distances are sensitive to changes in hydrologic conditions that impact the amount of water available for net ASR recharge in the basin. Periods of prolonged drought will increase potential inland travel rates and increase the seawater intrusion risk. The sequence of projected hydrologic conditions in the baseline simulation represents only a single realization of many possible future hydrology scenarios. If desired, other future climatic conditions could be considered for future modeling.

- Inland flow in the Monterey Subbasin and cross-boundary flows between the Seaside and Monterey Subbasins is dependent on assumptions on the groundwater levels assigned to the model in the Marina/Ord area. The assumptions that these remain unchanged should be reviewed and the impact evaluated.

- More work and data would be needed to develop an understanding of where the seawater interface is currently located offshore of the basin, and to better characterize potential preferential flow paths along which seawater intrusion could move quickly inland.

D-R-A-F-T
MINUTES

Seaside Groundwater Basin Watermaster
Technical Advisory Committee Meeting
August 10, 2022
(Meeting Held Using Zoom Conferencing)

Attendees: **TAC Members**
City of Seaside – Nisha Patel
California American Water – Tim O'Halloran
City of Monterey – Cody Hennings
Laguna Seca Property Owners – Wes Leith
MPWMD – Jon Lear
MCWRA – Tamara Voss
City of Del Rey Oaks – John Gaglioti
City of Sand City – Leon Gomez
Coastal Subarea Landowners – No Representative

Watermaster
Technical Program Manager – Robert Jaques
Administrative Officer Assistant – Michael Paxton

Consultants
Montgomery & Associates – Pascual Benito, Bill DeBoer
Wallace Group – Rick Riedl

Others
Cal Am – Josh Stranton
MPWMD – Maureen Hamilton

The meeting was convened at 1:34 p.m.

1. Public Comments and Roll Call

There were no public comments. Ms. Voss conducted the roll call with the members listed above being in attendance.

2. Administrative Matters:

A. Make Findings Required Under AB 361 Regarding Holding Meetings Via Teleconference

Mr. Jaques briefly summarized the agenda packet materials for this item. A motion was made by Mr. O'Halloran, seconded by Mr. Gaglioti, to adopt the findings contained in the agenda packet. The motion passed with Mr. Leith voting no.

B. Approve Minutes from the July13, 2022 Meeting

On a motion by Mr. O'Halloran, seconded by Mr. Gomez, the minutes were unanimously approved as presented, with Mr. Lear abstaining.

C. Sustainable Groundwater Management Act (SGMA) Update
Mr. Jaques summarized the agenda packet materials for this item. There was no other discussion.

D. Update on Issues Concerning Well ASR-1
Mr. Jaques summarized the agenda packet materials for this item. Mr. Gaglioti thanked Mr. Jaques for providing this information. There was no other discussion.

3. Presentation on Additional Replenishment Water Evaluations Using Different Assumptions

Mr. Jaques introduced this item.

Mr. Gaglioti had joined the meeting by phone and was concerned that he might lose the connection due to the location he was in. He said that if there is a vote on this issue he would vote in favor of sending the material to the Board for their information at the September Board meeting.

Using the attached PowerPoint slides Mr. Benito presented the work done on the additional replenishment water evaluations using different assumptions. He noted that the new work compares the Baseline and 1,000 AFY replenishment water scenarios that were evaluated in the January 2022 work, to the amount of replenishment water needed under the revised assumptions that are described in the August Technical Memorandum.

Mr. Benito reported that water levels rise or fall depending on whether the inflow is greater than or less than the outflow. This work focused on the water budget for the Northern Coastal Subarea, plus the Pure Water Monterey Expansion area to the east. In this subarea, inflows include injected water, and outflows include pumping, both of which are controllable activities. Flows to or from adjacent areas are head -dependent and not directly controllable.

As deep aquifer water levels rise, more water is lost to the Monterey Subbasin and to the offshore area. During prolonged drought periods, larger amounts of net outflow occur because the amounts of water that are injected are reduced and the amount of water pumped generally increases. This lowers groundwater levels, but it also reduces outflows to adjacent areas that are down gradient, and increases inflows from those that are up-gradient.

In this Technical Memorandum the shallow aquifer includes all the unconfined aquifers including the Aromas, Dunes Sands, and Paso Robles.

Some of the principal conclusions from this work include:

- On average about 3,200 acre-feet per year of <u>additional</u> recharge water above the amount in the 1,000 AFY scenario would be needed under the revised assumptions to achieve protective water levels.
- Shallow Aquifer:
    - Factors having significant impact include rainfall and reduction in shallow aquifer pumping.

    - Pure Water Monterey vadose zone wells provide the biggest increase in groundwater levels. Outflows to the Monterey Subbasin and the offshore area increase as groundwater levels rise.
- Deep Aquifer:
    - Outflows to the Monterey Subbasin increase as groundwater levels rise in the deep aquifer.

Mr. O'Halloran and Mr. Gaglioti thanked Mr. Benito for an excellent presentation on a very complex set of conditions. Mr. Gaglioti said he would be submitting some questions of his own in writing to Mr. Benito at a later date.

A motion was made by Mr. Gaglioti, seconded by Mr. O'Halloran to send the information contained in this Technical Memorandum forward to the Board along with the January 2022 work. Mr. Lear reported that MPWMD feels that assumptions 2, 3, and 6 on page 25 of the agenda packet are not accurate.

The motion passed on the following vote:

Yes-Mr. O'Halloran, Ms. Patel, Mr. Hennings, Ms. Voss, Mr. Gaglioti, and Mr. Gomez
No - Mr. Lear, and Mr. Leith

4. Approve the Monitoring and Management Program (M&MP) for FY 2023

Mr. Jaques summarized the agenda packet materials for this item.

Mr. Lear and Ms. Voss recommended that if other parameters start to indicate possible seawater intrusion, sampling and analysis for barium and iodide be resumed.

A motion was made by Ms. Voss, seconded by Mr. O'Halloran, to approve the Monitoring and Management Program for FY 2023. The motion passed unanimously.

5. Approve the FY 2023 Monitoring and Management Program (M&MP) Operations and Capital Budgets

A motion was made by Mr. Lear, seconded by Ms. Voss, to approve the Monitoring and Management Program Operations and Capital Budgets for FY 2023. The motion passed unanimously.

6. Update on Monitoring Wells FO-9 and FO-10 and Approval of RFS No. 2022-05 with Montgomery & Associate Regarding Replacement of Well FO-9 Shallow

Mr. Jaques summarized the agenda packet materials for this item.

Mr. O'Halloran questioned whether or not well FO-9 Shallow was located on Army property. He said he thought the property had been transferred to the City of Seaside. Mr. Lear responded that as far as he knew it was still on Army property. In order to perform the destruction work at well FO-9 Shallow he had to get an easement and permission to access the site from the Army to do the work. Ms. Patel said that she would research the ownership of the property at this location.

With regard to potentially locating the replacement well on the City of Seaside golf course property, Ms. Patel said that she will talk with her upper management next week to see if this

will be acceptable to the City. She will also see if the existing well FO-9 Shallow is still on Army property or whether it is now on City of Seaside property.

With regard to the replacement well for well FO-9 Shallow, Ms. Voss said she felt that locating the replacement well on the City of Seaside golf course property would be satisfactory, as it is reasonably close to the location of the former FO-9 Shallow well and this would make it easier to get the necessary permissions to do that work.

Mr. Lear said he was not sure how reliable the FO-9 Shallow well monitoring data has been in recent years, because we do not know how long the casing leakage has been occurring which would compromise the analytical data.

On a motion by Ms. Voss, seconded by Mr. O'Halloran, RFS 2022 – 05 with Montgomery and Associates was unanimously approved, with Tasks 1 and 2 to be authorized at this time. There was brief discussion about determining whether or not the existing well FO-9 Shallow is on Army property. If it is no longer on Army property, and it is now on City of Seaside property, the replacement well could potentially be located closer to the existing well. If the property is still owned by the Army, the well could more readily be located on the City of Seaside golf course property.

7. Schedule

Mr. Jaques highlighted his expectation that there would not be a need for TAC meetings in either September or October. Therefore, unless there is a change, the next TAC meeting would be on the 3rd Wednesday of November, i.e. November 16, 2022.

8. Other Business

There was no other business.

The meeting adjourned at 3:23 PM.

REPLENISHMENT MODELING

WATER BUDGET ANALYSIS & ALTERNATIVE SUPPLY & DEMAND SCENARIO

MONTGOMERY & ASSOCIATES

Presented to the Seaside Basin TAC August 10th, 2022

Pascual Benito Ph.D.

OUTLINE

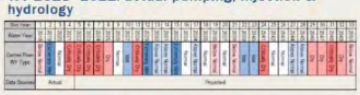
- Objectives
- Recap of Previous Modeling
- Water Budget Analysis of Baseline Scenario and 1,000-AFY Replenishment Scenario
- Alternative Scenario 1:
  - Alternate Supply & Demand Assumptions
  - Additional Replenishment Needed
- Conclusions
- What is the new Normal Water Year?

OBJECTIVES

- Aquifer-by-Aquifer Water Budget Analysis to understand trends and changes in net flows to/from the Basin
  - How much water is flowing to Offshore Region? To Monterey Subbasin?
- Develop alternative Supply & Demand scenario based on Cal-Am UWMP and updated City of Seaside assumptions (referred to as Alternative Scenario 1)
- Use water budget approach to estimate effects of different demand/supply assumptions on volume of replenishment needed

UPDATED BASELINE SIMULATION RECAP

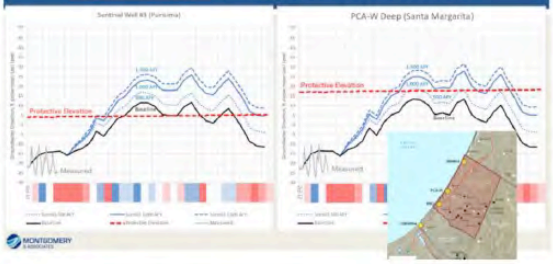
- WY 2018–2021: actual pumping, injection & hydrology



- WY 2022–2050: projected pumping, all planned projects, PWM & ASR injection tied to cycled historical hydrology
- Mean Sea Level rise of 1.3 ft by 2050
- No GSP projects in neighboring subbasins (e.g. assume no rise in water levels in Monterey Subbasin)

BASELINE + 1,000 AFY SIMULATION WATER LEVELS

SIMULATED DEEP GROUNDWATER LEVELS



YEARS TO REACH PROTECTIVE ELEVATION

- Number of Years (from WY2024) for Average Water Level to Reach Protective Elevation

Scenario	Sentinel 3 (Deep)	PCA-W (Deep)	MSC (Deep)	PCA-W (Shallow)	MSC (Shallow)	CDM MW-4 (Shallow)
Baseline	7	not reached	not reached	already reached	not reached	already reached
1) 500 AFY	6	9	9	already reached	not reached	already reached
2) 1,000 AFY	5	7	8	already reached	11*	already reached
3) 1,500 AFY	3	6	6	already reached	10	already reached
4) 1,500 AFY + Q Redist.	3	7	7	already reached	9	already reached

*within 3/4 foot

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PERCENT OF TIME PROTECTIVE ELEVATIONS MAINTAINED

- Percent of years (WY2024-2048) that average water level achieves protective elevation

Scenario	Sentinel 3 (Deep)	PCA-W (Deep)	MSC (Deep)	PCA-W (Shallow)	MSC (Shallow)	CDM MW-4 (Shallow)
Baseline	52%	not reached	not reached	100%	not reached	100%
1) 500 AFY	72%	12%	8%	100%	not reached	100%
2) 1,000 AFY	88%	56%	52%	100%	4%*	100%
3) 1,500 AFY	88%	72%	68%	100%	20%	100%
4) 1,500 AFY + Q Redist.	84%	84%	84%	100%	40%	100%

*within 3/4 foot

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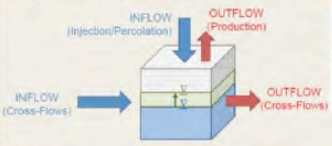
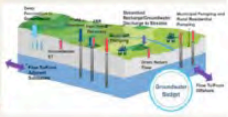
WATER BUDGET ANALYSIS

- INFLOWS – OUTFLOWS = CHANGE IN STORAGE
- A Change in Storage represent a change in groundwater levels
- Net Inflows > Net Outflows for water levels to rise





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WATER BUDGET ZONES

Focus on Northern Coastal Subarea extended to include PWM Expansion Project Area

DEEP AQUIFER FLOW COMPONENTS

- NET PUMPING = PWM_{Inj} + ASR_{Inj} + $Replenishment_{Inj}$ - Total Production
- Head Dependent Cross-Flows To/From:
  - Monterey Subbasin
  - Offshore Region
  - Flow to/from Northern Inland Subarea
  - Shallow Aquifer
  - Southern Coastal Subarea

For each flow component:
NET IFLOW = TOTAL INFLOW – TOTAL OUTFLOW
(Positive = a net inflow, Negative = a net outflow)

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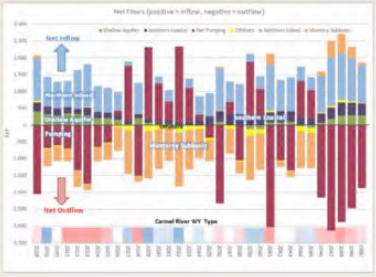
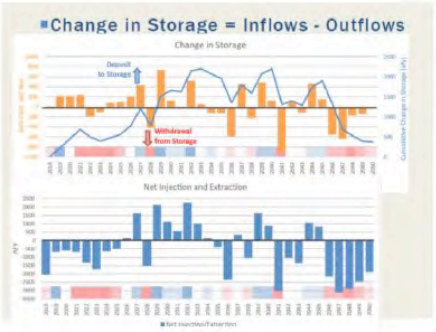


DEEP AQUIFER BASELINE NET FLOWS



DEEP AQUIFER BASELINE NET FLOWS

Net Pumping is the driver for changes in water levels in the Deep Aquifer

UNCONFINED AQUIFERS FLOW COMPONENTS

- Deep Percolation
  - Infiltration of rainfall, irrigation return flow & system losses
- PWM Vadose Zone Recharge (VZW Wells + Perc Ponds)
- Pumping from Extraction Wells
- Head Dependent Cross-Flows To/From:
  - Monterey Subbasin
  - Offshore Region
  - Flow to/from Northern Inland Subarea
  - Shallow Aquifer
  - Southern Coastal Subarea

For each flow component
NET FLOW = TOTAL INFLOW – TOTAL OUTFLOW
(Positive = a net inflow, Negative = a net outflow)

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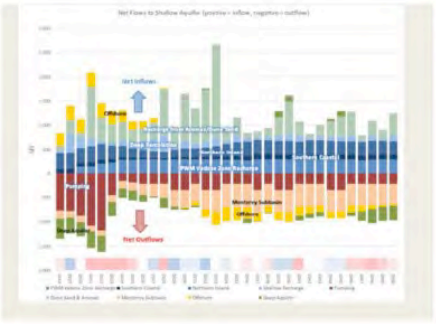
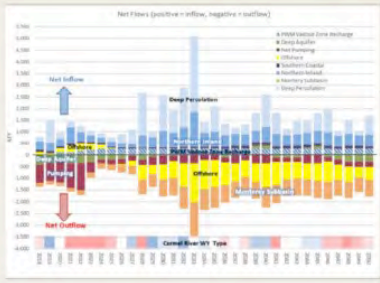
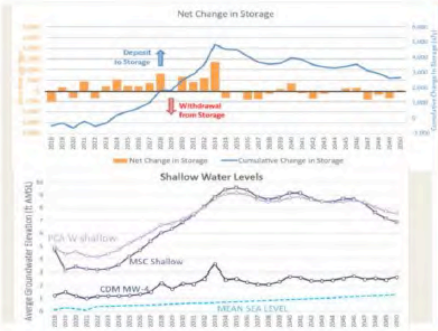


BASELINE NET FLOWS: SHALLOW AQUIFER
(Paso Robles Only)



BASELINE NET FLOWS: UNCONFINED AQUIFERS*

*Aromas + Dune Sands and Paso Robles Combined



SHALLOW AQUIFER BASELINE NET FLOWS

BASELINE SHALLOW AQUIFER CHANGE IN STORAGE

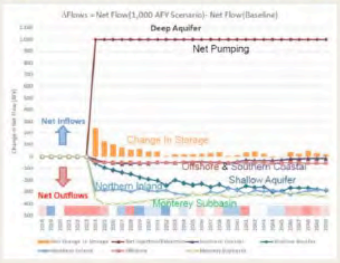
Percolation from Rainfall (direct and via the Aromas Sands and Older Dune Deposits) is the primary driver for the increase in shallow water level

1,000-AFY Replenishment Scenario

CHANGE IN NET FLOW FROM BASELINE SCENARIO

Unconfined Aquifers Combined (Paso Robles + overlying Aromas + Dune Sands)

1,000-AFY Replenishment Scenario



CHANGE IN NET FLOW FROM BASELINE SCENARIO

Deep Aquifer

ALTERNATIVE SCENARIO 1: CAL-AM ASSUMPTIONS

1. 15 AF per day will be used as the average daily amount of ASR diversion, not the 20 acre-feet per day that was used in the January 2022 modeling (but will keep same cycled hydrology)
2. 2020 Urban Water Management Plan (UWMP) demand figures rather than MPWMD's demand figures will be used projected water demands
3. MPWSP Desalination Plant begins operation in 2030 in accordance with the UWMP. (The UWMP assumes the Desal plant will produce 6,252 AFY for the Monterey Peninsula).
4. Cal Am's in-lieu repayment of 700 AFY will begins operation in 2030, in accordance with the UWMP. (For comparison, the original baseline assumes the repayment period starts in 2024, concurrent with the PWM Expansion project.)
5. Pure Water Monterey Expansion Project will begin operation in 2024, the same as previously simulated
6. To provide a factor of safety, the amount of water that the PWM Expansion Project will deliver will be reduced from 5,700 acre-feet to the "Minimum Allotment" of 4,600 acre-feet per year as set forth in the "Amended and Restated Water Purchase Agreement" executed between Cal Am, MPWMD, and M1W in late 2021.
7. Cal-Am will make-up any shortfall between supply and demand by over pumping its Seaside Basin allocation of 1,474 AFY. (If the Desal Plant is built in 2030, even though PWM Expansion is assumed to have reduced deliveries per Cal Am assumption 6 above, there will be no supply shortfall after 2030 because the UWMP indicates that the expected capacity of the Desal plant is sufficient to make up for the reduced PWM Expansion deliveries.)

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ALTERNATIVE SCENARIO 1

- City of Seaside
  1. Assume City of Seaside golf courses use 491.4 AFY of recycled water
  2. Assume City pumps an in-lieu amount of 491.4 AFY from the deep aquifer from a new well located generally in the location of the Lincoln-Cunningham Park in Seaside
  3. Convert 26 AFY of golf course allocation from Alternate Producers (APA) to Standard Producers (SPA). New golf course APA allocation = 540 – 26 = 514 AFY
  4. Remaining unused balance of 514 – 491.4 = 22.6 AFY would be held as a reserve and/or for flushing of greens and tee boxes
- Baseline accounts for conversion to recycled water, but only re-allocated 301.1 AFY to supply Campus Town Development via Seaside Muni#4
- So assume full APA allocation is now pumped, this leaves 514 – 301.1 = 212 AFY of additional pumping that needs to be included

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REDUCED ASR AND PWM INJECTION

- 25% Reduction in ASR Injection Volumes and 20% Reduction in PWM Expansion

Carmel River Water Year Type	Average Number Diversion Days per Year	Average ASR Diversions w/20 AFD Capacity (AFY)	Average ASR Diversions w/15 AFD Capacity (AFY)
Extremely Wet	142	2,840	2,130
Wet	125	2,500	1,875
Above Normal	105	2,100	1,575
Normal	64	1,280	960
Below Normal	33	660	495
Dry	19	380	285
Critically Dry	3	60	45

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ASR & PWM INJECTION

Baseline

Alternative Scenario 1

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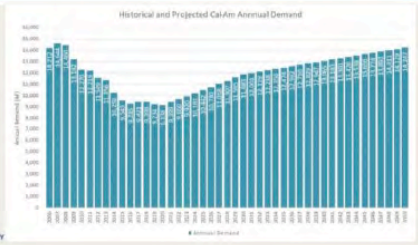
HISTORICAL & PROJECTED SYSTEM DEMAND



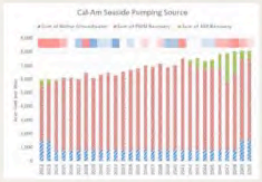
PROJECTED SYSTEM DEMAND AND SUPPLY SOURCE

Baseline

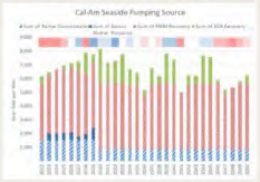
Alternative Scenario 1

SEASIDE PUMPING BY WATER SOURCE

Baseline



Alternative Scenario 1



NET PWM & ASR INJECTION = INJECTION–RECOVERY)

Baseline

Alternative Scenario 1

NET PUMPING = PWM_{INJ} + ASR_{INJ} – TOTAL PUMPING

Baseline

Alternative Scenario 1

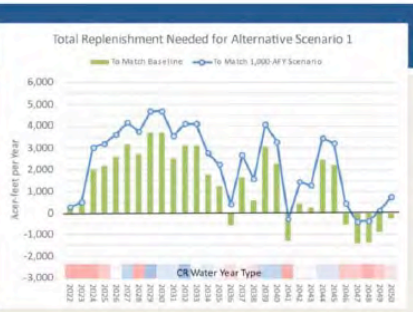
HYBRID WATER BUDGET APPROACH

Net Recharge = PWM_{Inj} + ASR_{Inj} + $Replenishment_{Inj}$ - Total Production

- As Supply (ASR + PWM) & Demand (Cal-Am + Seaside) assumptions are changed, varying amounts of Replenishment water will be needed to achieve the same groundwater level rise as in the Baseline or 1,000-AFY Replenishment Scenario

HYBRID WATER BUDGET APPROACH

Additional Replenishment Water Needed = Net Recharge (Baseline Scenario) − Net Recharge (Alternative Scenario 1)



CONCLUSIONS

Water Budget Analysis

- Shallow Aquifer
  - Biggest Drivers for Increasing Groundwater Levels in the Shallow Aquifer
    - Recharge from percolation of rainfall & irrigation return flows
    - Reduction in Shallow Aquifer pumping
    - PWM vadose zone recharge
    - Net ASR and PWM Deep Injection not significant drivers
- Unconfined Aquifers and Deep Aquifer
  - Outflows to Monterey Subbasin will increase as water levels in Seaside Basin rise (assuming levels in Monterey Subbasin do not also rise)
- Net inflow from the offshore region reverses to a net outflow in all aquifers as water levels increase, with largest net outflows occurring in Aromas Sands and Dune Deposits

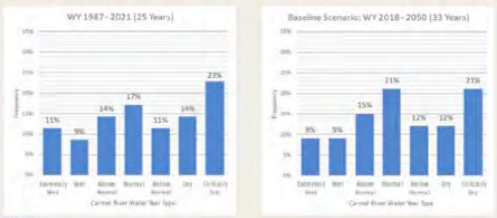
CONCLUSIONS

Alternative Scenario 1

- Without additional replenishment (~2,800 AFY), the water level increases seen in the Baseline Scenario would not occur under Alternative Scenario 1
- An average of approximately 3,800 AFY of additional replenishment needed from 2024-2035 to achieve same level of protective elevations as in the January 2022 1,000-AFY Replenishment Scenario that used Baseline assumptions.
- After 2030, during drought periods the MPWSP Desal supply is offsetting what would have otherwise been pumping of groundwater to recover banked ASR or PWM water in the Baseline Scenario

WHAT IS THE NEW NORMAL?

WHAT IS THE NEW NORMAL?



QUESTIONS & DISCUSSION

SEASIDE GROUNDWATER BASIN WATERMASTER

Reported Quarterly and Annual Water Production From the Seaside Groundwater Basin
For All Producers Included in the Seaside Basin Adjudication -- Water Year 2022
(All Values in Acre-Feet [AF])

	Type	Oct	Nov	Dec	Oct-Dec	Jan	Feb	Mar	Jan-Mar	Apr	May	Jun	Apr-Jun	Jul	Aug	Sep	Jul-Sep	Reported Total	Yield Allocation	from WY 2021	for WY 2022
Coastal Subareas																					
CAW - Coastal Subareas	SPA	373.37	267.89	196.91	**838.17**	336.11	456.67	483.60	**1,276.38**	474.44	527.94	526.22	**1,528.60**				**0.00**	**3,643.15**	1,466.02	165.15	1,631.18
Luzern		26.16	0.33	0.00	**26.49**	0.00	50.18	53.88	**104.06**	51.27	52.25	50.06	**153.58**				**0.00**	**284.13**			
Ord Grove		109.59	48.86	38.68	**197.13**	72.51	95.23	106.91	**274.65**	102.12	104.55	96.53	**303.20**				**0.00**	**774.97**			
Paralta		75.83	92.49	107.42	**275.73**	113.66	111.53	96.00	**321.19**	103.07	132.66	131.90	**367.64**				**0.00**	**964.57**			
Playa		0.00	0.00	0.00	**0.00**	0.00	0.00	0.14	**0.14**	0.00	13.98	32.33	**46.32**				**0.00**	**46.46**			
Plumas		18.98	0.00	0.00	**18.98**	0.00	14.47	29.35	**43.82**	28.04	28.88	27.46	**84.39**				**0.00**	**147.19**			
Santa Margarita		142.81	126.22	50.81	**319.84**	149.94	185.27	197.33	**532.53**	189.93	195.61	187.93	**573.47**				**0.00**	**1,425.84**			
ASR Recovery		0.00																			
City of Seaside (Municipal)	SPA	14.61	13.21	12.59	**40.41**	11.66	13.07	15.87	**40.61**	14.19	16.66	14.78	**45.63**				**0.00**	**126.65**	120.28	0.00	120.28
Granite Rock Company	SPA	- -	- -	- -	**0.00**	- -	- -	- -	**0.00**	- -	- -	- -	**0.00**				**0.00**	**0.00**	11.35	236.07	247.42
DBO Development No. 30	SPA	- -	- -	- -	**0.00**	- -	- -	- -	**0.00**	- -	- -	- -	**0.00**				**0.00**	**0.00**	20.59	424.88	445.47
Calabrese (Cypress Pacific Inv.)	SPA	- -	- -	- -	**0.00**	- -	- -	- -	**0.00**	- -	- -	- -	**0.00**				**0.00**	**0.00**	2.76	13.57	16.33
City of Seaside (Golf Courses)	APA	27.41	7.17	5.14	**39.72**	5.45	30.92	43.83	**80.20**	44.89	74.47	88.67	**208.04**				**0.00**	**327.95**	540.00		540.00
Sand City	APA	0.12	0.03	0.11	**0.26**	0.09	0.10	0.20	**0.39**	0.14	0.19	0.17	**0.50**				**0.00**	**1.16**	9.00		9.00
SNG (Security National Guaranty)	APA	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**	0.00	0.00		**0.00**				**0.00**	**0.00**	149.00		149.00
Calabrese (Cypress Pacific Inv.)	APA	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**				**0.00**	**0.00**	6.00		6.00
Mission Memorial (Alderwoods)	APA	4.45	3.94	1.78	**10.16**	1.58	1.43	3.52	**6.53**	3.16	2.98	2.47	**8.61**				**0.00**	**25.30**	31.00		31.00
Coastal Subareas Totals					**928.72**				**1,404.11**				**1,791.38**				**0.00**	**4,124.21**	**2,356.00**	**839.68**	**3,195.67**
Laguna Seca Subarea																					
CAW - Laguna Seca Subarea	SPA	10.58	9.56	9.11	**29.24**	8.85	9.67	9.94	**28.46**	10.82	12.90	15.38	**39.10**				**0.00**	**96.81**	0.00		0.00
Ryan Ranch Unit		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**				0.00	0.00			
Hidden Hills Unit		10.58	9.56	9.11	29.24	8.85	9.67	9.94	28.46	10.82	12.90	15.38	**39.10**				0.00	96.81			
Bishop Unit 3		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**				0.00	0.00			
Bishop Unit 1		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**				0.00	0.00			
The Club at Pasadera	APA	32.00	7.00	8.00	**47.00**	0.00	26.00	12.00	**38.00**	27.00	41.00	36.00	**104.00**				**0.00**	**189.00**	251.00		251.00
Laguna Seca Golf Resort (Bishop)	APA	17.51	5.83	0.00	**23.34**	0.00	7.07	9.69	**16.76**	14.87	32.55	36.24	**83.66**				**0.00**	**123.76**	320.00		320.00
York School	APA	1.13	0.29	0.04	**1.46**	0.18	0.62	1.52	**2.32**	2.14	2.88	1.81	**6.83**				**0.00**	**10.61**	32.00		32.00
Laguna Seca County Park	APA	1.55	1.73	1.41	**4.68**	1.04	1.28	1.02	**3.34**	2.40	1.87	1.99	**6.26**				**0.00**	**14.28**	41.00		41.00
Laguna Seca Subarea Totals					**105.72**				**88.89**				**239.85**				**0.00**	**434.46**	**644.00**	**0.00**	**644.00**
Total Production by WM Producers					**1,034.45**				**1,492.99**				**2,031.23**				**0.00**	**4,558.67**	**3,000.00**	**839.68**	**3,839.67**
									Annual Production from APA Producers									692.06	1,379.00		
									Annual Production from SPA Producers									3,866.61	2,460.67		

																		Previous Balance	*Total*
CAW / MPWMD ASR (Carmel River Basin source water)																			
Injection	0.00	0.00	61.69	**61.69**	8.86	0.00	0.00	**8.86**	0.00	0.00	0.00	**0.00**				0.00	**70.55**		
(Recovery)	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**				**0.00**	**0.00**		
Net ASR	0.00	0.00	61.69	**61.69**	8.86	0.00	0.00	**8.86**	0.00	0.00	0.00	**0.00**				**0.00**	**70.55**	**801.55**	**872.10**
Pure Water Monterey (PWM) Injection and Cal-Am Recovery																			
Injection Operating Reserve	0.00	0.00	0.00	**0.00**				**0.00**				**0.00**				**0.00**	**0.00**	**1,200.48**	**1200.48**
Injection Drought Reserve	0.00	0.00	0.00	**0.00**				**0.00**				**0.00**				**0.00**	**0.00**	**0.0**	**0.00**
Delivery to Basin	298.20	289.97	312.27	**900.44**	320.51	282.22	341.92	**944.65**	362.09	295.58	264.55	**922.22**				**0.00**	**2767.31**	**0.0**	**2767.31**
CAW	(343.61)	(233.66)	(162.10)	**(739.37)**	(301.21)	(418.82)	(400.00)	**(1120.03)**	(400.00)	(350.00)	(249.07)	**(999.07)**				**0.00**	**(2858.47)**	**0.0**	**(2858.47)**

Notes:
1. The Water Year (WY) begins October 1 and ends September 30 of the following calendar year. For example, WY 2022 begins on October 1, 2021, and ends on September 30, 2022.
2. "Type" refers to water right as described in Seaside Basin Adjudication decision as amended, signed February 9, 2007 (Monterey County Superior Court Case No. M66343).
3. Values shown in the table are based on reports to the Watermaster received by April 15, 2022.
4. All values are rounded to the nearest hundredth of an acre-foot. Where required, reported data were converted to acre-feet utilizing the relationships: 325,851 gallons = 43,560 cubic feet = 1 acre-foot.
5. "Base Operating Yield Allocation" values are based on Seaside Basin Adjudication decision. These values are consistent with the *Watermaster Producer Allocations Water Year 2022* (see Item VIII.B. in 1/5/2022 Board packet).
6. Any minor discrepancies in totals are attributable to rounding.
7. APA = Alternative Producer Allocation; SPA = Standard Producer Allocation; CAW = California American Water.
8. It should be noted that CAW/MPWMD ASR "Injection" and "Recovery" amounts are not expected to "balance" within each Water Year. This is due to the injection recovery "rules" that are part of SWRCB water rights permits and/or separate agreements with state and federal resources agencies that are associated with the water rights permits.

VIA EMAIL

September 29, 2022

Mr. Paul Bruno, Chair
Seaside Groundwater Basin Watermaster
PO Box 51502
Pacific Grove, CA 93950

RE: August 5, 2022 Draft Technical Memorandum – Hybrid Water Budget Analyses of Basin Replenishment Options & Alternate Assumptions

Dear Mr. Bruno:

The Monterey Peninsula Water Management District previously disagreed with the assumptions underlying Montgomery & Associates modeling work related to an additional replenishment water analysis.

The August 5, 2022 Draft Technical Memorandum documents "Development of an alternative set of baseline supply and demand assumptions based primarily on Cal-Am's Urban Water Management Plan (UWMP), with some additional assumptions provided by Cal-Am and the City of Seaside." This is troubling because Cal-Am has admitted there is a 400 acre-foot per year (AFY) error in the demand forecast in the UWMP.

The UWMP demand forecast states: "water use for fire service increased in 2019 and 2020 to an average of 400 AFY, when prior to 2019 the average fire demand was only 3 AFY. The increase is attributed to both better metering of fire services in 2019 and 2020, when some demand may have been tracked as water loss previously, as well as a warmer and drier climate increasing fire potential and lengthening the fire season, resulting in more fire flow use. Water use for fire service is projected to remain at about 400 AFY in the future." The 400 AFY was included in the UWMP demand numbers as shown in the table below.

Table 4-4. Projected Demands, 2025 through 2045

	BASELINE (2016-2020)	2025	2030	2035	2040	2045
Demographics						
Service Area Population	91,717	93,577	95,437	97,297	99,157	101,017
Annual Population Growth Rate		0.41%	0.40%	0.39%	0.38%	0.38%
Service Area Employment	64,307	67,020	69,732	72,445	75,157	77,870
Residential Demand						
Residential Demand (GPCD)	48	48	52.8	52.8	52.8	52.8
Residential Demand (AF)	4,931	5,031	5,644	5,754	5,865	5,975
Non-Residential Demand						
Non-Residential Demand (AF)	4,372	4,556	4,741	4,925	5,110	5,294
Fire Service Demand (AF)		400	400	400	400	400
Other Future Demand						
Pebble Beach Entitlements (AF)		0	65	130	195	260
Tourism Rebound (AF)		250	500	500	500	500
Legal Lots of Record (AF)		0	300	520	740	960
Losses		205	233	245	256	268
Average Annual Demand (AFY)		**10,443**	**11,883**	**12,474**	**13,065**	**13,656**

At the same time the Technical Memorandum was being produced, Cal-Am realized the Fire Service Demand numbers were incorrect, as evidenced in the attachment hereto. Being off by 400 AFY can cause an error of as high as 40% in the predicted calculated annual Net Recharge requirement.

Additionally, the District alleges the assumptions for Pebble Beach Entitlements, Tourism Rebound, and Legal Lots of Record in the demand forecast as shown above are actually double-counted because housing and economic growth are already captured in the Residential Demand line in the table (due to population growth) and the Non-Residential Demand line. Such double-counting will compound the error in calculated annual Net Recharge requirement.

More effort should be undertaken to develop assumptions for this effort that are reliable and supportable, and without recognized errors, so that the model results are meaningful. The Technical Memorandum conclusions are meaningless and the analysis should be re-run without errors in the assumptions.

Sincerely,

David J. Stoldt
General Manager
Monterey Peninsula Water Management District

California-American Water Company

APPLICATION NO. A.21-11-024
DATA REQUEST RESPONSE

Response Provided By:	**Ian C. Crooks**
Title:	**Senior Director of Engineering & Business Development**
Address:	**California American Water 655 West Broadway, Suite 1410 San Diego, CA 92101**
MPWMD Request:	**MPWMD DS 01 Q001 - Fire Service Water Use**
Date Received:	**August 1, 2022**
Date Response Due:	**August 12, 2022**

DATA REQUEST:

In Attachment A to the Phase 2 Direct Testimony of Ian C. Crooks at page 4-7 the following statement is made;

"Additionally, water use for fire service increased in 2019 and 2020 to an average of 400 AFY, when prior to 2019 the average fire demand was only 3 AFY. The increase is attributed to both better metering of fire services in 2019 and 2020, when some demand may have been tracked as water loss previously, as well as a warmer and drier climate increasing fire potential and lengthening the fire season, resulting in more fire flow use. Water use for fire service is projected to remain at about 400 AFY in the future."

1. Please provide the data supporting the 2019 water use for fire service.

CAL-AM'S RESPONSE

California American Water incorporates its General Objections as if each was set forth fully here. California American Water further objects to the extent this request is vague and ambiguous, particularly as to the phrase: "data supporting the 2019 water use for fire service." Subject to, but without waiving, these objections, California American Water responds:

Due to the appearance of high water use for metered fire service connections in 2019 and 2020, an internal data review was conducted, and it was concluded that some of the metered fire service use was not calculated correctly by the billing system due to reverse water flow through customer backflow devices. This reverse flow caused the meter dial to turn back approximately one numerical unit, which the billing system interpreted as the meter turning over and thus reported a high usage, in other words,

resulted in “phantom usage.” Please see the table below showing the data for 2019 and 2020 determination of “phantom usage” and corrected metered fire service.

For my testimony in this proceeding, this does not change 2019 and 2020 total system demand as it is determined from the actual total water supply produced and delivered to the system, including fire flow use. Water use designated as fire service is part of the non-revenue water category and any meter inaccuracies for fire service are recategorized as water loss. In Table 5 of my testimony, fire service use is included in the non-residential demand category and fire service is not called out specifically going forward as the demand projections are based on historical and future total system production, which includes fire flow, water losses, etc.

Meter Fire Service Connections
Usage and Adjusted Usage
2019 and 2020

Monterey Main Fire Service (AF)	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Total 2019
Uncorrected Fire Service (AF)	0.66	0.59	-1.08	0.27	0.18	46.17	23.18	104.70	23.18	53.97	23.19	61.67	336.68
Remove Phantom Fire Service (AF)	0.00	0.00	0.00	0.00	0.00	-45.91	-22.96	-104.51	-22.95	-53.65	-22.95	-61.38	-334.30
Corrected Fire Service (AF)	0.66	0.59	-1.08	0.27	0.18	0.27	0.23	0.20	0.23	0.32	0.23	0.29	2.39

Monterey Main Fire Service (AF)	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Total 2020
Uncorrected Fire Service (AF)	53.93	107.69	-137.42	130.70	-69.78	7.92	0.49	69.16	130.44	-76.49	23.08	199.26	438.99
Remove Phantom Fire Service (AF)	-53.64	-107.22	137.91	-130.23	68.85	-7.47	0.00	-68.86	-130.24	76.60	-22.96	-199.10	-436.36
Corrected Fire Service (AF)	0.29	0.47	0.49	0.47	-0.93	0.45	0.49	0.30	0.20	0.11	0.13	0.17	2.63