M E E T I N G N O T I C E A N D A G E N D A

TECHNICAL ADVISORY COMMITTEE OF THE SEASIDE BASIN WATER MASTER

DATE: Wednesday, September 13, 2017

MEETING TIME: 1:30 p.m.

Monterey Regional Water Pollution Control Agency Offices
5 Harris Court, Building D (Ryan Ranch)
Monterey, CA 93940

If you wish to participate in the meeting from a remote location, please call in on the Watermaster's Conference Line by dialing (515) 739-1015. Use the Meeting ID 355890617. Please note that if no telephone attendees have joined the meeting by 10 minutes after its start, the conference call will be ended.

OFFICERS
Chairperson: Nina Miller, California American Water Company
Vice-Chairperson: Jon Lear, MPWMD

MEMBERS
California American Water Company **City of Del Rey Oaks** **City of Monterey** **City of Sand City** **City of Seaside**
Coastal Subarea Landowners
Laguna Seca Property Owners **Monterey County Water Resources Agency** **Monterey Peninsula Water Management District**

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SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	September 13, 2017
AGENDA ITEM:	2.A
AGENDA TITLE:	Approve Minutes from the August 9, 2017 Meeting
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

Draft Minutes from this meeting was emailed to all TAC members. Any changes requested by TAC members have been included in the attached version.

ATTACHMENTS:	Minutes from this meeting
RECOMMENDED ACTION:	Approve the minutes

D-R-A-F-T
MINUTES

Seaside Groundwater Basin Watermaster
Technical Advisory Committee Meeting
August 9, 2017

Attendees: TAC Members

City of Seaside – Scott Ottmar (via telephone)
California American Water – Nina Miller
City of Monterey – Laurie Williamson (via telephone)
Laguna Seca Property Owners –Bob Costa
MPWMD – Jon Lear
MCWRA – Tamara Voss
City of Del Rey Oaks – No Representative
City of Sand City – Leon Gomez (via telephone)
Coastal Subarea Landowners – No Representative

Watermaster
Technical Program Manager - Robert Jaques

Consultants
HydroMetrics – Georgina King (via telephone for Items 3 & 4 only)

Others
None

The meeting was convened at 1:34 p.m. after a quorum had been established.

1. Public Comments

There were no public comments.

2. Administrative Matters:

A. Approve Minutes from the July 12, 2017 Meeting

On a motion by Ms. Voss, seconded by Mr. Lear, the minutes from this meeting were unanimously approved as presented.

B. Sustainable Groundwater Management Act (SGMA) Update

Mr. Jaques summarized the agenda packet materials for this item. There was no other discussion.

C. Request Destruction of Abandoned Monitoring Well

Mr. Jaques summarized the agenda packet materials for this item. There were no comments or questions regarding this topic. On a motion by Ms. Williamson, seconded by Mr. Costa, the TAC unanimously approved sending the letter contained in the agenda packet asking MPWMD to destroy the abandon monitoring well.

3. Continued Discussion of Potential Changes in Groundwater Quality Resulting from Introducing New Sources of Water into the Aquifers

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

Mr. Ottmar asked if MPWMD had already done some geochemical modeling for its ASR project. He also asked if the Pure Water Monterey Project had done some geochemical modeling. Mr. Lear responded yes, some of that type of work had been done. Mr. Ottmar questioned that since some work has already been done, does the Watermaster need to do more. Mr. Lear responded that each project has looked at their individual water chemistry impacts to some extent, but no one has looked at the mixture of waters which will vary throughout the year as differing quantities of water will come in each month from the various new water sources. Mr. Lear went on to say that MPWMD has done some predictive modeling of just its ASR program water. He also reported that MPWMD's Water Supply Planning Committee suggested that MRWPCA (the proponent of the Pure Water Monterey Project), MPWMD (the proponent of the expanded ASR project), and California American water share in the cost of this modeling. He went on to say that MRWPCA and MPWMD have already agreed to cost-sharing, and they plan to approach Cal Am to see if they are also willing to cost-share. Mr. Ottmar said he felt this seemed reasonable and that the work should be done.

A motion was made by Mr. Lear, seconded by Mr. Costa to tell the Board that the TAC recommends going forward with this work and also that the Board should consider looking into cost-sharing funding options. The motion passed unanimously.

Mr. Jaques asked the TAC if they had any suggestions on how the Watermaster might recover the costs of preforming geochemical modeling for these projects. He said one idea would be to recover costs during the Storage Agreement issuance process. Ms. Miller suggested waiting to see how the cost-sharing negotiations described above progress.

4. Continued Discussion Regarding Updating the Basin Management Action Plan (BMAP) and the Seaside Basin Groundwater Model

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

Mr. Lear said that MPWMD and MRWPCA have offered to share 50% of the cost for updating the groundwater model.

Ms. King said she felt it would be good to update the groundwater model before doing the geochemical modeling.

A motion was made by Mr. Lear, seconded by Mr. Costa, to update and recalibrate the groundwater model. The motion passed unanimously.

A motion was made by Ms. Voss, seconded by Mr. Lear to update the Basin Management Action Plan. The motion passed unanimously.

5. Preliminary Draft Monitoring and Management Program (M&MP) Work Plan for 2018

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

Mr. Lear said that water quality data is sent to HydroMetrics as soon as the data is received by MPWMD, but that water level data only goes to HydroMetrics at the end of the year for their use in preparing the Seawater Intrusion Analysis Report. He said, however, that the water level data is

reviewed quarterly by MPWMD as part of their Sustainable Groundwater Management Act reporting activities.

Mr. Ottmar asked regarding M&MP items I.3.a.1 and I.3.e if we should put in wording about cost-sharing. Mr. Jaques responded that typically we do not include discussions in the M&MP regarding how costs will be funded.

Ms. Voss asked regarding M&MP item I.2.b.3 if barium and iodide data from the water quality sampling work is being used. Mr. Lear responded yes that it is used in the preparation of the Seawater Intrusion Analysis Report.

Mr. Lear said he would work directly with Mr. Jaques on the costs for the MPWMD work items.

Mr. Ottmar asked how the costs compared to those for 2017. Mr. Jaques said that he will present that information at the September TAC meeting.

Mr. Lear asked if it would be desirable to include funds for possible additional sampling of the Sentinel Wells. Mr. Jaques said he felt it would be better to wait and see if additional sampling was needed, and if so, it could be funded through the Contingency line item in the budget.

Mr. Jaques said he would be recommending that the contingency line item be increased from the percentage that the board had authorized for 2017, because there was more uncertainty regarding the scope and cost for some of the items in the proposed 2018 M&MP.

6. Schedule

Mr. Jaques reported that there were no significant changes in the schedule and there was no other discussion of this item.

7. Other Business

Ms. Voss asked if the TAC agenda could be sent out further in advance, preferably a week in advance, for future TAC meetings. Mr. Jaques explained that sometimes materials needed from other parties for the agenda packet do not arrive far enough in advance to complete the agenda packet a week in advance, but he said he would strive to accomplish this.

8. Set Next Meeting Date

The next regular meeting was set for Wednesday September 13, 2017 at 1:30 p.m. at the MRWPCA Board Room.

The meeting adjourned at 2:25 p.m.

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	September 13, 2017
AGENDA ITEM:	2.B
AGENDA TITLE:	Sustainable Groundwater Management Act (SGMA) Update
PREPARED BY:	Robert Jaques, Technical Program Manager

At the State level:
Since my last update, I have not received any new materials from the State that would impact the Watermaster.

At the Monterey County level:
Since my last update, I have not received any new materials from the County that would impact the Watermaster.

ATTACHMENTS:	None
RECOMMENDED ACTION:	None required – information only

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	September 13, 2017
AGENDA ITEM:	3
AGENDA TITLE:	Continued Discussion of Potential Changes in Groundwater Quality Resulting from Introducing New Sources of Water into the Aquifers
PREPARED BY:	Robert Jaques, Technical Program Manager

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

SUMMARY:
At the TAC's August 9, 2017 there was continued discussion on the potential for changes in groundwater quality to occur in the Seaside Basin as a result of introducing new water sources for injection into the Basin. These new sources would include desalinated water and additional Carmel River ASR water from Cal Am's Monterey Peninsula Water Supply Project, and advance-treated wastewater from the Pure Water Monterey Project.

There was TAC consensus to investigate developing a model that could be used to predict these types of chemical effects, and the TAC approved taking the following approach to develop and run such a model:

- HydroMetrics would use the Watermaster's existing groundwater model, and information about injection locations and quantities, injection scheduling, etc. provided by MPWMD for each of these projects, to develop several model scenarios that provide flow path, flow rate, and groundwater level information at multiple locations needed as input for geochemical modeling.
- MPWMD's consultant would use the data provided by HydroMetrics, and the necessary water quality data provided by these water supply projects, to develop and run the geochemical model.

I had hoped to attach proposals from MPWMD's consultant Pueblo Water Resource, Inc. to perform their portion of this work, and from HydroMetrics to perform their portion of this work, to this agenda packet item. However, there has been some delay in getting the Pueblo proposal, and HydroMetrics needs to see the Pueblo proposal to determine their own scope of work. Consequently, those documents could not be included in today's meeting agenda packet. I am hopeful that they will be received prior to our meeting, and that I can provide an oral summary of them to the TAC at the meeting.

Since these proposals have not yet been received, I have used a generalized description of the work to be done, and a preliminary estimate of costs, to prepare the Monitoring and Management Program Work Plan and Budgets that will be discussed under Agenda Item No. 4 of today's meeting.

ATTACHMENTS:	None
RECOMMENDED ACTION:	Provide input or direction to the Technical Program Manager, if any, regarding inclusion of this work in the 2018 M&MP Work Plan and Budgets

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	September 13, 2017
AGENDA ITEM:	4
AGENDA TITLE:	Consider Revisions to How the Seawater Intrusion Analysis Report (SIAR) is Prepared in FY 2018
PREPARED BY:	Robert Jaques

HydroMetrics has recommended that when they prepare the 2018 SIAR they provide certain additional information and analyses, as described in their attached Proposal. The scope is essentially the same as previous years' efforts, with the addition of an optional task to perform statistical trend analyses on the monitoring well data that do not have seasonal fluctuations.

As their Proposal explains, the groundwater quality description of Item 5 is purely descriptive and based on a visual evaluation of the data. The Mann-Kendall statistical test is a nonparametric statistical method that can be used to show whether chemical concentrations detected in a groundwater monitoring well are increasing, stable, or decreasing. The Seawater Intrusion Response Plan (SIRP) included a Mann-Kendall statistical trend analysis that HydroMetrics says removes the subjectivity of visual trend analysis. HydroMetrics feels that this will provide a more objective analysis of this issue.

The additional cost of performing this analysis and reporting on it in the SIAR is $5,220.

The TAC is asked to provide direction to the Technical Program Manager on whether or not to have this additional work included in the 2018 SIAR.

ATTACHMENTS:	SIAR Proposal from HydroMetrics
RECOMMENDED ACTION:	Provide Direction on Whether or Not to Include the Additional Work Item Described in HydroMetrics' Proposal When Preparing the 2018 SIAR

HydroMetrics WRI

1814 Franklin St., Suite 501
Oakland, CA 94612

Mr. Robert S. Jaques
Seaside Groundwater Basin Watermaster
83 Via Encanto
Monterey, CA 93940

August 22, 2017

Subject: Scope and Cost for 2018 Seawater Intrusion Analysis Report

Mr. Jaques:

Thank you for the opportunity to provide you with this scope and cost for preparating the 2018 Seaside Groundwater Basin's Seawater Intrusion Analysis Report (SIAR). The scope is essentially the same as previous years' efforts, with the addition of an optional task to perform statistical trend analyses on the monitoring well data that do not have seasonal fluctuations.

The scope items for preparation of the 2018 SIAR that are the same as previous years includes the following:

1. Request groundwater quality and level data from MPWMD, Fort Ord, and Monterey.
2. Incorporate data from new well locations which have been added in 2018.
3. Review and compile data.
4. Update SIAR graphs and maps to reflect 2018 groundwater quality sampling and groundwater level data.
5. Describe groundwater quality and level data and compare to previous years.
6. Prepare draft 2018 SIAR for TAC comment.
7. Prepare PowerPoint presentation for TAC meeting.
8. Present 2018 SIAR to TAC.
9. Prepare final draft 2018 SIAR for Board based on TAC input.
10. Prepare final 2018 SIAR based on Board input.

The groundwater quality description of Item 5 is purely descriptive and based on a visual evaluation of the data. The Seaside Basin Watermaster's Seawater Intrusion Response Plan (SIRP) included Mann-Kendall statistical trend analysis that removes the subjectivity of visual trend analysis. The Mann-Kendall statistical test is a nonparametric statistical method that can be used to show whether chemical concentrations detected in a groundwater monitoring well are increasing, stable, or decreasing. We propose including this more objective analysis as part of the SIAR going forward.

The cost provided below for the first two line items are the same as 2017. An extra line item has been added as optional that includes the cost of the statistical trend analysis.

Please let me know if you have any questions.

Sincerely,

Georgina King
Principal Hydrogeologist
HydroMetrics Water Resources Inc.

Table 1: Cost Estimate for 2018 Seawater Intrusion Analysis Report

2018 Seawater Intrusion Analysis Report	Georgina King $195/hr	Nick Byler $120/hr	Georgina King	Nick Byler	Expenses	Total Costs
Produce 2018 SIAR	32	100	$ 6,240	$ 12,000	$ 500	$ 18,740
Attend One TAC Meeting in Monterey	10	0	$ 1,950	$ -	$ 200	$ 2,150
Optional: Add Statistical Trend Analysis	12	24	$ 2,340	$ 2,880	$ -	$ 5,220
TOTAL without optional item	**42**	**100**	**$ 8,190**	**$ 12,000**	**$ 700**	**$ 20,890**
TOTAL with optional item	**54**	**124**	**$ 10,530**	**$ 14,880**	**$ 700**	**$ 26,110**

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	September 13, 2017
AGENDA ITEM:	5
AGENDA TITLE:	Approve Work Plan for FY 2018 Monitoring and Management Program (M&MP) and FY 2018 and 2019 M&MP Operations and Capital Budgets
PREPARED BY:	Robert Jaques

The Schedule calls for the TAC to approve the proposed Monitoring and Management Program (M&MP) Work Plan and Budgets at its September 2017 meeting. Attached are the proposed M&MP 2018 Work Plan, and the proposed M&MP Operations and Capital Budgets for 2018 and 2019. 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 M&MP 2018 Work Plan which is attached reflects revisions resulting from the TAC's discussion when it reviewed the Draft M&MP 2017 Work Plan at its August 9, 2017 meeting, as well as subsequent input from HydroMetrics, Martin Feeney, Todd Groundwater, and MPWMD.

The following are the principle revisions since the version contained in the August 9 packet:

Tasks M.1.c, d, and e (Preparation for and Attendance at Meetings and Peer Review of Documents and Reports): I have allocated portions of the RFSs for general hydrogeologic consulting services from HydroMetrics, Todd Groundwater (Gus Yates) and Martin Feeney between these three tasks in the proportions that I anticipate we may be calling on them for assistance. I anticipate issuing, with TAC and Board approval, RFSs to each of these firms for general on-call/as-needed hydrogeologic consulting services in 2018 as follows:

HydroMetrics: $11,000
Todd Groundwater: $4,000
Martin Feeney: $4,000
Total: $19,000
These amounts are based on prior experience with these firms and what I believe is likely to be a growing need for these types of services, especially as we begin to interface with the Groundwater Sustainability Agency for the Salinas Valley Basin.

In 2017 the amount budgeted for these three tasks was $14,376. For 2018 the proposed amount is $19,000. We would only call on Mr. Yates and/or Mr. Feeney when an issue arises that the TAC or Board feels would benefit from their review or input.

Task I.2.a.1 (Conduct Ongoing Data Entry/ Database Maintenance/Enhancement): In 2017 the amount budgeted for this Task was $13,452. The proposed scope of work for this task is unchanged from 2017, but the hourly rate for the MPWMD staff involved in performing their portion of this task has risen from $112/hour to $149/hour, so the amount proposed for 2018 is increased by $3,552 to

AGENDA ITEM:	5 (Continued)

$17,004. There was no increase in cost for the outside consultant that manages the Watermaster's website (where data from this task is posted), and that cost remained at $200/month.

Task I.2.b.2 (Collect Monthly Water Levels): In 2017 the amount budgeted for this Task was $7,192. The proposed scope of work for this task is unchanged from 2017, but the hourly rate for the MPWMD staff involved in performing this task has dropped from $89/hour to $62/hour, so the amount proposed for 2018 is reduced by $3,466 to $3,726.

Task I.2.b.3 (Collect Quarterly Water Quality Samples): In 2017 the total amount budgeted for this Task was $55,520, comprised of $29,834 for MPWMD and $25,686 for Martin Feeney. The proposed scope of work for this task is unchanged from 2017, but the hourly rate for the MPWMD staff involved in performing their portion of this task has dropped from $89/hour to $62/hour, so the amount proposed for their portion of this work for 2018 is reduced by $5,292 to $24,542. The amount proposed form Martin Feeney's portion of this work in 2018 is increased by the $900 additional lab cost of adding field blanks and duplicates to the Sentinel Well water quality sampling program, so the amount proposed for his portion of this work for 2018 is increased by $900 to $26,586. Therefore, the amount proposed for 2018 is reduced by $4,392 to $51,128.

Task I.2.b.6 (Reports): In 2017 the amount budgeted for this Task was $2,688. The proposed scope of work for this task is unchanged from 2017, but the hourly rate for the MPWMD staff involved in performing their portion of this task has risen from $112/hour to $149/hour, so the amount proposed for 2018 is increased by $888 to $3,576.

Task I.2.b.7 (CASGEM Data Submittal for Watermaster's Voluntary Wells): In 2017 the amount budgeted for this Task was $1,792. The proposed scope of work for this task is unchanged from 2017, but the hourly rate for the MPWMD staff involved in performing their portion of this task has risen from $112/hour to $149/hour, so the amount proposed for 2018 is increased by $592 to $2,384.

Task I.3.a.1 (Update the Existing Model): As discussed at the August TAC meeting, HydroMetrics proposed cost to update the existing Seaside Basin groundwater model is $54,370, and this is the amount proposed for this task in 2018. No amount for this task was budgeted in 2017.

Task I.3.a.3 (Evaluate Replenishment Scenarios and Develop Answers to Basin Management Questions): In 2017 the amount budgeted for this Task was $40,000. That was a placeholder amount in case the Board decided it wished to perform work of this type. Since the Model and BMAP will be updated under Tasks I.3.a.1 and I.3.c respectively, this Task would only be used if there were other issues the Board wished to evaluate and which were not covered in the updated BMAP. For this reason I am proposing that in 2018 this amount be reduced by $20,000 to $20,000.

Task I.3.c (Refine and/or Update the Basin Management Action Plan): In 2017 the amount budgeted for this Task was $25,000. That was a placeholder amount in case the Board decided it wished to perform this work. As discussed at the August TAC meeting, HydroMetrics' proposed cost to update the existing Basin Management Action Plan is $45,260, and this is the amount proposed for this task in 2018. This is an increase of $20,260 over the 2017 amount.

Task I.3.e (Seaside Basin Geochemical Model): This is a proposed new Task for 2018. There was no such task in the 2017 Work Plan. The Task would be performed by HydroMetrics and MPWMD's Consultant, Pueblo Water Resource, Inc. working together. A preliminary estimate of HydroMetrics'

AGENDA ITEM:	5 (Continued)

The proposed budget amount to perform this Task is $70,000, based on using the low end of the range of estimated costs for HydroMetrics' portion of the work. Once proposals have been received from both of these firms, this budget amount will be revised, if necessary.

Task I.4.c (Annual Report- Seawater Intrusion Analysis): In 2017 the total amount budgeted for this Task was $21,786, comprised of $896 for MPWMD and $20,890 for HydroMetrics. The proposed scope of MPWMD's portion of this task is unchanged from 2017, but the hourly rate for the MPWMD staff involved in performing their portion of this task has risen from $112/hour to $149/hour, so the amount proposed for 2018 is increased by $296 to $1,192. As discussed in the preceding Agenda item, HydroMetrics' proposed cost to perform their portion of this Task is either $20,890 or $26,110 depending on whether statistical trend analyses are added to their scope of work. So there would either be no change in the cost for performing their portion of this Task, or there would be an increase of $5,220. Overall there would either be an increase of $296 or $5,516 for this Task in 2018.

As mentioned at the August TAC meeting, I am proposing that the line-item titled "Contingency (not including Technical Program Manager)" be increased from the percentage that was included in each year's budget up until the 2016 budget, because there is more uncertainty regarding the scope and cost for some of the items in the proposed 2018 M&MP Work Plan, such as Tasks I.2.b.3 (if additional unplanned sampling is required at the Sentinel or any other wells), I.3.a.1, I.3.c and I.3.e. At the August meeting I said I planned to propose a 20% contingency. However, since the proposed budget is considerably larger than it was last year, I believe that a 15% contingency would be more reasonable.

As indicated by the right-hand column titled "Comparative Costs from 2017 Budget" in the proposed 2018 M&MP Operations Budget in Attachment 2, the proposed Budget is $167,200 higher ($422,997-$255,797) than the 2017 Budget. It should be noted that the Watermaster's actual expenditures, if this Budget is approved, will be considerably less if there is cost-sharing with other entities for the work of Tasks I.3.a.1 and I.3.e.

Following TAC approval of the Work Plan and Budgets, they will be forwarded to the Board for their approval at the Board's October 2017 meeting.

ATTACHMENTS:	1. 2018 M&MP Work Plan 2. 2018 and 2019 M&MP Operations Budgets 3. 2018 and 2019 M&MP Capital Budgets

RECOMMENDED ACTION:	Approve, or make changes to, the attached Work Plan and/or Budgets and then recommend these for approval by the Board

ATTACHMENT 1

Seaside Groundwater Basin Monitoring and Management Program FY 2018 Work Plan

The tasks outlined below are those that are anticipated to be performed during 2018. Some Tasks listed below are specific to 2018, while other Tasks recur throughout the program, such as data collection and 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 **Preparation for and Attendance at Meetings** **($11,500)**	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 and M.1.d will be: • Those associated with attendance at TAC meetings (either in person or by teleconference 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 when requested to do so by Watermaster Staff (either in person or by teleconference connection), 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.
M. 1. e **Peer Review of Documents and Reports** **($7,500)**	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 ($1,900)	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 ($17,004)	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. Another Consultant will periodically post database information to the Watermaster's website, so it will be accessible to the public and other interested parties. No enhancements to the database are anticipated during 2018.
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 2018.

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 2018.
I. 2 b. 2 Collect Monthly Manual Water Levels ($3,726)	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. This Task includes the purchase of one datalogger and parts for the datalogger to keep in inventory as a spare if needed. All of the other wells will be manually measured.

I. 2. b. 3 **Collect Water Quality Samples.** **($51,128)**	Water quality data will be collected quarterly from certain of the monitoring wells, and annually or semi-annually from the Sentinel Wells. 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 four Watermaster Sentinel wells (SBWM-1, SBWM-2, SBWM-3, and SBWM-4), and also for the 3 most coastal MPWMD monitoring wells (MSC, PCA, and FO-09). Barium and iodide analyses will continue being performed in 2018. 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 is found to be no longer adequate due to declining groundwater levels, or if a sampling pump needs to be installed on a Sentinel Well, an allowance 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 2018.
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 2018.
I. 2. b. 5 **Monitor Well Construction** **($0)**	An additional monitoring well was installed in 2009. No further work of this type is anticipated in 2018.
I. 2. b. 6 **Reports** **($3,576)**	The groundwater level and water quality monitoring will be conducted on a monthly, quarterly, semi-annual or annual basis, as described in the Consultant's Scope of Work. Reports summarizing data collected and analyzed will be submitted to the Watermaster on a schedule to be established during the year, and will consist of: 1. A review of the water quality and water level data at the end of each quarter of the Water Year, including tabularized data summaries of the WQ/WL data twice per year, once for the Q1 and Q2 period and once for the Q3 and Q4 period, so this data can be posted to WATERMASTER's website. No reporting on a quarterly basis is required but the Consultant will promptly notify the Watermaster of any missing data or data collection irregularities that were encountered during the quarterly reporting period. 2. An annual report summarizing the water quality and water level data for the Water Year, and containing tables of this data for the complete Water Year. The report will include a brief cover letter describing any missing data or data collection irregularities that were encountered during the reporting period, and any recommendations for changes to be made to the data collection program.

I.2.b.7 CASGEM Data Submittal ($2,384)	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 ($54,370 – from Hydro-Metrics August 4, 2017 Revised Proposal)	The existing 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 (Tasks I.3.a.2 and I.3.a.3). The scope and budget in 2014 for again updating the Model included the following: Step1: Update the model and check its accuracy - $10,000 Step 2: Recalibrate the model - $15,000 Step 3: Prepare report describing the work that was done - $5,000 Step 1 was completed in 2014 by incorporating recent pumping data, groundwater level data, and rainfall data, and then checking to see if the recently simulated groundwater levels match the recently measured groundwater levels. These are the principle findings and conclusions of this Step 1 work: • The model still provides reliable results in the Laguna Seca Subarea. • Although the performance of the model during the updated period is worsening, the calibration of the model remains within acceptable standards. • The northern boundary condition needs to be updated to reflect real groundwater elevation variations for the model period of 2005-2013. The behavior of the northern boundary will impact flows and the ability to calibrate the model for the area of the model that is adjacent to the northern boundary. An alternative method for defining this boundary condition will have to be developed that does not rely upon simulations from the Salinas Valley Integrated Groundwater Surface Water Model (SVIGSM). • The groundwater model should be updated in a maximum of five years and its calibration reevaluated at that time. However, if groundwater related projects are implemented in the Basin before that time, the update and calibration reevaluation may need to be performed sooner. Modeling of the Laguna Seca Subarea was performed in 2014 and a peer review of that work was performed in 2015. The peer review concluded that the model is a reasonable representation of the Seaside Basin groundwater flow system. No major errors in assumptions, data or results were identified during this peer review, and the simulated water levels generally matched observed water levels for the historical calibration simulation. The peer review recommended some aspects of the model should be explored to try to determine some differences between field-measured conditions and model-predicted conditions in some parts of the Basin, but stated that the model should be used for estimating the operational safe yield of the basin and subareas, and for simulating the effects of possible management measures. It also recommended that some additional simulations should be completed for management measures likely to be implemented. In 2018 Step 1 (updating the Model) will be performed again, along with Steps 2 (recalibrating) and 3 (reporting on this work).

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** **($20,000)**	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, and again in 2013, HydroMetrics used the updated Model to develop answers to some questions associated with Basin management. 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 work may be performed in 2018 to further examine this situation.
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 The only work which may be performed on the BMAP in 2018 is discussed under Task I. 3. c.
I. 3. c. **Refine and/or Update the Basin Management Action Plan** **($45,260– from HydroMetrics' August 4, 2017 Revised Proposal)**	During 2018 the BMAP will be updated based on new data and knowledge that has been gained since it was prepared in 2009.
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 had compromised these seals, 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 at this time, 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, and no further work by the Watermaster on this matter is anticipated. 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). It is anticipated that MPWMD will perform that work in 2018.

I. 3. e.
Seaside Basin Geochemical Model
(Preliminary Budget Estimate is $70,000 – this amount may need to be revised once firm proposals from the consultants have been received)

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 wastewater (under the Pure Water Monterey Project) a geochemical model should be developed for use in the areas of the Basin where injection of these new water sources will occur. This can be most cost-efficiently accomplished in the following manner:

- The Watermaster's consultant (HydroMetrics) will use the Watermaster's existing groundwater model, and information about injection locations and quantities, injection scheduling, etc. provided by MPWMD for each of these projects, to develop several model scenarios that provide flow path, flow rate, and groundwater level information at multiple locations needed as input for geochemical modeling.
- MPWMD's consultants will use the data provided by HydroMetrics, and the necessary water quality data from these water supply projects, to develop and run the geochemical model.

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. b.
Focused Hydrogeologic Evaluation
($0)

MPWMD attempted to compile historical and current water quality data in the coastal area to provide more in-depth evaluation of conditions in the shallow Dune Sand/Aromas Sand aquifer in the vicinity of the Sand City Public Works well, where unique water quality conditions and variability have recently been observed as discussed at TAC meetings. However, it was found that no historical water quality data from Cal Am's now-abandoned wells existed, and consequently it was not possible to answer the question of why water quality in the Sand City Public Works well differs from water quality in other wells in the Basin. The Sand City desalination plant could be affecting water quality in this area, but without the prior water quality data from now-abandoned wells, this could not be determined. The results of this work were summarized in 2013 in a brief Technical Memorandum prepared by MPWMD with conclusions and recommendations, and no further work on this matter is planned.

I. 4. c. **Annual Report- Seawater Intrusion Analysis ($27,302) This includes preparing statistical trend analyses – if that work is not included the cost would be lowered to $22,082**	At the end of each water year, a Consultant will reanalyze all water quality data. 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 annual EM logs will be analyzed to identify changes in seawater wedge locations. This year a statistical trend analysis of data from the monitoring wells that do not have seasonal fluctuations will be included in the report. 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. d **Complete Preparation of Seawater Intrusion Response Plan ($0)**	The Watermaster's Consultant (HydroMetrics) completed preparation of the long-tem Seawater Intrusion Response Plans (SIRP) in February 2009. The Sections that are included in the SIRP are: Section 1 – Background and Purpose Section 2 – Consistency with Other Documents Section 3 – Seawater Intrusion Indicators and Triggers Section 4 –Seawater Intrusion Contingency Actions Section 5 - References No further work on the SIRP is anticipated in 2018.
I. 4. e. **Refine and/or Update the Seawater Intrusion Response Plan ($0)**	At the beginning of 2009 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 2018.
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 Plan Operations Budget For Tasks to be Undertaken in 2018								Comparative Costs from 2017 Budget
Task	Subtask	Sub-Subtask	Cost Description	CONSULTANTS & CONTRACTORS[3]			Total	
				MPWMD	Private Consultants	Contractors		
Labor								
			Technical Project Manager	$0	$60,000	$0	$60,000	$60,000
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		Preparation for and Attendance at Meetings[8]	$0	$11,500	$0	$11,500	$7,000
	M.1.e		Peer Review of Documents and Reports[8]	$0	$7,500	$0	$7,500	$7,376
	M.1.f		QA/QC	$0	$0	$0	$0	$0
	M.1.g		SGMA Documentation Preparation	$0	$1,900	$0	$1,900	$1,900
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	$14,604	$2,400	$0	$17,004	$13,452
		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 Monthly Water Levels[6]	$3,726	$0	$0	$3,726	$7,192
		I. 2. b. 3.	Collect Quarterly Water Quality Samples[1][5][6]	$24,542	$0	$26,586	$51,128	$55,520
		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	$3,576	$0	$0	$3,576	$2,688
		I. 2. b. 7.	CASGEM Data Submittal for Watermaster's Voluntary Wells	$2,384	$0	$0	$2,384	$1,792
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	$54,370	$0	$54,370	$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	$20,000	$0	$20,000	$40,000
	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	$45,260	$0	$45,260	$25,000
	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	$70,000	$0	$70,000	$0
I.4 Seawater Intrusion Contingency Plan								
	I. 4. a.		Oversight of Seawater Intrusion Detection and Tracking	$0	$0	$0	$0	$0
	I. 4. b.		Provide focused area hydrogeologic investigation for Sand City Public Works	$0	$0	$0	$0	$0
	I. 4. c.		Annual Report- Seawater Intrusion Analysis	$1,192	$26,110	$0	$27,302	$21,786
	I. 4. d.		Complete Preparation of Seawater Intrusion Response Plan[2]	$0	$0	$0	$0	$0
	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 2018. If it Does Become Necessary, Use of Contingency Funds or a Budget Modification Will Likely be Necessary)				$0
		TOTALS CONSULTANTS & CONTRACTORS		**$50,024**	**$299,040**	**$26,586**		
			SUBTOTAL not including Technical Program Manager =				$315,650	$183,706
			Contingency (not including Technical Program Manager) @ 15%[4] =				$47,347	$12,091
			Technical Program Manager =				$60,000	$60,000
			TOTAL=				**$422,997**	**$255,797**

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 and analyze water quality samples 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 larger Tasks listed above at the time of preparation of this Budget, e.g. Tasks I.3.a.1, I.3.c, and I.3.e, it is recommended that a Contingency of approximately 15% be included in the Budget.

(5) Includes $1,000 to maintain equipment previously installed for this purpose. Also includes lab costs to analyze for barium and iodide ions in certain of these wells as was done in preceding years beginning in 2012.

(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 four new and/or replacement dataloggers at a price of $680, plus $50 for installation parts, for each datalogger.

(7) No additional monitoring well is expected to be constructed in 2018.

(8) For HydroMetrics and Todd Groundwater 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 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) Since the Model and BMAP will be updated under Tasks I.3.a.1 and I.3.c respectively, this Task would only be used if there were other issues the Board wished to evaluate and which were not covered in the updated BMAP.

(11) Not used.

(12) If new protective water levels are warranted, that work will be included in Task I.3.a.1.

ATTACHMENT 3

Monitoring and Management Plan Operations Budget

For Tasks to be Undertaken in 2019[12]

Task	Subtask	Sub-Subtask	Cost Description	CONSULTANTS & CONTRACTORS[3]			Total
				MPWMD	Private Consultants	Contractors	
Labor							
			Technical Project Manager	$0	$60,000	$0	$60,000
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		Preparation for and Attendance of at Meetings[8]	$0	$11,845	$0	$11,845
	M.1.e		Peer Review of Documents and Reports[8]	$0	$7,725	$0	$7,725
	M.1.f		QA/QC	$0	$0	$0	$0
	M.1.g		SGMA Documentation Preparation	$0	$1,957	$0	$1,957
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	$15,042	$2,472	$0	$17,514
		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]	$3,838	$0	$0	$3,838
		I. 2. b. 3.	Collect Quarterly Water Quality Samples[1][5][6]	$25,278	$0	$27,383	$52,661
		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	$3,683	$0	$0	$3,683
		I. 2. b. 7.	CASGEM Data Submittal for Watermaster's Voluntary Wells	$2,456	$0	$0	$2,456
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	$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	$1,228	$26,893	$0	$28,121
	I. 4. d.		Complete Preparation of Seawater Intrusion Response Plan[2]	$0	$0	$0	$0
	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		**$51,525**	**$130,892**	**$27,383**	
						SUBTOTAL not including Technical Program Manager =	$149,800
						Contingency (not including Technical Program Manager) @ 10%[4] =	$14,980
						Technical Program Manager	$60,000
						TOTAL=	**$224,780**

Footnotes:
(1) An outside contractor would be used to perform the induction logging, and potentially to also collect some water quality samples in conjunction
(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
(4) Due to the uncertainties of the exact scopes of some of the Tasks listed above at the time of preparation of this Budget, e.g. Tasks I.3.a.3 and I.3.c, it is recommended that a 10% 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 2019.
(8) For HydroMetrics, Todd Groundwater (Gus Yates), 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 will be updated in 2018, no work on this Task is anticipated in 2019.
(12) Includes a 3% inflation factor on most annually recurring costs in the 2018 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 2019.

ATTACHMENT 4

Management and Monitoring Plan Capital Budget
For Tasks to be Undertaken in 2018

No Capital projects are anticipated to be undertaken in 2018, so this budget is $0.

Management and Monitoring Plan Capital Budget
For Tasks to be Undertaken in 2019

No Capital projects are anticipated to be undertaken in 2019, so this budget is $0.

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	September 13, 2017
AGENDA ITEM:	6
AGENDA TITLE:	Schedule
PREPARED BY:	Robert Jaques, Technical Program Manager

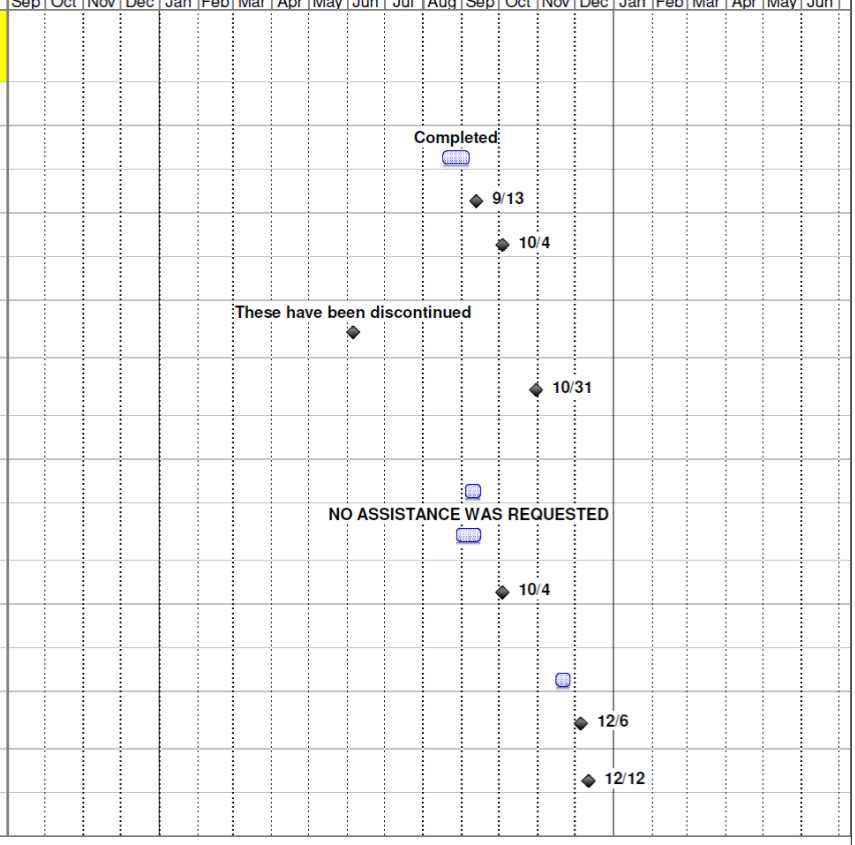
SUMMARY:
As a regular part of each monthly TAC meeting, I will provide the TAC with an updated Schedule of the activities being performed by the Watermaster, its consultants, and the public entity, MPWMD, which is performing certain portions of the work.

Attached is the most recent update of the Work Schedule for FY 2017.

ATTACHMENTS:	Schedule of Work Activities for FY 2017
RECOMMENDED ACTION:	Provide Input to Technical Program Manager Regarding Any Corrections or Additions to the Schedule

Seaside Basin Watermaster
Monitoring and Management Program
2017 Work Schedule

ID	Task Name
1	***CRITICAL PROJECT MILESTONES ASSOCIATED WITH TAC, BOARD, AND/OR CONSULTANT WORK***
2	**2018 Administration, Operations and Replenishment Budgets**
3	Prepare M&MP Draft Budgets (Same as Task 19)
4	TAC Approves M&MP Budgets (Same as Task 20)
5	Board Approves M&MP Budgets (Same as Task 21)
6	**Watermaster Prepares Quarterly Water Production, Water Level, and Water Quality Reports**
7	Watermaster Prepares Combined Quarterly Water Production, Water Level, and Water Quality Reports for 1st & 2nd Quarters (Same as Task 46)
8	Watermaster Prepares Annual Water Production, Water Level, and Water Quality Report for 2016 (Same as Task 42)
9	**Replenishment Assessment Unit Costs for Water Year 2018**
10	B&F Committee Develops Replenishment Assessment Unit Cost for Water Year 2018
11	If Requested, TAC Provides Assistance to B&F Committee in Development of 2018 Water Year Replenishment Assessment Unit Cost
12	Board Adopts and Declares 2018 Water Year Replenishment Assessment Unit Cost
13	**Replenishment Assessments for Water Year 2017**
14	Watermaster Prepares Replenishment Assessments for Water Year 2017
15	Watermaster Board Approves Replenishment Assessments for Water Year 2017 (At December Meeting)
16	Watermaster Levies Replenishment Assessment for 2017
17	**Monitoring & Management Program (M&MP) Budgets for 2018 and 2019**



2017 Consultants Work Schedule for FY 2017 9-13-17.mpp

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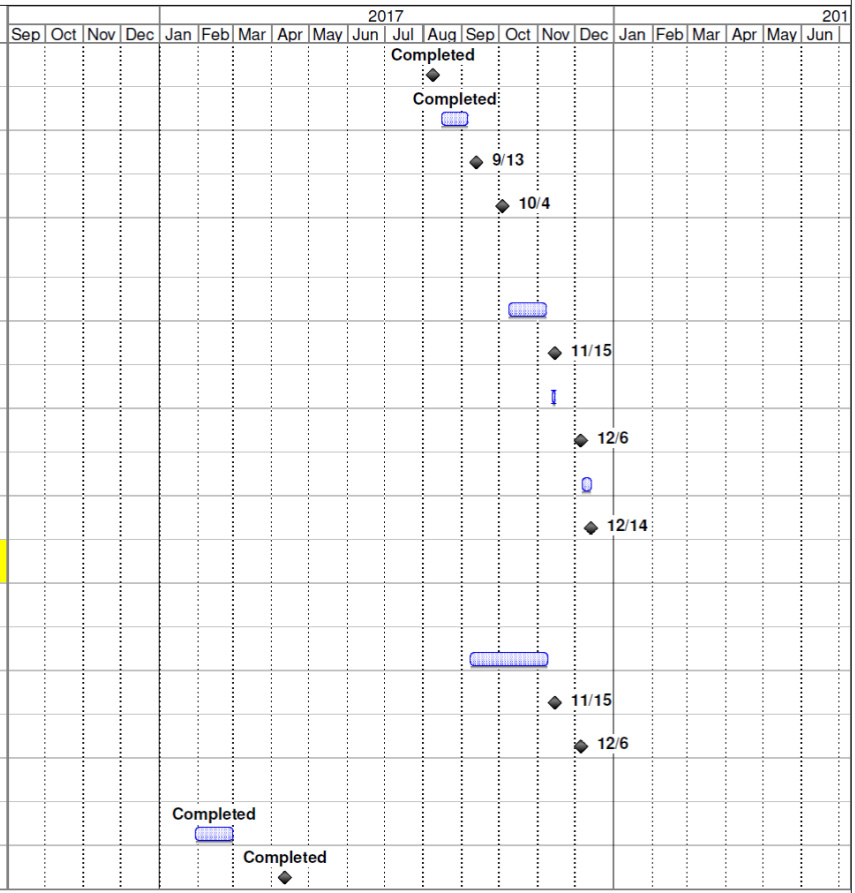
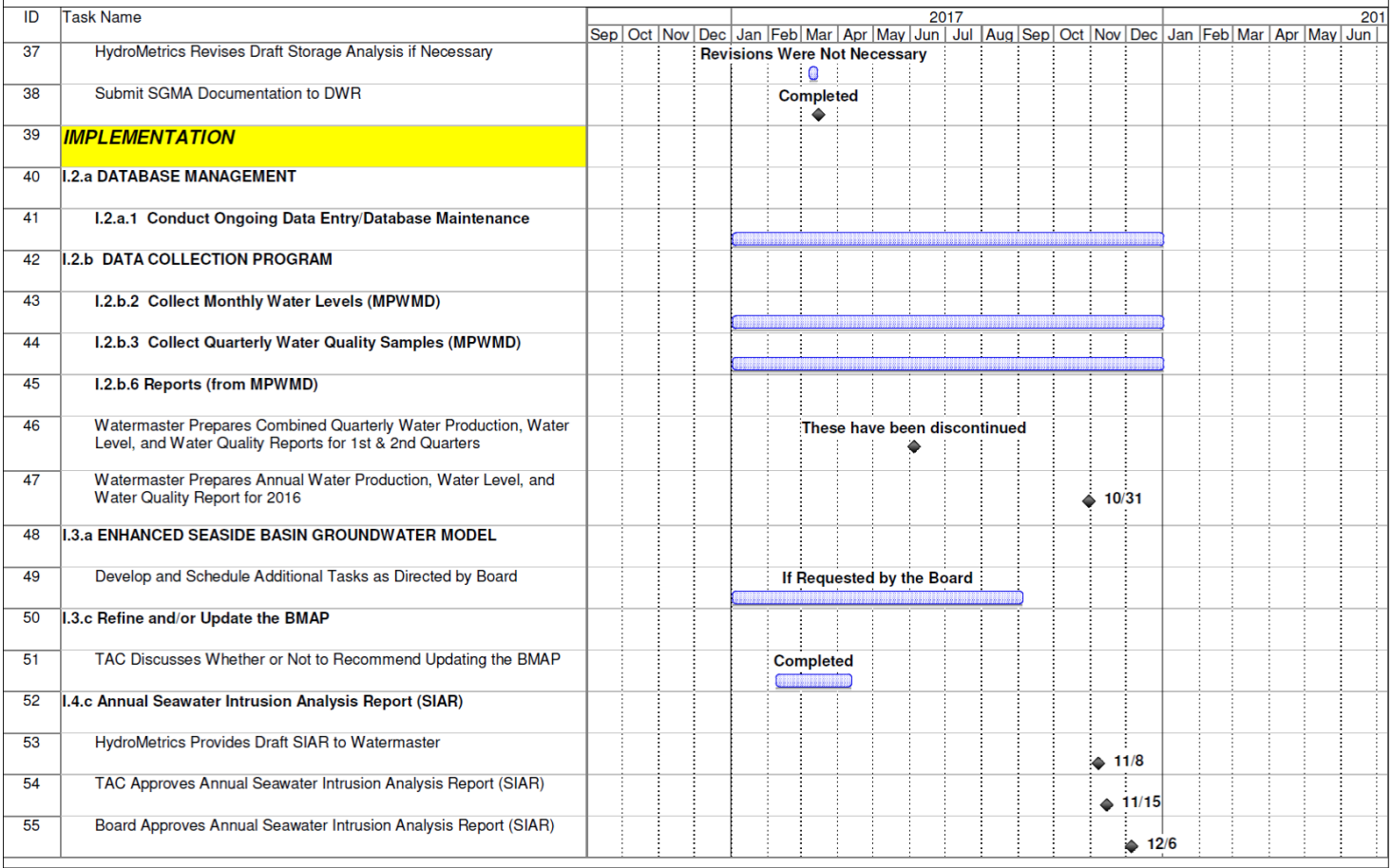
Seaside Basin Watermaster
Monitoring and Management Program
2017 Work Schedule

ID	Task Name
18	Preliminary Discussion of Potential Scope of Work for 2018 M&MP
19	Prepare Draft 2018 M&MP Work Plan and 2018 and 2019 O&M and Capital Budgets
20	TAC approves Draft 2018 M&MP Work Plan and 2018 and 2019 O&M and Capital Budgets
21	Board approves 2018 M&MP Work Plan and 2018 and 2019 O&M and Capital Budgets
22	**2017 Annual Report (Note: Schedule Reflects Court Approval of Later Submittal Date for Annual Report)**
23	Prepare Preliminary Draft 2017 Annual Report
24	TAC Provides Input on Preliminary Draft 2017 Annual Report
25	Prepare Draft 2017 Annual Report (Incorporating TAC Input)
26	Board Provides Input on Draft 2017 Annual Report (At December Board Meeting)
27	Prepare Final 2017 Annual Report (Incorporating Board Input)
28	Watermaster Submits Final 2017 Annual Report to Judge
29	***MANAGEMENT***
30	**M.1 PROGRAM ADMINISTRATION**
31	Prepare Initial Consultant Contracts for 2018
32	TAC Approval of Initial Consultant Contracts for 2018
33	Board Approval of Initial Consultant Contracts for 2018
34	**M.1.g – Sustainable Groundwater Management Act Reporting Requirements**
35	HydroMetrics Prepares Draft Groundwater Storage Analysis
36	TAC Reviews HydroMetrics Draft Storage Analysis



Seaside Basin Watermaster
Monitoring and Management Program
2017 Work Schedule



Seaside Basin Watermaster
Monitoring and Management Program
2017 Work Schedule

ID	Task Name	2017 (Sep–Dec 2016, Jan–Dec 2017, Jan–Jun 201)
56	**I.4.d Complete Preparation of Seawater Intrusion Response Plan (SIRP)**	**WORK COMPLETED - NO FURTHER WORK PLANNED IN 2017**
57	**I.4.e Refine and/or Update the SIRP**	**ONLY IF FOUND TO BE NECESSARY**

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	September 13, 2017
AGENDA ITEM:	7
AGENDA TITLE:	Other Business
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:
The "Other Business" agenda item is intended to provide an opportunity for TAC members or others present at the meeting to discuss items not on the agenda that may be of interest to the TAC.

ATTACHMENTS:	None
RECOMMENDED ACTION:	None required – information only

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	September 13, 2017
AGENDA ITEM:	8
AGENDA TITLE:	Set Next Meeting Date
PREPARED BY:	Robert Jaques, Technical Program Manager

As reported at the July 5, 2017 TAC meeting we will not have a TAC meeting in October, and our November meeting will be on the 3rd Wednesday, not the 2nd Wednesday. These are the scheduling adjustments we have made in prior years to accommodate preparation of the documents that are used to prepare the Annual Report.

Therefore, the next TAC meeting should be set for Wednesday November 15, 2017 at the regular time and location. The agenda packet for that meeting will be sent out the week prior to the meeting.

ATTACHMENTS:	None
RECOMMENDED ACTION:	None required – information only