

MEETING NOTICE AND AGENDA
TECHNICAL ADVISORY COMMITTEE
OF THE
SEASIDE BASIN WATER MASTER

DATE: Wednesday, June 10, 2020

MEETING TIME: 1:30 p.m.

**IN KEEPING WITH GOVERNOR NEWSOMS EXECUTIVE ORDERS N-29-20 AND
N-35-20,
THE TECHNICAL ADVISORY COMMITTEE MEETING WILL BE CONDUCTED BY
TELECONFERENCE AND WILL NOT BE HELD IN THE MONTEREY ONE WATER
OFFICES.**

**YOU MAY ATTEND AND PARTICIPATE IN THE MEETING AS FOLLOWS:
JOIN FROM A PC, MAC, IPAD, IPHONE OR ANDROID DEVICE (NOTE: ZOOM APP MAY
NEED TO BE DOWNLOADED FOR SAFARI OR OTHER BROWSERS PRIOR TO
LINKING) BY GOING TO THIS WEB ADDRESS:**

<https://us02web.zoom.us/j/81756556096?pwd=Q0FHU093RldHek9ZOVQxRVY1YXF2dz09>

**If you encounter problems joining the meeting using the link above, you may join from your
Zoom screen using the following information:**

Meeting ID: 817 5655 6096

Password: 098249

OFFICERS

Chairperson: Jon Lear, MPWMD

Vice-Chairperson: Tamara Voss, MCWRA

MEMBERS

**California American Water Company
Monterey**

City of Del Rey Oaks

City of

City of Sand City

City of Seaside

Coastal Subarea Landowners

**Laguna Seca Property Owners
Agency**

**Monterey County Water Resources
Monterey Peninsula Water Management District**

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The next regular meeting will tentatively be held on Wednesday July 8, 2020 at 1:30 p.m. That meeting will likely also be held via teleconference.	

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

MEETING DATE:	June 10, 2020
AGENDA ITEM:	2.A
AGENDA TITLE:	Approve Minutes from the March 11, 2020 Meeting
PREPARED BY:	Robert Jaques, Technical Program Manager

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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
March 11, 2020**

Attendees: TAC Members

City of Seaside – Scott Ottmar (via telephone)
California American Water – Tim O’Halloran
City of Monterey – Tom Harty (via telephone)
Laguna Seca Property Owners – Wes Leith
MPWMD – Jon Lear
MCWRA – Nicole Koerth
City of Del Rey Oaks – John Gaglioti
City of Sand City – Leon Gomez (via telephone)
Coastal Subarea Landowners – No Representative

Watermaster

Technical Program Manager - Robert Jaques

Consultants

None

Others

MCWD – Patrick Breen

The meeting was convened at 1:30 p.m.

1. Public Comments

There were no public comments.

2. Administrative Matters:

A.Approve Minutes from the January 8, 2020 Meeting

Ms. Koerth commented that she was filling in for Ms. Voss, and had not been in attendance at that meeting. On a motion by Mr. O’Halloran, seconded by Mr. Leith, the minutes 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.Continued Discussion Regarding Seeking Grant Assistance for Projects

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

Mr. Lear reported that Maureen Hamilton is MPWMD’s contact for the Integrated Regional Water Management Program. He went on to say that MPWMD would offer to act as the applicant if there

was a State funding opportunity, but would not be willing to undertake management of any grant or loan that might be offered.

Since the State has reported that no grant or loan programs exist that could provide funding for the purchase of water to recharge the basin, there is no need to pursue an application.

D.Seaside Basin Change in Groundwater Storage Between Water Years 2018 and 2019

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

Mr. Lear said that he concurred with Ms. King's conclusion that the increase in storage for Water Year 2019 over Water Year 2018 was likely due to 2019 being a wetter year than 2018, and that not all of the water injected in 2019 had been recovered in 2019.

E.MCWD Well Data

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

Mr. Gaglioti asked Mr. Breen if there had been any recent increases in chloride in MCWD's wells. Mr. Breen responded that they have not seen any appreciable increase in chloride south of Reservation Road. He also commented that he felt the location of the chloride contour line for the 400-foot aquifer may not be correctly located in some portions of MCWD's service area.

3. Schedule

Mr. Jaques commented that there did not appear to be any activities that would require having TAC meetings in the next couple of months, and that the next TAC meeting could be held in June, with no April or May TAC meetings.

Mr. Gaglioti said he was interested in getting further information about the chloride concentrations to the north of the Seaside Basin. Mr. Jaques and Mr. Breen described the coordination that will occur between the Marina Coast Water District GSA and the Salinas Valley Basin GSA during the development of the GSP for the Monterey Subbasin. During that process the chloride information will be evaluated and reported upon.

Mr. Breen said that the USGS model will be used to prepare the GSP for this Subbasin. He commented that the aerial electromagnetic data that had been obtained by Marina Coast Water District's consultant will be considered in the development of the GSP.

Mr. Lear said he felt it would be good to have a review of the Laguna Seca Subarea modeling work that was performed several years ago, to refresh the memory of long-term TAC members and to provide information to newer TAC members. Mr. Jaques said he would pursue this with Montgomery and Associates for presentation at a near-future TAC meeting.

Mr. Gaglioti said he would like to know what the impacts would be to the Seaside Basin if the desalination plant is not built. Mr. Lear said he envisioned at least two scenarios that would be good to evaluate: (1) what the impacts would be if the desalination plant was not constructed and there was no expansion of the Pure Water Monterey Project, and (2) what would happen if the desalination plant was not built but the Pure Water Monterey expansion is built.

Mr. Lear went on to say that there is modeling information about the Pure Water Monterey Expansion project's impacts in the Environmental Impact Report for that expansion project.

Mr. Gaglioti said he felt it would be good for the Watermaster Board to weigh-in on these issues.

There was further discussion of various issues pertaining to MPWMD's supply/demand forecast and impacts on the Seaside Basin.

4. Other Business

Mr. Lear reported that Chris Cook had asked for an update on the Pure Water Monterey project. Mr. Lear reported that:

- The advanced water treatment (AWT) plant's water had been tested and okayed by the State Division of Drinking Water.
- Water is now being injected into the vadose zone.
- They are currently running the deep injection wells in hand mode, and will be transitioning to SCADA control in the near future.
- Once that occurs, they will begin to condition the deep wells with low rates of injection, and ramp up to full injection rates.
- At this point more than 100 acre-feet of AWT water has been injected.
- Particle-tracking modeling is already being done.
- MPWMD has adopted an ordinance to prohibit wells from pumping out of the area of the injection plume within which the required detention time prior to extraction is being achieved.
- Tracer testing has started, but only in the Paso Robles aquifer. Tracer testing will start in the Santa Margarita aquifer when injection into that aquifer begins.
- Monthly and quarterly sampling has begun for all of the contaminants required by the AWT plant's permit.
- The draft tracer testing plan is not likely to change significantly, it will mainly be changed to describe how the Pure Water Monterey project was started up.
- Mr. Lear explained that the Division of Drinking Water "accepts", but does not have to approve, the tracer testing plan before injection begins.
- Mr. Lear also noted that water travels slowly in the Paso Robles aquifer, but at a much faster rate in the Santa Margarita aquifer.

Ms. Koerth reported that MCWRA has redrawn some of its 500 mg/L chloride contour maps based on updated information. She will send those to Mr. Jaques for distribution to the TAC.

The meeting adjourned at 2:19 p.m.

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MEETING DATE:	June 10, 2020
AGENDA ITEM:	2.B
AGENDA TITLE:	Sustainable Groundwater Management Act (SGMA) Update
PREPARED BY:	Robert Jaques, Technical Program Manager

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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:

the Advisory Committee of the Salinas Valley basin groundwater sustainability agency met on May 21. Here are some items that were discussed that may be of interest to TAC members:

- The models that will be used for development of the Groundwater Sustainability Plans are being prepared by USGS and consist of two different models. One is called the Salinas Valley Integrated Hydrologic Model and the other one is called the Salinas Valley Operational Model. USGS expects to have the Hydrologic Model available in August. The Operational Model, in its provisional form, is already available.
- Monterey County Water Resources Agency's consultant The Wood Group will be using the Operational Model for its work.
- The Hydrologic Model simulates historical conditions, and the Operational Model is used to simulate future conditions. The Operational Model is the one that will be used in preparation of future water budgets and to determine the effects of proposed GSP projects and actions.
- Derrik Williams of Montgomery and Associates reported that both models will be used in the development of the GSP's. They will use the Operational Model for analyzing projects and actions, since it is now available. Although it is in a provisional version, Mr. Williams does not expect significant changes from the provisional to the final version, and that this will not likely have any effect on actions or projects that may be included in the GSPs.
- The two models are based on the same data, but use the data for different purposes.
- In response to a question, Donna Myers, who is the new General Manager for the SVBGSA, reported that they are looking into where additional wells are needed in order to fill in data gaps needed to acquire information in conjunction with the 180/400-foot aquifer GSP. Those recommendations will come to the Advisory Committee at some yet-to-be determined future date. Mr. Williams explained that this additional data will be needed to determine how well the GSP is achieving sustainability.
- The Seawater Intrusion Working Group is a Management Action required by the 180/400-foot GSP. It is a continuation of the 90-date working group that was created by Monterey County in 2017 to address well moratoriums in that aquifer and the deep aquifer. At that time Urgency Ordinance No. 5302 was passed and was subsequently extended to May 21, 2020. In general, it prohibits new wells from being constructed in the 180/400-foot aquifer, with some exceptions, and prohibits new wells in the deep aquifer. Currently there are 15 pending applications for new

AGENDA ITEM:

2.B (Continued)

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wells in the deep aquifer. The Board of Supervisors determined not to pass a new urgency ordinance at its meeting on May 19, and consequently the existing urgency ordinance expired and is replaced by the policies in the Monterey County 2010 General Plan. Policy PS – 3.5 of that General Plan is less restrictive on these issues, and reads:

“The Monterey County Health Department shall not allow construction of any new wells in known areas of saltwater intrusion as identified by Monterey County Water Resources Agency or other applicable water management agencies:

a. Until such time as a program has been approved and funded that will minimize or avoid expansion of salt water intrusion into useable groundwater supplies in that area; or

b. Unless approved by the applicable water resource agency. This policy shall not apply to deepening or replacement of existing wells, or wells used in conjunction with a desalination project.”

- I was accepted for membership in the Monterey Subbasin GSP Committee. That committee will start having its meetings sometime in the month of July. The East Side and Upper Valley Subbasin GSP committees will be the first ones to start meetings and those will begin in June. Emily Gardner the Assistant General Manager will be coordinating the meetings for all of the GSP committees.
- I spoke with Derrik Williams and Georgina King of Montgomery & Associates about how best to present the Watermaster’s concerns during the development of the Monterey Subbasin GSP. Since Mr. Williams is also consulting to the SVBGSA in the development of all of their GSPs, it would be more effective to have a different person make the presentation. Because of the complexity of the hydrogeologic issues involved, I believe the Watermaster’s concerns would best be presented by Ms. King who is intimately familiar with the Seaside Basin due to her long-term involvement in the modeling work done for us by HydroMetrics and in the preparation of each year’s Seawater Intrusion Analysis Report. She is also working on the development of GSPs for other clients of Montgomery & Associates, and is therefore very familiar with the requirements of GSPs. She is agreeable to making the presentation, and since it is expected that meetings of the Committee will be via Zoom rather than in person, she felt it was likely that she could perform that work within the amount already authorized for Montgomery & Associates under their general consulting contract with the Watermaster. If it turns out to be more involved than we initially expect, and more funds are needed, I will draft a contract amendment to cover such additional costs.
- To minimize costs, I am working jointly with Ms. King in the preparation of a PowerPoint presentation to be made to the GSP Committee at the appropriate point in the development of the GSP. The presentation would describe the findings of our modeling work and groundwater studies previously performed for Monterey County, and the impacts that work shows the Corral de Tierra pumping is having on the LSSA. The presentation would also include recommendations of actions to be included in the GSP that will help to mitigate the adverse impacts that Corral de Tierra pumping is having on groundwater levels in the LSSA. I have completed a draft presentation and sent it to Ms. King for her to use in finalizing it.
- I have also applied to be a member of the SVBGSA’s Seawater Intrusion Group, whose initial

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AGENDA ITEM:

2.B (Continued)

intrusion mitigation projects. I believe my involvement will be beneficial to the Watermaster as well as to the SVBGSA, due to the Watermaster's interest and long involvement in monitoring and other work pertaining to seawater intrusion into the Seaside Basin.

ATTACHMENTS:

None

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**RECOMMENDED
ACTION:**

None required – information only

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MEETING DATE:	June 10, 2020
AGENDA ITEM:	2.C
AGENDA TITLE:	Groundwater Modeling Done for the Pure Water Monterey Expansion Supplemental EIR
PREPARED BY:	Robert Jaques, Technical Program Manager
<p>SUMMARY:</p> <p>It was reported by Mr. Lear at a prior TAC meeting that in conjunction with preparation of the SEIR for the Pure Water Monterey Expansion Project, groundwater modeling had been done. Some TAC members indicated an interest in the findings of the modeling report.</p> <p>This modeling is reported on in Appendix D to the SEIR. Attached is the Executive Summary from the modeling report. The entire report can be viewed at: https://purewatermonterey.org/wp/wp-content/uploads/Appendices-to-M1W-Draft-Supplemental-EIR-11-7-2019.pdf.</p> <p>I reviewed that modeling report and had several questions which I posed to Montgomery & Associates who had prepared the report. Attached are my questions and the responses provided to them by Mr. Pascual Benito, who is Montgomery & Associates' groundwater modeler who performed this work. The page numbers refer to the pages in Appendix D of the SEIR.</p> <p>As the Executive Summary and Mr. Benito's responses indicate, the modeling shows that the expanded Pure Water Monterey Project increases groundwater elevations in the Seaside Basin, indicating that the expanded PWM/GWR Project is likely to reduce the potential for seawater intrusion.</p>	
ATTACHMENTS:	<ol style="list-style-type: none"> 1. Executive Summary from the Modeling Report 2. Questions and Responses Regarding Groundwater Modeling Report

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**RECOMMENDED
ACTION:**

None required – information only

EXECUTIVE SUMMARY

Monterey One Water (M1W) is proposing to expand the currently approved Pure Water Monterey (PWM) groundwater replenishment project (approved PWM/GWR Project) to increase the capacity of the Advanced Water Purification Facility (AWPF) from 5 million gallons per day (MGD) peak production to 7.6 MGD. The expanded PWM/GWR Project will recharge the Seaside Groundwater Basin (Seaside Basin) with an average of 5,750 acre feet per year (AF/year) of high quality purified water for indirect potable reuse, and will deliver additional tertiary recycled water to the Salinas Valley for agricultural irrigation to replace existing water supply sources for the northern Monterey County region. The proposed modifications to the PWM/GWR Project are intended as a back-up to the California American Water Company (CalAm) Monterey Peninsula Water Supply Project (MPWSP). The proposed expansion would increase the amount of purified recycled water produced by the PWM/GWR Project, which is currently under construction. Proposed modifications include expansion of the AWPF capacity, relocating and adding additional injection well sites, and modifications to the Cal-Am conveyance system. The calibrated groundwater flow model of the Seaside Basin (HydroMetrics WRI, 2009) was used to estimate impacts from the proposed project modifications in support of the impacts analysis for the Supplemental Environmental Impact Report (SEIR). A predictive model incorporating reasonable future hydrologic conditions and pumping demand was developed for this impacts analysis. The expanded PWM/GWR Project injection is assumed to begin in October 2020, eight years into the 33-year predictive model period. The model simulates PWM injection, municipal pumping, and Aquifer Storage and Recovery (ASR) injection and extraction of treated Carmel River water. The amount of Carmel River water available for winter injection into the Seaside Basin was estimated by Monterey Peninsula Water Management District (MPWMD) staff (MPWMD, 2019). Cal-Am's future annual water demand was assumed to increase from 10,400 acre-feet (AF) at the start of the modified project to 11,325 AF at the end of the simulated 25-year project duration. It was also assumed that roughly two-thirds of the total Cal-Am demand would be satisfied by extraction of native groundwater, injected Carmel River water, and injected PWM water from the Seaside Basin. Extraction from the Carmel Valley, Cal-Am's Carmel River Table 13 diversion, and the Sand City Desalination plant would satisfy the remainder of the total Cal-Am demand. Monthly Seaside Basin pumping rates were set to meet monthly Cal-Am demand.

Model results show that the expanded PWM/GWR Project increases groundwater elevations in the Seaside Basin. Simulated groundwater elevations under the expanded PWM/GWR Project are, on average, higher than those under No-Project conditions at all simulated observation wells. The long-term coastal groundwater elevations under the expanded PWM/GWR Project are also higher than those under No-Project conditions, indicating that the expanded PWM/GWR Project is likely to reduce the potential for seawater intrusion. A water budget analysis of simulated inflows and outflows into the Seaside Basin shows that the expanded PWM/GWR Project increases groundwater storage by 400 AF/year compared to the No-Project conditions. It also reduces offshore inflows while increasing offshore outflows, decreasing the potential for seawater intrusion in the Seaside Basin.

Particle tracking was used to estimate the travel time of injected expanded PWM/GWR Project water from the point of injection/recharge to the closest point of extraction. Results predict that the shortest subsurface travel time of recharged PWM purified recycled water to reach an extraction well is 615 days for the expanded PWM/GWR Project; the majority of the subsurface travel times are longer than 5 years.

**TECHNICAL MEMORANDUM DATED NOVEMBER 1, 2019 TITLED:
EXPANDED PWM/GWR PROJECT SEIR, GROUNDWATER MODELING ANALYSIS**

PAGE	COMMENT OR QUESTION
1 and 6	<p>Para 2 states on page 1 that the 2009 Model was used. Para 4 on page 6 does not mention using the 2018 recalibrated Mode. Shouldn't the 2018 updated/recalibrated model have been used?</p> <p><u>RESPONSE:</u> The 2018 recalibrated model was not used, in order to maintain consistency with previous analyses of the Pure Water Monterey Project. In 2015, the 2009 calibrated model was used to develop predictive simulations for the original PWM EIR impact assessment. To accurately compare the 2019 expanded PWM/GWR Project against the baseline project described in the original 2015 EIR, the two models needed to be the same (or at least generally based on same simulation periods and projected future climate data sets and boundary conditions).</p> <p>Additionally, the version of the model used for the expanded project SEIR incorporates more recent, site specific aquifer parameters obtained during the development of the PWM well field. There have been discussions to combine the work from the 2018 recalibration effort with these most recent updates in project site-specific wells to develop a new revised predictive baseline model for operational (e.g. non-CEQA) related project modeling.</p>
2 and 41	<p>Para 2 on page 2 states that groundwater levels rose with the expanded PWM project. Para 1 on page 41 states that the expanded PWM project will also reduce offshore inflows into the Seaside basin and increase offshore outflows as well as outflows to the Monterey Subbasin, and increases the amount of water being put into storage in the Seaside basin. If the annual volume of water that is injected by PWM is pumped out each year, how can there be a rise in groundwater levels and how can these other things occur?</p> <p><u>RESPONSE:</u> As is shown by the simulated average annual groundwater budgets in Table 6, the average net total injection increase of 5,381 AF/YR due for the expanded project scenario is greater than the average annual net extraction increase of 4,896 AF/YR. Not all the injected PWM water is pumped out each year. Some of the increased pumping pulls water from outside the Seaside basin. For example, the proposed extraction wells EW-3&4 in the Santa Margarita formation are right along the edge of the boundary with the Monterey subbasin. A large percentage of the PWM water that is injected into the Paso Robles formation is not captured by extraction wells within the simulation period, and so remains in the aquifer as increased storage. This shallower water plays a large role in increasing the water levels in the Paso Robles Formation, and increasing offshore flows.</p>

3	<p>Para 5 states that only 2 of the 4 approved PWM injection well sites were constructed. Do you know why all 4 were not constructed?</p> <p><u>RESPONSE:</u></p> <p>Our understanding is that initial pilot well testing conducted after the initial SEIR indicated that project recharge goals could be met with the two sites currently developed. Additionally, there is more operational flexibility in having all four sites permitted should additional capacity be needed.</p>
29	<p>Could you please provide a short explanation of what “particle tracking” means and what it is supposed to depict?</p> <p><u>RESPONSE:</u></p> <p>Particle tracking is conceptually equivalent to placing GPS trackers on particles of water and “tracking” the movement of their positions and velocities from the time from when they are released at an injection well to when the simulation ends. The “particles” move at the same speed and direction as the groundwater and can either be “captured” when they reach an extraction well or a model boundary, or can remain actively moving through the aquifer. The particle tracks allow us to visualize the pathways that water takes through the aquifer from an injection well to a production well. Each released particle is tracked over the simulation and its position and velocity are recorded at each time.</p>
42	<p>Table 6 on this page indicates that inflows from the PWM injection wells will total 5,983 AFY (602+5,381). However, the total PWM injection volume is listed as only 5, 750 AFY. How can the 5,983 value be achieved?</p> <p>Also, in this table it indicates that there will be an increase in “Outside Basin (onshore)” sources compared to the no project alternative. Are these increases coming from the Corral de Tierra subarea of the Monterey Subbasin?</p> <p><u>RESPONSE:</u></p> <p>The detailed water injection schedule in Table 10 shows that, for most future water years, the total injected PWM water is on the order of 5,950 AF/YR. Although roughly 5,950 AF/YR is injected in most years, reduced injection in some years brings the average injection rate closer to 5,796 AF/YR. The difference between the 5950 shown on Table 10 and the 5983 number is likely due to slight changes that were made to the model’s aquifer hydraulic properties. These changes put slightly more water into the shallow aquifer.</p> <p>Regarding increases in “Outside Basin (onshore)” sources, the increases appear to be coming from the Ord Subarea portion of the Monterey subbasin along the northern edge of the Seaside subbasin, in the Santa Margarita formation. This is due to the proximity of the proposed additional extraction wells EW-3&4 located along the boundary between the Seaside subbasin and the Fort Ord subarea of the Monterey subbasin.</p>

46	<p>Is it possible that not all of the VZW injected water will be recovered due to low pumping volumes from the Paso Robles aquifer and thus lost to the ocean?</p> <p><u>RESPONSE:</u></p> <p>Yes. This is a possibility given the spatial configuration and pumping rates of the Paso Robles wells. The modeling shows that water in the Paso Robles Formation moves relatively slowly, and none of the injected water is lost to the ocean boundary condition during the 25 years of simulated project operation. However, some of the water in the Paso Robles Formation could be lost to the ocean after the 25-year simulation time frame. The ultimate fate of water in the Paso Robles Formation is unknown.</p>
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MEETING DATE:	June 10, 2020
AGENDA ITEM:	3
AGENDA TITLE:	Review of Previously Performed Laguna Seca Subarea Modeling Work
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

At the last TAC meeting Jon Lear suggested it would be good to have a review of previously performed groundwater modeling in the Laguna Seca Subarea. This would provide newer TAC members with information that will be important in our interaction with the Salinas Valley Basin Groundwater Sustainability Agency as they begin work on their Groundwater Sustainability Plan for the Monterey Subbasin, which abuts the Laguna Seca Subarea.

At today's meeting Georgina King of Montgomery & Associates will provide a PowerPoint review of this modeling work and be available to answer questions.

ATTACHMENTS:	PowerPoint Slides Pertaining to Laguna Seca Modeling Work
RECOMMENDED ACTION:	None required – information only

Summary of Past Groundwater Modeling Work in the Laguna Seca Subarea

Presented to Seaside Basin Technical Advisory Committee
June 10, 2020
Georgina King, PG., C.Hg.



1

Summary of Groundwater Modeling for the Seaside Basin Watermaster

Year, Modeler	Model Area	Purpose
2013/2014, HydroMetrics	Basin	Estimate Laguna Seca Subarea safe yield
2016, Hydrometrics	Basin	Groundwater flow divides within and east of the Laguna Seca subarea



Difference Between Laguna Seca Subarea Modeling Projects

Safe Yield (2013/2014)

- Determine impacts from potential pumping changes within and outside of the subarea
- Estimate the Natural Safe Yield and Operational Safe Yield

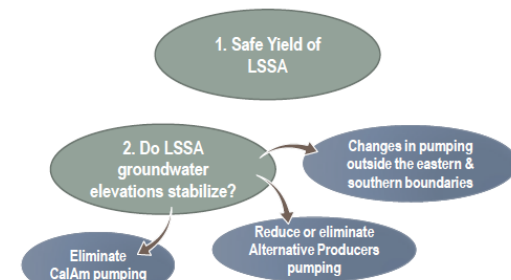
Groundwater Divide (2018)

- Map existing and potential future groundwater divides based on groundwater model simulations
- Show flow directions



3

Estimate Laguna Seca Subarea Safe Yield (2014)



4

Safe Yield Background

- The Decision safe yield for the Laguna Seca subarea at 608 AF/year
- Safe yield is generally defined as the amount of water that can be pumped from a basin without causing undesirable impacts
- Safe yield is achieved when all groundwater levels stabilize by the end of the model simulation



Baseline Scenario Establishes Safe Yield

- Cal-Am's 25 Year Replenishment Plan
- Alternative Producers pump at 2011 rates
- Laguna Seca pumping ≈ 520 acre-feet/year
- $\text{Safe Yield} = \text{Recharge} + \text{Inflow} - \text{Subsurface Outflow}$
- Annual average natural safe yield = 248 AF/year based on mass balance
- Model scenario with LSSA pumping at 248 AF/year failed to achieve stable groundwater levels because of changing flows into and out of the LSSA



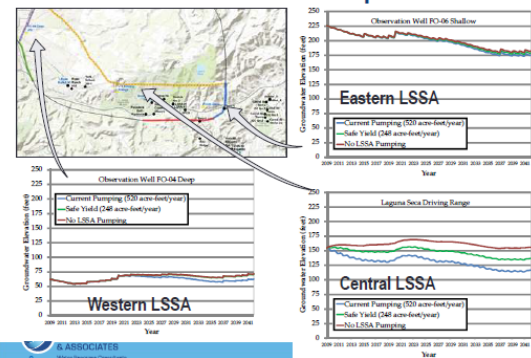
Does reducing or eliminating pumping by Alternative Producers in the LSSA appreciably reduce the rate at which groundwater levels are falling in the LSSA?

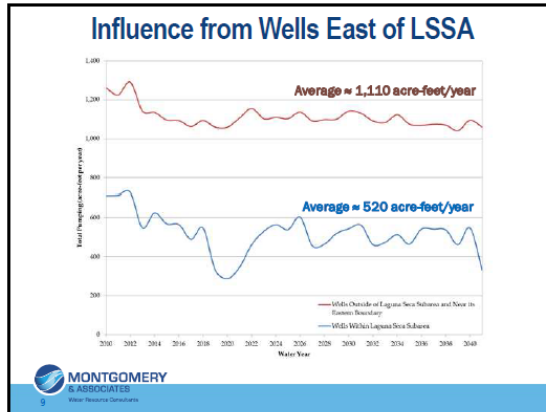
Three Scenarios

1. Current Alternative Producer Pumping (520 acre-feet/year)
2. "Safe Yield" Pumping (248 acre-feet/year)
3. No Alternative Producer Pumping



Groundwater Level Impacts

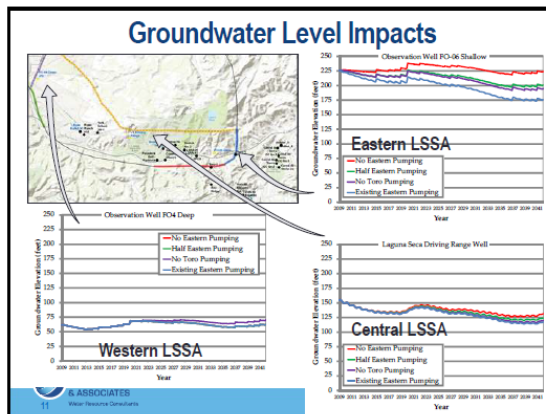




What is the impact on groundwater levels in the LSSA from pumping outside the eastern and southeastern boundaries of the LSSA?

Four Outside Pumping Scenarios

1. No Outside Pumping
2. Half of Existing Pumping
3. No Toro Wells Pumping
4. Existing Pumping



Conclusions

LSSA pumping is concentrated in the central LSSA

- Reducing LSSA pumping significantly reduces the rate of drawdown in the central LSSA
- Reducing LSSA pumping has limited impact on the eastern LSSA

Conclusions cont.

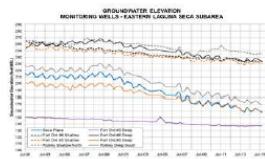
Pumping east of the LSSA has a significant impact on eastern LSSA groundwater elevations.

- Reducing total pumping or eliminating Toro pumping have similar impacts
- Significant reductions are necessary to prevent all groundwater elevation declines to be consistent with a safe yield of 248 acre-feet/year
- LSSA pumping continues to control central LSSA groundwater elevations

Questions?

Groundwater Flow Divides Within and East of the Laguna Seca Subarea (2016)

- Declining groundwater levels in the LSSA
- Some areas of LSSA cannot be effectively managed by WM as wells outside of the Basin are causing the declines
- Map existing and future groundwater flow divides based on groundwater model

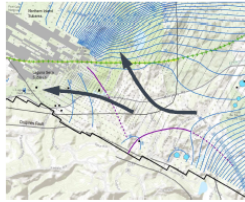


Important Notes

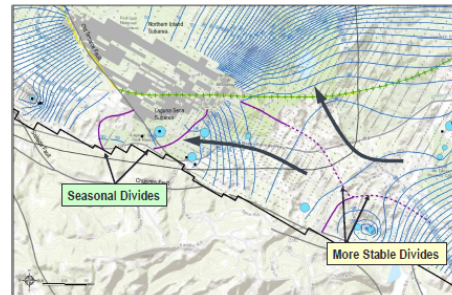
- Flow divides are not static features or hard barriers to flow
- They will move in response to pumping stresses and changes in recharge

General Results

- Regional flow direction is consistent for all months examined
- Laguna Seca Anticline acts as a barrier to flow, splitting flow into two paths: one flowing west through the LSSA to the south of the barrier and one flowing northwest into the Northern Inland Subarea



General Results



Conclusions

- Under simulated future conditions, groundwater levels will continue to decline in east LSSA, but in the western and central portions of the LSSA they will stabilize by the end of the modeling period (2042)
- The divide between LSSA and Corral de Tierra should remain fairly stable
- Under simulated future conditions, groundwater flow in the Paso Robles (shallow) aquifer will switch direction to flow out of the LSSA's eastern boundary towards Corral Tierra
- Because the eastern portion of the LSSA is in greater hydraulic connection with the Corral de Tierra, it will not be possible for WM to implement management strategies to stop declining groundwater levels in the eastern portion of the LSSA



Questions?



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TECHNICAL ADVISORY COMMITTEE
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MEETING DATE:	June 10, 2020
AGENDA ITEM:	4
AGENDA TITLE:	Discussion of Possibly Modeling Certain Scenarios Related to the Monterey Peninsula Water Supply Project and an Expansion of the Pure Water Monterey Project
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

At the March 11, 2020 TAC meeting Mr. Gaglioti said he would like to know what the impacts would be to the Seaside Basin if Cal Am's desalination plant is not built. Mr. Lear said he envisioned at least two scenarios that would be good to evaluate: (1) what the impacts would be if the desalination plant was not constructed and there was no expansion of the Pure Water Monterey Project, and (2) what would happen if the desalination plant was not built but the Pure Water Monterey expansion is built.

I contacted Montgomery & Associates (Georgina King and Derrik Williams) to ask them if the work their firm had done in conjunction with the EIRs for the Pure Water Monterey Project, and the Pure Water Monterey Expansion Project could provide that information. Their response was that they have already modeled one of the two scenarios, but would need to do new modeling for the other scenario. Mr. Williams asked what information the TAC would like to get from this work.

I told Mr. Williams I thought a summary type of Memo, with some graphics if he felt those would be helpful, with text describing the two scenarios and groundwater level changes resulting from them would be a good way to provide us this information. I also suggested that the wells for which protective water levels have been established could have their water level hydrographs depicted for the two scenarios as well as the No Project scenario to show how they are affected.

I asked Mr. Williams to provide me a budget estimate of what this work will cost, so we will have that information in the event the TAC wishes to have them prepare a Memo covering this topic. Their cost proposal is attached, and includes the cost of running one simulation, comparing the simulation results, and developing a Memorandum for the TAC. Their proposed cost for this work is \$34,430.

Authorizing this work would require issuing a new Request for Service (RFS). This work could be funded in part from the M&MP Budget line-item titled "Evaluate Replenishment Scenarios and Develop Answers to Basin Management Questions." That line-item has a \$20,000 budget amount and none of that has been used so far. The \$14,430 shortfall between that budget amount and the proposed cost could be funded from the "Contingency" line-item which has an as-yet unused amount of \$15,088.

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AGENDA ITEM:

4 (Continued)

The TAC is asked to discuss whether or not to recommend to the Board that this additional work be undertaken, and to provide direction to the Technical Program Manager on this matter. If the TAC feels it would be beneficial to perform this work, reasons to justify this should be developed so they can be presented to the Board in conjunction with recommending to the Board to pursue this work.

ATTACHMENTS:

Montgomery & Associates Cost Proposal to Perform Modeling and Prepare a Technical Memorandum

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**RECOMMENDED
ACTION:**

Provide direction to the Technical Program Manager regarding moving ahead with performing any work on these Scenarios

June 3, 2020

Mr. Bob Jaques
Seaside Watermaster Technical Program Manager
83 Via Encanto
Monterey, CA 93940

**SUBJECT: SCOPE FOR GROUNDWATER MODELING OF PURE WATER
MONTEREY PROJECT WITHOUT MPWSP BOTH WITH AND WITHOUT EXPANSION
PROJECT**

Dear Mr. Jaques

Montgomery & Associates (M&A) appreciates the opportunity to provide this scope for groundwater modeling services using the Seaside Groundwater Basin Model (Seaside Model). M&A's modeling will support evaluations of the potential impacts on the basin from the Pure Water Monterey (PWM) project and the proposed PWM expansion project. Specifically, we will evaluate and compare the predicted impacts from two scenarios:

- 1) The Monterey Peninsula Water Supply Project (MPWSP) desalination plant is not built and there is no expansion of the Pure Water Monterey Project, and
- 2) The MPWSP desalination plant is not built but the Pure Water Monterey Project is expanded.

A version of the first scenario was simulated as part of the modeling in support of the original PWM EIR (Hydrometrics WRI, 2015), and Scenario 2 was modeled as part of the PWM Expansion project modeling. However, the version of Scenario 1 simulated for the 2015 PWM project EIR was based on assumptions that differ from the assumptions used for the more recent Expansion project modeling (M&A, 2019b).

Specifically, the EIR modeling was predicated on the following assumptions:

- Cal-Am would adhere to the reduction in Carmel River extractions required by the CDO
- Cal-Am would adhere to the triennial reductions in Seaside native groundwater extraction required by adjudication, and
- Some unspecified alternative water supply source would supplement the 3,500 AFY of water supplied by the PWM project in order to meet a forecasted total system demand of 15,300 AF/yr. (HydroMetrics WRI, 2015).

In contrast, the more recent PWM Expansion modeling, which corresponds to Scenario 2 above, is predicated on the following assumptions:

- There is no additional supply other than from the expanded PWM Project,
- A smaller projected total annual system demand of between 10,882 AF and 12,656 AF.

This lower demand estimate is based on a recent analysis performed by Monterey Peninsula Water Management District (MPWMD) (2019¹). This new total system demand is lower than both the 15,300 AF/yr. total demand used in PWM 2015 EIR and also lower than the 14,356 AF/yr. total demand projected in the 2018 MPWSP EIR. The lower system demand is a combination of both lower estimated current average customer demand as well as lower demand associated with development and growth. Furthermore, the Expansion modeling assumes that while all current customer demand is met, only some of the maximum the potential growth and development demand is met by the expanded project.

To make an equivalent comparison between scenarios, while also minimizing the cost for developing new model runs, we propose that Scenario 1 be re-run using the same total system demand assumptions used in the Expansion modeling (Scenario 2). This scenario will simulate only the 3,500 AF/yr. non-expansion PWM recharge, without the additional 2,250 AF/yr. of PWM Expansion supply. Additionally, we will assume that while Cal-Am meets its obligations to reduce Carmel River extractions under the CDO, it will necessarily pump additional Seaside native groundwater in order to meet any shortfall in supply. Therefore, Cal-Am will not meet the triennial reductions required by adjudication.

Further, the new Scenario 1 will use the same assumptions used in the Expansion SEIR modeling regarding additional infrastructure that Cal-Am would need to put in place to meet and deliver its system demands and provide system redundancy. This includes two new extraction wells located at the Seaside Middle School and two new extraction wells located along General Jim Moore Boulevard, as well as new conveyance facilities along General Jim Moore Boulevard and at the Seaside School site. Using this approach, Scenarios 1 and 2 will differ only in that Scenario 2 will use the additional PWM Expansion Project water to offset native groundwater extraction.

The tasks to be performed are detailed in the following scope of work.

¹ <https://www.mpwmd.net/asd/board/boardpacket/2019/20190916/09/Item-9-Exh-A.pdf>

SCOPE OF WORK

TASK 1 – DEVELOP AND RUN SCENARIO 1 MODEL

M&A will modify the version of the Seaside Basin predictive model used as the basis for the PWM Expansion project SEIR analysis (M&A, 2019b) to simulate recharge from only the non-expanded, 3,500 AF/yr. PWM project. The locations and number of PWM injection wells and the distribution of PWM recharge water between the shallow vadose zone injection wells (VZW) in the Paso Robles, and the deep injection wells (DIW) in the Santa Margarita formation will be split 30% to the VZW and 70% to the DIW wells, consistent with the most recent PWM non-expansion modeling (M&A, 2019a). The simulated total system demand and projected pumping schedules for all wells in the model will remain unchanged from that used in the Expansion Modeling.

TASK 2 – EVALUATE AND COMPARE IMPACTS TO SEASIDE BASIN FOR BOTH SCENARIOS

M&A will process the model results from Scenarios 1 and 2 to produce hydrographs at representative wells, potentiometric surface maps for the Paso Robles and Santa Margarita aquifers, and water budgets representative of each scenario.

TASK 3 – TECHNICAL MEMORANDUM AND TAC PRESENTATION

M&A will prepare a technical memorandum which documents Tasks 1 and 2, with a synthesis of the model results for each scenario and comparisons between the scenarios. The memorandum will discuss impacts on water levels, comparisons with protective elevations to protect against potential seawater intrusion, and water budgets. For costing purposes, we assume preparing one draft, responding to and addressing one round of review comments, and one final version of the report. The report will be provided in Microsoft Word and PDF formats.

M&A will present the results to the Seaside Basin Technical Advisory Committee (TAC) at a regularly scheduled TAC meeting. The presentation will review the simulation assumptions and results, and provide any additional information requested by the TAC.

STAFFING PLAN

Georgina King, P.G., C.Hg., will be the project manager, and Pascual Benito, Ph.D. will be the lead groundwater modeler. Pascual is an experienced modeler who is currently supporting the Pure Water Monterey indirect potable reuse project and as needed hydrogeological services for the Seaside Basin Watermaster.

Derrick Williams, P.G., C. Hg., will provide senior review. Derrick has been consultant to Seaside Basin Watermaster since the basin's adjudication and led development of the Seaside Model. Mr. Williams will present the results to the TAC.

PROJECT BUDGET AND SCHEDULE

We anticipate that this work can be completed within a two-month period, though the timing may depend on the scheduling of TAC and Board meetings. We can begin work on this immediately following notice to proceed.

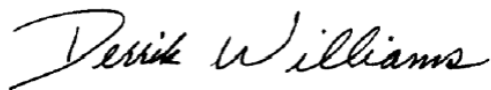
The total estimate costs for these tasks is \$34,430 as detailed in the attached cost table.

Please feel free to contact us with any questions about the proposed scope of work and budget.

Sincerely,

E.L. MONTGOMERY & ASSOCIATES

Derrik Williams, Principal Hydrogeologist



Georgina King, Senior Hydrogeologist



REFERENCES

HydroMetrics Water Resources Inc., 2015. *Technical Memorandum, GWR Project EIR: Project Modeling Results*, To: Bob Holden/MRWPCA, January 12, 2015.

Montgomery & Associates, 2019a. *Pure Water Monterey Project Wellfield Design Modeling Results with Updated Local Santa Margarita Aquifer Properties and 70/30 Deep/Shallow Recharge Split*, prepared for Todd Groundwater, March.

Montgomery & Associates, 2019b. *Pure Water Monterey Expansion Supplemental Environmental Impact Report Groundwater Modeling Analysis*, October 2019.

Detailed Cost Table

		Montgomery & Associates Labor						Other Direct Costs	TOTALS
		Scientist VIII	Scientist VI	Scientist V	Scientist III	Labor Total			
		D. Williams	G. King	P. Benito					
Task	Hourly Rates	\$225	\$200	\$185	\$150	Hours	(\$)	(\$)	
1.0	DEVELOP AND RUN SCENARIO 1 MODEL								
	Modify Expansion model scenario model inputs to reflect most recent configuration of non-expansion PWM project and run	1	1	16	0	18	\$3,385	\$0	\$3,385
	Task 1 Subtotal	1	1	16	0	18	\$3,385	\$0	\$3,385
2.0	EVALUATE AND COMPARE IMPACTS TO SEASIDE BASIN FOR BOTH SCENARIOS								
2.1	Scenario 1: Process, analyze results & develop water budget	0	0	24	16	40	\$6,840	\$0	\$6,840
2.2	Scenario 2: Process, analyze results & develop water budget	0	0	12	12	24	\$4,020	\$0	\$4,020
2.3	Develop comparison plots/graphics and tables	1	1	16	12	30	\$5,185	\$0	\$5,185
	Task 2 Subtotal	1	1	52	40	94	\$16,045	\$0	\$16,045
3.0	TECHNICAL MEMORANDUM AND TAC PRESENTATION								
	Document, Summarize & Synthesize Simulations and Results	16	8	40	16	80	\$15,000	\$0	\$15,000
	Task 3 Subtotal	16	8	40	16	80	\$15,000	\$0	\$15,000
	Total	18	10	108	56	192	\$34,430	\$0	\$34,430

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

MEETING DATE:	June 10, 2020
AGENDA ITEM:	5
AGENDA TITLE:	Schedule
PREPARED BY:	Robert Jaques, Technical Program Manager
<p>SUMMARY:</p> <p>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 are performing certain portions of the work. Attached is the most recent updated schedule.</p> <p>In order to stay on schedule for development of next year's Monitoring and Management Program (M&MP) and the budgets that go with that, we will need to have meetings each month for at least the next two months. Also, if there are significant developments in the Monterey Subbasin GSP, it will be important to keep the TAC abreast of them and to receive input from TAC members.</p>	
ATTACHMENTS:	Schedule of Work Activities for FY 2020
RECOMMENDED ACTION:	Provide Input to Technical Program Manager Regarding Any Corrections or Additions to the Schedules

Seaside Basin Watermaster 2020 Monitoring and Management Program Work Schedule

ID	Task Name	Dec '19	Jan '20	Feb '20	Mar '20	Apr '20	May '20	Jun '20	Jul '20	Aug '20	Sep '20	Oct '20	Nov '20	Dec '20
1	Replenishment Assessment Unit Costs for Water Year 2021	1	8	15	22	29	5	12	19	26	2	9	16	23
2	B&F Committee Develops Replenishment Assessment Unit Cost for 2021 Water Year													
3	If Requested, TAC Provides Assistance to B&F Committee in Development of 2021 Water Year Replenishment Assessment Unit Cost													
4	Board Adopts and Declares 2021 Water Year Replenishment Assessment Unit Cost													
5	Replenishment Assessments for Water Year 2020													
6	Watermaster Prepares Replenishment Assessments for Water Year 2020													
7	Watermaster Board Approves Replenishment Assessments for Water Year 2020 (At December Meeting)													
8	Watermaster Levies Replenishment Assessment for 2020													
9	Monitoring & Management Program (M&MP) Budgets for 2021 and 2022													
10	Preliminary Discussion of Potential Scope of Work for 2021 M&MP													
11	Prepare Draft 2021 M&MP and 2021 and 2022 O&M and Capital Budgets													
12	TAC approves Draft 2021 M&MP and 2021 and 2022 O&M and Capital Budgets													
13	Budget & Finance Committee Approves Draft 2021 M&MP and 2021 and 2022 O&M and Capital Budgets													
14	Board approves 2021 M&MP and 2021 M&MP O&M and Capital Budgets													
15	2019 Annual Report													
16	Prepare Preliminary Draft 2020 Annual Report													
17	TAC Provides Input on Preliminary Draft 2020 Annual Report													
18	Prepare Draft 2020 Annual Report (Incorporating TAC Input)													
19	Board Provides Input on Draft 2020 Annual Report (At December Board Meeting)													
20	Prepare Final 2020 Annual Report (Incorporating Board Input)													
21	Watermaster Submits Final 2020 Annual Report to Judge													
22	MANAGEMENT													
23	M.1 PROGRAM ADMINISTRATION													

Seaside Basin Watermaster 2020 Monitoring and Management Program Work Schedule

ID	Task Name	Dec '19	Jan '20	Feb '20	Mar '20	Apr '20	May '20	Jun '20	Jul '20	Aug '20	Sep '20	Oct '20	Nov '20	Dec '20
24	Prepare Initial Consultant Contracts for 2021	1	8	15	22	29	5	12	19	26	2	9	16	23
25	TAC Approval of Initial Consultant Contracts for 2021													
26	Board Approval of Initial Consultant Contracts for 2021													
27	M.1.g – Sustainable Groundwater Management Act Reporting Requirements													
28	Montgomery & Associates Prepares Draft Groundwater Storage Analysis													
29	Submit SGMA Documentation to DWR													
30	IMPLEMENTATION													
31	I.2.a DATABASE MANAGEMENT													
32	I.2.a.1 Conduct Ongoing Data Entry/Database Maintenance													
33	I.2.b DATA COLLECTION PROGRAM													
34	I.2.b.2 Collect Monthly Water Levels (MPWMD)													
35	I.2.b.3 Collect Quarterly Water Quality Samples (MPWMD)													
36	I.2.b.6 MPWMD provides annual water quality and water level data to Montgomery & Associates for inclusion in the 2020 SIAR													
37	I.4.c Annual Seawater Intrusion Analysis Report (SIAR)													
38	Montgomery & Associates Provides Draft SIAR to Watermaster													
39	TAC Approves Annual Seawater Intrusion Analysis Report (SIAR)													
40	Board Approves Annual Seawater Intrusion Analysis Report (SIAR)													

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

MEETING DATE:	June 10, 2020
AGENDA ITEM:	4
AGENDA TITLE:	Other Business
PREPARED BY:	Robert Jaques, Technical Program Manager
<p>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.</p>	
ATTACHMENTS:	None
RECOMMENDED ACTION:	None required – information only