SPECIAL NOTICE REGARDING CORONAVIRUS DISEASE 2019 (COVID-19) AND PARTICIPATION IN PUBLIC MEETINGS

On March 4, 2020, Governor Newsom declared a State of Emergency resulting from the threat of COVID-19. On September 16, 2021, Governor Newsom signed Assembly Bill No. 361 into law. Assembly Bill No. 361 amends Government Code section 54953(e) by adding provisions for remote teleconferencing participation in meetings by members of a legislative body, without the requirements of Government Code section 54953(b)(3), subject to the existence of certain conditions. The San Bernardino Valley Municipal Water District adopted a resolution determining, by majority vote, that, as a result of the declared State of Emergency, a meeting in person would present imminent risks to the health or safety of attendees. Accordingly, it has been determined that all Board and Workshop meetings of the San Bernardino Valley Municipal Water District will be held pursuant to the Brown Act and will be conducted via teleconference. There will be no public access to the meeting venue.

BOARD OF DIRECTORS WORKSHOP - ENGINEERING
TUESDAY, JANUARY 11, 2022 – 2:00 P.M.

PUBLIC PARTICIPATION

Public participation is welcome and encouraged. You may participate in the January 11, 2022, meeting of the San Bernardino Valley Municipal Water District online and by telephone as follows:

Dial-in Info: (877) 853 5247 US Toll-free
Meeting ID: 753 841 573
PASSCODE: 3802020

https://sbvmwd.zoom.us/j/753841573

If you are unable to participate online or by telephone, you may also submit your comments and questions in writing for the District's consideration by sending them to comments@sbvmwd.com with the subject line "Public Comment Item #" (insert the agenda item number relevant to your comment) or "Public Comment Non-Agenda Item". Submit your written comments by 6:00 p.m. on Monday, January 10, 2022. All public comments will be provided to the Chair and may be read into the record or compiled as part of the record.

IMPORTANT PRIVACY NOTE: Participation in the meeting via the Zoom app is strongly encouraged. Online participants MUST log in with a Zoom account. The Zoom app is a free download.
Please keep in mind: (1) This is a public meeting; as such, the virtual meeting information is published on the World Wide Web and available to everyone. (2) Should you participate remotely via telephone, your telephone number will be your "identifier" during the meeting and available to all meeting participants; there is no way to protect your privacy if you elect to call in to the meeting.

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT
380 E. Vanderbilt Way, San Bernardino, CA 92408

BOARD OF DIRECTORS WORKSHOP - ENGINEERING

AGENDA

2:00 PM Tuesday, January 11, 2022

CALL TO ORDER
Chairperson: Director Harrison
Vice-Chair: Director Hayes

1) INTRODUCTIONS

2) PUBLIC COMMENT
Any person may address the Board on matters within its jurisdiction.

3) PUBLIC HEARING

3.1 Public Hearing on the Redistricting of Valley District's Division Boundaries (Page 3)
Staff Memo - Introduction to Redistricting Division Boundaries
Redistricting Insights presentation
Notice of Public Hearing

4) SUMMARY OF PREVIOUS MEETING

4.1 Board of Directors' Workshop - Engineering - December 14, 2021 (Page 32)
Summary Notes BOD Workshop - Engineering 121421

5) DISCUSSION ITEMS

5.1 Consider the Draft Groundwater Sustainability Plan for the Yucaipa Sustainable Groundwater Management Agency (Page 48)
Staff Memo - Consider the Draft Groundwater Sustainability Plan for the Yucaipa Sustainable Groundwater Management Agency
Draft Executive Summary from the Yucaipa SGMA GSP

5.2 Consider Contract Amendment with Dudek to Prepare the 2022 Annual Report for the Yucaipa Sustainable Groundwater Management Agency (Page 65)

Staff Memo - Consider Contract Amendment with Dudek to Prepare the 2022 Annual Report for the Yucaipa Sustainable Groundwater Management Agency
Dudek Proposal to Prepare 2022 Annual Report for the Yucaipa Subbasin

6) FUTURE BUSINESS

7) ADJOURNMENT

PLEASE NOTE:
Materials related to an item on this Agenda submitted to the Board after distribution of the agenda packet are available for public inspection in the District's office located at 380 E. Vanderbilt Way, San Bernardino, during normal business hours. Also, such documents are available on the District's website at www.sbvmwd.com subject to staff's ability to post the documents before the meeting. The District recognizes its obligation to provide equal access to those individuals with disabilities. Please contact Melissa Zoba at (909) 387-9228 two working days prior to the meeting with any special requests for reasonable accommodation.

SAN BERNARDINO Valley MUNICIPAL WATER DISTRICT

DATE: January 11, 2022

TO: Board of Directors Workshop - Engineering

FROM: Melissa Zoba, Chief Information Officer

SUBJECT: Introduction to Redistricting Presentation

Staff Recommendation

Staff is seeking feedback and input on the Redistricting Insights, LLC presentation and direction on the process of redistricting the District's division boundaries.

Summary

As the first step in the redistricting process, Matt Rexroad of Redistricting Insights, LLC will present an *Introduction to Redistricting* to familiarize the Board with the most current information and requirements of rebalancing the District's division boundaries. A public hearing will be conducted to receive input from interested parties and gather information that will be used to develop multiple draft maps that will be reviewed by the public and the Board at a subsequent public hearing.

Background

California Elections Code Section 22000 requires each special district to adjust division boundaries after each decennial census, and using that census as a basis, adjust the boundaries of any divisions so that the divisions are, as far as practicable, equal in population.

In adjusting the division boundaries of the District, the Board may consider the following factors:

1. Topography
2. Geography
3. Cohesiveness, contiguity, integrity, and compactness of territory, and
4. Community of interests of the District

Using the 2020 census data released in September 2021, staff calculated the total population of Valley District to be 709,704 which represents an increase of 48,158 from the 2010 census. Based on this total, the target population for each of the five divisions is 141,941. SB 594 provides that special districts with a regular election on the same day as the 2022 statewide general election must adopt adjusted division boundaries no later than April 17, 2022.

The table below shows the population and the difference from the target population for each division.

Total Population = 709,704 per U.S. Census / Target Population for Each Division 141,941

Division:	1	2	3	4	5
Year 2010 Population:	131,193 (19.8%)	135,350 (20.5%)	131,466 (19.8%)	125,530 (19.0%)	138,007 (20.9%)
Year 2020 Population:	140,193 (19.75%)	138,059 (19.45%)	150,532 (21.21%)	134,164 (18.90%)	146,756 (20.68%)
Population Increase:	9,000	2,709	19,066	8,634	8,749
Target Deviation:	-1,748	-3,882	+8,591	-7,777	+4,815
Deviation Percentage:	-0.25%	+0.55%	+1.21%	-1.10%	+0.68%

In November 2021, at the direction of the Board, an RFP was released to engage the services of a professional consultant to analyze and rebalance the division boundaries to reflect changes in population and demographics. The scope of work includes an analysis of 2020 Census data, development of the dataset needed to draft new maps, community outreach and engagement of public feedback, production of several draft maps, finalization of a map proposal and assistance with the transmission of final maps to the County Registrar of Voters. Two (2) proposals were received. In January 2022, following an analysis and interviews by staff, entering into an agreement with Redistricting Insights was recommended by staff and approved by the Board.

Today's presentation and public hearing is the first of three required public hearings that will be led by Redistricting Insights. A project timeline will also be defined at this time to ensure the process will meet the goals of the project within the timeline defined by SB594.

Fiscal Impact

There is no fiscal impact to this item as this is an informational presentation only.

Attachments

1) Redistricting Insights presentation

Redistricting Insights

Prepared for the ***San Bernardino Valley Municipal Water District***

January 2022

WHAT IS REDISTRICTING?

Redistricting is at its core the act of equalizing population among districts.

This is important in order to meet two requirements - one constitutional, one from Supreme Court precedent:

- Equal Representation (14th Amendment) - how effective any resident can be at advocating for themselves or being represented within a jurisdiction.
- One Person One Vote - equal ability to elect a candidate of choice.

WHAT IS REDISTRICTING?

Redistricting has changed significantly over the years as federal and state laws, norms, best practices, and public opinion has transformed.

In California/Municipal Law:

- Prop 11 and 20 (Statewide Redistricting)
- CA FAIRMAPS Act

REDISTRICTING/REAPPORTIONMENT

They are different things but people mistakenly conflate them

Reapportionment

Allocating the 435 Congressional seats among the states

N.Y. loses single seat in Congress by just 89 people as Census Bureau releases reapportionment figures

April 26, 2021

Redistricting

Drawing district lines within the states, counties, cities, school districts

DEFINITIONS

REAPPORTIONMENT

Census Bureau for Congress

(30 seconds)

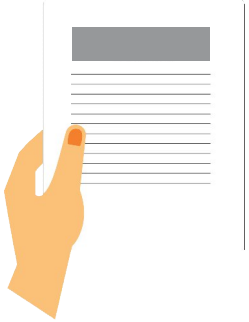
REDISTRICTING

Done by states, cities, school boards

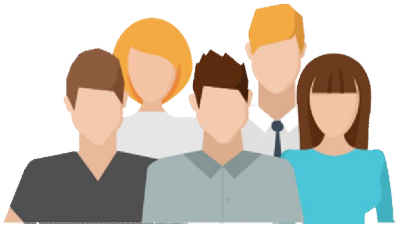
GERRYMANDER

PRINCIPLES OF REDISTRICTING

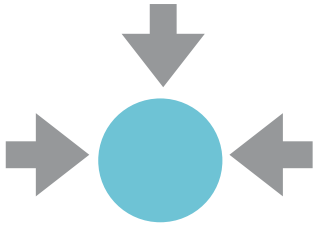
POPULATION EQUALITY



FEDERAL VOTING RIGHTS ACT SECTION 2



COMMUNITIES OF INTEREST



COMPACTNESS

CONTIGUITY

POPULATION EQUALITY

For Congress it is 1 person for deviation

For State and local governments it is a deviation range of 10%

	Population	Deviation	% of Deviation
D1	21,000	1000	5%
D2	20,200	200	1%
D3	19,800	-200	-1%
D4	19,250	-750	-3.75%
D5	19,750	-250	-1.25%

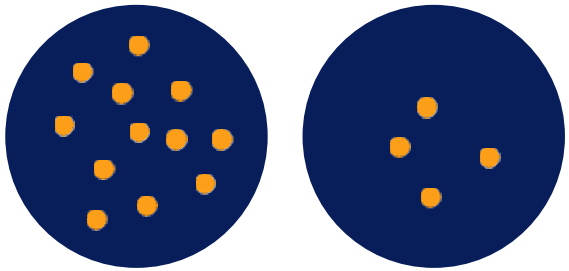
**These numbers are just an example and not reflective of the district's current population*

EQUAL POPULATION

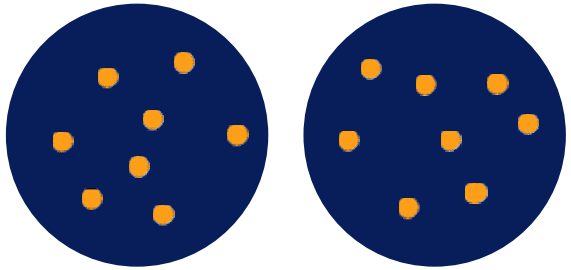
What is “equal” population has been a key subject in redistricting litigation.

- Population Equality is based on “People” not citizens or voters or other metrics.
- The metric used is called “deviation” which is a measure of how close a district is to equal size.

Not Equal Districts



Equal Districts

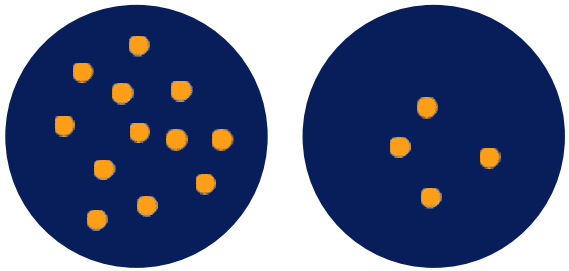


EQUAL POPULATION

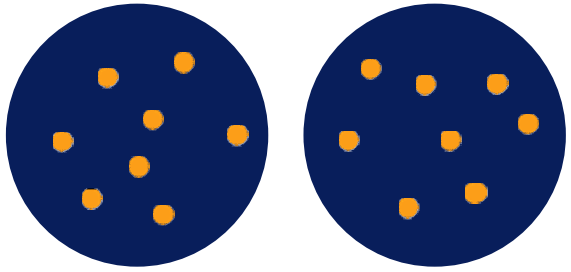
What is “equal” population has been a key subject in redistricting litigation.

- Equality is Required
- *Strict adherence to a numeric goal for equality beyond what is required is not necessarily better.*

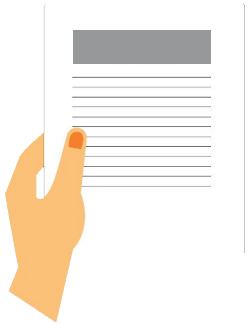
Not Equal Districts



Equal Districts



FEDERAL VOTING RIGHTS ACT



FEDERAL VOTING RIGHTS ACT OF 1965

MOBIL V. HOLDER (1980)

CONGRESSIONAL RESPONSE TO MOBIL V. HOLDER (1982)

THORNBURG V. GINGLES (1985)

WHAT IS THE VOTING RIGHTS ACT?

The decision to invoke Section 2 is something that requires legal counsel.

Does the minority population qualify under Section 2?

Is the proposed district a sufficient remedy – is it an “effective” majority minority district?

Is there a claim for a coalition district?

Without Section 2, a community of interest can still be supported but race cannot be a predominant factor in drawing lines.

GINGLES FACTORS

“Gingles factors” are three preconditions that a minority group must meet to establish a violation of Section 2 of the Voting Rights Act. These preconditions are the following:

1. A minority group must be sufficiently large and geographically compact to comprise a majority of the district;
2. The minority group must be politically cohesive (it must demonstrate a pattern of voting for the same candidates, also known as “bloc voting”); and,
3. A majority of voters vote sufficiently as a bloc usually to defeat the minority group’s preferred candidate.

BUT THE GINGLES FACTORS HAVE LIMITS.....

SHAW V. RENO, 509 U.S. 630 (1993)

SIGNIFICANCE: Legislative and congressional districts will be struck down by courts for violating the Equal Protection Clause if they cannot be explained on grounds other than race. While not dispositive, "bizarrely shaped" districts are strongly indicative of racial intent.

MILLER V. JOHNSON, 515 U.S. 900 (1995)

SIGNIFICANCE: A district becomes an unconstitutional racial gerrymander if race was the "predominant" factor in the drawing of its lines

Source: NCSL

COMMUNITIES OF INTEREST

Redistricting plans are built with census data to put communities of interest together to form districts.

When members of the public come forward to testify about their communities it can be almost anything.

Items to consider:

- What is the community of interest that is being described through the testimony?
- What is the geographic area of that community of interest?
- What data can be utilized to help identify that community of interest?
- How does that community of interest relate to Santa Barbara County?

COMPACTNESS

Many measures based on geography are available but in California we tend to adhere to

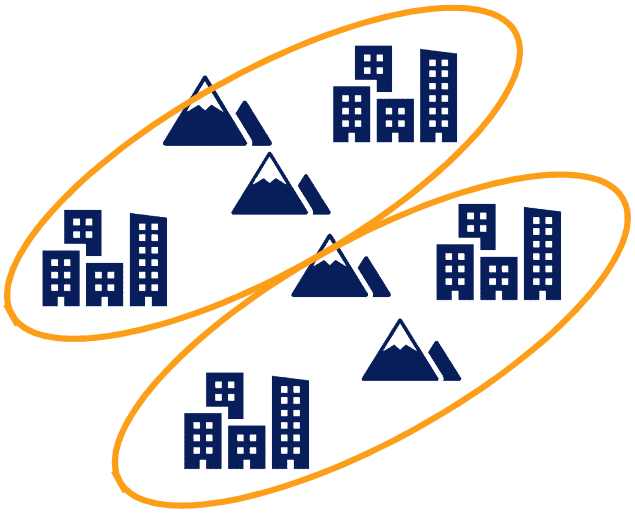
“shall be drawn to encourage geographical compactness in a manner that nearby areas of population are not bypassed in favor of more distant populations.”

CONTIGUITY

This is not an issue in most counties… unless they have islands.

State law does not allow point contiguity...it is advisable to seek functional contiguity where you can travel through the district to each point.

Point Contiguity



Functional Contiguity

Redistricting Insights

WHAT IS REDISTRICTING?

Redistricting has changed significantly over the years as federal and state laws, norms, best practices, and public opinion has transformed.

In Public Opinion / Media:

- 97% of Voters agree that “local government should be required to have transparent / open redistricting.”

- Media and Community Based Organizations have become much more adept at covering redistricting.

ONLINE MAPPING

There are other mapping tools the public may use, but are not controlled by the commission or city staff.

- These tools are *perfectly appropriate* for the community to use as input.
- Data and maps from these programs can be imported to our tools and reviewed by the commission.

COMMUNITIES OF INTEREST

Bringing like people together for representation

What are you looking for in trying to judge the applicability of a Community of Interest to the redistricting process?

Group with shared culture / characteristics

Geographic Nature / Density / Ability to be mapped

Relationship to Agency / Policies

COMMUNITIES OF INTEREST

Bringing like people together for representation

What are you looking for in trying to judge the applicability of a Community of Interest to the redistricting process?

Group with shared culture / characteristics

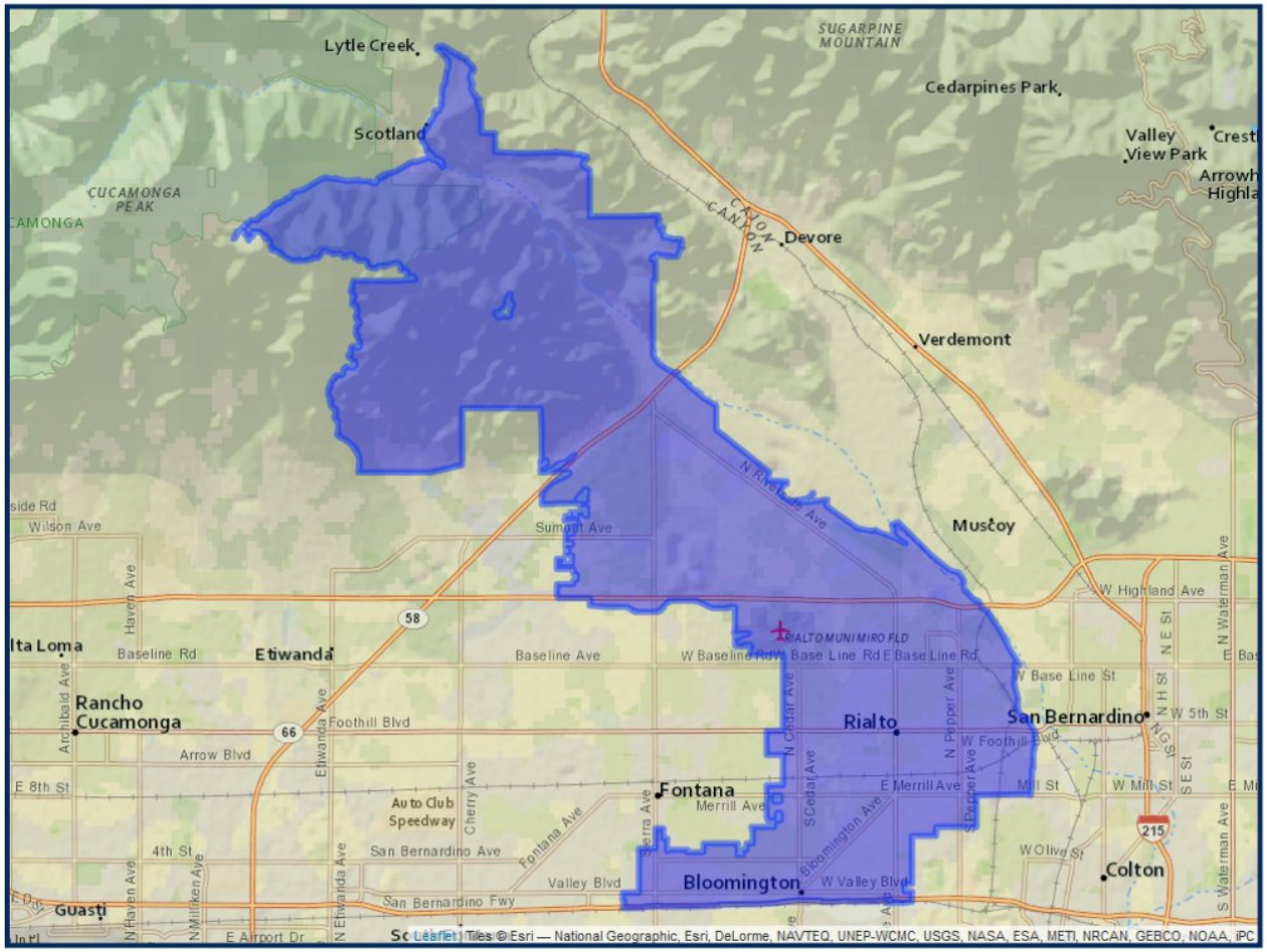
Geographic Nature / Density / Ability to be mapped

Relationship to Agency / Policies

CURRENT SBVMWD DIVISIONS

	Division 1	Division 2	Division 3	Division 4	Division 5
2020 Census Count*	150,873	139,390	151,473	134,243	147,698
Deviation #	6,138	-5,345	6,738	-10,492	2,963
Deviation %	4.1%	-3.8%	4.4%	-7.8%	2.0%
2010 Census Count	140,414	136,727	131,883	125,054	138,587
2019 CVAP*	84,080	75,628	93,491	93,202	93,308
2010 CVAP	72,036	61,945	77,525	82,644	82,615

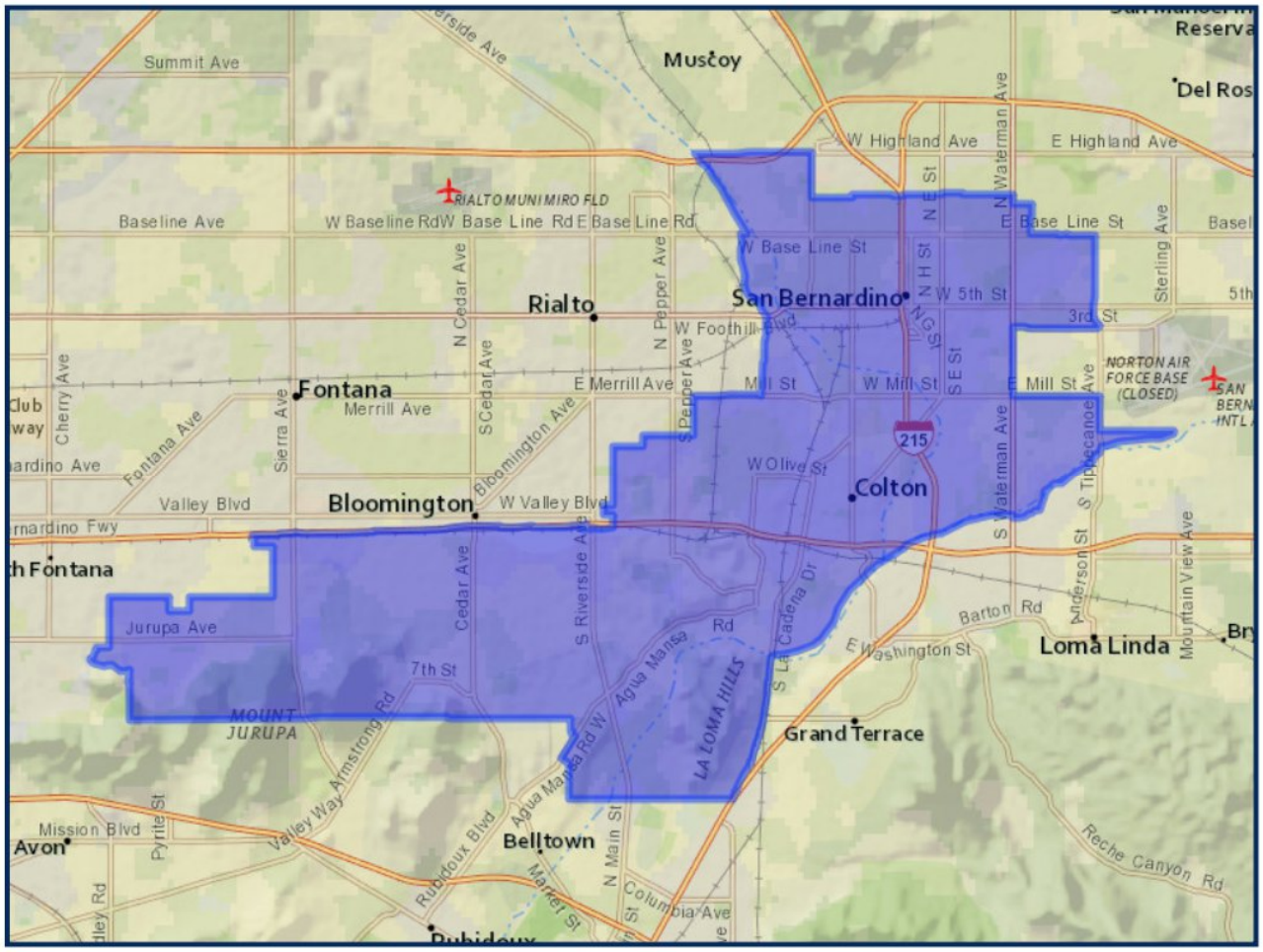
CURRENT DIVISION 1



	2020 Count*	2019 CVAP*
Total	**150,873**	**84,080**
White	10.07%	16.92%
Black	9.99%	14.98%
Asian	3.39%	3.45%
Hispanic	73.80%	63.14%

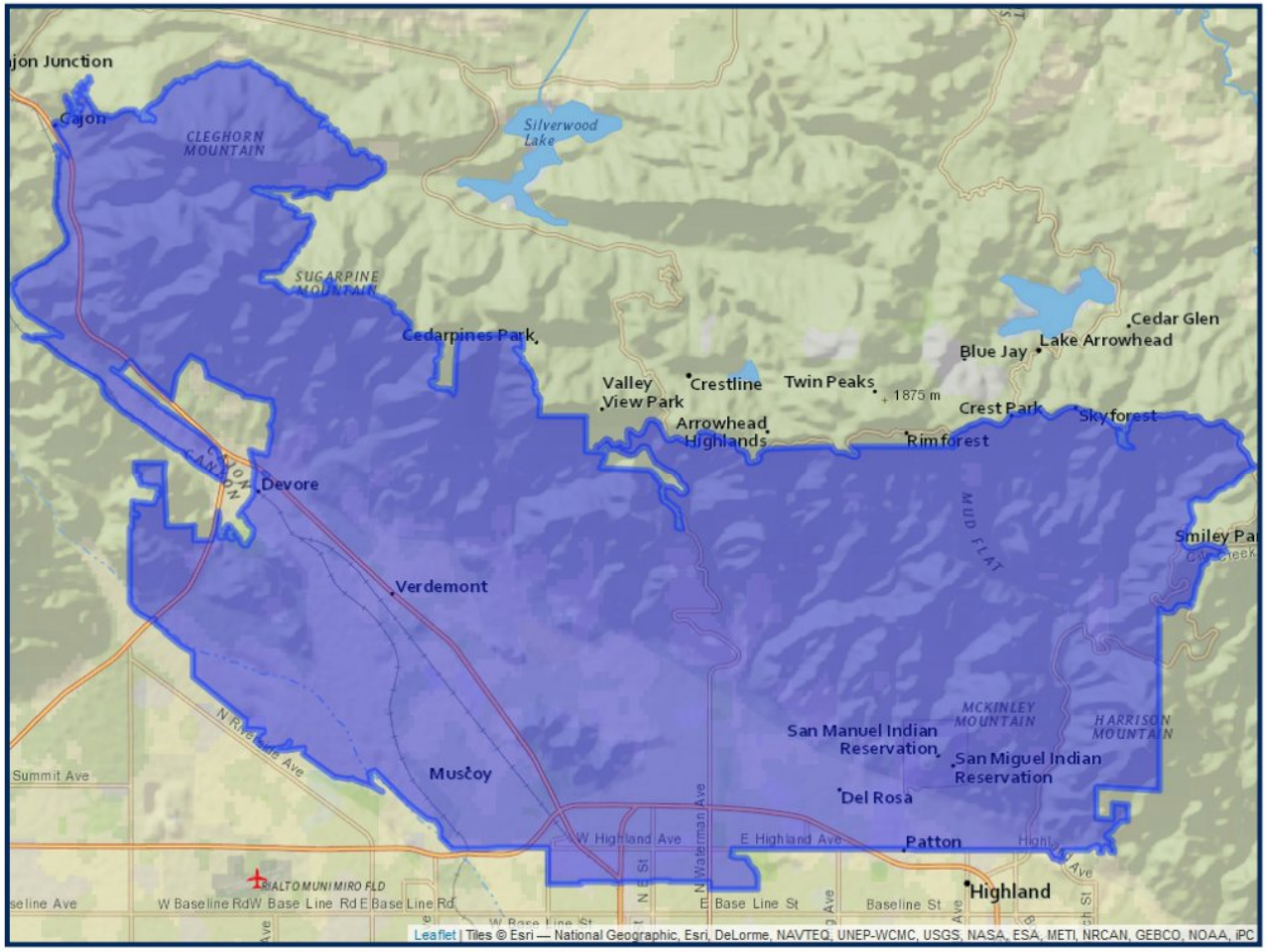
Redistricting Insights

CURRENT DIVISION 2



	2020 Count*	2019 CVAP*
Total	139,390	75,628
White	6.67%	14.82%
Black	7.91%	12.91%
Asian	3.19%	3.65%
Hispanic	79.98%	66.99%

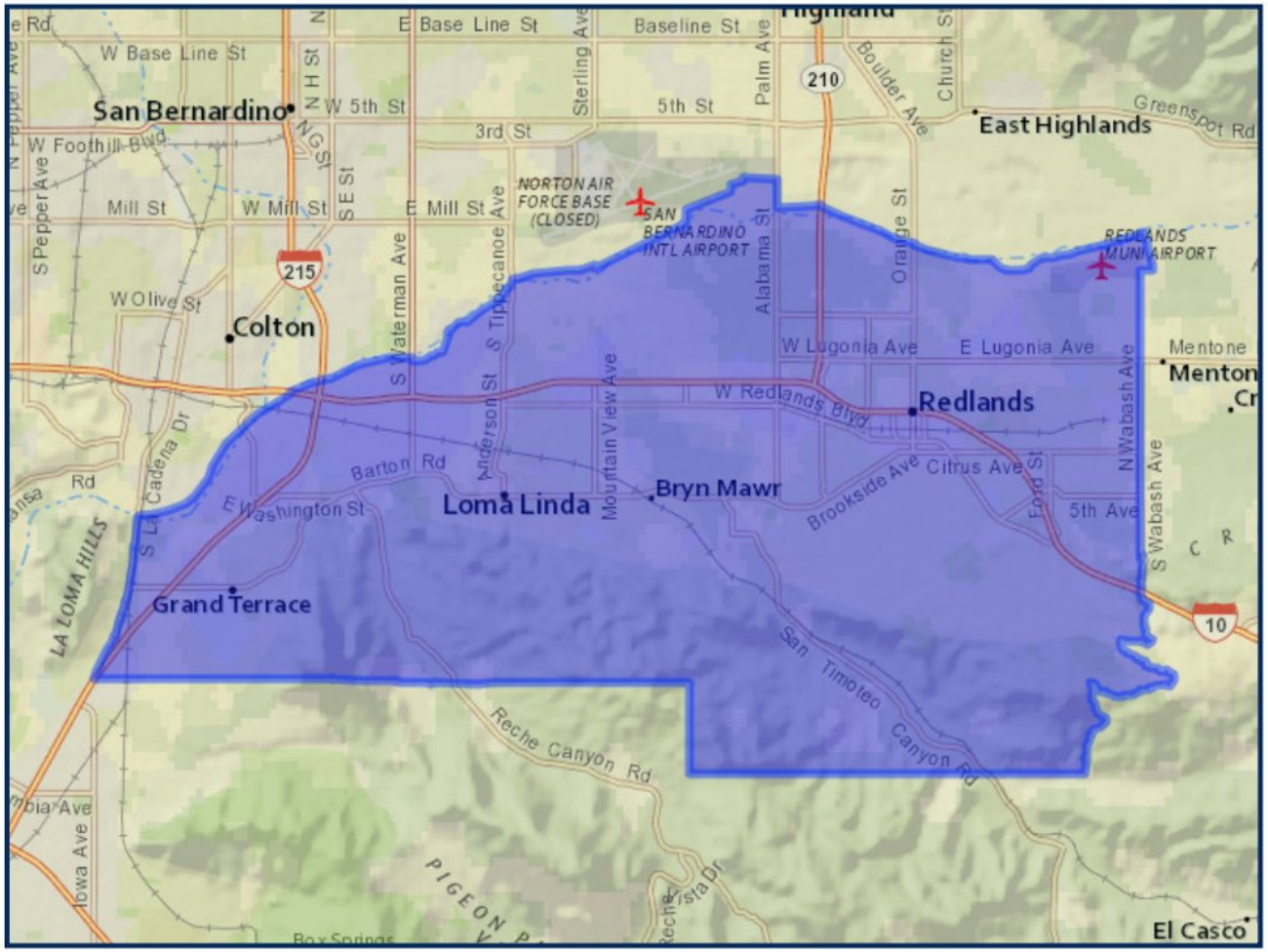
CURRENT DIVISION 3



	2020 Count*	2019 CVAP*
Total	151,473	93,491
White	17.77%	25.16%
Black	11.79%	15.58%
Asian	3.43%	2.90%
Hispanic	63.11%	52.34%

Redistricting Insights

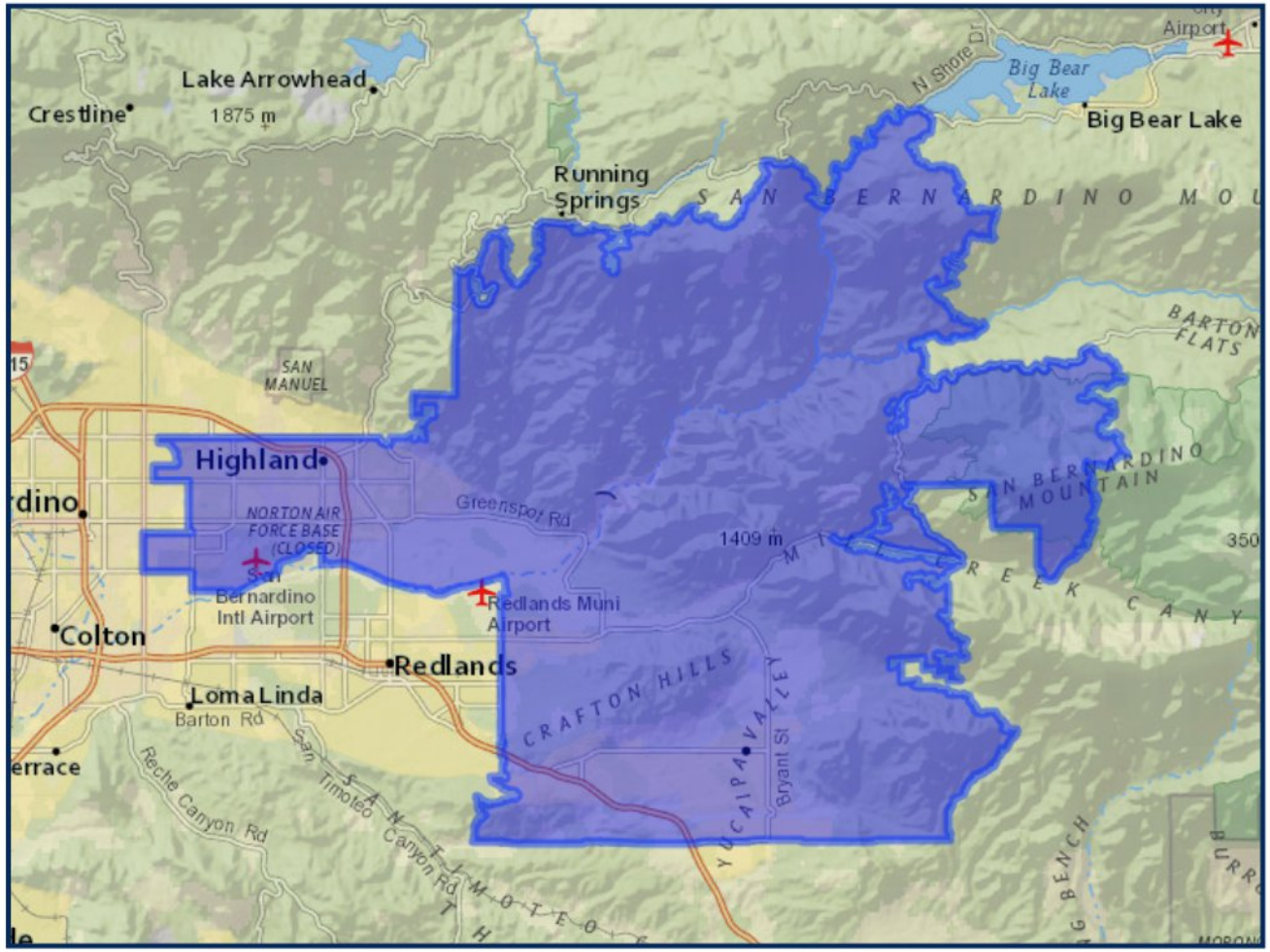
CURRENT DIVISION 4



	2020 Count*	2019 CVAP*
Total	**134,243**	**93,202**
White	35.71%	46.49%
Black	7.37%	7.22%
Asian	13.66%	11.26%
Hispanic	37.66%	31.93%

Redistricting Insights

CURRENT DIVISION 5



	2020 Count*	2019 CVAP*
Total	147,698	93,308
White	36.07%	47.59%
Black	6.67%	7.25%
Asian	5.24%	4.45%
Hispanic	47.32%	37.83%

Public Hearing Notice

Redistricting of
San Bernardino Valley Municipal Water District
Division Boundaries

Notice is hereby given that the San Bernardino Valley Municipal Water District (Valley District) Board of Directors, at an Engineering Workshop via Zoom teleconference on January 11, 2022 at 2:00 pm, will conduct a public hearing to receive public comments on the redistricting of division boundaries. To participate in the Public Hearing for the Redistricting of Division Boundaries on January 11, 2022 at 2:00 pm, please use the following meeting link ID and passcode. Online participants MUST log in with a Zoom account. The Zoom app is a free download. Telephone participants may dial in using the dial-in information provided:

https://sbvmwd.zoom.us/j/753841573

Dial-in Info: (877) 853 5247 US Toll-free

Meeting ID: 753 841 573

PASSCODE: 3802020

Written comments on the Redistricting of Division Boundaries may be submitted via email to comments@sbvmwd.com by 5:00 pm on January 10, 2022. Public comment may also be provided at the public hearing.

If you have any questions regarding Valley District's Redistricting of Division Boundaries or public hearing meeting, please contact Melissa Zoba at (909) 387-9228 or melissaz@sbvmwd.com.

DATE: January 11, 2022

TO: Board of Directors Workshop – Engineering

FROM: Staff

SUBJECT: Summary of December 14, 2021 Board of Directors Workshop – Engineering

The Engineering Workshop convened on December 14, 2021, via Zoom video-teleconference. Director Harrison chaired the meeting.

Directors Present: President Kielhold, Vice President Hayes, Director Botello, Director Harrison, and Director Longville.

Staff Present:

Heather Dyer, MS, MBA – Chief Executive Officer/General Manager
Joanna Gibson – Executive Director Upper SAR Habitat Conservation Program
Wen Huang, PE, MS – Deputy General Manager/Chief Engineer
Jose Macedo, ML, CPT-P (USA Retired) – Chief of Staff/Clerk of the Board
Cindy Saks, CPA – Deputy General Manager/Chief Financial Officer
Bob Tincher, PE, MS – Deputy General Manager/Chief Water Resources Officer
Melissa Zoba, MBA, MPA – Chief Information Officer

Dan Borrell – Manager of Geospatial Services
Kristeen Farlow – Strategic Communications Manager
Anthony Flordelis – Business Systems Analyst
Tom Holcombe – Water Operations Manager
Aaron Jones, E.I.T – Associate Engineer
Adekunle Ojo, MPA – Water Resources Manager
Kai Palenscar, Ph.D. – Environmental Compliance Program Manager
Shavonne Turner, MPA – Water Conservation Program Manager

Members of the Public Present:

Melody McDonald, San Bernardino Valley Water Conservation District
Richard Corneille, San Bernardino Valley Water Conservation District
Miguel Guerrero, San Bernardino Municipal Water Department
Nyles O'Harra, Yucaipa Valley Water District

Joseph Zoba, Yucaipa Valley Water District
Joyce McIntire, Yucaipa Valley Water District
Douglas Brown, Stradling Yocca Carlson & Rauth
Jon Guz, Stradling Yocca Carlson & Rauth
Kelly Malloy, East Valley Water District
Ron Coats, East Valley Water District
William Ringland, East Valley Water District
James Morales, East Valley Water District
Jeff Noelte, East Valley Water District
John Mura, East Valley Water District
Lora Carpenter, Fieldman, Rolapp & Associates
Robert Porr, Fieldman, Rolapp & Associates
Paul Nicholas
Bryan Paine, AECOM
T. Murray

Pursuant to the provisions of the Brown Act, this meeting will be conducted by teleconference only.

1. Introductions

Chief Executive Officer/General Manager Heather Dyer introduced staff members present. Chair Harrison introduced Melody McDonald, Richard Corneille of the San Bernardino Valley Water Conservation District, and Ron Coats of the East Valley Water District

2. Public Comment

Director Harrison invited public comment. There was none.

3. Summary of Previous Meeting. The summary notes from the November 9, 2021 Board of Directors Workshop – Engineering were accepted with no comments.

4.1 Update on the Sterling Natural Resource Center by Mr. John Mura.

East Valley Water District General Manager and Sterling Natural Resource Center (SNRC) Executive Director John Mura provided a brief background on the project. In 2018, Valley District established a goal of recharging 15,000 acre-feet in the basin, he noted, and highlighted the shift in mindset from getting rid of the water to recharge and recycle.

The SNRC is initially expected to treat six million gallons of water per day for recharge, Mr. Mura continued. He updated the Board on the project status: the treatment plant and conveyance system are approximately 97 percent complete, and the administrative center is

98 percent complete and awaiting only Southern California Edison work. The pipeline from Sterling to Palm has been constructed, and the segment from the freeway crossing to the Weaver Basins and the basins are in process, he stated.

Facility testing is being done to get ready for operations to begin shortly into 2022, Mr. Mura advised. He further detailed components of the project, shared progress photos and video, and emphasized the collaborative effort.

Mr. Mura touched on the reimbursement agreement and advised that groundbreaking is anticipated in February. He expressed hope for planning a related event and noted plans for a VIP grand opening event on May 12 and community event on May 14, 2022. Completion of the pipeline is expected in July and recharge is expected near the end of July or beginning of August, Mr. Mura advised.

Chair Harrison expressed support and complimented the project. He asked if tours were still being offered; Mr. Mura said they were.

Director Longville indicated interest in joining a tour with members of the public; Mura indicated he would set up the tour. She asked about the composting feature that was added to the project and whether there will be opportunities for East Valley Water District (EVWD) customers to have a collection bin. Mr. Mura responded that the addition of the digesters was due to the advantage of the design-build process and the ability to manage the outcome. The SNRC can now generate 3 megawatts of power, which covers the entire project and sells some energy back to the grid, he said. He noted recent legislation centering on landfill diversion and explained that SNRC will be accepting commercial grade food waste, targeting industrial manufacturers, and being paid to take the slurry product that works well in the digesters. In response to comment from Director Harrison, Mr. Mura described the positive effect of the AB 1383 legislation on enabling the addition of the digesters.

Ms. Dyer recalled the project beginning and commended the collaboration and leadership for integrated solutions resulting in several projects putting water in the ground.

Upon request of Director Botello, Mr. Mura elaborated on the workforce and community components of the project. He explained outreach to the community via the nearby school and career pathway opportunities.

2:30 p.m. – Vice President Hayes joined the meeting.

5.1 Consider Third Amendment to the Reimbursement Agreement with East Valley Water District for Construction of the Regional Recycled Water Facilities

Deputy General Manager/Chief Engineer Wen Huang reminded the Board of prior discussion on this item at the Policy Workshop, which resulted in some questions. He presented an overview of the location, layout, and status of the regional recycled water facilities including pipelines, Weaver Basins, and the SNRC.

Mr. Huang provided a history of the reimbursement agreement with EVWD. The original agreement was entered in January 2019 for design of the original regional recycled water pipeline from SNRC to Redlands Basin and a branch for discharge to City Creek. Upon design completion in November 2019, the Board entered into Amendment 1 for construction of the regional recycled water pipeline from SNRC to Redlands Basin. Amendment 2 was executed by the Board in April 2021 for $1.36 million for design of the regional recycled water pipeline to Weaver Basins, the basin design, and the conditional assessment of the Alabama Street pipeline. By design, amendments have been brought to the Board for approval at points of sufficient information and understanding of a defined scope of work, Mr. Huang explained.

For consideration by the Board today is an amendment regarding construction of the project design that was completed as part of Amendment 2, Mr. Huang stated. The arrangement with EVWD is designed to maximize economies of scale, and garner savings on contractor mobilization and demobilization costs, Mr. Huang continued. Since the construction related to Amendment 1 was shortened, it is anticipated that approximately $2 million will remain unexpended. The condition assessment for the Alabama Street pipeline related to Amendment 2 is in progress, and expenditure has not yet been reconciled, he continued. For the design portion of the regional recycled water system and the Weaver Basins, it is expected that the funds will be fully exhausted.

Amendment 3 includes $37.65 million in construction costs for the regional recycled water pipeline to, and construction of, the Weaver Basins, Mr. Huang stated. Staff recommends the Board consider a reimbursement agreement with EVWD, and to allow their contractor to complete work on the project. The agreement has been reviewed and approved by District special counsel, Mr. Huang added.

Mr. Huang presented the project schedule and said water is expected to begin discharging to Weaver Basins in July 2022. The contractor will continue working on mechanical and electrical in the latter part of 2022, he noted.

Inclusive of the original agreement and amendments, and Weaver Basins acquisition costs, the project overall budget to date is $60 million (equating to $110 per acre-foot facilities cost over the 50-year service life of the project). The cost of the remaining portion of the regional recycled water pipeline which needs further evaluation is unknown at this time, Huang advised.

In response to Director Harrison, Mr. Huang reviewed the Amendment 3 project components. Director Longville acknowledged the project history and indicated she is comfortable with moving the project forward. She asked about the pipeline condition assessment. Mr. Huang explained the concerns of the consultant regarding the 60-year age of the pipeline, and next steps for physical inspection and testing, expected to be done in January with final report in February. Should the pipeline condition be determined to be unfeasible, the Baseline feeder pipeline is being considered for repurposing for delivery of recycled water, he explained. Staff will report to the Board the recommendation of the consultant.

Director Longville requested a briefing from the San Bernardino Water Department on the tertiary treatment system. Harrison concurred.

Vice President Hayes noted the project would still not get water to where it is wanted. Huang explained this phase of the project activity will accommodate receiving the EVWD portion of the recycled water and he further detailed project timing with the City of San Bernardino's recycled water availability. The next focus will be the pipeline to bring the water from San Bernardino's project to Weaver Basins, he assured. Valley District is covering 100 percent of this cost as the regional water agency, Mr. Huang continued. The study recommended the

Valley District Board continue in the leadership role in construction of regional facilities, he said.

Vice President Hayes posited that she would not have approved the Local Resource Investment Program (LRIP) had she known it would cost Valley District millions for one retailer's project. She pointed out that Valley District's purpose is to supply State Project Water (SPW) and thus constructed the Baseline feeder with the participation of Rialto and West Valley Water District, each covering one-third of the project cost. She stated the constituents of the western area were charged for this in addition to the ad valorem taxes paid. Valley District is now doing a project with the same purpose as the Baseline feeder but is covering the entire cost, Director Hayes stated.

Mr. Huang responded, noting that SPW reaches the western area via a different pipeline, and the Baseline feeder provides groundwater from the San Bernardino basin area. President Kielhold reminded that many of these decisions were made by previous boards of directors and suggested a workshop on the western water supply, if so desired by the Board.

Ms. Dyer reminded that the investment is for 16,000 acre-feet (af) per year of drought-proof recycled water at an affordable $110 per af. EVWD has invested in the plant that will create the water supply to deliver to the regional facility, and San Bernardino Municipal Water Department is investing in upgrading the treatment system to sell recycled water for the regional recycled water facilities. There must be a way to convey that water and a place to put it, she explained. This investment by Valley District is necessary to move the water to where it is wanted, she said.

Director Botello advised that he had spoken to staff and others and understands this project is an activity of Valley District. He noted that the best partnerships allow each to do what they do best, and Valley District does this best. The project is a huge undertaking and tremendous progress has been made while staying true to the original intent to convey water and provide infrastructure for the valley. He recommended a joint board meeting with EVWD.

Director Harrison encouraged final approval by the Board as quickly as possible as every day that this facility is not ready is costing money and water loss. He concurred with Botello regarding the joint meeting.

Richard Corneille pointed out that the total water cost is $179 plus $110 per acre foot, but is still a very good deal. Mr. Huang acknowledged that the $110 is the facility cost and there will also be operations and maintenance costs. Corneille also pointed to pumping costs. Director Longville advised that the $179 per af cost is prior to the water going into the basin, and if something changes, the $179 is not paid if the water does not go into the basin.

Action Item(s): The Board voted to move this item forward for consideration to a regular Board of Directors meeting by the following roll-call vote:

There was no motion or second.	APPROVED: 5-0
AYES:	Botello, Harrison, Hayes, Kielhold, Longville
NOES:	None
ABSTAIN:	None
ABSENT:	None

5.2 Consider Creating a Joint Powers Authority in Cooperation with the Yucaipa Valley Water District

Chief Executive Officer/General Manager Heather Dyer provided background on the project, reminding the Board that since it was decided to submit a regional Water Infrastructure Finance and Innovation Act (WIFIA) application to finance the Regional Water Resiliency Projects (RWRP), Yucaipa Valley Water District (YVWD) has been participating closely with Valley District and YVWD General Manager Joe Zoba was instrumental in compiling all application materials. The call for projects from the Environmental Protection Agency spurred the examination of the challenges in terms of needed water infrastructure in the region and how to pay for it.

YVWD's financial advisor, Fieldman, Rolapp & Associates is also employed by Valley District, she said. Fieldman Rolapp advised YVWD to form a joint powers authority (JPA) with another agency to enable the use of a different financing vehicle to be more efficient and expedient, and which would likely have lower financing costs than other alternatives.

YVWD is requesting Valley District consider forming a JPA for the specific purpose to consolidate their old debt into one loan at better terms and allow drawing new revenue. This would not rely on Valley District's credit, Ms. Dyer asserted and Valley District would be under no repayment obligation. Two of Valley District's board members would serve on the JPA board to review documents and make decisions.

House Counsel Varner & Brandt has reviewed the proposed agreement and agreed there is no risk to Valley District or obligation for repayment of the debt, Ms. Dyer continued. It is a way to facilitate YVWD getting more favorable terms for old debt and allow them to move forward on all the projects moving forward through WIFIA.

Joe Zoba thanked the Board and pointed to his 25-year involvement in building the drinking water system, the recycled water system, the sewer treatment plant's collection system, and the Brine Line. YVWD's participation has been funded through grants, loans and bond issuances totaling more than $100 million, he explained. Infrastructure became integrated in the valley, water levels have increased, and resources have been managed, he added. Mr. Zoba pointed out the opportunity for generational low interest rates and opined that now is the time to build projects and add multi-generational facilities that will expand useful life into the 30-to-50-year span.

Mr. Zoba explained that YVWD has moved from integrating its infrastructure to optimizing it, including such things as a solar power battery, natural gas generators, recycled water projects involving injection wells, and full reverse osmosis at the wastewater treatment plant for a total of about $130 million in additional costs.

YVWD views this as their full obligation, he said, and expressed appreciation for the oversight the Valley District Board would bring to the financing authority. Mr. Zoba opined this is good public policy and reiterated that Valley District would be shielded from any risk but would have a seat on the financing authority. Ms. Dyer again stressed the absence of any risk or obligation or leverage of Valley District's credit; stating that this is an oversight role. President Kielhold questioned how a minority of directors could ensure no risk. He pointed out that financial repayment is not the only risk to the JPA. He observed that Section 20 of the agreement says the agreement can be amended by majority vote, whereby Valley District Board members of the JPA would have little say in the amendments. He suggested that counsel review other aspects of risk in addition to the bond repayment, and he

emphasized protection of Valley District, while noting he had no doubt that the projects would be favorable for all in the basin.

Ms. Dyer responded that house counsel has reviewed the indemnity clause regarding the JPA being sued. Doug Brown of Stradling Yocca Carlson & Rauth addressed the two issues:

- The complete indemnity clause says YVWD will indemnify the other members from all liability regardless of the reason
- Section 20 states that amendments must be executed by both members (both YVWD's and Valley District's boards of directors); the JPA board cannot itself amend the agreement. In response to Kielhold, Brown agreed to clarify this section.

Director Botello inquired about any benefit Valley District derives from this agreement. He suggested it is duplicative of the WIFIA JPA, and pointed out that as a majority, YVWD JPA members could vote Valley District members off the board if desired.

Ms. Dyer addressed the JPA benefit and stated that Valley District serves as a problem solver for the region and YVWD is a retail agency serving Valley District's customers. If Valley District can facilitate lowering the cost of YVWD's debt, that lowers the cost for shared customers, and allows them to invest in future water projects that are within the shared programmatic approach through WIFIA, stretching finances further.

Ms. Dyer explained that the proposed JPA is not duplicative; many projects on the YVWD list are proposed to be upgraded in the WIFIA package but refinance of the old debt at lower cost leaves more available funds for upgrades. Although the mechanism for the WIFIA JPA could be used for this, to keep it as tight and streamlined as possible, a specific JPA was recommended between YVWD and another public agency.

Ms. Dyer reiterated Mr. Brown's comments, clarifying that any changes to the JPA such as other members voting Valley District representatives off the JPA Board would need to be approved by both agencies and the indemnity clause states that if the JPA is sued, YVWD indemnifies Valley District from any obligation. Mr. Brown pointed out that the clause states that in the event of suit, Valley District may select its own counsel, but YVWD must pay for that counsel.

Director Botello inquired about designating three Valley District seats on the JPA board for strength of discussion when there is any issue. Mr. Zoba answered that YVWD would entertain any recommendations. He explained that the reason for five YVWD board members on the JPA was to assure representation of all five YVWD divisions in the financial obligations of the District.

Chair Harrison commended Botello's suggestion of an additional seat and Mr. Zoba's response. He also acknowledged President Kielhold's suggestion and expressed support for YVWD.

In response to Vice President Hayes, Mr. Brown agreed that meetings must be publicly noticed pursuant to the Brown Act and said the JPA could provide a joint notice.

Ms. Dyer clarified the subject for voting purposes:

- Valley District requests three representatives on the JPA board
- Doug Brown will clarify the indemnity clause regarding both boards approving changes via an amendment
- Staff will clarify public notice requirements per the Brown Act for the JPA meetings

Action Item(s): The Board voted to direct staff to bring this item back to a future Board of Directors meeting for consideration with those clarifications made at that time by the following roll-call vote:

There was no motion or second.	APPROVED: 5-0
AYES:	Botello, Harrison, Hayes, Kielhold, Longville
NOES:	None
ABSTAIN:	None
ABSENT:	None

5.3 Consider Tunneling Feasibility Study for Foothill Pipeline Crossing at City Creek Project

Associate Engineer Aaron Jones referred to the map indicating the location of erosion in the City of Highland where the Foothill Pipeline crosses City Creek. Major storm events have exposed the pipe, he said, increasing the potential for failure. The U.S. Army Corps of

Engineers is planning modifications to City Creek to help reduce its velocity and scour depth, he shared, but timing of that work is currently unknown.

Mr. Jones recommended replacement of said segment of pipe via tunneling to install a new carrier pipe within a casing at a deeper location to protect it from potential damage and failure. The new pipe, he explained, would be approximately 700 feet long and at a depth of 70 to 100 feet, situated below Metropolitan Water District's 144" diameter Inland Feeder line. He further detailed the existing and proposed pipelines and noted the purpose of the feasibility study to perform various tasks resulting in recommendations and a preliminary design report.

Five teams responded to the Request for Proposals (RFP), Mr. Jones advised, and submissions range in cost from $435,000 to $1.28 million. Staff recommends authorization for the CEO/General Manager to execute an agreement with AECOM for $435,000. The AECOM proposal meets and exceeds the scope of work as specified in the RFP, he reported.

Mr. Jones responded to a question from Vice President Hayes regarding needed pumps and referred to AECOM's proposal.

Director Longville expressed appreciation for the proactive approach and said this will make the pipeline safer as storm events become more extreme.

Action Item(s): The Board voted to move this item forward to a future Board of Directors meeting for consideration by the following roll-call vote:

There was no motion or second.	APPROVED: 5-0
AYES:	Botello, Harrison, Hayes, Kielhold, Longville
NOES:	None
ABSTAIN:	None
ABSENT:	None

5.4 Consider ICF contract amendment and budget augmentation for Upper SAR Habitat Conservation Plan

Executive Director Upper SAR Habitat Conservation Program Joanna Gibson introduced an amendment to the existing ICF Jones and Stokes (ICF) Upper Santa Ana River (USAR) Habitat Conservation Program (HCP) contract which would allow completion of the

Environmental Impact Report, finalize the HCP, and carry those changes forward into the federal National Environmental Policy Act (NEPA) for a budget augmentation of approximately $200,000.

Ms. Gibson provided background on the USAR HCP, which includes 11 water agencies and 100 projects comprised of multiple components over 863,000 acres in four phases over a 50-year period, increasing water supply reliability into the future.

Ms. Gibson emphasized the purpose of the required HCP to conserve species and ecosystems while streamlining permitting for development projects and listed the requirements under the Endangered Species Act which necessitate very complex analysis. Projects may obtain an incidental take permit on an individual basis, she said, but that often creates piecemealing for mitigation which ultimately leads to downfalls for species and habitat and can be quite complicated. This is a regional, large scale, long-term HCP, Ms. Gibson explained, so it will collectively anticipate, prevent, and resolve controversies and conflict.

Ms. Gibson described components of the integrated program, which includes more than the HCP itself and requires a team of experts with a very specific and experienced skill set. ICF Jones and Stokes was selected for their experience in the statewide and national development of HCPs and for their in-house team of experts, she emphasized.
She reviewed the project timeline and noted that the HCP began in 2013 with the first ICF contract, continuing forward adding cities, agencies, tasks, amendments, and budget. She pointed out that the advanced mitigation strategy, the key component of the HCP, will reduce long-term costs by preparing mitigation ahead of impacts which reduces temporal loss of habitat impacting the species.

ICF Amendment 14 is for a budget augmentation for the ICF contract amendment scope with eight elements, Gibson explained. Key elements are:

- Prepare Final HCP
- Prepare Final EIR
- Prepare Final NEPA document
- Update the long-term monitoring plan

The total amendment cost is $199,973, with Valley District's 40 percent share being a $79,989 fiscal impact. The HCP partners would cover 60 percent of the costs totaling

$119,984. This item was listed in the approved 2021-22 budget, Ms. Gibson advised. She noted the Section 6 Planning Grant obtained in 2014 for $635,000 and grant funding that covers nearly the entire $6,221,000.

Very few grants are available for impact and mitigation, so staff is focusing on the implementation side, Ms. Gibson explained. All identified funding sources are being pursued. She recapped the HCP benefits.

Chair Harrison asked about the nature and categories of responses to the HCP, and Ms. Gibson advised that 13 formal comment letters and two informal comment letters were received. Every comment must be catalogued and addressed individually in the response to comments, she explained. Many comments addressed the San Bernardino Kangaroo Rat mitigation efforts and long-term tracking of hydrology effects, particularly in the Prado Basin.

Vice President Hayes pointed out Valley District is the lead agency and questioned how an HCP partner might object to decisions made. Ms. Dyer replied that all the partners have accepted Valley District's decision-making role and indicated to the District to get the project done. Frequent update meetings have been held, and the majority of the planning costs have been prepaid by the partners, she said. A few bills are being held until the JPA agreement is in place, at which time the agency will be asked if it would participate in implementation, noting that the agreement is the only avenue for permitting water supply projects.

There will also be a cost associated with implementing this plan over the next 50 years, to which the partners will have to agree, she said.

She clarified for Director Hayes that very soon the partners will be in a JPA at which time they can have input, having already agreed to a cost share ratio. Director Hayes said the HCP is a great project, but she was concerned about representation of all partners.
Ms. Gibson added, if the agencies were to pursue permitting on their own it would be much more expensive.

Director Botello pointed out these projects brought forward by staff are usually supplemented with other funding sources. Ms. Gibson replied that this project is a very specific and discrete task, and there was only one pool of money available for this through

the U.S. Fish and Wildlife Service. Ms. Dyer noted that other agencies request assistance from Valley District on grant applications, as Ms. Gibson is so successful.

On the implementation side, Prop. 1, Prop. 68 and other funding sources have been leveraged, she noted. Overall, getting the HCP in place and finalized did help with the WIFIA application and will help qualify for future grant pursuits, she advised.

Action Item(s): The Board voted to place this item on the next regular Board of Directors meeting agenda for consideration by the following roll-call vote:

There was no motion or second.		APPROVED: 5-0
AYES:	Botello, Harrison, Hayes, Kielhold, Longville	
NOES:	None	
ABSTAIN:	None	
ABSENT:	None	

5.5 Consider Recruitment of Principal Engineer and Addition of Lead Water Systems Operator Position

Chief Executive Officer/General Manager Heather Dyer reminded the Board of the May 10, 2021 Wages, Benefits, and Insurance Workshop where she proposed adding a Principal Engineer position to the organizational chart. She noted that upon completion of the HCP, Valley District will have permitted 40 years of infrastructure projects proposed to build, she said.

Ms. Dyer explained, with the successful WIFIA program application this year, there is now a commitment to complete 11 projects within three years just for Phase 1. In Phase 2, she continued, stormwater projects are to be built throughout the watershed, and this work requires engineering staff.

She noted Deputy General Manager/Chief Engineer Wen Huang has years of knowledge and history to transfer to a new engineer and will need sufficient time working side-by-side, and the addition of the position will also allow Mr. Huang more time to work on strategic initiatives. She requested authorization to begin the recruitment process to fill the Principal Engineer position beginning at the first of the year.

As part of the Operations Department succession planning process, Ms. Dyer continued, a Lead Water Systems Operator position is proposed for addition to the organization chart. Mr. Huang has been working closely with Water Operations Manager Tom Holcombe to identify opportunities to take on additional responsibilities in-house such as routine maintenance and troubleshooting, and working the recharge basins and facilities, she explained.

The goal, she said, is to train people to seamlessly fill roles as people retire, and add new skill sets to staff such as a license to operate heavy equipment. Additionally, with the change to the ACWA JPIA insurance system, the District needs someone with field-based safety experience to lead the operations side of the safety program in collaboration with the incoming Human Resources and Risk Manager.

Director Botello expressed support for both requests and suggested that Deputy General Manager/Chief Financial Officer Cindy Saks mentor some assistance in the future.

Action Item(s): The Board voted to direct staff to begin recruitment for the Principal Engineer position, add a Lead Water Systems Operator position to the organizational chart and salary schedule, and to place an updated organizational chart and salary schedule on a future Board of Directors meeting by the following roll-call vote:

There was no motion or second.	APPROVED: 5-0
AYES:	Botello, Harrison, Hayes, Kielhold, Longville
NOES:	None
ABSTAIN:	None
ABSENT:	None

5.6 Consider Entering Into an Agreement for Professional Consulting Services for the Redistricting of Division Boundaries

Chief Information Officer Melissa Zoba reminded the Board that after the release of the 2020 Census data, the Board directed staff in October to seek professional consulting services for redistricting of division boundaries.

Two proposals were received in response to the RFP, Ms. Zoba reported: Redistricting Insights for $30,000 and another for $40,000. She and Geospatial Services Manager Dan Borrell assessed firm qualifications during the review and conducted consultant interviews. Timeline is critical, she said, pointing to a completion deadline of April 17, 2022 for submittal of maps to the Registrar of Voters.

She provided an overview of the Redistricting Insights (RI) proposal, noting that both proposals were similar in approach, but that RI has a larger project team, and existing clients include the County of San Bernardino. Ms. Zoba emphasized that the project must begin in early January 2022 and that Valley District needs to get on the consultant's schedule, as they are approaching maximum clientele.

Director Longville asked that the consultant meet with the staff and directors rather than just the staff to develop a custom plan. Ms. Zoba assured her that Board direction is part of the initial meeting, and the Board will be involved in the process.

Action Item(s): The Board voted to move this item forward to a future Board of Directors meeting for consideration by the following roll-call vote:

There was no motion or second.	APPROVED: 5-0
AYES:	Botello, Harrison, Hayes, Kielhold, Longville
NOES:	None
ABSTAIN:	None
ABSENT:	None

6. Future Business

There was none.

7. Adjournment.

The meeting was adjourned at 4:36 p.m.

Staff Recommendation

Receive and File

SAN BERNARDINO Valley MUNICIPAL WATER DISTRICT

DATE: January 11, 2022

TO: Board of Directors' Workshop – Engineering

FROM: Matthew Howard, Water Resources Senior Planner

SUBJECT: Consider the Draft Groundwater Sustainability Plan for the Yucaipa Sustainable Groundwater Management Agency

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Staff Recommendation:

Staff recommends the Board direct staff to place this item on the January 18, 2022 Board of Directors regular meeting for consideration and adoption of the Yucaipa Sustainable Groundwater Management Agency Groundwater Sustainability Plan.

Summary

Staff is recommending that the Board consider the Draft Groundwater Sustainability Plan (GSP) for the Yucaipa Sustainable Groundwater Management Agency (Yucaipa SGMA) which is due to the Department of Water Resources (DWR) by January 31, 2022. The GSP was developed by the Yucaipa SGMA over the past three years. The GSP includes the development of a groundwater flow model by the United States Geological Survey, sustainable management actions, infiltration studies at 11 locations throughout the Yucaipa Subbasin, dedicated data management system, and provides a roadmap to maintain sustainability in the Yucaipa Subbasin.

The Executive Summary from the GSP is attached, which includes information pertinent to the Valley District Board's consideration, such the historic 50-year water budget starting in 1965 to 2014, and current water budget from 2014 to 2018 (p. vi), sustainable management criteria to ensure the goal of long-term sustainable groundwater use (p. vii), and discussion of a critical component to any long-term plan such as data management, management actions and projects (p. xiv). The full draft GSP is available for review on the Yucaipa SGMA website at https://yucaipasgma.org.

Background

The Sustainable Groundwater Management Act (SGMA) went into effect on January 1, 2015 by identifying high priority, or un-adjudicated basins throughout the State of California. For each of these high priority basins, a Groundwater Sustainability Agency is required to be established and to prepare a Groundwater Sustainability Plan (GSP). The only principal basin or sub-basin that is high priority, or un-adjudicated, within the Valley District service area is the Yucaipa Subbasin.

On June 22, 2017, San Bernardino Valley Municipal Water District (Valley District) joined the City of Redlands, San Gorgonio Pass Water Agency, South Mesa Water Company, South Mountain Water Company, Western Heights Water Company, the City of Yucaipa and the Yucaipa Valley Water District to form the Yucaipa Sustainable Groundwater Management Agency (Yucaipa SGMA). Further, the Yucaipa SGMA is required to submit a Groundwater Sustainability Plan (GSP) by January 31, 2022.

Even before SGMA was enacted, Valley District was working collaboratively with the water agencies and San Bernardino County to develop a groundwater management plan, now referred to as a GSP under SGMA, for the Yucaipa Subbasin. The following work has been completed, or is currently in progress, that will benefit the GSP:

- Determination of the safe yield and basin capacity (2013)
- Calculation of the change in groundwater storage and identification of potential groundwater recharge sites (2014)
- Preliminary field evaluation of recharge potential using exploratory borings (2014)
- Field recharge testing (2018)
- Modeling to calculate the total volume in storage for the Yucaipa Basin and Subbasins (Geoscience, 2021)
- Development of Data Management System (Dudek, 2021)
- Development of a groundwater flow model for the Yucaipa Subbasin area (USGS, 2021, nearing completion)

As work on preparing the Yucaipa SGMA GSP was completed over the last several years, the Yucaipa SGMA Board met periodically to provide direction and take action for the development of the GSP for the subbasin. These meetings allowed the Yucaipa SGMA agencies to openly discuss and exercise their respective agencies responsibilities and authorities over the development of the GSP.

The GSP establishes the Management Actions for the Yucaipa Subbasin to be in effect at the adoption of the GSP scheduled for January 26, 2022. The GSP will be submitted to DWR by January 31, 2022. DWR requires the Yucaipa SGMA to submit an annual report on the status and progress of the GSP by April 1 and requires a 5-year evaluation report which is due by April 1, 2026. Data collected by the retail agencies submitted through the data management system will be used to generate the first annual report, due on April 1, 2022. The 5-year reevaluation of the GSP due in 2026 will reevaluate the effectiveness of the GSP, and may include the recalculation of the sustainable yield, and will assess responses if any Management Actions were implemented in the subbasin.

The Yucaipa SGMA Memorandum of Agreement proportioned 75% of costs to the primary retail water agencies/major groundwater producers (South Mesa Water Company, South Mountain Water Company, Western Heights Water Company and Yucaipa Valley Water District) with the remaining 25% shared equally amongst the regional water agencies and major interested parties (Valley District, San Gorgonio Pass Water Agency, City of Redlands and the City of Yucaipa).

The Yucaipa SGMA held two community engagement meetings to actively facilitate discussions and comments from the public. The first community engagement meeting was held via Zoom on April 28, 2021. The second was held at the Yucaipa Performing Arts Center on November 16, 2021. Both community engagement meetings were successful in receiving comments and feedback from the public on the draft GSP. The public comment period from November 3, 2021 to December 3, 2021 provided the public and interested stakeholders the opportunity to comment on the Draft GSP all comments that were received during the public comment period have been addressed in the Draft GSP.

Fiscal Impact:

There is no fiscal impact associated with this item for your consideration today.

Attachments:

Draft Executive Summary from the Yucaipa SGMA GSP

Executive Summary

ES-1 Introduction

The Yucaipa Groundwater Sustainability Agency (GSA), acting as the GSA for the Yucaipa Subbasin (Plan Area, Subbasin), developed this Groundwater Sustainability Plan (GSP) in compliance with the 2014 Sustainable Groundwater Management Act (SGMA) (California Water Code Section 10720–10737.8, et seq.) and the California Department of Water Resources (DWR) GSP Regulations (23 CCR, Section 350 et seq.). The Yucaipa Subbasin lies within the Upper Santa Ana River Basin Hydrologic Region (DWR basin number 8-002.07) and underlies an area of approximately 25,300 acres under portions of the cities of Calimesa, Redlands, and Yucaipa, as well as unincorporated San Bernardino and Riverside Counties.

DWR designated the Yucaipa Subbasin a high priority basin based primarily on its reliance on groundwater for water supply. However, this Subbasin is not in a state of critical overdraft. Under SGMA, GSAs "have the responsibility for adopting a Plan that defines the basin setting and establishes criteria that will maintain or achieve sustainable groundwater management" (California Water Code, Section 350.4[e]). The requirement of the GSP is to maintain or achieve sustainable groundwater management in the Yucaipa Subbasin by 2042.

Nine local agencies entered into a Memorandum of Agreement (MOA) in 2017 to form the Yucaipa GSA. The local agencies included South Mesa Water Company, South Mountain Water Company, Western Heights Water Company, and Yucaipa Valley Water District, collectively referred to herein as the "Water Purveyors"; the Cities of Calimesa, Redlands, and Yucaipa, collectively referred to herein as the "Municipalities"; and San Bernardino Valley Municipal Water District and San Gorgonio Pass Water Agency, collectively referred to herein as the "Regionals." The County of Riverside and the County of San Bernardino, collectively referred to as the "Counties," are stakeholders. The City of Calimesa submitted a written Notice of Withdrawal dated November 19, 2018, and the Yucaipa GSA subsequently acknowledged the withdrawal of the City of Calimesa from the Yucaipa GSA at the January 23, 2019, GSA Board meeting. The City of Calimesa is now considered a stakeholder in the Plan Area.

A number of water resources monitoring and management programs have been implemented throughout the Plan Area by several Yucaipa GSA member agencies and stakeholders seeking to maintain and/or enhance water resources management in the region, and to comply with state and federal laws applicable to water supply, water quality, watershed health and/or wildlife habitat. These programs will be integral in the sustainable management of groundwater in the Plan Area.

The Southern California Association of Governments (SCAG) maintains a land use dataset that combines regional data from general plans, specific plans, zoning codes, and existing land use. The SCAG dataset includes land use designations for the Plan Area and San Timoteo Wash Watershed for years 1990, 1993, 2001, 2005, 2012 and 2016. The predominant land use types in the Plan Area from 1990 to 2016 include Vacant and Undeveloped or Protected Land and Single Family Residential, which combined, made up 82% of the Plan Area in 1990 and 70% of the Plan Area in 2016. The primary land use changes within the Plan Area from 1990 to 2016 include a decrease in Vacant and Undeveloped or Protected Land (19% decrease) and an increase in Single Family Residential (10% increase) and Open Space and Recreation (7% increase). Rural Residential, Facilities, and to a lesser extent, Commercial, Office, and Industrial, and Multi-Family Residential have increased since 1990, while Agriculture land use has decreased.

Water resources utilized in the Plan Area include local groundwater produced from the principal aquifer in the Yucaipa Subbasin, imported State Water Project (SWP) water from the San Bernardino Valley Municipal Water District and San Gorgonia Pass Water Agency, surface water diverted from Oak Glen Creek, recycled water from the Henry N. Wochholz Regional Water Reclamation Facility (WRWRF), and captured stormwater at the Oak Glen Creek spreading basins (and Wilson Creek basins during significant runoff events). Beneficial uses of groundwater include municipal and domestic supply, industrial and commercial, agricultural and environmental uses. YVWD diverts surface water from Oak Glen Creek and Birch Creek to the Oak Glen Filtration Plant (OGFP) located in the Oak Glen subbasin. Recycled water produced from the WRWRF is served to YVWD customers via the recycled water distribution system for irrigation purposes only, or discharged to San Timoteo Creek at a point upstream of the Yucaipa Subbasin.

Land use in the Yucaipa Subbasin in 2016 was 42% residential (single-family, rural, and multi-family), 8% facilities and commercial/industrial, 8% open space and recreational, 7% agricultural, and the remaining 35% vacant and undeveloped land. The 2015 RUWMP noted that approximately 96% of the water served by YVWD is for residential use. Approximately 2.4% is for commercial, institutional and industrial use, with another 1.4% used for irrigation purposes. Groundwater dependent ecosystems (GDEs) are the primary environmental users of groundwater in the Subbasin. The discharge of recycled water to San Timoteo Creek helps sustain the GDEs downstream of the WRWRF outfall. GDEs located in the upper elevations in the Oak Glen subarea and in the lower region of the Live Oak subarea are currently considered to be dependent on shallow groundwater.

ES-2 Basin Setting

The Yucaipa Subbasin (DWR Basin Number 8-2.07) comprises an eastern portion of the Upper Santa Ana Valley Groundwater Basin. The Subbasin is bounded to the north and northeast by the San Andreas Fault Zone and the San Bernardino Mountains, to the east by the Yucaipa Hills, to the south by San Timoteo Wash and the San Timoteo Badlands, and to the west by the Crafton Hills and the San Bernardino Basin Area. The Yucaipa Subbasin is overlain by the Yucaipa plain, a gently sloping area of unconsolidated deposits of late Pleistocene and Holocene sediments originating from the surrounding mountains and hills. The Yucaipa Subbasin ranges in elevation from 1,300 feet above NAVD88 to approximately 5,100 feet above NAVD88.

The bottom of the Yucaipa Subbasin consists of crystalline bedrock. Overlying the bedrock are late Pleistocene to Holocene deposits of alluvial sediments originating from the surrounding Crafton Hills, San Bernardino Mountains, and Yucaipa Hills. The deeper sedimentary deposits consist of units representing the San Timoteo Formation, the Sedimentary deposits of Live Oak Canyon, and surficial materials. The primary water-bearing formations in the Yucaipa Subbasin that form the principal aquifer are the Sedimentary deposits of Live Oak Canyon and the San Timoteo Formation.

ES-2.1 Precipitation and Surface Water

The Yucaipa Subbasin lies within the San Timoteo Wash watershed. The primary surface water drainage features are Wilson Creek, Oak Glen Creek, Yucaipa Creek and San Timoteo Creek. The headwaters for Wilson Creek and Oak Glen Creek originate in the San Bernardino Mountains. Yucaipa Creek begins in the Yucaipa Hills and flows east to west out of Wildwood Canyon. San Timoteo Creek is the major drainage feature in the San Timoteo Wash watershed. It enters the Yucaipa Subbasin at the southern end of the Live Oak subarea and runs approximately 3.5 miles before exiting the Plan Area. San Timoteo Creek is tributary to the Santa Ana River.

Stream flow near the upper reaches of Wilson Creek and Oak Glen Creek may be diverted to the Wilson Creek spreading basins and the Oak Glen spreading basins, respectively. The Wilson Creek spreading basins are used for the infiltration of imported SWP water and stormwater. The Oak Glen Creek spreading basins were designed to reduce flooding downstream of Bryant Street, collect debris and sediment in the basins to improve downstream water quality, enhance groundwater recharge by capturing stormwater runoff, and provide additional open space and habitat.

The San Bernardino County Flood Control District (SBCFCD), a division of the Department of Public Works, installed a network of climate stations throughout San Bernardino County to collect precipitation, stream flow and temperature data. Mean annual precipitation per water year (WY; defined as the 12-month period between October 1 and September 30 of the following calendar year) ranged from 11.15 inches in the Crafton subarea to 24.50 inches in the Triple Falls Creek subarea. The weighted mean annual precipitation across the Plan Area is 15.86 inches based on precipitation data collected at the 17 SBCDPW climate stations from the 1953 WY to the 2018 WY.

Periods of above or below average precipitation affect the volume of water that naturally recharges the groundwater aquifer underlying the Plan Area. To characterize the effects of total water year precipitation on local groundwater supplies and demands, and the volume of groundwater in storage, the precipitation measurements were categorized into six water year types. Water year type was characterized by normalizing measured water year precipitation by the long-term water-year precipitation averages measured at each of the 17 SBCFCD climate stations in the Subbasin. The normalized water year precipitation measurements were then categorized into the following water year types:

1. Critically Dry: < 50% of the long-term precipitation mean
2. Dry: ≥ 50%, but < 75% of the long-term precipitation mean
3. Below Normal: ≥ 75%, but < 90% of the long-term precipitation mean
4. Normal: ≥ 90%, but < 110% of the long-term precipitation mean
5. Above Normal: ≥ 110%, but < 150% of the long-term precipitation mean
6. Wet: ≥ 150% of the long-term precipitation mean

ES-2.2 Hydrogeological Conceptual Model

The Yucaipa Subbasin exists in a “right-step-over” zone between the active San Andreas and San Jacinto Fault Zones. The Yucaipa Plain lies between these two fault systems and comprises an extensive deposition of Quaternary sediments originating from the San Bernardino Mountains and Yucaipa Hills. The “right-step-over” zone created by the lateral displacement along the San Andreas and San Jacinto Fault Zones created a series of northeast-southwest trending normal-slip faults. Displacement along these faults, in turn, created drop-down structures that filled in with Quaternary alluvial sediments.

The geologic units defined within the Yucaipa Subbasin are Mesozoic and older crystalline bedrock, the Plio-Pleistocene San Timoteo Formation, and the Quaternary Sedimentary Deposits of Live Oak Canyon and surficial alluvial deposits. The crystalline bedrock provides the base for the sedimentary deposits in the Yucaipa Subbasin. The San Timoteo Formation and the Sedimentary Deposits of Live Oak Canyon define the principal aquifer in the Yucaipa Subbasin. The primary use of groundwater produced from the principal aquifer is for municipal water supply. The Yucaipa Subbasin is divided into nine hydrogeologic subareas based on the apparent influences of faults (both mapped and inferred) on groundwater flow.

San Timoteo Creek conveys surface water out of the Plan Area and is tributary to the Santa Ana River. Surficial soils mapped in the Plan Area indicate that the surface water drainages are underlain by highly permeable loamy sand with relatively high infiltration rates; thereby, indicating that leakage from stream flow is a major contributor to groundwater recharge. Geologic cross-sections provide scaled details of the physical features that influence groundwater flow and provide a visual approximation of the storage capacity of the Subbasin.

ES-2.3 Current and Historical Groundwater Conditions

Current Groundwater Elevations

The current condition for groundwater levels in the Yucaipa Subbasin is represented by static water levels measured in September 2018. The 2018 WY was characterized as a "dry" water year type. The preceding 2017 WY was characterized as an "above normal" water year type with precipitation ranging from 14.42 inches at SBCFCD station 3023 to 21.49 inches at SBCFCD station 3126A.

Static groundwater levels measured in September 2018, which represents the current water year low, ranged from 1,723.93 feet above NAVD88 at well WHWC-11 in the Western Heights subbasin to 3,331.80 feet above NAVD88 at well YVWD-14 in the Oak Glen subbasin. In general, groundwater flowed from the northeast to the southwest in the Yucaipa Subbasin. Static groundwater levels measured in March 2018 represent the current water year high. Groundwater levels ranged from 1,743.93 feet above NAVD88 at WHWC-11 to 3,297.90 feet above NAVD88 at YVWD-14.

Historical Groundwater Elevations

The earliest groundwater elevation data was collected in the 1920s. The first recorded static groundwater elevation was at YVWD-37 at 2,556 feet above NAVD88 in April 1921. This well is located in the northern part of the Crafton subarea. Historically, groundwater elevations in the Yucaipa Subbasin have ranged from 1,350.63 feet above NAVD88 in the Live Oak subarea to 3,355.80 feet above NAVD88 in the Oak Glen subarea.

In the 50-year historical period from 1966 to 2016, the highest static groundwater elevations (i.e., historical high) observed in the Calimesa, Wilson Creek and Gateway subareas occurred in the spring of 1988. Static groundwater elevations in the Subbasin ranged from 3,165.89 feet above NAVD88 at YVWD-13 in the Oak Glen subarea to 1,793.70 feet above NAVD88 at WHWC-02A in the Western Heights subarea. The hydraulic gradient in the principal aquifer in the spring of 1988 was 0.0448 feet/foot. The groundwater flow direction was to the southwest at an azimuth of 239 degrees.

The lowest groundwater elevations (i.e., historical low) observed in the Subbasin occurred in the Fall of 2007. The historical low in groundwater elevations occurred right before the marked increase in SWP water imported into the Subbasin by YVWD in the 2007 WY, and subsequent decline in groundwater production from 13,000 acre-feet per year (AFY) in the 2007 WY to 10,000 AFY in the 2009 WY. Static groundwater elevations in the Subbasin ranged from 3,346.50 feet above NAVD88 at YVWD-13 in the Oak Glen subarea to 1,728.90 feet above NAVD88 at WHWC-14 in the Western Heights subarea. The hydraulic gradient in the principal aquifer in Fall 2007 was 0.049 feet/foot. The groundwater flow direction was to the southwest at an azimuth of 232 degrees.

Groundwater in Storage

GSSI (2021) conducted a study to estimate the volume of groundwater in storage at the end of the 2016 WY. GSSI (2021) used the integrated Santa Ana River (SAR) numerical model as a tool to estimate the volume in storage. The SAR model includes the full alluvial thickness of the Subbasin, in that the bottom of the SAR model is defined by the contact between bedrock and the overlying alluvium. The estimated volume of groundwater in storage in the Yucaipa Subbasin at the end of the 2016 WY was 2,233,000 acre-feet (AF).

Groundwater Quality

The Regional Water Quality Control Board (RWQCB) Santa Ana Region recognized in the 1975 and 1983 Basin Plans that the most serious water quality issue to the Santa Ana River Basin "was the buildup of dissolved minerals, or salts, in the ground and surface waters" (RWQCB 2019). The historical use of water for irrigation purposes, particularly for citrus that demanded large volumes of applied water, was a main contributor to increasing concentrations of TDS and nitrate. The RWQCB (2019) recognized the need to implement salt and nutrient management plans to control the salt and nutrient loading to the basin.

The 2004 Basin Plan update included the creation of new groundwater management zones (GMZs) and set "maximum benefit" objectives for TDS and nitrate-nitrogen in the Chino North, Cucamonga, San Jacinto Upper Pressure, Yucaipa, Beaumont and San Timoteo GMZs. The majority of the Yucaipa Subbasin is within the Yucaipa GMZ, with part of the lower sections in the Beaumont and San Timoteo GMZs. In 2014, the Regional Board adopted order number R8-2014-0005, an amendment to the Basin Plan that revised the maximum benefit commitments in the Yucaipa, San Timoteo and Beaumont GMZs.

The implementation of reverse-osmosis treatment at the YVWD WRWRF facility has reduced the TDS concentration in recycled water to an average of <300 mg/L. YVWD is serving some recycled water to its customers, with plans to increase the usage of recycled water, for irrigation purposes. The application of recycled water for irrigation purposes has not increased TDS concentrations in the principal aquifer. Nitrate concentrations observed in the Subbasin have, in general, remained steady at <10 mg/L after agricultural practices in the Plan Area decreased significantly after the 1970s and septic systems were replaced with sanitary sewer services in the 1980s, with the exception of the Western Heights subarea. There are no TDS or nitrate water quality issues that may affect the long-term supply and beneficial uses of groundwater produced from the principal aquifer.

Land Subsidence

Historical records of land subsidence in the Plan Area do not indicate that land subsidence resulted from past groundwater production from the principal aquifer. Land subsidence was attributed to past tectonic activity associated with movement along the San Andreas and San Jacinto Fault Zones. Land subsidence data obtained from the SGMA Data Portal (State of California 2021) indicated a range of subsidence for the Plan Area from 0.0 feet to 0.054 feet, or 0.65 inches, from June 2015 to October 1, 2018. This does not constitute a significant and unreasonable vertical displacement of land surface that "substantially interferes with surface land uses and may lead to undesirable results," (23 California Code of Regulations 354.28 (c) (5)).

Because the minimum thresholds established in this GSP are based on groundwater elevations at or below the historical low groundwater elevations observed in the Plan Area, there exists the potential for land subsidence to occur should groundwater levels fall below the historical lows over a long period. Subsidence related to declining

groundwater levels as a result of groundwater withdrawals cannot be directly measured in the Plan Area, so the minimum thresholds established for the chronic lowering of groundwater levels will be used as a surrogate for direct measurements of land subsidence. Should groundwater levels fall below the historical lows and persist at such a level for more than 12 months, then the Yucaipa GSA will refer to the InSAR data set included in the SGMA Data Portal and periodically obtain future data to compare to the baseline dataset compiled from June 2015 to October 1, 2018.

Groundwater – Surface Water Connections

Wilson Creek, Oak Glen Creek, and Yucaipa Creek are the major surface water drainages in the Yucaipa Subbasin that may have a hydrologic connection with the underlying principal aquifer. However, no direct investigations have been conducted to characterize the relationship between surface water flows in these drainages with the underlying groundwater. Groundwater elevation data collected at wells located near these drainages indicated depths-to-water greater than 200 feet below ground surface (bgs), Shallow observation wells installed adjacent to San Timoteo Creek indicated that San Timoteo Creek was a gaining stream upstream of its confluence with Yucaipa Creek and the reach downstream of Alessandro Road was characterized as a losing stream. The best available estimates for groundwater-surface water connections derive from the preliminary U.S. Geological Survey integrated hydrological numerical model. The numerical model simulates the amount of runoff originating from precipitation over the San Timoteo Wash watershed and computes leakage from flows in the creeks to the underlying aquifer.

Groundwater Dependent Ecosystems

GDEs in the Plan Area were characterized by reviewing the NCCAG dataset alongside measured groundwater elevations, aerial photographs, and Landsat data analyzed by The Nature Conservancy. The Nature Conservancy used Landsat data to calculate historical variations in the Normalized Derived Vegetation Index (NDVI) and Normalized Derived Moisture Index (NDMI). The Nature Conservancy calculated average values of NDVI and NDMI between July 9 and September 7 of each year to estimate vegetation health during the driest period of the year, when the overlying habitats are most likely to depend on groundwater. GDEs were identified adjacent to San Timoteo Creek, Oak Glen Creek and Wildwood Canyon Creek. The habitats located along Oak Glen Creek, Wildwood Canyon Creek, and San Timoteo Creek consist of coast live oak (*Quercus agrifolia*), riparian mixed hardwood, Fremont cottonwood (*Populus fremontii*), and willow (*Salix* spp.).

ES-2.4 Water Budget

A historical water budget was prepared for the 50-year period starting in water year 1965 and ending water year 2014 (October 1, 1965, to September 30, 2014). Current conditions in the Subbasin were characterized by quantifying the water budget for the period from the 2015 WY through 2018 WY (October 1, 2014, to September 30, 2018). Three future scenarios were assessed to characterize projected conditions in the Subbasin. These scenarios characterize projected water budgets for the period extending from the 2019 WY through the 2069 WY (October 1, 2018, to September 30, 2069). Individual components of the water budget are described in units of acre-feet (AF) or acre-feet per year (AFY).

Estimates of the individual water budget components for the historical and current conditions in the Basin are based on simulation results from the Yucaipa Integrated Hydrologic Model (YIHM). The YIHM is an integrated surface water and groundwater numerical model developed by the U.S. Geological Survey to simulate the effects of native and non-native water supplies and demands on groundwater conditions across the entire Yucaipa Valley watershed. Individual water budget components were extracted from the YIHM based on the B118 boundary for the Yucaipa Subbasin.

ES-2.5 Management Areas

In order to sustainably manage the groundwater resources of the Yucaipa Subbasin, the Subbasin was divided into four management areas. The boundaries of the management areas were based on the geologic structures (i.e., faults, hydraulic barriers) that influence groundwater flow and defined the hydrogeologic subareas in the Subbasin, the distribution of water supply wells by the different water purveyors, and the identification and location of GDEs in the Subbasin. The geologic structures, or faults and hydraulic barriers, that influence groundwater flow across them (e.g., the Chicken Hill Fault and South Mesa Barrier) are effective boundaries to establish management areas as groundwater production on one side of the structure will not significantly affect groundwater levels at wells located on the other side. Each management area was assigned minimum thresholds and measurable objectives that will define sustainability within their individual boundaries.

The following management areas, listed in order from the highest to lowest along the hydraulic gradient in the Subbasin, are based on the geologic structures that defined the hydrogeologic subareas in the Subbasin, the distribution of public water supply wells, and presence of GDEs:

1. North Bench Management Area
2. Calimesa Management Area
3. Western Heights Management Area
4. San Timoteo Management Area

ES-3 Sustainable Management Criteria

The goal is to manage groundwater resources for sustainable, long-term use in the Yucaipa Subbasin. Long-term sustainable management includes:

- Maintaining sufficient groundwater in storage to allow for ongoing groundwater production that meets the operational demands of South Mesa, South Mountain, WHWC and YVWD and private well users, and the regulatory commitments established in the Plan Area.
- Ensuring that groundwater production does not result in significant and unreasonable loss of GDEs.

The sustainability goal for the Plan Area was developed using historical groundwater elevations, groundwater in storage, and the identification of GDEs in the Plan Area. The importation of SWP water into the Subbasin in 2003 has provided a supplemental source of water, which led to a reduction in groundwater production in the Yucaipa Subbasin. This supplemental source of water, which averaged approximately 8,000 AFY since 2008, has led to an average reduction in groundwater production by 3,000 AFY. Consequently, groundwater levels have recovered between 50 feet in the Calimesa Management Area and 200 feet in the North Bench Management Area in the past 10 years, with the volume of groundwater in storage in the Subbasin increasing by approximately 18,000 AF. The cessation of the decline in groundwater levels observed from 1997 to 2007, and observed storage increase over the last 10 years, indicates that the Yucaipa GSA member agencies have been managing the groundwater resource sustainably.

ES-3.1 Undesirable Results

Under SGMA, undesirable results occur when groundwater conditions in the Plan Area cause significant and unreasonable effects to any of the six sustainability indicators:

- Chronic Lowering of Groundwater Levels
- Reduction of Groundwater Storage
- Degraded Water Quality
- Land Subsidence
- Depletions of Interconnected Surface Water
- Seawater Intrusion

The four sustainability indicators that do apply to the Yucaipa Subbasin, and which will be used to evaluate sustainable management in the Subbasin, include (1) chronic lowering of groundwater levels, (2) reduction of groundwater storage, (3) land subsidence, and (4) interconnected surface water. Minimum thresholds and measurable objectives were defined for each of these four sustainability indicators, where applicable, for the four management areas. A minimum threshold represents a condition in the management area when undesirable results are experienced. A measurable objective represents a condition when the groundwater resource is managed sustainably and no undesirable results are experienced.

For the North Bench, Calimesa and Western Heights management areas, the minimum thresholds and measurable objectives are based on historical lows in groundwater in storage and drought buffers that the Yucaipa GSA identified as providing operational flexibility before undesirable results are experienced. For the San Timoteo Management Area, the minimum threshold and measurable objective are based on shallow groundwater levels that sustain GDEs (along San Timoteo Creek and potential GDEs along Yucaipa Creek.

The following minimum thresholds and measurable objectives established for each management area are applicable for these sustainability indicators: chronic lowering of groundwater levels, reduction of groundwater storage, land subsidence, and depletion of interconnected surface water. Degraded water quality and seawater intrusion are not applicable in the Subbasin.

North Bench Management Area: The current volume of groundwater in storage in the North Bench Management Area is 255,000 AF. The minimum threshold is established at the historical low for groundwater in storage at 220,000 AF. The top of the drought buffer is at a volume in storage of 230,000 AF, 10,000 AF above the minimum threshold. This represents the measurable objective and provides operational flexibility to implement management actions and/or programs to prevent undesirable results when groundwater conditions decline below the minimum threshold. Groundwater conditions are defined by static groundwater levels measured at 8 wells, or representative monitoring points, in the management area. Specific groundwater elevations were defined at each representative monitoring point (RMP) that represent the minimum threshold (220,000 AF) and measurable objective (230,000 AF). Monitoring of groundwater elevations at the RMPs will provide a spatial and temporal characterization of groundwater conditions to help guide management actions to sustainably managed the Subbasin.

Calimesa Management Area: The current volume of groundwater in storage in the Calimesa Management Area is 800,400 AF. The minimum threshold is established at the bottom of a drought buffer at 772,700 AF. The measurable objective was established at the historical low volume in storage of 798,700 AF, which is

26,000 AF above the minimum threshold and represents the beginning of the drought buffer. Groundwater conditions are defined by static groundwater levels measured at 13 RMPs in the management area. Specific groundwater elevations were defined at each RMP that represent the minimum threshold (772,700 AF) and measurable objective (798,700 AF). Monitoring of groundwater elevations at the RMPs will provide a spatial and temporal characterization of groundwater conditions to help guide management actions to sustainably managed the Subbasin.

Western Heights Management Area: The current volume of groundwater in storage in the Calimesa Management Area is 800,400 AF. A drought buffer was defined from the historical low in the volume of groundwater in storage at 408,800 AF to 398,800 AF. The minimum threshold is established at 398,800 AF, the bottom of the drought buffer. The measurable objective is established at a volume in storage of 408,800 AF. Groundwater conditions are defined by static groundwater levels measured at 7 RMPs in the management area. Specific groundwater elevations were defined at each RMP that represent the minimum threshold (398,800 AF) and measurable objective (408,800 AF). Monitoring of groundwater elevations at the RMPs will provide a spatial and temporal characterization of groundwater conditions to help guide management actions to sustainably managed the Subbasin.

San Timoteo Management Area: A minimum threshold for this management area was established for the GDEs identified along San Timoteo Creek. At this time, no sustainability criteria are established for the other sustainability indicators because there are no existing municipal water supply wells that extract groundwater from the principal aquifer. If a water purveyor plans to install and operate a municipal water supply well and produce from the principal aquifer, then the water purveyor must investigate the potential influences of pumping from the principal aquifer on the shallow groundwater table sustaining the GDEs identified along San Timoteo Creek and the potential GDEs identified along Yucaipa Creek upstream of its confluence with San Timoteo Creek. Additionally, the average long-term groundwater production from the principal aquifer in the San Timoteo Management Area will be held at or below the estimated sustainable yield of 325 AFY.

The undesirable result identified for the San Timoteo Management Area is the condition when the shallow groundwater table sustaining the GDEs falls below 30 feet bgs as a result of groundwater production from the principal aquifer. A measurable objective of 20 feet bgs for the shallow groundwater table was defined and provides a reasonable margin of operational flexibility under adverse conditions by allowing for changes to groundwater production (if demonstrated to influence shallow groundwater) or the implementation of projects and/or programs to prevent groundwater levels falling below 30 feet bgs. Groundwater conditions are defined by static groundwater levels measured at six RMPs in the management area.

ES-3.2 Monitoring Network

The objective of a monitoring network is to track and monitor parameters that demonstrate "short-term, seasonal, and long-terms trends in groundwater and related surface conditions, and yield representative information about groundwater conditions as necessary to evaluate Plan implementation" (23 CCR, Section 354.34). To accomplish this objective, the monitoring network must be capable of the following:

- Monitoring changes in groundwater and surface water conditions that may impact the beneficial uses or users of groundwater
- Monitoring groundwater conditions relative to the sustainable management criteria
- Quantifying annual changes in water budget components

Groundwater Monitoring

The groundwater monitoring network includes 76 wells. Groundwater elevation data is collected at 72 of these wells; water quality data is collected at 40 of these wells; and groundwater production data is collected at 31 wells. Groundwater elevation and groundwater production data is collected on a monthly basis by the water purveyors. Groundwater quality data is collected quarterly to annually by the water purveyors. Four of the municipal wells in the monitoring network are located outside the Plan Area and supply water to the Subbasin. This water supply is characterized as an imported groundwater supply to the Subbasin. The majority of the wells are municipal supply and monitoring wells; however, the network does include two irrigation wells operated by South Mountain.

Surface Water Monitoring

The SBCFCD manages five stream gauges within the Plan Area. Two stream gauges are located on Yucaipa Creek, one is located on Wilson Creek upstream of the confluence with Oak Glen Creek, and two stream gages are located on Oak Glen Creek upstream of its confluence with Yucaipa Creek. These stream gauges record mean daily flow rates. These stations were designed to measure peak flow events and, therefore, do not accurately measure flow outside of those peak events. SBCFCD has confidence in measurements collected at the two farthest downstream gauging stations in the Subbasin. The Yucaipa GSA will evaluate the feasibility of installing new gauging stations, if funding becomes available, or work with SBCFCD to improve the existing stations to more accurately measure stream flows in the Subbasin. Stream flow measurements are recognized as a data gap in this GSP.

Precipitation

Precipitation is monitored at 17 precipitation stations managed by SBCFCD within the Plan Area and three National Oceanographic and Atmospheric Administration stations with one in the Plan Area, one in the City of Redlands, and one in Beaumont. Daily precipitation is recorded at these stations, which provides adequate temporal resolution to evaluate short-term and seasonal impacts of precipitation on groundwater conditions in the Plan Area. The longest continuous records of daily precipitation have been measured at two SBCFCD climate stations dating back to 1932. The lengths of these records, plus long-term records for other stations, are adequate to evaluate long-term trends in precipitation within the Plan Area.

Monitoring Protocols

Monitoring protocols have been established in this GSP for the collection of groundwater elevation, groundwater production, and groundwater quality data at all wells in the Subbasin (and for those outside the Subbasin that provide water to it) to ensure a consistent recording of information to accurately represent groundwater conditions and effectively evaluate the sustainable management of the groundwater resource.

Monitoring Network Improvements

The Yucaipa GSA is required to review and evaluate the monitoring network for the Plan Area during every 5-year assessment of this GSP. Specifically, “each agency shall identify data gaps wherever the basin does not contain a sufficient number of monitoring sites, does not monitor sites at a sufficient frequency, or utilizes monitoring sites that are unreliable, including those that do not satisfy minimum standards of the monitoring network adopted by the Agency,” (23 California Code of Regulations Section 354.38). While the existing monitoring

network satisfies the requirements to "demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions" (23 California Code of Regulations Section 354.34), there are improvements that can be made to improve local spatial coverage. Future improvements to the monitoring network have been identified for the following:

- Stream flow gauging
- Information on private well users
- Spatial and temporal gaps in groundwater level measurements

ES-4 Projects and Management Actions

Future projections using the YIHM with groundwater production constrained to the estimated sustainable yield of 10,980 AFY indicate that the Subbasin will not experience undesirable results over the 50-year planning and implementation period. The simulated Future Baseline with Climate Change II scenario indicated that conditions in the Calimesa Management Area may decline below the measurable objective and trend toward the minimum threshold at the end of the 50-year planning and implementation period. Under such conditions, the Yucaipa GSA has defined management actions that will be implemented to prevent undesirable results.

The management actions described are not currently necessary to achieve sustainability in the Plan Area, which has experienced rising groundwater levels and increased groundwater in storage since 2008. They would be implemented, as necessary, to respond to declining conditions that deviate from the future predictions by the YIHM.

Currently, no new projects have been identified as necessary to achieve groundwater sustainability in the Plan Area during the 50-year planning and implementation period. Member agencies of the Yucaipa GSA have constructed spreading basins and stormwater capture basins, and are in the process of designing and constructing new ones, to enhance recharge to the Subbasin thereby reducing dependence on imported water.

ES-4.1 Management Action No. 1

Management Action No 1: Reduce Net Use of Groundwater When Groundwater Levels Decline Below Measurable Objectives

The drought buffers established for the North Bench, Calimesa and Western Heights management areas provide operational flexibility to implement management actions when groundwater conditions decline below their respective measurable objectives. The following management action will prevent undesirable results related to the chronic lowering of groundwater levels, reduction in groundwater storage, and land subsidence for these three management areas. The management action implemented when groundwater levels decline below the measurable objective for the San Timoteo management area will prevent significant and unreasonable effects resulting in a loss in surface water interconnected with shallow groundwater that sustain GDEs.

If groundwater elevations decline below the measurable objective levels established at 50% or more of the RMPs for two consecutive years in a management area, then the net use of groundwater in that management area will be reduced by a minimum 5% (Calimesa and Western Heights management areas) to 25% (North Bench management area) of the estimated sustainable yield for that management area. Groundwater elevations below the measurable objectives fall within drought buffers established in the North Bench, Calimesa and Western Heights management

areas. Reductions in the net use of groundwater in the Calimesa and Western Heights management areas are based on a tier structure that incrementally increases the reduction in groundwater use should groundwater elevations continue to decline.

If groundwater elevations decline below the minimum threshold levels established at 50% or more of the RMPs for two consecutive years in a management area, then the net use of groundwater in that management area will be reduced by a minimum 15% (Western Heights management area) to 35% (North Bench management area) of the estimated sustainable yield for that management area.

The net reductions in groundwater use may be achieved by either reducing groundwater production, artificially recharging the aquifer with supplemental water, using supplemental water for in lieu use, enacting water conservation programs and/or other programs that result in a net reduction of groundwater use, or any combination of these actions that result in a net reduction of groundwater use by the required reduction amount stipulated in this management action for a management area. Groundwater production may increase when groundwater levels recover to a higher tier in the drought buffer or rise above the measurable objective for two consecutive years. If the management action is implemented and conditions do not improve over a 5-year evaluation period, then the Yucaipa GSA will reevaluate and, possibly, recalibrate the YIHM to improve the accuracy of the model in estimating the sustainable yield and predicting future conditions.

For the San Timoteo Management Area, six RMPs were identified to characterize shallow groundwater elevations and evaluate whether groundwater production from the principal aquifer will cause significant and unreasonable effects on the interconnection between surface water and groundwater. GDEs have been identified along the reach of San Timoteo Creek in the Plan Area. If groundwater levels decline at 50% or more of the RMPs below 20 feet bgs for two consecutive years, then the Yucaipa GSA will investigate to confirm that the decline in the water table is a result of groundwater production from the principal aquifer. This may include observing groundwater levels at the RMPs and measuring stream flow when the principal aquifer well(s) is operating, or designing and implementing an aquifer test to confirm the influence of groundwater production from the principal aquifer on stream flow and the groundwater table. If an aquifer test is conducted and confirms the influence of production from the principal aquifer on the surface water/groundwater interconnection and a subsequent drawdown of the water table, then production from the principal aquifer will be reduced to the extent that it no longer causes a significant and unreasonable effect.

ES-4.2 Management Action No. 2

Management Action No. 2: Sustainable Yield Pumping Allocations and Groundwater Replenishment

At the adoption of the GSP, groundwater sustainable yield pumping allocations will be assigned to YVWD and private water users in the North Bench Management Area, to South Mountain, South Mesa, YVWD and private water users in the Calimesa Management Area, and to WHWC in the Western Heights management area. No sustainable yield pumping allocations were assigned in the San Timoteo management area at this time because the Yucaipa GSA needs to confirm the location and volume of private pumping from the principal aquifer and determine whether sustainable yield pumping allocations are appropriate to manage groundwater production in this management area.

The pumping allocations are designed to regulate the annual volume of groundwater produced by each groundwater user per water year and maintain the total groundwater produced at or below the estimated sustainable yields for these management areas. As an incentive to manage groundwater production at or below the sustainable yield

pumping allocation, a groundwater user may earn pumping credits in the amount of the sustainable yield pumping allocation less the groundwater pumped.

The Yucaipa GSA will apply a 5-year rolling pumping credit system to keep account of the pumping credits earned by each groundwater user, meaning pumping credits that are earned and not used after 5 years will be lost. Pumping credits, if available, may be used to offset the volume of groundwater produced in excess of the sustainable yield pumping allocation to the extent that the credits equal the pumping exceedance. Any remaining deficit will be charged a replenishment fee. The replenishment fee will be equivalent to the volume of groundwater that exceeds the sustainable yield pumping allocation multiplied by the rate per AF to purchase supplemental water at San Bernardino Valley Municipal Water District or San Gorgonia Pass Water Agency rates for imported SWP water. The supplemental water may be used to artificially recharge a management area, or as in lieu use to offset the pumping exceedance. Any pumping credits remaining will carry over into the next water year under the 5-year rolling pumping credit system.

The assessment for pumping credits will begin with the 2022 WY. The volume of water pumped per user will be accounted for on a monthly basis beginning October 1, 2021. Pumping credits will be earned by users that pump less than their respective sustainable yield pumping allocations for the 2022 WY. Pumping credits cannot be transferred or sold to another entity within a given management area or with the Subbasin. The sustainable yield pumping allocations will be reassessed during every periodic evaluation when the water budget analysis is updated and the sustainable yield reevaluated.

ES-4.3 Management Action No. 3

Management Action No. 3: Surplus Supplemental Water Spreading

Surplus supplemental water, which is not associated with Management Action #2, and discharged to a spreading basin to facilitate the artificial recharge of the Subbasin will have a separate accounting by the Yucaipa GSA. The surplus supplemental water will be accessible to the water purveyor that purchased the water and percolated it at a spreading basin. This water will be available to help offset production exceedances above the sustainable yield pumping allocations instead of pumping credits earned via Management Action #2.

ES-4.4 Projects

Currently, the Plan Area is not experiencing undesirable results with regard to the chronic lowering of groundwater elevations, reduction of groundwater in storage, land subsidence, and depletion of surface water as a result of groundwater production from the principal aquifer that threatens GDEs. The importation of SWP water as a supplemental source of water, both as direct use and through artificial recharge in the various spreading basins, has allowed the Yucaipa GSA member agencies to reduce groundwater production in the North Bench, Calimesa and Western Heights management areas to levels below their respective estimated sustainable yields. Groundwater production by private well owners in the San Timoteo management area has not caused significant and unreasonable effects related to the sustainability indicators per SGMA. The Subbasin is currently managed sustainably.

Management actions were defined to achieve sustainable management of the groundwater resources in the Plan Area should groundwater elevations decline below measurable objectives. These actions will be implemented when groundwater levels decline to the drought buffers established for the North Bench, Calimesa and Western Heights management areas. The drought buffers provide operational flexibility for the Yucaipa GSA to implement these management actions and/or other programs to prevent undesirable results.

Some of the member agencies of the Yucaipa GSA have constructed stormwater capture basins to enhance recharge to the Subbasin. The Wilson Creek and Oak Glen Creek basins are designed to capture stormwater, but are primarily used to artificially recharge the Subbasin using surplus SWP water delivered by the SWP East Branch Extension. These basins are included in the YIHM to simulate their contributions to recharge to the Subbasin. The Wilson Creek and Oak Glen Creek basins have contributed an average 1,900 AFY and 170 AFY, respectively, since 2011. The other existing stormwater capture basins are estimated to capture approximately 1,800 AFY. These projects provide additional benefits including improving water quality in surface waters by reducing stormwater runoff volumes and providing wildlife habitat.

The Yucaipa GSA identified proposed projects that have been designed, permitted, and are undergoing development or will in the near future. These include the Wilson Creek III Basins, the Pendleton Avenue Low Water Crossing, and the Upper Wildwood Creek Basin. The projects funded by the City of Yucaipa (with major funding also provided by SBVMWD for the Wilson III Basins) are designed to capture stormwater flows and enhance recharge to the Subbasin. The estimated average annual recharge contribution is approximately 1,500 AF. These basins will be located in the North Bench management area. These planned basins were not included in the future water budget analyses for the North Bench management area using the YIHM, because the North Bench management area is not projected to experience undesirable results over the 50-year planning and implementation horizon. However, these planned projects will provide additional opportunities to capture and recharge stormwater flows, thereby reducing the reliance on imported water to meet the basin measurable objectives.

ES-5 Plan Implementation

Upon adoption of this GSP by the Yucaipa GSA, the primary activities associated with implementing the GSP include administrative duties by the member agencies of the Yucaipa GSA, the management of data collection, data validation, and analysis to evaluate conditions in the Subbasin, the preparation and submittal of annual reports and periodic evaluations, with associated data, to DWR, and an assessment of conditions in the Subbasin and determination if management actions need to be implemented. During the initial 5-year period after the GSP is adopted, the Yucaipa GSA will evaluate options to address data gaps, and conduct feasibility studies to evaluate the effectiveness of potential spreading basins and other programs that would maintain or achieve sustainability in the Subbasin.

DATE: January 11, 2022

TO: Board of Directors' Workshop - Engineering

FROM: Matthew Howard, Water Resources Senior Planner

SUBJECT: Consider Contract Amendment with Dudek to Prepare the 2022 Annual Report for the Yucaipa Sustainable Groundwater Management Agency

Staff Recommendations:

Forward this item to the next regular Board of Directors' meeting for consideration.

Summary

Staff is recommending a contract amendment with Dudek to prepare the 2022 Annual Report for the Yucaipa Sustainable Groundwater Management Agency ((Yucaipa SGMA) at a cost of $27,320. Valley District's share of this contract amendment is $1,708.

Background

The Sustainable Groundwater Management Act (SGMA) went into effect on January 1, 2015 by identifying unmanaged, or un-adjudicated basins throughout the State of California. For each of these unmanaged basins, a Groundwater Sustainability Agency is required to be established and to prepare a Groundwater Sustainability Plan (GSP). The only principal basin or sub-basin that is not managed, or adjudicated, within the Valley District service area is the Yucaipa Basin. On June 22, 2017, San Bernardino Valley Municipal Water District (Valley District) joined the City of Redlands, San Gorgonio Pass Water Agency, South Mesa Water Company, South Mountain Water Company, Western Heights Water Company, the City of Yucaipa and the Yucaipa Valley Water District to form the Yucaipa SGMA under the Sustainable Groundwater Management Act (SGMA). Further, the Yucaipa SGMA is required to submit a Groundwater Sustainability Plan (GSP) by January 31, 2022 and subsequent annual reports starting in 2022.

One of the SGMA requirements is to prepare and submit an annual report to the Department of Water Resources (DWR) by April 1st of each year following the adoption of the GSP. This first

annual report for the Yucaipa SGMA will include information collected from the 2018-19 water year to the 2020-21 water year. This information will include groundwater elevations, groundwater production, groundwater quality, quantity of surface water supply, and an estimate of annual change in storage. The annual report will also include a description of the progress in implementing the GSP, including any necessary management actions and/or projects there were implemented to maintain sustainability. The information required for the first annual report will be provided by the Yucaipa SGMA parties through the Yucaipa SGMA Data Management System. Upon completion of the first annual report, the Yucaipa SGMA parties will be provided the opportunity to review and comment on the draft annual report prior to submittal to DWR by April 1, 2022.

Dudek is the consultant contracted to prepare the GSP, therefore this proposal was requested by the Yucaipa SGMA and presented at the Yucaipa SGMA Board Meeting on October 27, 2021. The proposal was unanimously approved by the Yucaipa SGMA Board. The Yucaipa SGMA Memorandum of Agreement proportioned 75% of costs to the retail water agencies (South Mesa Water Company, South Mountain Water Company, Western Heights Water Company and Yucaipa Valley Water District) with the remaining 25% shared equally amongst the regional water agencies and major interested parties (San Bernardino Valley Municipal Water District, San Gorgonio Pass Water Agency, City of Redlands and the City of Yucaipa).

Fiscal Impact:

The net fiscal impact to Valley District is $1,708. However, as the contracting agency, Valley District needs to amend the contract with Dudek for the entire, additional amount of $27,320. This item was included in the approved FY 2021-22 General Fund Budget.

Attachments:

Dudek's Proposal to Prepare 2022 Annual Report for the Yucaipa Subbasin

September 24, 2021

Yucaipa Sustainable Groundwater Management Agency
c/o San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
San Bernardino, California 92408

Subject: Proposal to Prepare 2022 Annual Report for the Yucaipa Subbasin

Dear Yucaipa-SGMA Member Agencies:

Dudek is pleased to present this scope of work and fee to the Yucaipa Sustainable Groundwater Management Agency (Yucaipa-SGMA) to prepare the first annual report for the Yucaipa Subbasin following the adoption of the Groundwater Sustainability Plan (GSP). Per Subarticle 7 of Article 5 of the California Code of Regulations Division 2 Chapter 1.5 (23 CCR §356.2), each Groundwater Sustainability Agency (GSA) is required to submit an annual report by April 1 of each year following the adoption of a GSP. In summary, the first annual report for the Yucaipa Subbasin will include information collected from the 2018-2019 water year (WY) to the 2020-2021 WY. This information will include groundwater elevation, groundwater production, groundwater quality, an accounting of surface water supply, and an estimate of the annual change in storage since the 2018-2019 WY. This data will also be uploaded (if not already) to the Data Management System developed for the Yucaipa GSP.

The annual report will also include a description of the progress in implementing the GSP, including any management actions and/or projects that were implemented to achieve or maintain sustainability. The volume of groundwater pumped per user will be compared to their respective sustainable yield pumping allocations to determine if pumping credits were earned or used, and whether supplemental water was used to directly recharge the aquifer. The accounting of pumping credits and supplemental water that directly recharges the aquifer will help determine if a management action is required.

The following scope of work and fee details the tasks Dudek will undertake to prepare and submit to DWR an annual report that is compliant with the requirements under the Sustainable Groundwater Management Act (SGMA).

1 Scope of Work

Task 1 Groundwater Evaluations

Task 1.1 Update Groundwater Elevation Hydrographs

Static groundwater elevation data measured at the 76 wells identified in the monitoring network in the GSP will be updated for 2019, 2020 and 2021. The observed groundwater elevation data will be compared to the simulated hydraulic heads (i.e., groundwater elevation) projected by the United States Geological Survey's (USGS) Yucaipa Integrated Hydrologic Model (YIHM) used to predict groundwater conditions in the Yucaipa Subbasin

during the development of the GSP. In addition to the static groundwater elevation, the status of the well at the time of measurement will be reported and any issues regarding access to the well, modifications made to the well that affect the method for measuring the groundwater elevation, will be included in the report. This task will also identify the seasonal high and low groundwater elevations observed in the 2019, 2020 and 2021 water years.

Fee for Task 1.1 ..... *$2,210.00*

Task 1.2 Update Water Year-Types

The monthly precipitation data collected at the 17 San Bernardino County Flood Control District (SBCFCD) climatic stations located throughout the Subbasin, plus monthly precipitation data collected at three National Oceanic and Atmospheric Administration (NOAA) climatic stations will be compiled and analyzed to characterize the water year-types for the 2019 WY (October 1, 2018 to September 30, 2019), 2020 WY and 2021 WY. Any new climatic stations installed in the Subbasin since the adoption of the GSP will be assessed and included in the climate network.

A figure identifying the water year-types beginning in 1953 (Figure 2-3 in Chapter 2 of the GSP) will be updated to include the latest three years. Additionally, the monthly precipitation data will be used to update the cumulative departure from mean monthly precipitation chart (Figure 2-2 in Chapter 2 of the GSP) to update the precipitation trends observed since the early 1960s. These two updated figures will be included in the annual report.

Fee for Task 1.2 ..... *$1,930.00*

Task 1.3 Plan View Maps of Seasonal Highs and Lows

Plan view maps depicting static groundwater elevations and the hydraulic gradient across the Yucaipa Subbasin will be prepared for the seasonal highs and lows observed in the 2019, 2020 and 2021 water years. The figures will be prepared similarly to Figures 2-29 and 2-30 in Chapter 2 of the GSP that depicted the seasonal low and high, respectively, for the 2018 WY. Each plan view map will include the measured groundwater elevation at the 76 wells in the monitoring network (if available) and indicate the direction of groundwater flow.

Fee for Task 1.3 ..... *$4,110.00*

Task 1.4 Update Groundwater Production Database

Groundwater production data will be collected and compiled to report the annual volume of groundwater extracted by the active water supply wells in the Subbasin, and wells located outside the Subbasin that pump water into the Subbasin. The annual groundwater production data will be included in the groundwater elevation hydrographs, where applicable, to demonstrate the influence of pumping on groundwater elevations. The annual production will be compared to the sustainable yield pumping allocations assigned to each water purveyor. This analysis will determine if a water purveyor earned pumping credits or will be charged a replenishment fee depending on the volume extracted versus the sustainable yield pumping allocation. A summary of this analysis and accounting for each water purveyor will be included in tabular form in the annual report.

Fee for Task 1.4 ..... *$1,370.00*

Task 1.5 Update Groundwater Quality Database

This task includes updating the GSP groundwater quality database with data collected for the Maximum Benefits Monitoring Program, and will include a review of groundwater monitoring reports uploaded to the Santa Ana River Regional Water Quality Control Board's (Water Board) GeoTracker website for the sites identified in the GSP as active remediation sites in the Subbasin. Groundwater quality hydrographs presented in the GSP will be updated with data from the 2018-2019 water year to the 2020-2021 water year. These hydrographs will include updated data for concentrations of nitrate (as nitrogen) and total dissolved solids.

Fee for Task 1.5 ..... $1,090.00

Task 1 Deliverables

- Groundwater Elevation hydrographs for the 76 wells in the GSP monitoring network
- Groundwater Quality hydrographs showing concentrations of nitrate (as nitrogen) and TDS in groundwater
- Groundwater production table summarizing the volume of groundwater produced for each groundwater user
- Updated figure showing the historical water year-types beginning with the 1953 water year (Figure 2-3 in Chapter 2 of the GSP)
- Plan view maps showing groundwater elevation contours in the Yucaipa Subbasin for the following seasonal highs and lows:
  - Spring 2019
  - Fall 2019
  - Spring 2020
  - Fall 2020
  - Spring 2021
  - Fall 2021

Total Fee for Task 1 ..... $10,710.00

Task 2 Surface Water Supply

Task 2.1 Update State Water Project Water Importation

An accounting of the volume of State Water Project (SWP) water imported into the Subbasin will be included in the annual report. The volume of SWP water directed to Yucaipa Valley Water District's Yucaipa Valley Water Filtration Facility (YVWFF) and SWP water that was discharged to the Wilson Creek and Oak Glen Creek spreading basins will be reported with an update to Figure 2-21 of Chapter 2 of the GSP.

Fee for Task 2.1 ..... $1,635.00

Task 2.2 Update Surface Water Diversions

This task will include an update to the volume of surface water diverted from 2019 to 2021 for consumptive use in the Subbasin. Dudek understands that YVWD-25 is the diversion point for surface water flows in Oak Glen Creek. Water produced by this well will be tabulated and used to update Figure 2-21 of Chapter 2 of the GSP.

Fee for Task 2.2 ..... $685.00

Total Fee for Task 2 ..... $2,320.00

Task 3 Change in Groundwater in Storage

Task 3.1 Update YIHM

The annual change in groundwater in storage for the 2018-2019, 2019-2020, and 2020-2021 water years will be conducted using the YIHM. The YIHM will be updated with actual pumping information, climatic data and surface water discharged to spreading basins (and potentially storm water flows captured by storm water basins) from 2018 to 2021. An annual water budget analysis will be completed for each water year by identifying the components of inflows and outflows in the Subbasin and the four management areas. This task will also serve as an exercise in validating the YIHM by comparing simulated results to observed conditions since 2018. Validation is a process of evaluating the uncertainty of a numerical model and helps define the error in the results.

The estimated change in storage by the YIHM will be compared to the estimated change in storage in the Yucaipa Subbasin included in the *Change in Groundwater Storage for the San Bernardino, Rialto-Colton and Yucaipa Basin Areas* reports prepared by San Bernardino Valley Municipal Water District, and to observed groundwater level fluctuations since 2018. For example, if the YIHM simulates a decline in storage is this result supported by observed declines in groundwater levels?

Fee for Task 3.1 ..... $3,340.00

Task 3.2 Water Budget Analyses and Figure Updates

The estimated annual changes in storage by the YIHM will be used to update the following figures depicting the annual water budget analyses and changes in storage: Figure 2-62 (Yucaipa Subbasin), Figure 2-66 (North Bench Management Area), Figure 2-69 (Calimesa Management Area), Figure 2-71 (Western Heights Management Area), and Figure 2-73 (San Timoteo Management Area) in Chapter 2 of the GSP.

Fee for Task 3.2 ..... $2,580.00

Total Fee for Task 3 ..... $5,920.00

Task 4 Annual Report

Task 4.1 Prepare Draft Annual Report

Dudek will prepare a draft of the annual report for the Yucaipa-SGMA to review and provide comments. The draft report will include all required reporting sections listed in 23 CCR §356.2, including tables, figures, and appendices to support the findings in the annual report. The annual report will conclude with an assessment of the implementation of the GSP, addressing data gaps identified in the GSP, and a description summarizing whether any management actions were implemented and why. The report will also include an assessment of the monitoring network and will identify any modifications or issues that affect the collection of data and evaluation of conditions in the Subbasin.

Dudek anticipates providing a draft copy of the annual report to the Yucaipa-SGMA to review on March 4, 2022. Dudek anticipates two weeks for the Yucaipa-SGMA to review and provide comments; and two weeks for Dudek to address all comments and revise the draft annual report accordingly.

DWR has prepared Microsoft Excel data upload templates for GSA's to report basin wide groundwater extraction, surface water supplies, and total water use data. Dudek will utilize these templates to ensure that the data is reported consistently per the requirements by DWR and uploaded successfully to the Monitoring Network Module on their SGMA Portal (https://sgma.water.ca.gov/portal/).

There is no formal requirement per SGMA for the Yucaipa-SGMA to release a draft of an annual report for public review. Therefore, this task does not include the submittal of a draft of the annual report for public review.

Fee for Task 4.1 ..... $7,000.00

Task 4.2 Prepare Final Annual Report

The draft annual report will be revised per comments and suggested edits received by the Yucaipa-SGMA. A final version of the annual report will be prepared for submittal to DWR by April 1, 2022.

Fee for Task 4.2 ..... $1,370.00

Task 4 Deliverables

- Draft Annual Report to the Yucaipa-SGMA
- Final Annual Report for Submittal to DWR

Total Fee for Task 4 ..... $8,370.00

Schedule

The anticipated schedule for preparing the first annual report for the Yucaipa Subbasin follows:

- **December 2021** - Anticipated Start Date per authorization by the Yucaipa-SGMA to proceed

- **March 4, 2022** - Draft Annual Report to Yucaipa-SGMA to review and provide comments
- **March 7 – 18, 2022** – Review period for Yucaipa-SGMA
- **March 21 – 31, 2022** – Dudek to revise draft annual report per Yucaipa-SGAM comments
- **April 1, 2022** – Submit Final Annual Report to DWR with Excel Data templates

Fee Summary

The fee presented in this proposal will be charged on a time and materials basis in accordance with Dudek's 2021 Standard Schedule of Charges. The time and materials fee provided in this proposal represents an estimate of the anticipated level of effort required to complete the tasks described in the proposal. Should the actual effort required to complete the tasks be less than anticipated, the amount billed will be less than the total fee. Conversely, should the actual effort to complete the proposed tasks be greater than anticipated, additional fee authorizations will be requested. No work in excess of the proposed fee or outside of the proposed scope of work will be performed without written authorization from the Yucaipa-SGMA.

TOTAL FEE $27,320.00

Dudek appreciates the opportunity to present this proposal to prepare the first annual report for the Yucaipa Subbasin following the adoption of the GSP. We look forward to continuing our working relationship with the Yucaipa-SGMA and assisting the Yucaipa-SGMA in sustainably managing the Subbasin now and in to the future.

If you have any questions regarding this proposal, please call me at 760-415-9079 or email me at sstuart@dudek.com.

Sincerely,

Steven Stuart, PE C79764
Principal Hydrogeologist, Project Manager

Att.: *Table 1. Fee for 2022 Yucaipa GSP Annual Report*
Dudek 2021 Standard Schedule of Charges
cc: *Matt Howard, San Bernardino Valley Municipal Water District*

Attachment A

Table 1. Fee for the 2022 Yucaipa GSP Annual Report
Dudek 2021 Standard Schedule of Charges

TABLE 1. FEE FOR 2022 YUCAIPA GSP ANNUAL REPORT
DUDEK FEE SCHEDULE

		Team Member:	Steven Stuart, PE	Trevor Jones, PhD	Xiomara Rosenblatt			
		Project Team Role:	Project Manager	Numerical Model	Hydrogeologist			
		Labor Class:	Principal Hydrogeologist II	Sr. Hydrogeologist I	Hydrogeologist II			
		Billable Rate :	$265	$190	$140	TOTAL HOURS	LABOR COST	TOTAL
Task 1 - Groundwater Evaluations								
1-1	Update Groundwater Elevations		2		12	14	$ 2,210	$ 2,210
1-2	Update Water Year-Types		2		10	12	$ 1,930	$ 1,930
1-3	Plan View Maps of Seasonal Highs and Lows		6		18	24	$ 4,110	$ 4,110
1-4	Update Groundwater Production		2		6	8	$ 1,370	$ 1,370
1-5	Update Groundwater Quality		2		4	6	$ 1,090	$ 1,090
	Subtotal Task 1		**14**		**50**	**64**	**$ 10,710**	**$ 10,710**
Task 2 - Surface Water Supplies								
2-1	SWP Water Importation		3		6	9	$ 1,635	$ 1,635
2-2	Surface Water Diversions		1		3	4	$ 685	$ 685
	Subtotal Task 2		**4**		**9**	**13**	**$ 2,320**	**$ 2,320**
Task 3 - Change in Groundwater in Storage								
3-1	Update YIHM		4	12		16	$ 3,340	$ 3,340
3-2	Water Budget Analyses and Figure Updates		4	8		12	$ 2,580	$ 2,580
	Subtotal Task 3		**8**	**20**		**28**	**$ 5,920**	**$ 5,920**
Task 4 - Annual Report								
4-1	Draft Report and Address Comments		8	8	24	40	$ 7,000	$ 7,000
4-2	Final Report		2		6	8	$ 1,370	$ 1,370
	Subtotal Task 4		**10**	**8**	**30**	**48**	**$ 8,370**	**$ 8,370**
	Total Hours and Fee		**36**	**28**	**89**	**153**	**$27,320.00**	**$27,320.00**

DUDEK
2021 STANDARD SCHEDULE OF CHARGES

Engineering Services

Project Director	$295.00/hr
Principal Engineer lll	$275.00/hr
Principal Engineer II	$265.00/hr
Principal Engineer I	$255.00/hr
Program Manager	$240.00/hr
Senior Project Manager	$240.00/hr
Project Manager	$235.00/hr
Senior Engineer III	$230.00/hr
Senior Engineer II	$220.00/hr
Senior Engineer I	$210.00/hr
Project Engineer IV/Technician IV	$200.00/hr
Project Engineer lll/Technician III	$190.00/hr
Project Engineer II/Technician II	$175.00/hr
Project Engineer I/Technician I	$160.00/hr
Senior Designer	$180.00/hr
Designer	$170.00/hr
Assistant Designer	$165.00/hr
CADD Operator III	$160.00/hr
CADD Operator II	$150.00/hr
CADD Operator I	$135.00/hr
CADD Drafter	$125.00/hr
CADD Technician	$115.00/hr
Project Coordinator	$140.00/hr
Engineering Assistant	$120.00/hr

Environmental Services

Project Director	$245.00/hr
Senior Specialist IV	$230.00/hr
Senior Specialist III	$220.00/hr
Senior Specialist II	$200.00/hr
Senior Specialist I	$190.00/hr
Specialist V	$180.00/hr
Specialist IV	$170.00/hr
Specialist III	$160.00/hr
Specialist II	$145.00/hr
Specialist I	$130.00/hr
Analyst V	$120.00/hr
Analyst IV	$110.00/hr
Analyst III	$100.00/hr
Analyst II	$90.00/hr
Analyst I	$80.00/hr
Technician V	$100.00/hr
Technician IV	$90.00/hr
Technician III	$80.00/hr
Technician II	$70.00/hr
Technician I	$60.00/hr
Compliance Monitor	$95.00/hr

Data Management Services

GIS Programmer I	$185.00/hr
GIS Specialist IV	$160.00/hr
GIS Specialist III	$150.00/hr
GIS Specialist II	$140.00/hr
GIS Specialist I	$130.00/hr
Data Analyst III	$100.00/hr
Data Analyst II	$90.00/hr
Data Analyst I	$80.00/hr
UAS Pilot	$100.00/hr

Construction Management Services

Principal/Manager	$195.00/hr
Senior Construction Manager	$180.00/hr
Senior Project Manager	$165.00/hr
Construction Manager	$155.00/hr
Project Manager	$145.00/hr
Resident Engineer	$145.00/hr
Construction Engineer	$140.00/hr
On-site Owner's Representative	$140.00/hr
Construction Inspector III	$130.00/hr
Construction Inspector II	$120.00/hr
Construction Inspector I	$110.00/hr
Prevailing Wage Inspector	$135.00/hr

Hydrogeology/HazWaste Services

Project Director	$285.00/hr
Principal Hydrogeologist/Engineer II	$265.00/hr
Principal Hydrogeologist/Engineer I	$250.00/hr
Sr. Hydrogeologist IV/Engineer IV	$235.00/hr
Sr. Hydrogeologist III/Engineer III	$220.00/hr
Sr. Hydrogeologist II/Engineer II	$205.00/hr
Sr. Hydrogeologist I/Engineer I	$190.00/hr
Hydrogeologist VI/Engineer VI	$180.00/hr
Hydrogeologist V/Engineer V	$170.00/hr
Hydrogeologist IV/Engineer IV	$160.00/hr
Hydrogeologist III/Engineer III	$150.00/hr
Hydrogeologist II/Engineer II	$140.00/hr
Hydrogeologist I/Engineer I	$130.00/hr
Technician	$100.00/hr

District Management & Operations

District General Manager	$195.00/hr
District Engineer	$185.00/hr
Operations Manager	$160.00/hr
District Secretary/Accountant	$120.00/hr
Collections System Manager	$135.00/hr
Grade V Operator	$125.00/hr
Grade IV Operator	$110.00/hr
Grade III Operator	$100.00/hr
Grade II Operator	$75.00/hr
Grade I Operator	$70.00/hr
Operator in Training	$65.00/hr
Collection Maintenance Worker	$75.00/hr

Creative Services

3D Graphic Artist	$180.00/hr
Graphic Designer IV	$160.00/hr
Graphic Designer III	$145.00/hr
Graphic Designer II	$130.00/hr
Graphic Designer I	$115.00/hr

Publications Services

Technical Editor lll	$145.00/hr
Technical Editor ll	$130.00/hr
Technical Editor l	$115.00/hr
Publications Specialist lll	$105.00/hr
Publications Specialist ll	$95.00/hr
Publications Specialist l	$85.00/hr
Clerical Administration	$90.00/hr

Forensic Engineering – Court appearances, depositions, and interrogatories as expert witness will be billed at 2.00 times normal rates.

Emergency and Holidays – Minimum charge of two hours will be billed at 1.75 times the normal rate.

Material and Outside Services – Subcontractors, rental of special equipment, special reproductions and blueprinting, outside data processing and computer services, etc., are charged at 1.15 times the direct cost.

Travel Expenses – Mileage at current IRS allowable rates. Per diem where overnight stay is involved is charged at cost

Invoices, Late Charges – All fees will be billed to Client monthly and shall be due and payable upon receipt. Invoices are delinquent if not paid within 30 days from the date of the invoice. Client agrees to pay a monthly late charge equal to 1% per month of the outstanding balance until paid in full.

Annual Increases – Unless identified otherwise, these standard rates will increase 3% annually.

The rates listed above assume prevailing wage rates does not apply. If this assumption is incorrect Dudek reserves the right to adjust its rates accordingly.