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Development of a Puente Basin Groundwater Management Plan

Review of Draft Technical Memorandum 2 (TM-2) Goals and Concepts for Improved Management of the Puente Basin

February 12, 2024

PUENTE BASIN WATER AGENCY
established 1971

Agenda

- Introductions
- Review of Draft *TM-2 Goals and Concepts for Improved Management of the Puente Basin:*
  - *Refresher on Basin Management Implications from TM-1*
  - *Goals for Basin Management*
  - *GMP Objective Statement*
  - *Concepts for Improved Basin Management*
  - *Phase 2 Approach*
  - *Scope of Services to Perform Phase 2 – Part 1*
  - *Schedule to Perform Phase 2 – Part 1*
- Next Steps

TM-2 Table of Contents

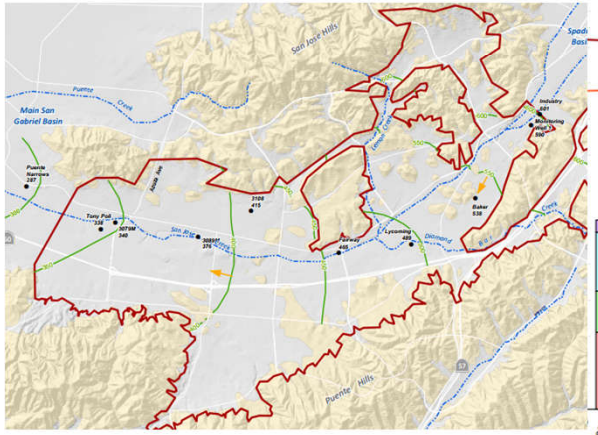
TM-2
1.0 Background

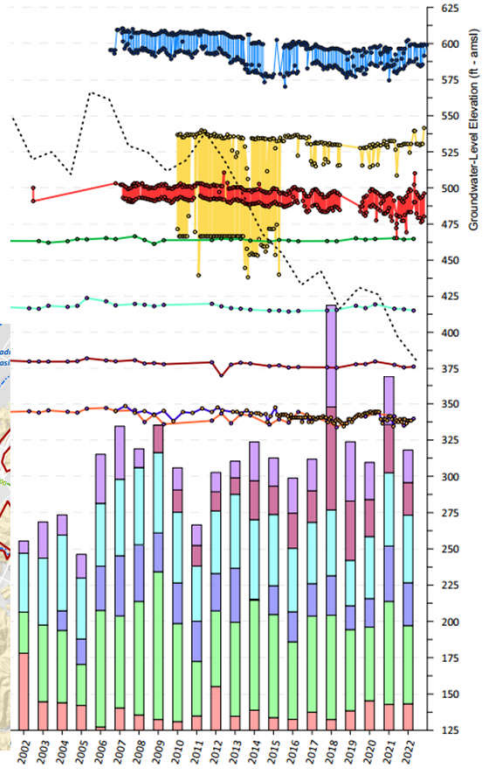
Review of Basin Management Implications (from TM-1)

Basin Management Implications

Size of the Basin and yield of groundwater that can be reliably pumped (~ 1,400 afy) is small

- Increased pumping without recharge could cause significant declines in groundwater levels → could cause:
  - significant changes in the direction of flow
  - pumping sustainability challenges at wells
  - Impacts to GDEs (if exist)
  - Reduction in outflow to Main San Gabriel Basin

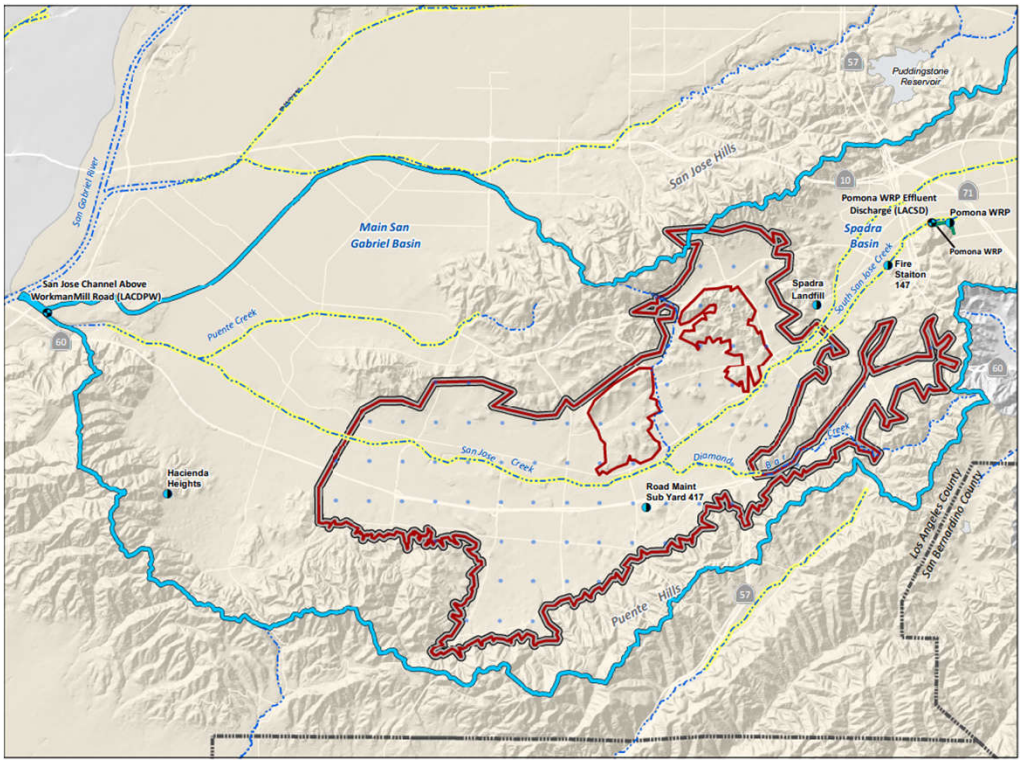




Basin Management Implications

Recharge to the Puente Basin is Limited

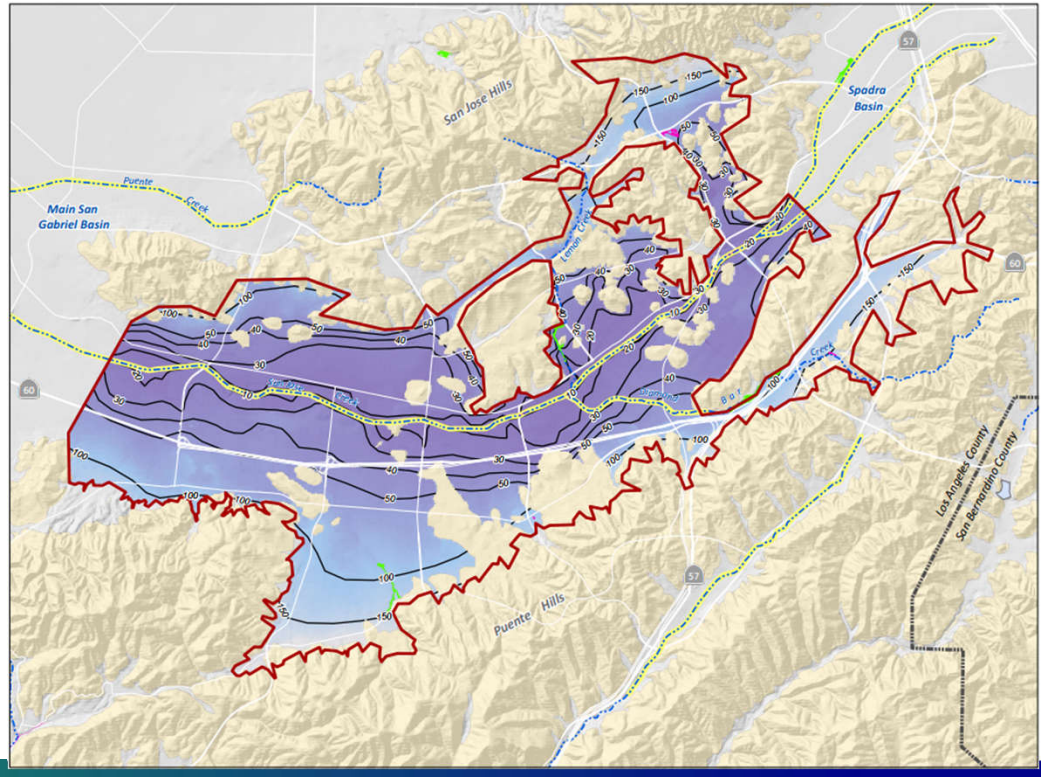
- Reasons:
  - small tributary watershed
  - concrete-lining of the creeks that cross the basin,
  - small volume of subsurface inflow from upgradient basin
  - absence of artificial recharge of supplemental water
- Could decrease more with conservation (return flows)
- Primary reason the yield of the basin is 1,400 afy



Basin Management Implications

Depth to Groundwater is relatively shallow across the Puente Basin

- 20-50 ft-bgs across the most the basin
- Limited volumes of unused storage
- If you increase recharge than you will have to increase pumping

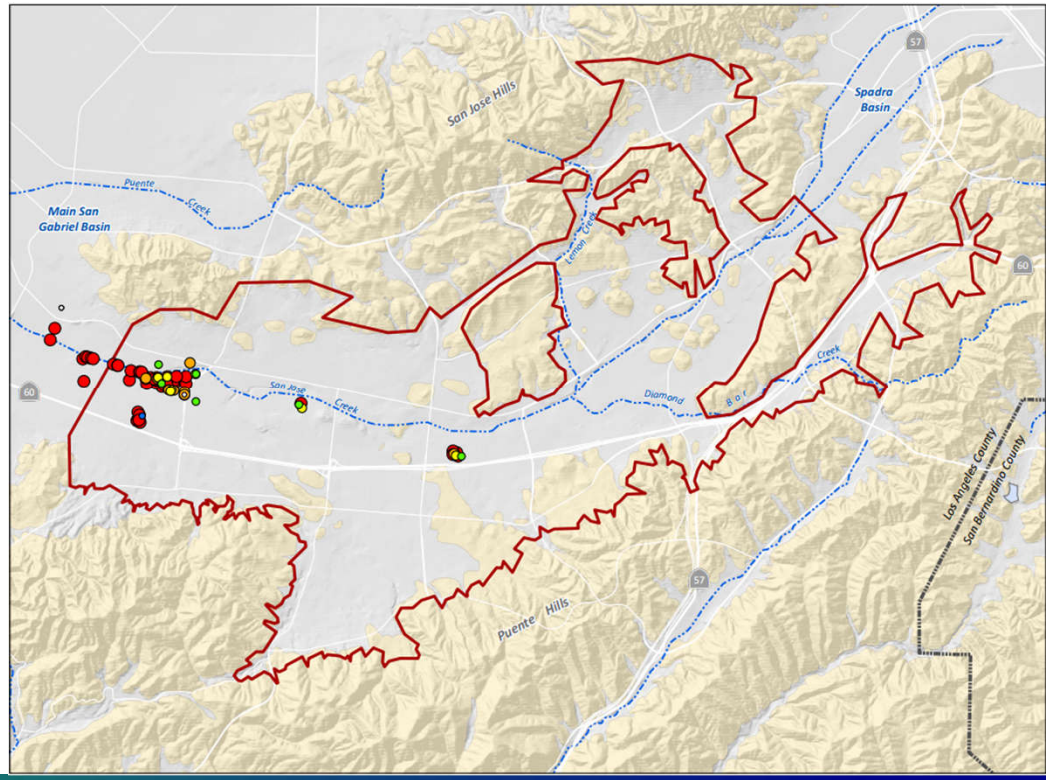


Basin Management Implications

Currently Puente Basin is used for non-potable supply

- Analysis of available groundwater-quality data indicates that concentrations of TDS, nitrate, TCE, PCE, and other VOCs in the basin are generally higher than primary and secondary MCLs.

- Treatment would be required to produce a potable groundwater supply that complies with the drinking water standards.



Basin Management Implications

There are several gaps in data/understanding of the basin that may need to be filled to support the design and implementation of certain basin management strategies

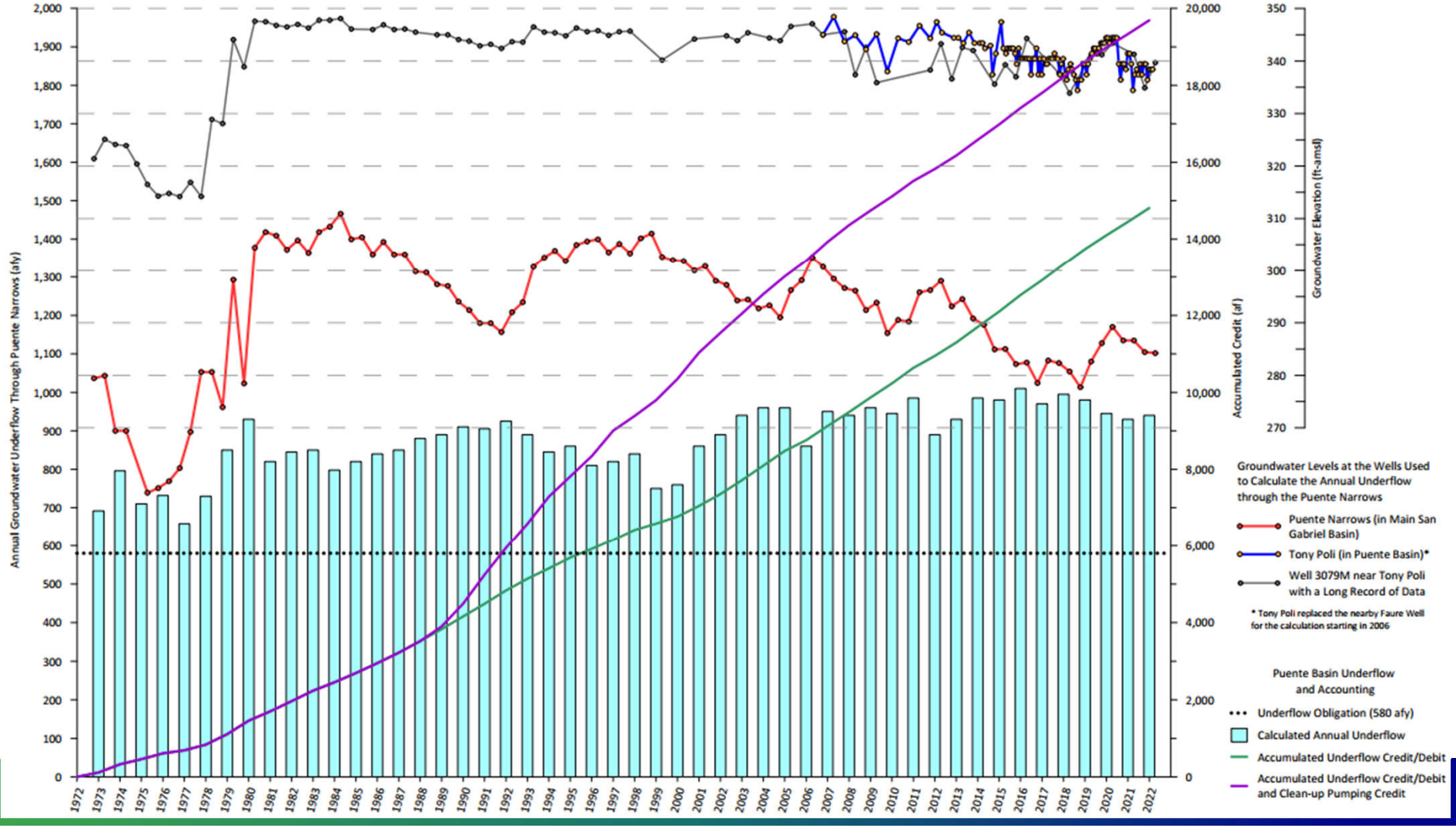
Water Quality	• Needs more robust characterization of contaminants, gaps at existing pumping wells. Informs on the type of treatment needed. Optimize treatment.
GDEs	• If activities are going to drawdown levels near potential GDEs • Confirm GDE presence, consider impact, and monitoring
Supplies for Recharge	• Understand quantities, availability and reliability of water supplies for artificial recharge (surface water runoff, recycled water, and imported water)
Land Subsidence	• What is the potential for pumping-induced land subsidence
Underflow Obligation	• How and if the PBWA's underflow obligation through the Puente Narrows will be met
Aquifer in Bedrock Highs	• Data gap in aquifer properties in bedrock-high areas: subbasins, groundwater flow? Implications on how to develop GMP strategies.

TM-2
2.0 Goals for Basin Management and GMP Objective Statement

Draft Goals for Basin Management

- Increase use of Puente Basin groundwater to become less reliant on imported water.
- Manage the Puente Basin in a manner that avoids adverse impacts, such as chronic lowering of groundwater levels, land subsidence, degrading water quality, impacting GDEs, etc.
- Control groundwater underflow through the Puente Narrows in a manner to comply with the Puente Narrows Agreement while utilizing existing credits and minimizing the accumulation of credits in the future.

Puente Narrows Agreement: Underflow and Accounting of Accumulated Credits (Figure in TM-1)



Draft GMP Objective Statement

"Enhance the use of Puente Basin groundwater in a sustainable manner to become less reliant on imported water while maintaining compliance with the Puente Narrows Agreement"

Questions and Comments on Draft Goals for Basin Management and GMP Objective Statement?

TM-2
3.0 Project Concepts for Improved Basin Management

Increase Groundwater Pumping

Purpose

- Enhance the use of the groundwater basin to create new potable or non-potable water supplies, decrease reliance on imported water, and minimize subsurface outflow of groundwater to the Main San Gabriel Basin

Conceptual Project Alternatives

- There can be various alternatives:
- Increased pumping from new/existing locations
- Various locations across the Puente Basin.
- Various alternatives for the ultimate use of the water

Enhance Recharge

Purpose

- Utilize local reliable water sources that are not currently used in the basin (e.g., surplus recycled water, storm water runoff, dry weather flow) for artificial recharge to enhance the sustainable yield of the Puente Basin

Conceptual Project Alternatives

- There can be various alternatives:
- Location of recharge
- Method of recharge (e.g., injection, spreading, or infiltration galleries
- Different types of recharge waters

Expand Monitoring Program

Purpose

- Fill data gaps to support the design and implementation of any of the project alternatives

Conceptual Project Alternatives

- Expansion of the monitoring program should be designed to specifically support the project alternatives that are chosen for implementation.

Phase 2 to Develop a GMP – Develop and Evaluate "**Basin Management Alternatives**" that consist of one or more specific project concepts individually or in combination with a range of potential alternatives for each concept depending on the PBWA needs and desires

Phase 2 Part 1

- PBWA to first identify and describe more specific **Basin Management Alternatives**. The PBWA will then identify which of the Basin Management Alternatives should be evaluated in Phase 2 - Part 2.
  - TM-2 presents the proposed scope, budget, and schedule to complete Phase 2 – Part 1
  - And Phase 2 - Part 1 will include the preparation of the cost estimate to perform Part 2.

Phase 2 Part 2

- Evaluation of selected **Basin Management Alternatives**. The evaluation will include (i) a hydrologic analysis of the impacts to the Puente Basin and (ii) a cost analysis for project implementation to produce the new water supply. The evaluation will result in the selection of the preferred Basin Management Alternative that will become the basis for the GMP.

Questions and Comments on Project Concepts for Improved Basin Management?

TM-2
5.0 Scope of Services to Perform Phase 2 – Part 1

Scope of Services for Phase 2 – Part 1

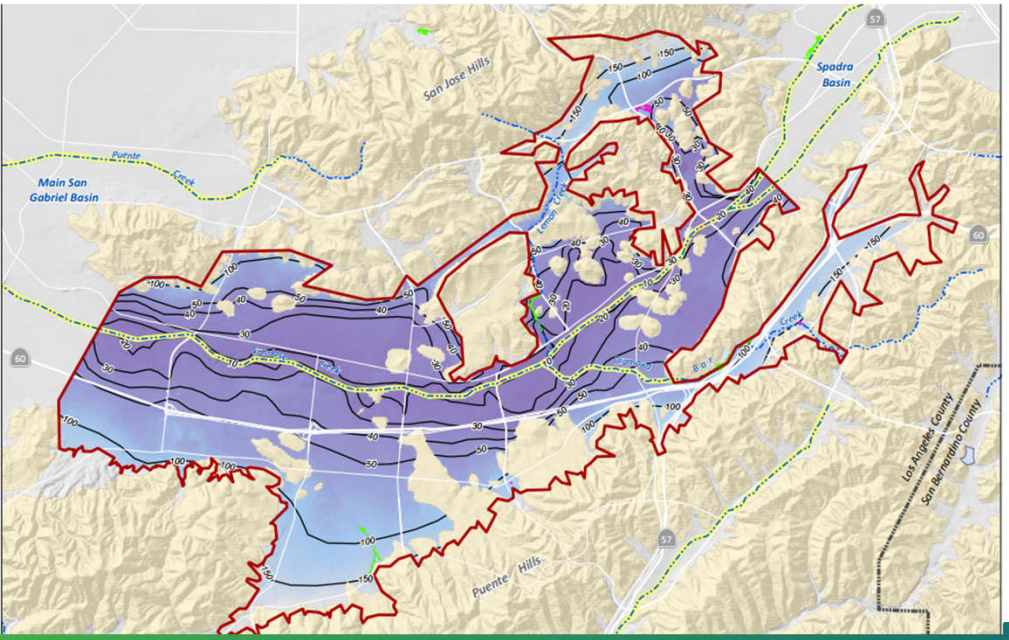
- Develop an initial description of up to six (6) **Basin Management Alternatives**.
- The descriptions will be used to prepare *Technical Memorandum 3 – Basin Management Alternatives for Puente Basin Groundwater Management Plan* (TM-3). TM-3 will include the following sections:
  - Background and Objectives (prepared in Task 1)
  - Description of **Basin Management Alternatives** (prepared in Task 1)
  - **Basin Management Alternatives** Selected for Evaluation (up to four) (prepared in Task 2)
  - Scope and Cost to Evaluate **Basin Management Alternatives** to complete Phase 2 - Part 2 (prepared in Task 3)

Slide 22

VW0 Should this be changed to just "Preparing a" Technical Memo....
Veva Weamer, 2024-02-09T20:34:48.529

What is a Basin Management Alternative?

- A basin management alternative is a combination of one or more management actions, and projects that will support the basin to achieve the GMP Objective Statement



EXAMPLE

Increase Pumping	• Increase pumping in the western part of the basin where there is the greatest storage
Treat for Potable Use	• Treat water extracted for potable use (vs. only extract for non-potable as it is used right now)
Expand Monitoring	• Expand monitoring program to measure impacts of basin management alternative on groundwater levels, etc.

TM-2
5.0 Cost Estimate to Perform Phase 2 – Part 1

Cost Estimate for Phase 2 – Part 1

Table 1: Cost Estimate for Phase 2 - Part 1

West Yost Associates	2024 Scientist Manager I $ 335	2024 Principal Geologist II $ 322	2024 Principal Geologist I $ 302	2024 Senior Geologist I $ 272	2024 Associate Geologist I $ 226	2024 Admin III $ 145	2024 QC Review $ 322	2025 Scientist Manager I $ 348	2025 Principal Geologist II $ 335	2025 Principal Geologist I $ 314	2025 Senior Geologist I $ 283	2025 Associate Geologist I $ 235	2025 Admin III $ 151	2025 QC Review $ 335	Labor Hours	Labor Fee	Costs Total Costs
Task 1 Develop Basin-Management Alternatives																	
1.01 Meeting to Develop Basin Management Alternatives		6	12	14											32	$ 9,364	$ 9,364
1.02 Prepare Draft Maps, Figures, and Tables	1	1	4	32	20										58	$ 15,089	$ 15,089
1.03 Workshop 1		2	8	12	6										28	$ 7,680	$ 7,680
10.4 Draft Sections 1 & 2 of TM	1	1	18	32	12	4	4								72	$ 19,377	$ 19,377
Subtotal, Task 1 (hours)	2	10	42	90	38	4	4	0	0	0	0	0	0	0	190		
Subtotal, Task 1 ($)	$ 670	$ 3,220	$ 12,684	$ 24,480	$ 8,588	$ 580	$ 1,288	$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ 51,510	$ 51,510
Task 2 Select Basin-Management Alternatives for Further Evaluation																	
2.01 Ranking of Basin Management Alternatives		1	4	10	8										23	$ 6,058	$ 6,058
2.02 Meeting to Review Ranking of Basin Management Alternatives		2	4	8	8										22	$ 5,836	$ 5,836
2.03 Draft Section 3 of TM	1	1	12	32	16	2	2								66	$ 17,535	$ 17,535
2.04 Workshop 2		2	8	12	6										28	$ 7,680	
2.05 As-needed Meeting		1	4	4											9	$ 2,618	$ 2,618
Subtotal, Task 2 (hours)	1	7	32	66	38	2	2	0	0	0	0	0	0	0	148		
Subtotal, Task 2 ($)	$ 335	$ 2,254	$ 9,664	$ 17,952	$ 8,588	$ 290	$ 644	$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ 39,727	$ 32,047
Task 3 Develop Scope and Cost to Evaluate Basin-Management Alternatives																	
3.01 Draft Section 4 of TM			2	4				1	1	8	12	6	2	2	38	$ 10,665	$ 10,665
3.02 Workshop 3		1	2	4					1	6	8	6			28	$ 7,907	$ 7,907
3.03 As-needed Meeting									1	4	4				9	$ 2,723	$ 2,723
3.04 Stakeholder Comments										4	8	10			22	$ 5,870	$ 5,870
Subtotal, Task 3 (hours)	0	1	4	8	0	0	0	1	3	22	32	22	2	2	97		
Subtotal, Task 3 ($)	$ -	$ 322	$ 1,208	$ 2,176	$ -	$ -	$ -	$ 348	$ 1,005	$ 6,908	$ 9,056	$ 5,170	$ 302	$ 670		$ 27,165	$ 27,165
Task 4 Ad-Hoc Meetings and Project Management																	
4.01 Quarterly coordination with PBWA Staff		2	9	9					2	3	3				28	$ 8,271	$ 8,271
4.02 Two ad-hoc meetings with PBWA Staff		2	5	5					2	5	5				24	$ 7,169	$ 7,169
4.03 Prepare monthly invoices, progress reports, and internal PM coordination			8	24		8				4	6		2		52	$ 13,360	$ 13,360
Subtotal, Task 4 (hours)	0	4	22	38	0	8	0	0	4	12	14	0	2	0	104		
Subtotal, Task 4 ($)	$ -	$ 1,288	$ 6,644	$ 10,336	$ -	$ 1,160	$ -	$ -	$ 1,340	$ 3,768	$ 3,962	$ -	$ 302	$ -		$ 28,800	$ 28,800
TOTAL (hours)	**3**	**22**	**100**	**202**	**76**	**14**	**6**	**1**	**7**	**34**	**46**	**22**	**4**	**2**	**539**		
TOTAL ($)	**$ 1,005**	**$ 7,084**	**$ 30,200**	**$ 54,944**	**$ 17,176**	**$ 2,030**	**$ 1,932**	**$ 348**	**$ 2,345**	**$ 10,676**	**$ 13,018**	**$ 5,170**	**$ 604**	**$ 670**		**$147,202**	

TM-2
6.0 Schedule to Perform Phase 2 – Part 1

Proposed Schedule for Phase 2 – Part 1

Table 2. Schedule and Milestones

Task	May 2024		Jun 2024		Jul 2024		Aug 2024		Sep 2024		Oct 2024		Nov 2024		Dec 2024		Jan 2025		Feb 2025		Mar 2025	
	Early	Late	Early	Late	Early	Late	Early	Late	Early	Late	Early	Late	Early	Late	Early	Late	Early	Late	Early	Late	Early	Late
Task 1. Developing Basin-Management Alternatives	*M*			*W*																		
Task 2. Select Basin-Management Alternatives for Further Evaluation									*M*		*W*		*A*									
Task 3. Scope and Cost for Evaluating Basin Management Alternatives																	*W*		*A*			
Task 4. Ad-Hoc Meetings and Project Management			*Q*						*Q*						*Q*					*Q*		

Meetings:
M - Meeting with PBWA
W - Public Workshop with PBWA and Stakeholders
A - As Needed Meeting
Q - Quarterly Check-in Meetings with PBWA

Task Duration
Deliverable
Deliverable Review Period

DRAFT

Questions and Comments on Proposed Scope, Cost, and Schedule to Complete Phase 2 – Part 1?

Next Steps

- **Feb 12, 2024 (We are here!) –** Present TM-2 with PBWA stakeholders
- **Feb 20, 2024 –** Share TM-2 with PBWA stakeholders for review and comment
- **March 12, 2024 –** PBWA and stakeholders submit comments and suggested revisions on the Draft TM-2
- **March 26, 2024 –** West Yost submit Final TM-2 to PBWA
- **April 4, 2024 –** PBWA consider scope and cost estimate to perform Phase 2 – Part 1
- **May 2024** – Start Phase 2 - Part 1, and in person kickoff meeting with PBWA

THANK YOU

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