Santa Clara Valley Water District
Recycled Water Committee Meeting

District Headquarters Board Room
5700 Almaden Expressway
San Jose, CA 95118

12:00 P.M. REGULAR MEETING AGENDA

Wednesday, November 14, 2018
12:00 PM

District Mission: Provide Silicon Valley safe, clean water for a healthy life, environment and economy.

RECYCLED WATER COMMITTEE

Tony Estremera - District 6, Committee Chair
Barbara Keegan - District 2, Committee Vice Chair
Gary Kremen - District 7

All public records relating to an item on this agenda, which are not exempt from disclosure pursuant to the California Public Records Act, that are distributed to a majority of the legislative body will be available for public inspection at the Office of the Clerk of the Board at the Santa Clara Valley Water District Headquarters Building, 5700 Almaden Expressway, San Jose, CA 95118, at the same time that the public records are distributed or made available to the legislative body. Santa Clara Valley Water District will make reasonable efforts to accommodate persons with disabilities wishing to attend Board of Directors' meeting. Please advise the Clerk of the Board Office of any special needs by calling (408) 265-2600.

HOSSEIN ASHKTORAB
Committee Liaison

MICHELLE MEREDITH
Deputy Clerk of the Board
Office/Clerk of the Board
(408) 265-2557
mmeredith@valleywater.org

Note: The finalized Board Agenda, exception items and supplemental items will be posted prior to the meeting in accordance with the Brown Act.

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Santa Clara Valley Water District
Recycled Water Committee
12:00 P.M. REGULAR MEETING
AGENDA

Wednesday, November 14, 2018 **12:00 PM** **District Headquarters Board Room**

1. CALL TO ORDER:

1.1. Roll Call.

1.2. Time Open for Public Comment on any Item not on the Agenda.
Notice to the public: This item is reserved for persons desiring to address the Committee on any matter not on this agenda. Members of the public who wish to address the Committee on any item not listed on the agenda should complete a Speaker Card and present it to the Committee Clerk. The Committee Chair will call individuals in turn. Speakers comments should be limited to three minutes or as set by the Chair. The law does not permit Committee action on, or extended discussion of, any item not on the agenda except under special circumstances. If Committee action is requested, the matter may be placed on a future agenda. All comments that require a response will be referred to staff for a reply in writing. The Committee may take action on any item of business appearing on the posted agenda.

2. APPROVAL OF MINUTES:

3. ACTION ITEMS:

3.1. Approval of Minutes. 18-0902

Recommendation: Approve the minutes of the September 12, 2018 meeting.
Manager: Michele King, 408-630-2711
Attachments: Attachment 1: 091218 Minutes

3.2. Update on Countywide Water Reuse Master Plan. 18-0905

Recommendation: A. Receive information and discuss next steps on:
i. Deliverables Completed to Date;
ii. Stakeholder Engagement; and
iii. Conceptual Alternatives; and
B. Direct staff to bring the Countywide Water Reuse Master Plan Conceptual Alternatives to the Board for discussion at its December 11, 2018 meeting.

Manager: Garth Hall, 408-630-2750

Attachments: Attachment 1: PowerPoint
Attachment 2: Countywide WRMP Update Draft Slidedoc

3.3. Update on Reverse Osmosis Concentrate Management (ROCM) Plan Engineered Treatment Cell Pilot: Initial Water Quality Results. 18-0906

Recommendation: Receive information and discuss next steps.

Manager: Garth Hall, 408-630-2750

Attachments: Attachment 1: PowerPoint

3.4. Update on District/City of Palo Alto/City of Mountain View Agreements. 18-0907

Recommendation: Receive information and discuss next steps.

Manager: Garth Hall, 408-630-2750

Attachments: Attachment 1: Palo Alto City Council Staff Report
Attachment 2: PowerPoint

3.5. Review 2018 Recycled Water Committee Work Plan and Discuss 2019 Work Plan and Meeting Schedule. 18-0903

Recommendation: Review and make necessary adjustments to the 2018 Committee Work Plan, and and proposed 2019 Work Plan and Meeting Schedule.

Manager: Michele King, 408-630-2711

Attachments: Attachment 1: 2018 RWC Work Plan
Attachment 2: Proposed 2019 RWC Work Plan & Meeting Schedul

4. ADJOURN:

4.1. Clerk Review and Clarification of Committee Requests.

This is an opportunity for the Clerk to review and obtain clarification on any formally moved, seconded, and approved requests and recommendations made by the Committee during the meeting.

4.2. Adjourn.

Santa Clara Valley Water District

File No.: 18-0902

Agenda Date: 11/14/2018
Item No.: 3.1.

COMMITTEE AGENDA MEMORANDUM

Recycled Water Committee

SUBJECT:
Approval of Minutes.

RECOMMENDATION:
Approve the minutes of the September 12, 2018 meeting.

SUMMARY:
In accordance with the Ralph M. Brown Act, a summary of Committee discussions, and details of all actions taken by the Committee, during all open and public Committee meetings, is transcribed and submitted to the Committee for review and approval.

Upon Committee approval, minutes transcripts are finalized and entered into the District's historical records archives and serve as historical records of the Committee's meetings.

ATTACHMENTS:
Attachment 1: 080818 RWC Minutes

UNCLASSIFIED MANAGER:
Michele King, 408-630-2711

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BOARD OF DIRECTORS MEETING

MINUTES

SPECIAL RECYCLED WATER COMMITTEE MEETING
WEDNESDAY, SEPTEMBER 12, 2018
1:30 PM

(Paragraph numbers coincide with agenda item numbers)

1. CALL TO ORDER:

1.1. Roll Call.

Board members in attendance were Barbara Keegan, Gary Kremen, and Tony Estremera, constituting a quorum of the Board.

Staff members in attendance were N. Hawk, Chief Operating Officer, Water Utilities, A. Fulcher, Senior Assistant District Counsel, M. Meredith, Deputy Clerk of the Board, E. Aryee, P. Baltar, H. Barrientos, P. Daniels, G. Hall, T. Hemmeter, L. Jaimes, G. De La Piedra, K. Oven, M. Richert, M. Senaki, E. Soderlund, D. Soleno, C. Sun, D. Taylor, D. Tucker and K. Yasukawa.

1.2. Time Open for Public Comment on any Item not on the Agenda.

Chairperson Estremera declared time open for public comment on any item not on the agenda. There was no one present who wished to speak.

2. APPROVAL OF MINUTES:

2.1. Approval of Minutes.

Recommendation:	Approve the minutes of the August 8, 2018 meeting.
Move to Approve:	Barbara Keegan
Second:	Gary Kremen
Yeas:	Barbara Keegan, Gary Kremen, Tony Estremera
Nays:	None
Abstains:	None
Recuses:	None
Absent:	None
Summary:	3 Yeas; 0 Nays; 0 Abstains; 0 Absent.

3. ACTION ITEMS:

3.1. Discussion of October 2018 Special Joint Recycled Water Policy Advisory Committee (City of San Jose/SCVWD/City of Santa Clara) Item to be discussed: Overall information on the District water supply planning efforts including demand projections.

Recommendation: Receive information and discuss next steps.

Mr. Garth Hall, Deputy Operating Officer, reviewed the information on this item per the attached Committee Agenda Memo, and Ms. Metra Richert, Senior Water Resources Specialist, reviewed the materials contained in Attachment 1.

The Committee requested that staff include discussion of the following items, during the October 2018 Special Joint RWPAC meeting:

- A progress report on No Regrets Package items;
- Information on the challenges associated with not proceeding with a recycled water program, including impacts to the groundwater basin, constituents and rate payers, and development; and
- Information on how development effects water supply demand, and how water supply demand effects rates.

The Committee additionally suggested that staff revise the proposed presentation materials to include a wider variety of fonts and graphics.

Mr. Stan Williams, Pure Water Silicon Valley, suggested that RWPAC participants seek opportunities to find common ground; suggested that the District and Cities of San Jose and Santa Clara shared commitment to protecting the groundwater basin serve as common ground; and encouraged including discussion of the District's Urban Water Master Plan and Sustainable Water Plan and the critical roles played in supply planning by California WaterFix, increased surface water storage, and water reuse and recycling.

The Committee noted the information, without formal action.

3.2. Discussion of October 2018 Special Joint Recycled Water Policy Advisory Committee (City of San Jose/SCVWD/City of Santa Clara) Item to be discussed: Water rates and the complexities of the associated economics.

Recommendation: Receive information and discuss next steps.

Mr. Darin Taylor, Chief Financial Officer, reviewed the information on this item per the attached Committee Agenda Memo, and materials contained in Attachment 1.

The Committee requested that staff include the following items during the October 2018 Special Joint RWPAC meeting:

- An informational overview to City of San Jose and Santa Clara elected officials on the District's rate setting process;
- A copy of the Hetch Hetchy rate comparison chart used during prior rate setting presentations;
- Information on funding strategies for the Pacheco Reservoir Expansion Project;
- Revised presentation materials that include a wider variety of fonts and graphics; and
- A more simplified version of the charts contained in Attachment 1, Slides 6 and 7.

The Committee noted the information, without formal action.

3.3. Discussion of October 2018 Special Joint Recycled Water Policy Advisory Committee (City of SJ/SCVWD/SC) District efforts pertinent to water recycling and purification.

Recommendation: Receive information and discuss next steps.

Mr. Luis Jaimes, Senior Project Manager, reviewed the information on this item per the attached Committee Agenda Memo and presentation materials contained in Attachment 1, Slides 1 through 5; and Mr. Medi Sinaki, Senior Engineer, reviewed the presentation materials contained in Attachment 1, Slides 6 through 8.

The Committee requested that staff provide a more simplified version of the chart contained in Slide 5 during the October 2018 Special Joint RWPAC meeting, and noted the information without formal action.

3.4. Discussions with the Cities of Palo Alto and Mountain View on Recycled and Purified Water

Recommendation: Receive information and discuss next steps.

Ms. Nina Hawk, Chief Operating Officer, water Utilities, reviewed the information on this item per the attached Committee Agenda Memo, and Mr. Hall reviewed the presenation materials contained in Attachment 1.

Mr. Phil Bobel, City of Palo Alto Department of Public Works, confirmed the City of Palo Alto's planned use for additional non-potable reuse flow, and Director Kremen requested that Attachment 1, Slide 4 be revised to list intended uses.

The Committee made the following requests of staff:

- Investigate short-term and long-term comprehensive agreement proposals;

- Come back to the Committee with refinements on cost and other data, including analysis on projected off-ramp points and the agreement amendment requirements that would be associated with these;

- Establish a target for completion of a comprehensive agreement by the end of 2018;

- Provide a status update during the September 26, 2018 Joint Recycled Water Committee meeting with the Cities of Palo Alto and Mountain View; and

- Schedule special meetings of the Recycled Water Committee as necessary to obtain Committee feedback and ensure this work is done.

The Committee noted the information, without formal action.

Director Kremen left the meeting and returned as noted below.

3.5. Status of Comprehensive Agreement with City of Sunnyvale for Recycled Water.

Recommendation: Receive information and discuss next steps.

Mr. Hall reviewed the information on this item per the attached Committee Agenda Memo.

The Committee noted the information, without formal action.

3.6. Review Recycled Water Committee Work Plan and Discuss 2018 Meeting Schedule.

Recommendation: Review and make necessary adjustments to the Committee Work Plan, and confirm next meeting time, date, and discussion subjects.

Ms. Michelle Meredith, Deputy Clerk of the Board, reviewed the information on this item per the attached Committee Agenda Memo and information contained in Attachment 1.

The Committee requested that staff include on its next agenda, informational copies of the response to questions raised by Mr. Doug Muirhead, Morgan Hill resident, during a recent Water Conservation and Demand Management Committee meeting, pertaining to direct potable reuse regulations.

The Committee noted the information, without formal action.

4. INFORMATION ITEMS:

4.1. Overview of the roles and responsibilities in certifying the adequacy of water supply for proposed land development projects.

Recommendation: Receive and discuss the roles and responsibilities in certifying the adequacy of water supply for proposed land development projects.

Ms. Tracy Hemmeter, Senior Project Manager, reviewed the information on this item per the attached Committee Agenda Memo, and per the materials contained in Attachment 1.

The Committee noted the information, without formal action.

5. ADJOURN:

5.1. Clerk Review and Clarification of Committee Requests.

The Committee requests pertaining Item 3.4 were read into the record during the Committee's consideration of the Item. The remaining Committee requests, as captured herein, were not read into the record.

5.2. Adjourn to Regular Meeting at 12:00 p.m., on November 14, 2018, in the Santa Clara Valley Water District Boardroom, 5700 Almaden Expressway, San Jose, California.

Chairperson Estremera adjourned the meeting at 3:30 p.m., to the next regularly scheduled meeting to occur at 12:00 p.m. on November 14, 2018, in the District Headquarters Building Boardroom, 5700 Almaden Expressway, San Jose, California.

Michelle Meredith
Deputy Clerk of the Board

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File No.: 18-0905

Agenda Date: 11/14/2018
Item No.: 3.2.

COMMITTEE AGENDA MEMORANDUM

Recycled Water Committee

SUBJECT:
Update on Countywide Water Reuse Master Plan.

RECOMMENDATION:
A. Receive information and discuss next steps on:
   i. Deliverables Completed to Date;
   ii. Stakeholder Engagement; and
   iii. Conceptual Alternatives; and
B. Direct staff to bring the Countywide Water Reuse Master Plan Conceptual Alternatives to the Board for discussion at its December 11, 2018 meeting.

SUMMARY:
This agenda memorandum provides a summary of all studies and analysis to date, including countywide conceptual alternatives developed for the Countywide Water Reuse Master Plan (Master Plan), which is currently under development.

The Master Plan aims to improve water supply reliability through water reuse for Santa Clara County (County) in collaboration with recycled water producers, wholesalers, retailers, users, and other interested parties. The Master Plan will identify: the volume of water available for potential potable reuse (PR) development and non-potable reuse (NPR) expansion; the optimal allocation between PR and NPR; options for system integration; recommendations for building upon NPR projects; potential new PR projects; and proposals for governance model alternatives including roles and responsibilities.

The District is conducting robust engagement across various interest groups and levels, including Partner Agencies, policymakers, stakeholders, industry experts, regulators, business interests, environmental groups and the public. Partner Agencies include the four NPR producers in the County: City of Palo Alto/City of Mountain View Recycled Water System (RWS), City of Sunnyvale RWS, City of San José/City of Santa Clara South Bay Water Recycling (SBWR) and South County Regional Wastewater Authority (SCRWA). This collaborative strategy emphasizes multiple levels of engagement, allowing executive leaders, managers, staff, and stakeholders to be meaningfully engaged through scheduled meetings and strategic workshops.

The Master Plan is being developed incrementally with stakeholder input on interim deliverables that build on one another and will collectively form the basis for the final Master Plan report to be

completed in 2019. As one of the earliest interim deliverables, the District gathered up-to-date information for recycled water facilities in the County to include in the Baseline Analysis Technical Memorandum (TM). The Baseline Analysis TM reviews existing information and analyses to describe existing conditions for the recycled water facilities and distribution systems in the County. This evaluation also includes a preliminary assessment of the volume of water available for reuse, the potential NPR/PR split, and a summary of potential infrastructure improvements. The Conceptual Alternatives TM assesses the County's water reuse market, identifies conceptual project alternatives, and evaluates the alternatives through a prioritization and assessment methodology. The purpose of this interim deliverable is to select three alternatives that will be further evaluated in a forthcoming Feasible Alternatives TM. Next steps include additional stakeholder engagement and refinement of alternatives.

Background

District Board policy sets an objective to meet at least 10% of the County's total water demands by 2025 using recycled and purified water. To achieve this objective, the District is developing a Master Plan which aims to improve water supply reliability through water reuse in the County in collaboration with recycled water producers, wholesalers, retailers, users, and other interested parties. The Master Plan builds upon existing planning studies by integrating information and further evaluating the potential for collaboration. Studies and analysis are being developed into a series of technical memoranda (Deliverables), which will eventually be assembled into a cohesive Master Plan.

Workshops were held with several stakeholder groups, including the Partner Agencies, in June, July, October, and November 2018 to gather input on Master Plan development. Throughout the process, staff and management from all four Partner Agencies have met with the District to discuss opportunities for regional system integration. The Recycled Water Committee has previously received updates and has provided feedback on Master Plan progress at its February, May, and August 2018 meetings. The Master Plan team has developed several Deliverables in 2018 (summarized below).

Project Definition, Roles and Responsibilities Technical Memorandum

This deliverable establishes the project purpose, describes roles and responsibilities of the District and Partner Agencies, and provides a basis for subsequent deliverables.

Regulatory Framework Technical Memorandum

This deliverable provides a brief history and overview of water reuse policy in California, including relevant regulations, regulatory agencies' responsibilities, recycled water in the County and recycled water regulatory structure. The deliverable describes NPR and PR framework, including approaches, a regulatory summary, and regulatory requirements.

In general, water reuse regulations fall under two criteria categories: public health protection criteria and environmental discharge criteria. Recycled water for NPR is carefully regulated and considered a traditional application of recycled water with a relatively straightforward permitting process. In contrast, recycled water for PR involves more complex permitting process and applications. PR applications exist along a broader spectrum than NPR, based on distance and time of treatment to purified water levels and its ultimate consumption by the public. Generally, as the forms of reuse become more direct, the regulations require higher levels of treatment. In principle, this is to

compensate for the protections that are lost by the water spending less time in the environment.

The Regulatory Framework Deliverable will inform future decision making and permitting for Master Plan finalization and potential implementation.

Baseline Analysis Technical Memorandum
This deliverable describes the current state of water reuse in the County. Treated effluent from the four wastewater treatment facilities in the County supplies the four existing recycled water systems. The recycled and purified water produced at these facilities is distributed either by a wholesaler to retailers, or directly by retailers to end users. Currently, recycled water systems in the County serve only NPR end uses. The District's Silicon Valley Advanced Water Purified Center (SVAWPC) opened in 2014 to reduce the salinity of SBWR recycled water and demonstrate advanced treatment technology.

Demand projections by Partner Agencies provide a basis for developing conceptual alternatives to meet future demands. Countywide NPR demands are expected to more than double by 2035. The District analyzed current and projected conditions at each of the four recycled water producers in the County to calculate the volume of water available for reuse. Assuming that NPR demands will increase per estimates in the 2015 Urban Water Management Plans, remaining effluent could be used as source water for potable reuse. Some of this source water for PR may be rejected in the reverse osmosis (RO) concentrate stream, or used to dilute the concentrate for discharge, pending findings from the District's Reverse Osmosis Concentrate Management Plan (ROCMP).

The District has entered into several agreements and memoranda with Partner Agencies to coordinate efforts related to water reuse planning and development. The Master Plan is expected to help inform the governance, terms, and contents of future agreements between the District and the Partner Agencies.

The Baseline Analysis Deliverable will identify key countywide water reuse assumptions and existing conditions for the Master Plan to build from.

Conceptual Alternatives Technical Memorandum
This deliverable describes conceptual water reuse alternatives developed with stakeholders to achieve shared objectives of sustainable water supply. The process used to develop conceptual alternatives for the Master Plan included developing guiding principles with stakeholders, identifying project elements, and grouping elements into conceptual alternatives. The District identified 20 potential project elements for consideration. NPR elements include expanding the existing NPR system, adding advanced treatment for enhanced NPR, and interconnecting distribution networks. Potential indirect potable reuse (IPR) elements in the northern part of the County (North County) may include source water from Palo Alto, Sunnyvale, and San José and the production and conveyance of purified water to the Los Gatos Recharge Ponds. A direct potable reuse (DPR) option involves delivering purified water from a new Advanced Water Purification Facility (AWPF) near the San José-Santa Clara Regional Wastewater Facility (RWF) to the District's Penitencia Water Treatment Plant for raw water augmentation. Alternatively, locations for an AWPF for DPR can potentially be located in Palo Alto or Sunnyvale for potential treated water augmentation.

Based on Partner Agency input, the District combined the 18 potential project elements into five conceptual alternatives for evaluation. Alternatives include a mix of potential project elements, including some previously proposed projects (from recycled water master plans) and some new elements. At the October 2018 meetings of the Project Partner Group, representatives from City of San José and City of Santa Clara discussed their future potable and non-potable supply needs. Thus, elements which move water outside those cities are depicted as later phases which could be viable after projected demands are met within the San José and Santa Clara service areas. As described in Attachment 2, the conceptual alternatives utilize existing treatment plants, reuse facilities and related infrastructure:

1. Alternative 1 combines expanded and interconnected enhanced NPR systems with phased IPR or DPR supply from the San José-Santa Clara Regional Wastewater Facility.
2. Alternative 2 features expanded and interconnected enhanced NPR systems in North County, similar to Alternative 1, except IPR or DPR supply would come from a regional AWPF in Palo Alto or Sunnyvale, rather than San José-Santa Clara.
3. Alternative 3 shifts the IPR supply to the Palo Alto RWQCP, which would feed a new AWPF in Palo Alto.
4. Alternative 4 favors IPR or DPR over system interties.
5. Alternative 5 focuses on DPR (raw water augmentation) at Penitencia WTP.

The District developed evaluation criteria in partnership with the Project Partnership Group (consisting of Partner Agencies). The initial draft considered objectives of the Master Plan and typical criteria of funding opportunities with the U.S. Bureau of Reclamation and the California Department of Water Resources. Based on Project Partnership Group feedback, the District iteratively refined and confirmed prioritization criteria and respective weighting. Each alternative was awarded a score between 1 and 5 based on how well it satisfies each individual criterion. The alternatives' relative rankings along with further refinements to the selection criteria were used to identify three alternatives considered during the October 2018 Project Partner Group meeting.

The Conceptual Alternatives Deliverable will provide the Board with Partner Agency supported water reuse conceptual alternatives and an opportunity for the Board to provide input on the next steps for developing the Feasible Project Alternatives and Preliminary 10% Designs.

Direct Potable Reuse (DPR) Evaluation

Although regulatory framework for DPR is still under development by California regulators, individual case-by-case permitting is possible. In concept, DPR alternatives could utilize existing drinking water treatment and distribution systems and avoid the cost and environmental impact of constructing dedicated IPR facilities. Last year, staff provided updates to the Recycled Water Committee regarding technical and permitting feasibility of a DPR concept involving Penitencia and Rinconada Water Treatment Plants.

Since then, staff continues to evaluate DPR for possible future consideration. The District finalized participation in Water Research Foundation Project 4536 *Blending Requirements for Water from Direct Potable Reuse Treatment Facilities*. The analysis indicates that advanced water purification facilities can provide high quality water for potential potable reuse. Additionally, staff is contributing to

National Water Research Institute's White Paper on *Direct Potable Reuse Regulatory Implementation* . In July 2018, the Board of Directors approved funding to support Water Research Foundation's Advancing Potable Reuse Initiative. These studies will inform future decision making on potential DPR implementation in the County.

At the October 15, 2018 meeting of the Project Partner Group, participants expressed general support for potable reuse alternatives including DPR. Of interest is the possible avoided cost of dedicated IPR infrastructure and the added flexibility of new supply into existing potable water systems. Based on this discussion, additional consideration for DPR will be incorporated into the Conceptual Alternatives.

Next Steps
Leading up to completion of the Master Plan, the feasible alternatives will be further refined with hydraulic modeling, cost analysis, and preliminary engineering (10% design). Other factors such as energy usage and greenhouse gas emissions will be considered to further evaluate the feasible alternatives and select a single recommended alternative. Each potential AWPF identified will require RO concentrate management. These options will be further analyzed in the District's ROCMP, which is being developed in parallel with the Master Plan.

The feasible alternatives all involve project elements that require new or extended agreements to address issues such as ownership and operations of a joint AWPF. The District is collaborating with Partner Agencies to develop long term agreements for potential expansion of water reuse facilities.

A high-level comprehensive update to the Board is being planned for December 2018. The Feasible Alternatives Technical Memorandum is scheduled to be completed in April 2019. Additional input from stakeholders and Partner Agencies will help select the recommended alternative. Additional meetings of the Stakeholder Task Force and Project Partner Group are planned for early 2019. The final Master Plan is anticipated to be completed in July 2019.

ATTACHMENTS:
Attachment 1: PowerPoint
Attachment 2: Countywide WRMP Update Draft Slidedoc

UNCLASSIFIED MANAGER:
Garth Hall, 408-630-2750

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Countywide Water Reuse Master Plan

Recycled Water Committee Meeting

November 14, 2018

Outline

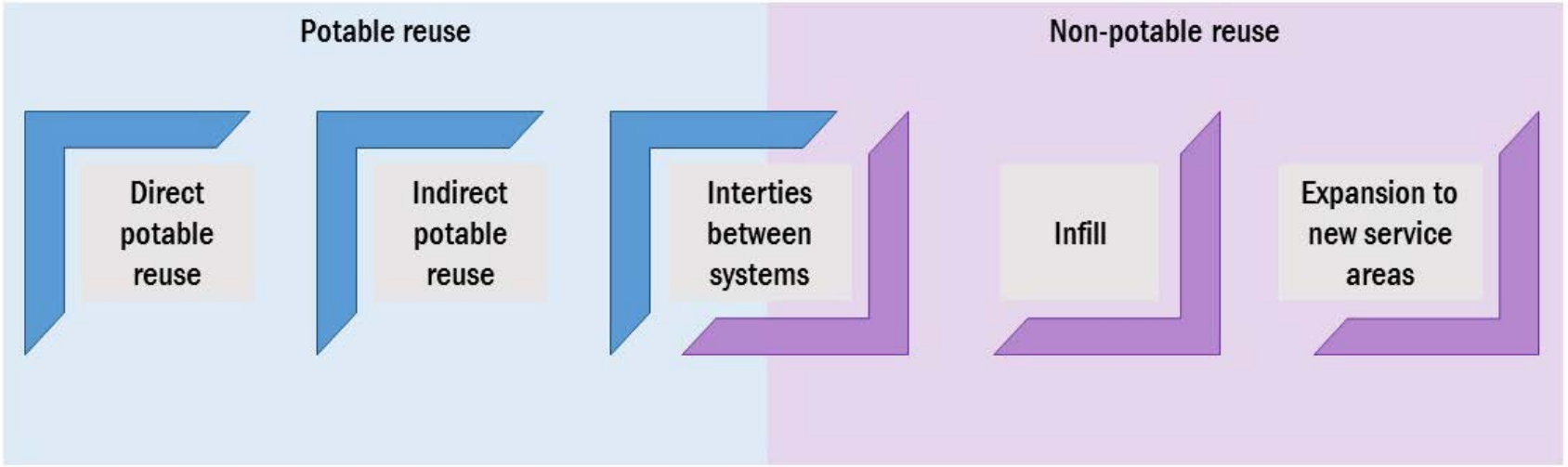
1. Background and Purpose
2. Regulatory Framework
3. Baseline Analysis
4. Conceptual Alternatives
5. Feasible Alternatives and Next Steps

Drivers

- Fulfillment of **District Ends Policies**:
  Meet ≥10% of County's total water demands by 2025 using water reuse (≥24,000 AFY for potable reuse)
- Alignment with **Water Supply Master Plan** update

Purpose

Improve water supply reliability through water reuse for the County in collaboration with multiple stakeholders



PR = Potable Reuse
NPR = Non-Potable Reuse

Objectives

- Identify **amount available** for PR and NPR and the optimal **PR/NPR split**
- Evaluate options for **system integration**
- Guide expansion via **interagency agreements** and **governance structures**
- Generate support by **engaging stakeholders**

Regional Integration

Multiple Levels of Engagement

External

Stakeholder Task Force

Representing interests/organizations:

- Business/economy
- Chambers of Commerce
- Planning
- Public policy
- Environment
- Environmental justice
- Medical community
- Diversity
- Stormwater
- Groundwater
- Other water and recycled water suppliers/agencies/organizations

Regulators

Independent Advisory Panel (IAP)

Public

Partner Agency

Board committees

- Recycled Water Committee (RWC) (District Board only)
- Joint Committees (District Board and Partner Agency city council members)

Executives

- One-on-one meetings
- Executive Leadership Group (ELG)

Staff

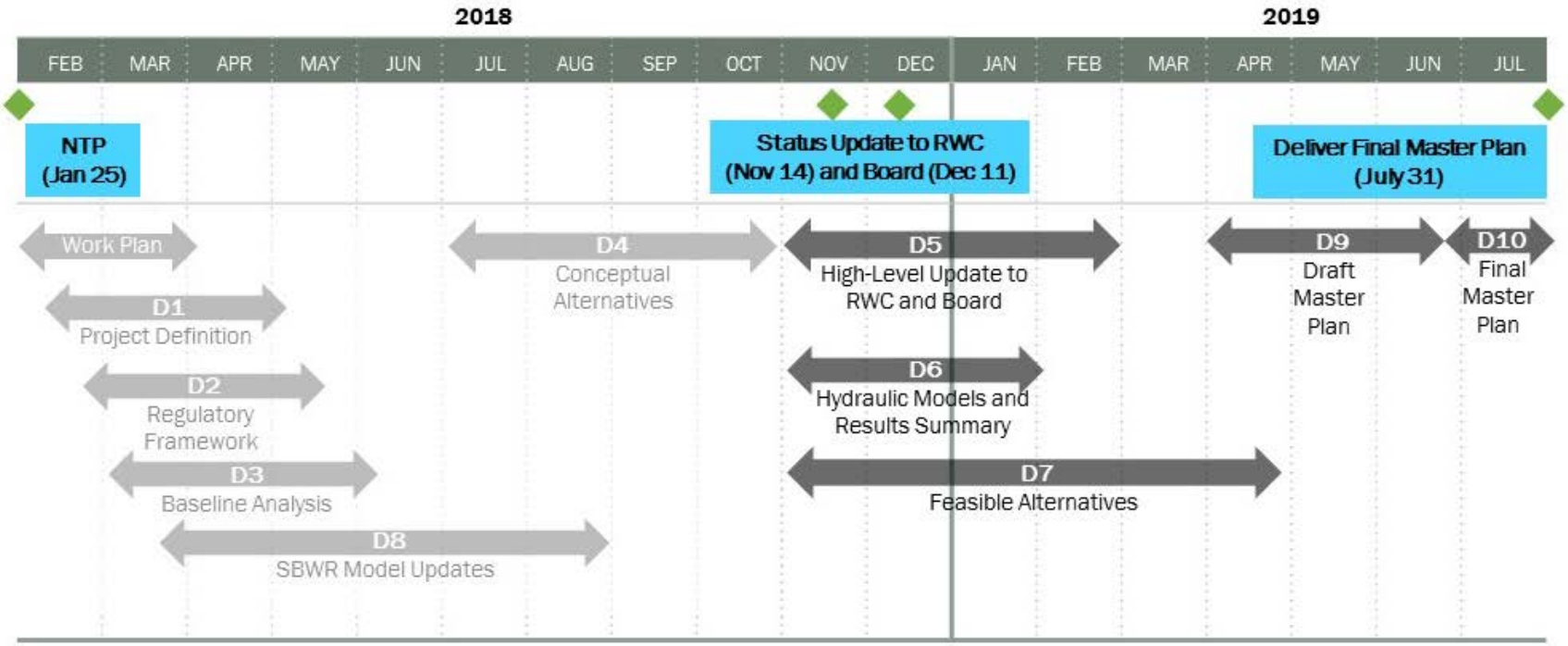
- Project Partner Group (PPG)

Project Start (Jan 2018)

- 4 Stakeholder workshops
- 3 Regulator meetings
- 1 IAP meeting
- 1 Public meeting
- 10 Board committee meetings
- 3 One-on-one meetings
- 3 ELG meetings
- 7 PPG meetings

Final Master Plan Report (July 2019)

Master Plan Schedule – Key Milestones and Deliverables

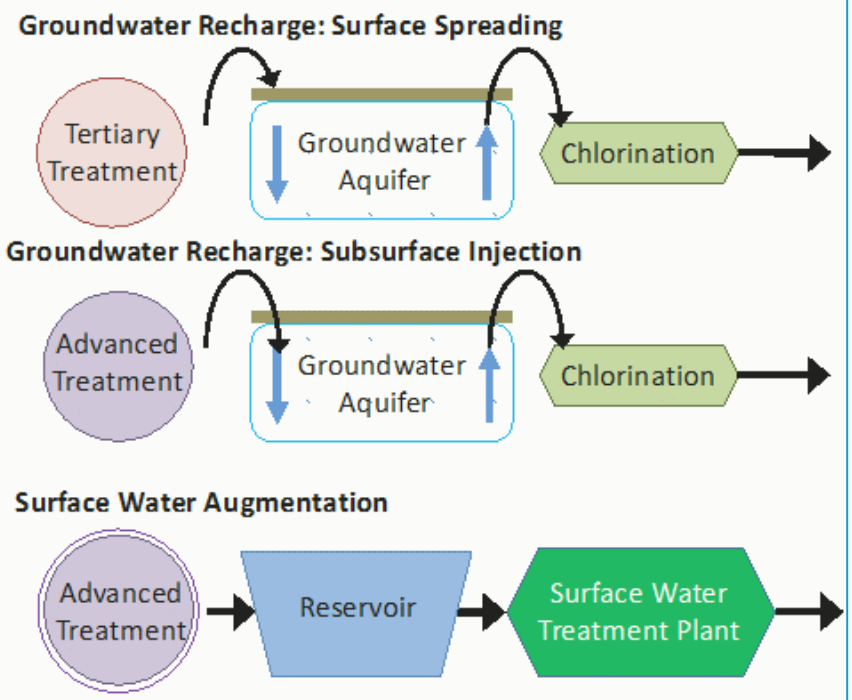


Reuse Terminology

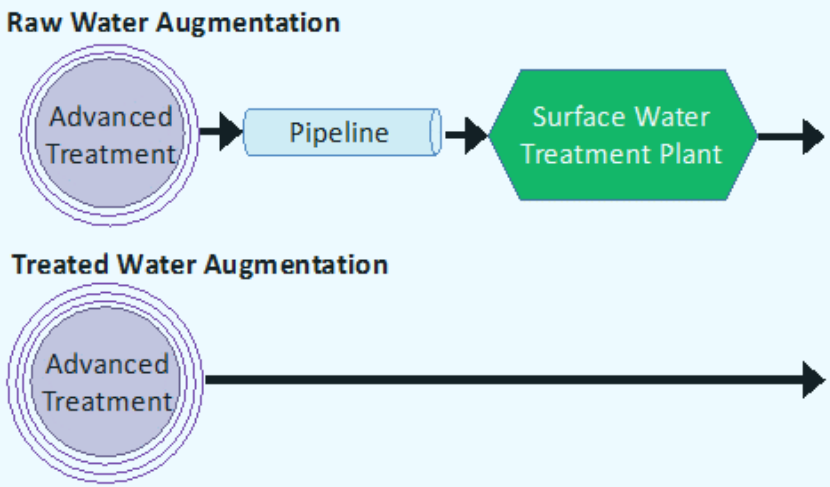
Non-Potable Reuse (NPR) – Title 22 "purple pipe" recycled water

Potable Reuse (PR)

Indirect potable reuse (IPR) – environmental buffer



Direct potable reuse (DPR) – no significant environmental buffer



As the forms of reuse become more direct, regulations require higher levels of treatment

Regulatory Framework

Status

NPR regulations: complete ✓
IPR regulations: complete ✓
DPR regulations: pending* ⏳

*specific projects may be approved before regulations are final


Surface water augmentation at San Diego's North City Water Reclamation Plant

1991: State adopted California Water Recycling Act, including California Water Code 13577

2009: State adopted Recycled Water Policy

2013: State amended Recycled Water Policy

2014: State adopted IPR (groundwater recharge) regulations

2016: State concluded feasibility of developing DPR regulations

2018: State adopted IPR (surface water augmentation) regulations

2018: State expected to amend Recycled Water Policy

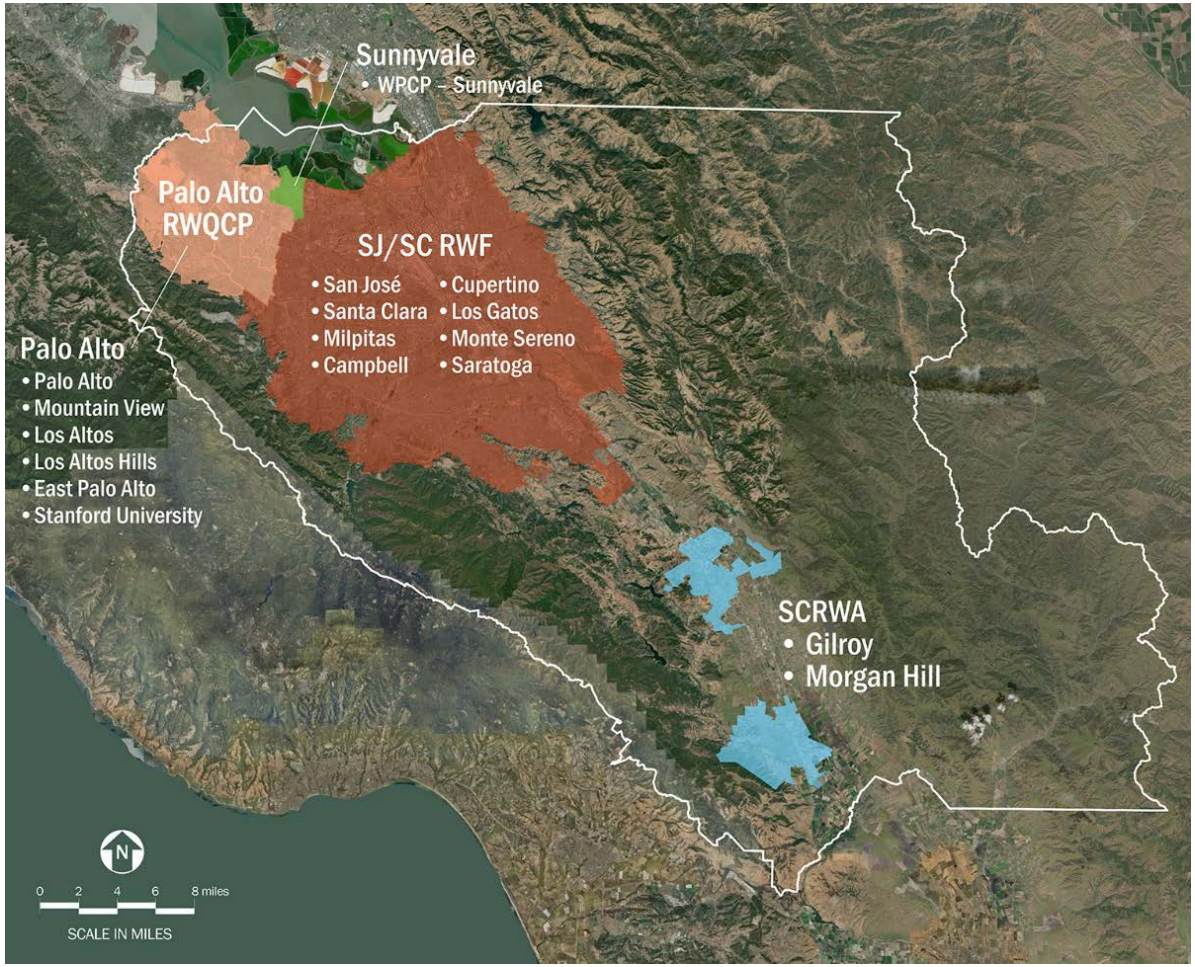
2023-2025: Anticipated DPR (raw water augmentation) regulations

1990 2000 2010 2020

Baseline Analysis - Existing WWTPs

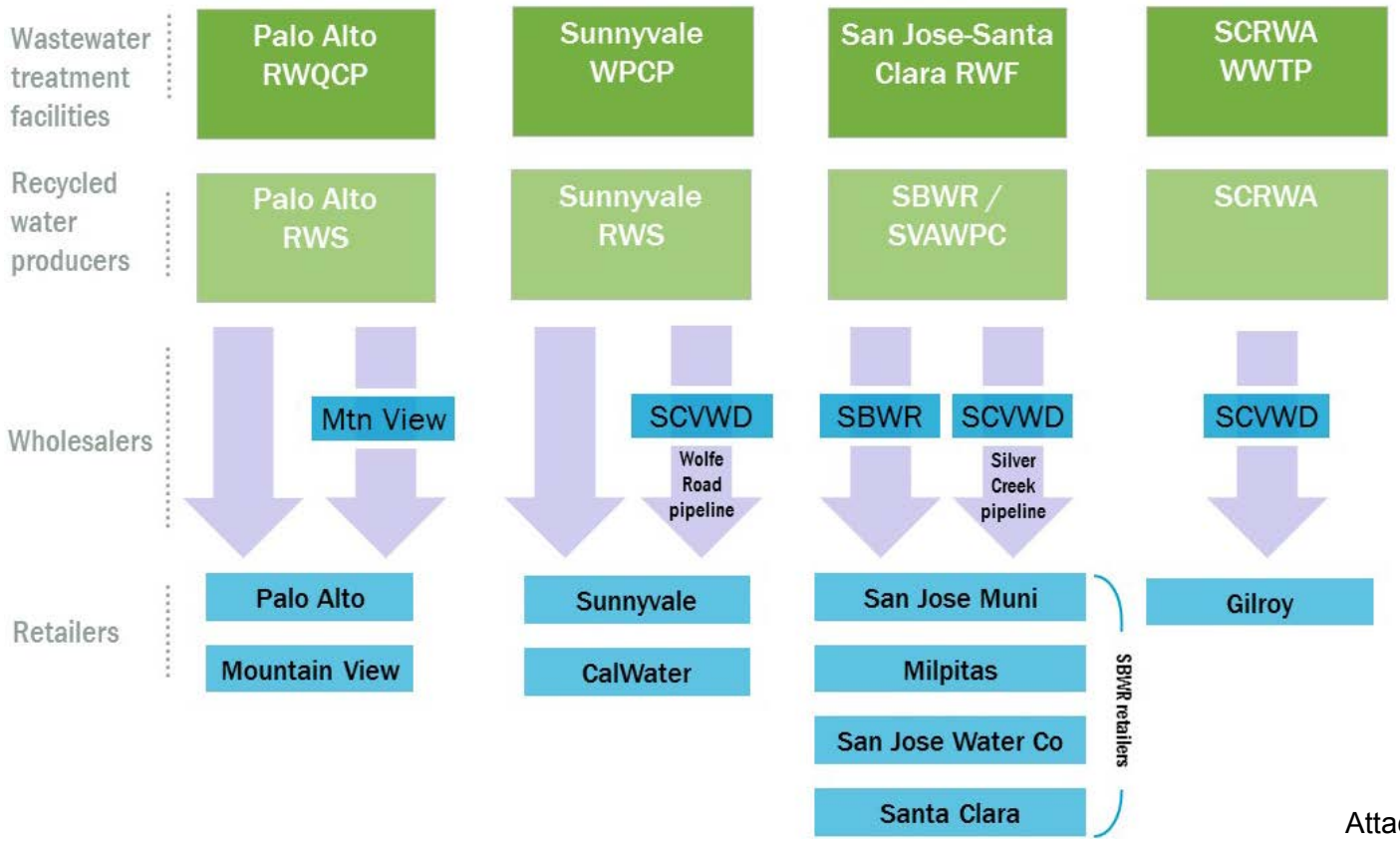
Four WWTPs treat water for reuse in the County:

- Palo Alto Regional Water Quality Control Plant (RWQCP)
- Sunnyvale Water Pollution Control Plant (WPCP)
- San José-Santa Clara Regional Wastewater Facility (SJ/SC RWF)
- South County Regional Wastewater Authority (SCRWA) WWTP

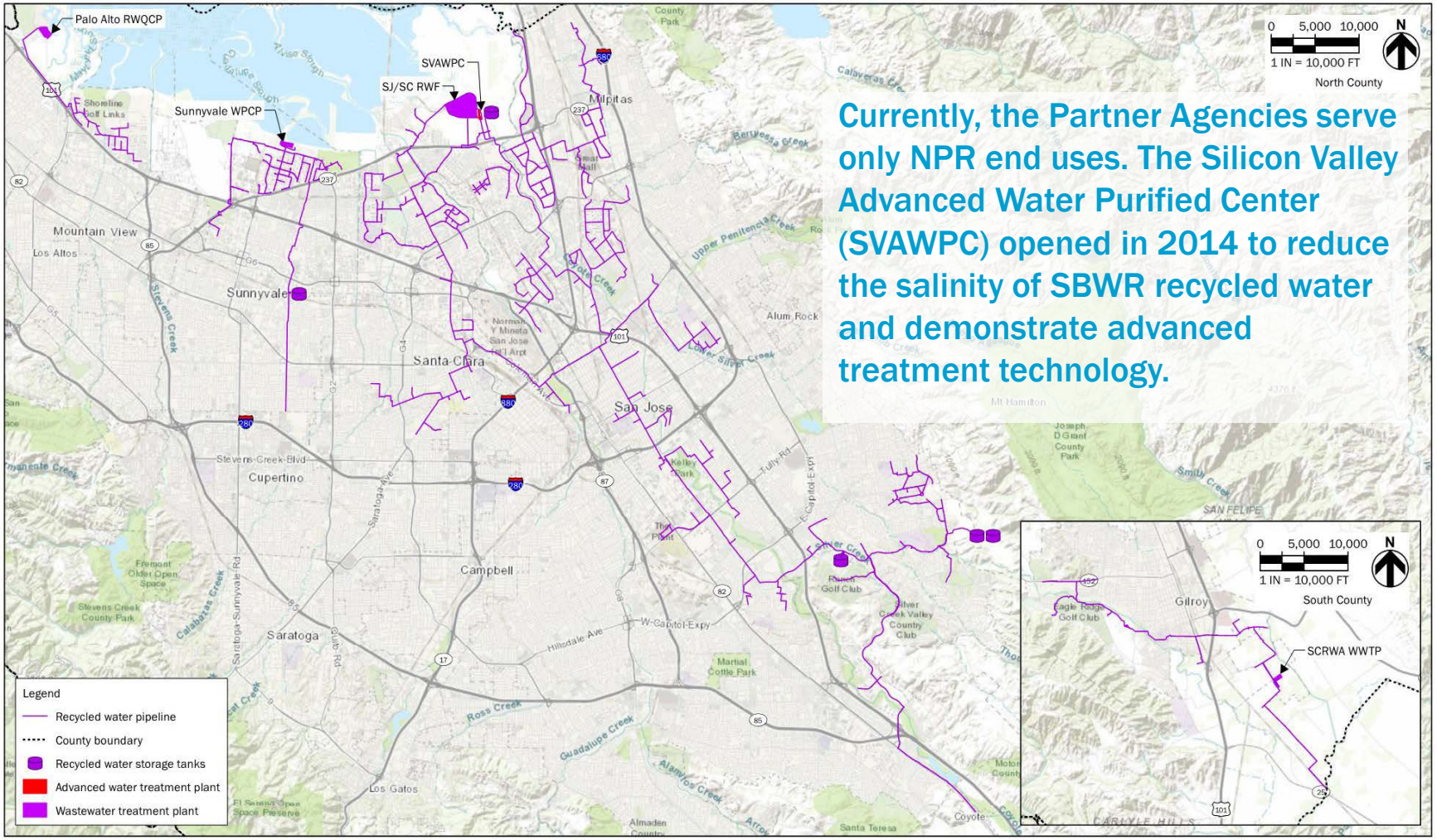


Current Reuse Roles

Treated effluent from the four WWTPs supplies the four recycled water systems (**Partner Agencies**)



Existing NPR Distribution Systems



Current and Projected NPR Demands

- Based on water retailers' 2015 UWMPs
- Provide a basis for developing conceptual alternatives

Partner Agency	Water Retailers	Actual NPR Demand – 2015 mgd (AFY)	Projected NPR Demand - 2035 mgd (AFY)
PA/MV RWS	City of Palo Alto City of Mountain View	1.1 (1,300)	2.5 (2,800)
Sunnyvale RWS	City of Sunnyvale California Water Service Company (Cupertino) San Jose Water Company (Cupertino)	0.6 (700)	1.5 (1,700)
SBWR	City of Santa Clara San José Municipal Water System (SJMWS) San Jose Water Company City of Milpitas	8.9 (10,000)	21.5 (24,100) *
SCRWA	City of Gilroy City of Morgan Hill	1.8 (2,000) --	3.3 (3,700) 2.6 (2,900) **
County total		12.4 (13,900)	31.4 (35,200)

* SBWR anticipates future NPR demands will exceed previous projections. Updates currently in process.

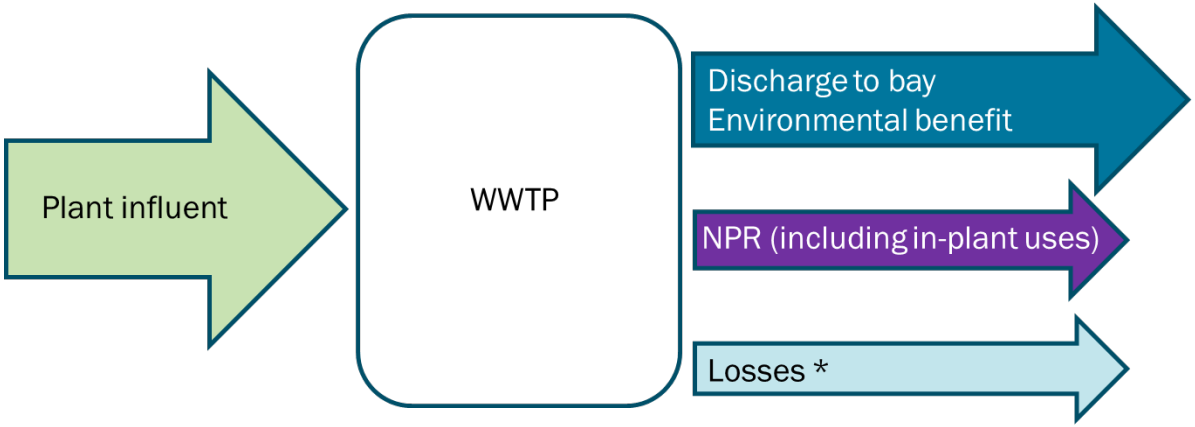
** Morgan Hill's conceptual buildout demands based on 2015 South County Recycled Water Master Plan Update.

Potential Source Water for Reuse

Collected current monthly data (2015-2017) and annual projections (2025 and 2035) for various flow streams

- Plant influent
- NPR demands
- Evaporation and/or other losses
- Required flow for environmental benefit

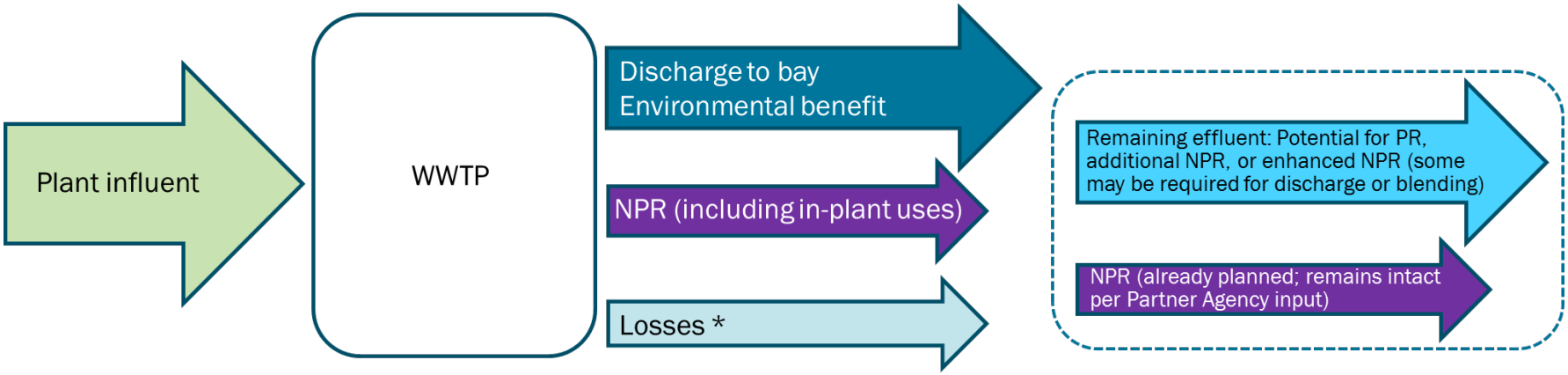
Used monthly distributions to estimate future monthly flows



*Losses include consumptive uses in and around the Palo Alto RWQCP and Sunnyvale WPCP

Potential Source Water for Reuse, cont'd

Used flow balance to calculate **remaining effluent** available

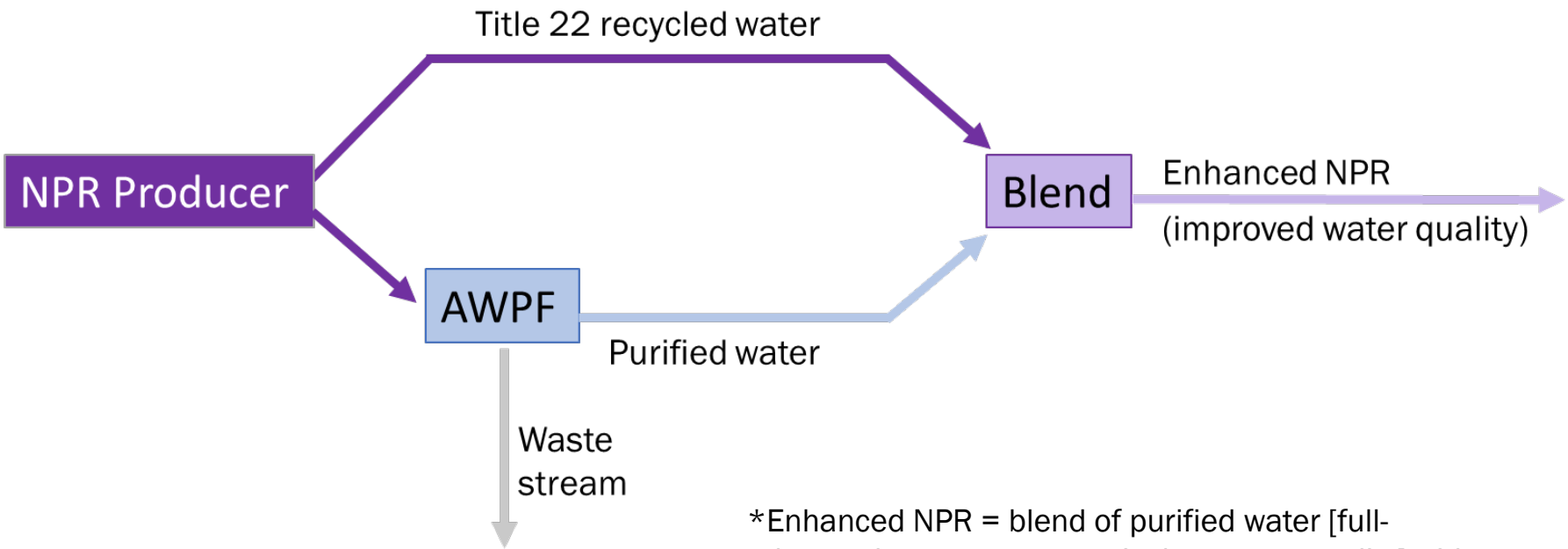


*Losses include consumptive uses in and around the Palo Alto RWQCP and Sunnyvale WPCP

*Losses include consumptive uses in and around the Palo Alto RWQCP and Sunnyvale WPCP

Advanced Treatment Losses

- **Full advanced treatment** – approximately 1.3 units of effluent needed to produce 1 unit of purified water
- **Enhanced NPR*** – approximately 1.1 units of effluent needed to produce 1 unit of enhanced NPR



*Enhanced NPR = blend of purified water [full-advanced treatment or equivalent water quality] with Title 22 recycled water for improved NPR water quality

Available Purified Water (2035)

Partner Agency	Available Influent	Influent Required to Produce and Meet Enhanced NPR Demands	Losses/ Environmental Flows	Remaining Effluent (AWPF Feed)	Potentially Available Purified Water [a]
Palo Alto RWQCP	24,700	3,100	1,500–3,700	17,900–20,100	14,100–15,900
Sunnyvale WPCP	19,400	1,900	1,600–4,500	13,000–15,900	10,300–12,600
SJ/SC RWF • With Morgan Hill enhanced NPR [b] • Without Morgan Hill enhanced NPR	 120,200 120,200	 29,400 26,300	 0 0	 90,800 93,900	 71,800 74,300
SCRWA Service Area • Potential Morgan Hill AWPF & Scalping Plant [c]	3,600	N/A	0	3,600	2,800
Countywide Total	167,900	31,300-34,400	3,000-8,200	125,300-133,600	99,000-105,600

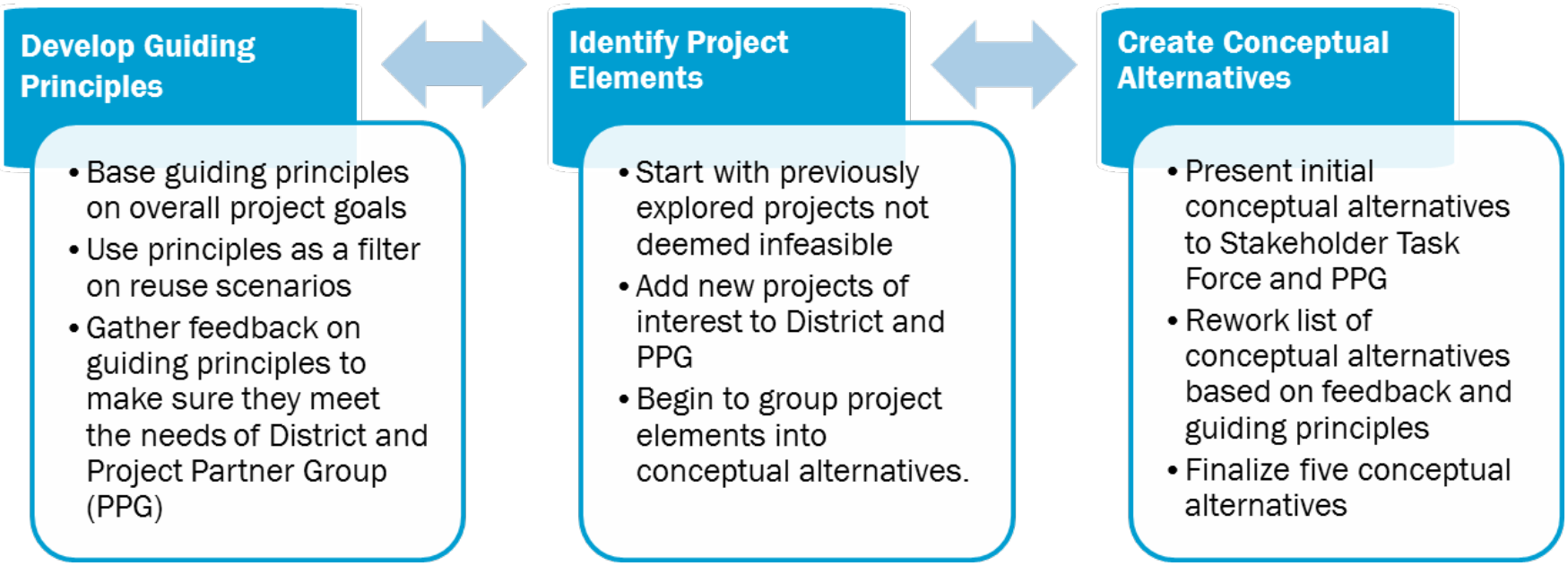
a. *Potentially available PR may be reduced due to future discharge or blending requirements and/or contractual obligations.*

b. *Two of the conceptual alternatives involve considering use of SJ/SC RWF source water for enhanced NPR in Morgan Hill.*

c. *Assumes 3,600 AFY will be scalped from the existing trunk sewer to produce purified water in Morgan Hill. No project elements were identified that involved SCRWA WWTP as the AWPF feed source.*

Conceptual Alternatives Development

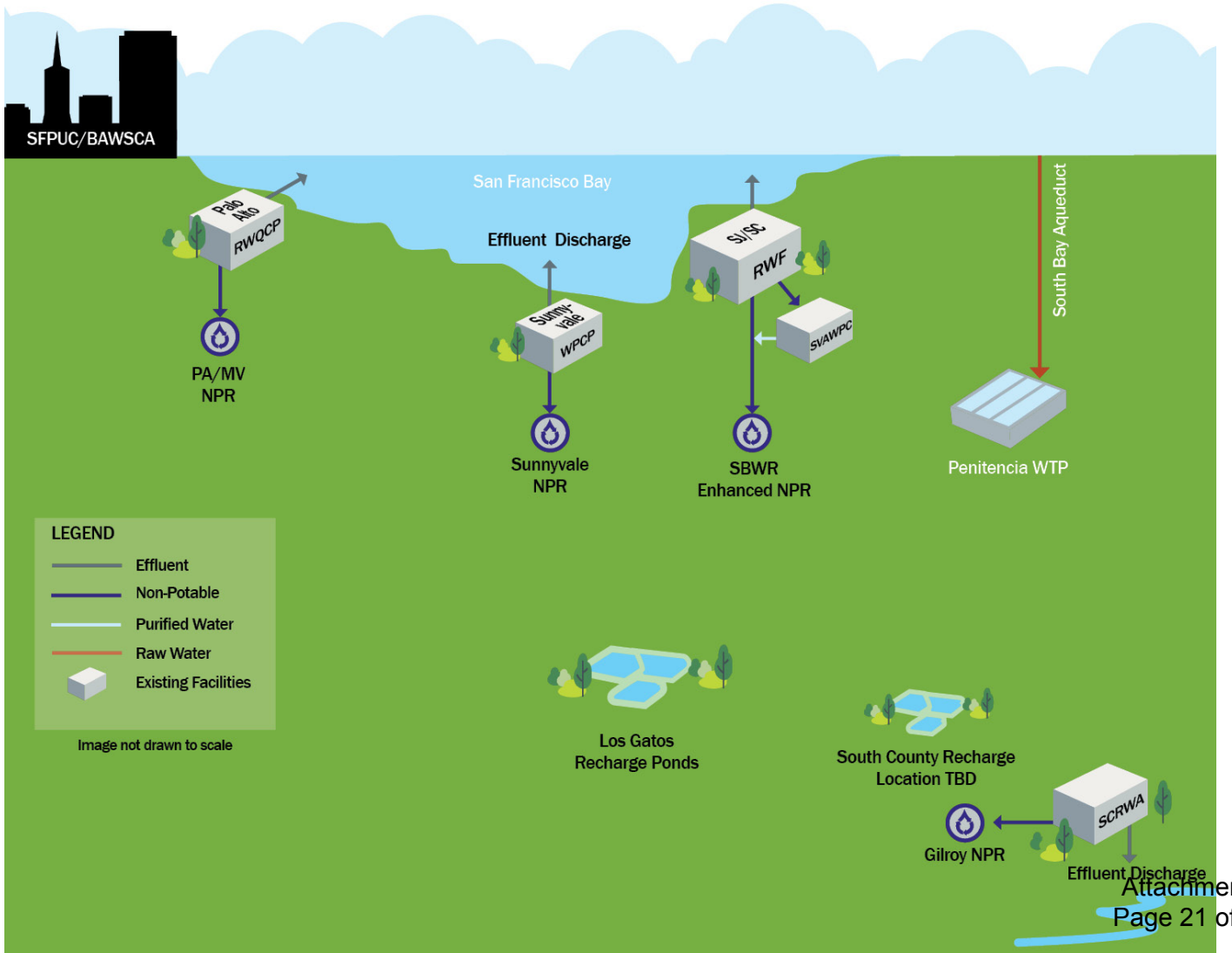
The conceptual alternatives build upon existing planning studies completed by various utilities across the county



Guiding Principles

- Consider new projects and previously explored projects (not deemed infeasible, unless circumstances have changed)
- Reflect a mix of NPR and PR projects
- Aim to develop 24,000 AFY (~21.4 mgd) of PR supply by 2025
- Expand countywide reuse (NPR and/or PR) using source water from each of the Partner Agencies
- Leverage existing infrastructure where possible

Existing/Baseline Conditions

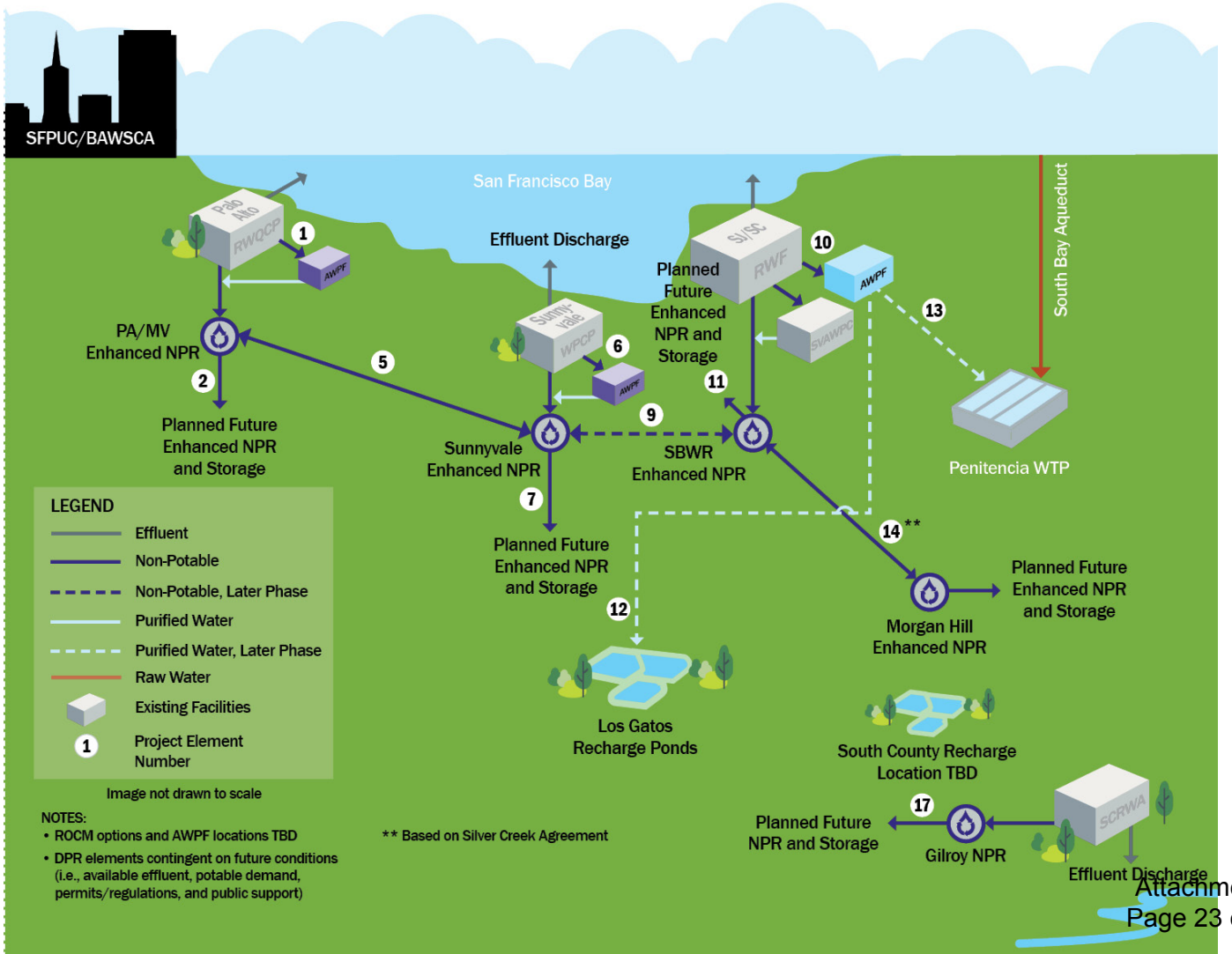


Project Elements

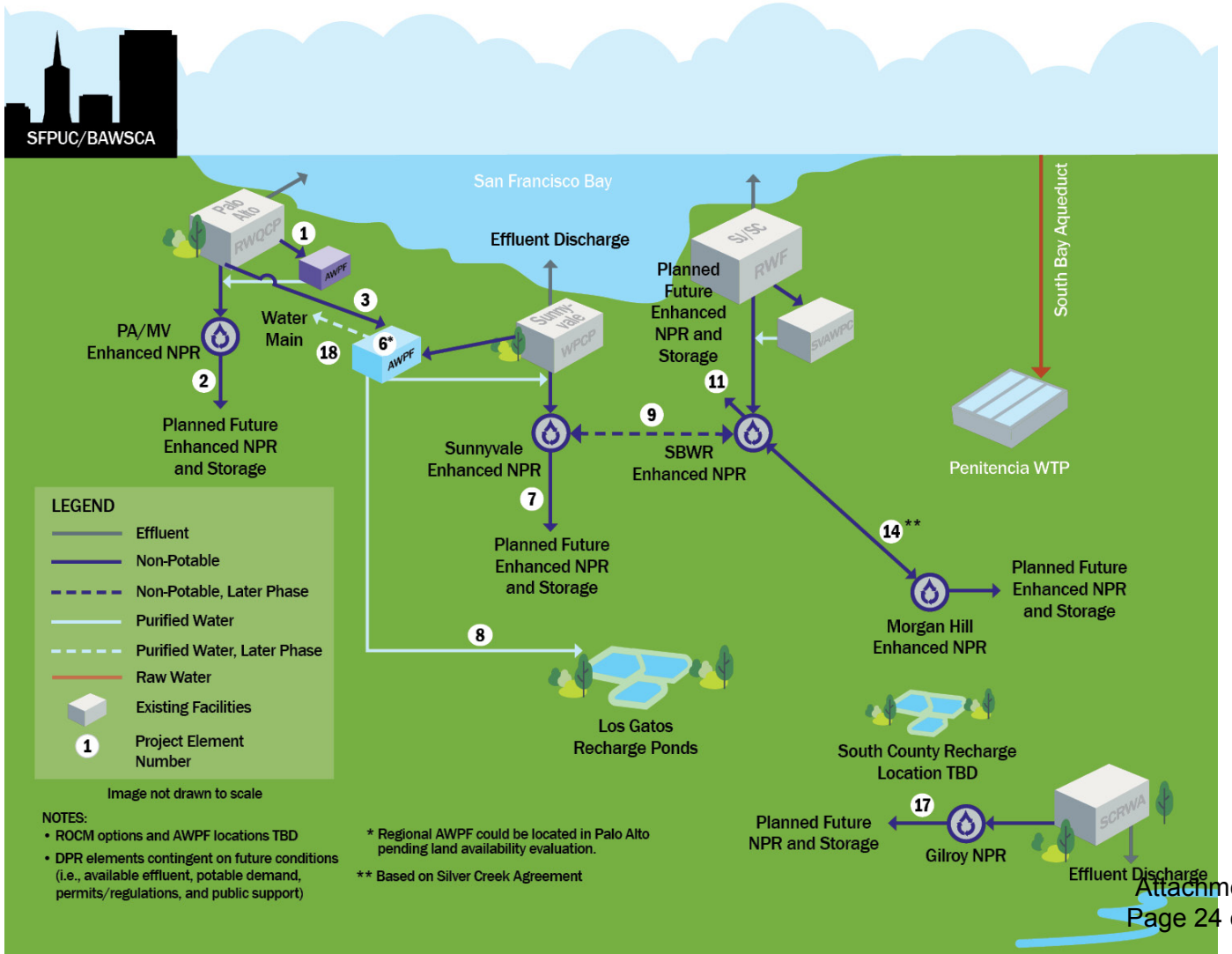
- Identified 18 potential project elements involving NPR, IPR (via groundwater recharge), and DPR
- Based on Partner Agency input, combined project elements into five conceptual alternatives

NPR elements	IPR elements	DPR elements
• Expansion of existing NPR systems • New AWFPs for enhanced NPR • New interties between distribution systems	• North County – production and conveyance of purified water to the Los Gatos Recharge Ponds • South County – groundwater recharge within the Llagas Subbasin (exact location TBD)	• Raw water augmentation in San José (Penitencia WTP) • Treated water augmentation in Palo Alto (at a later phase)

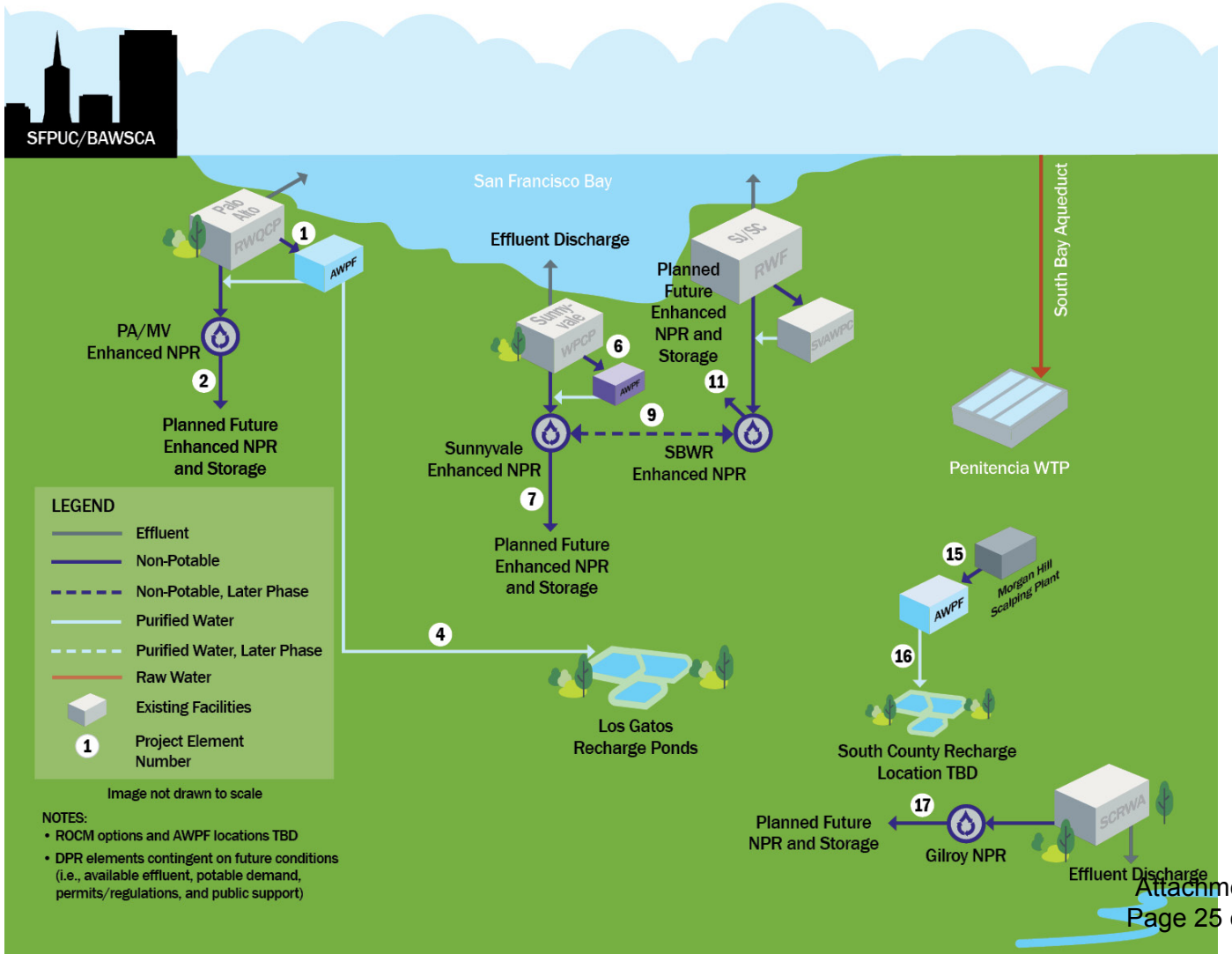
Alternative 1 – Phased IPR/DPR (from SJ/SC) and Expanded NPR



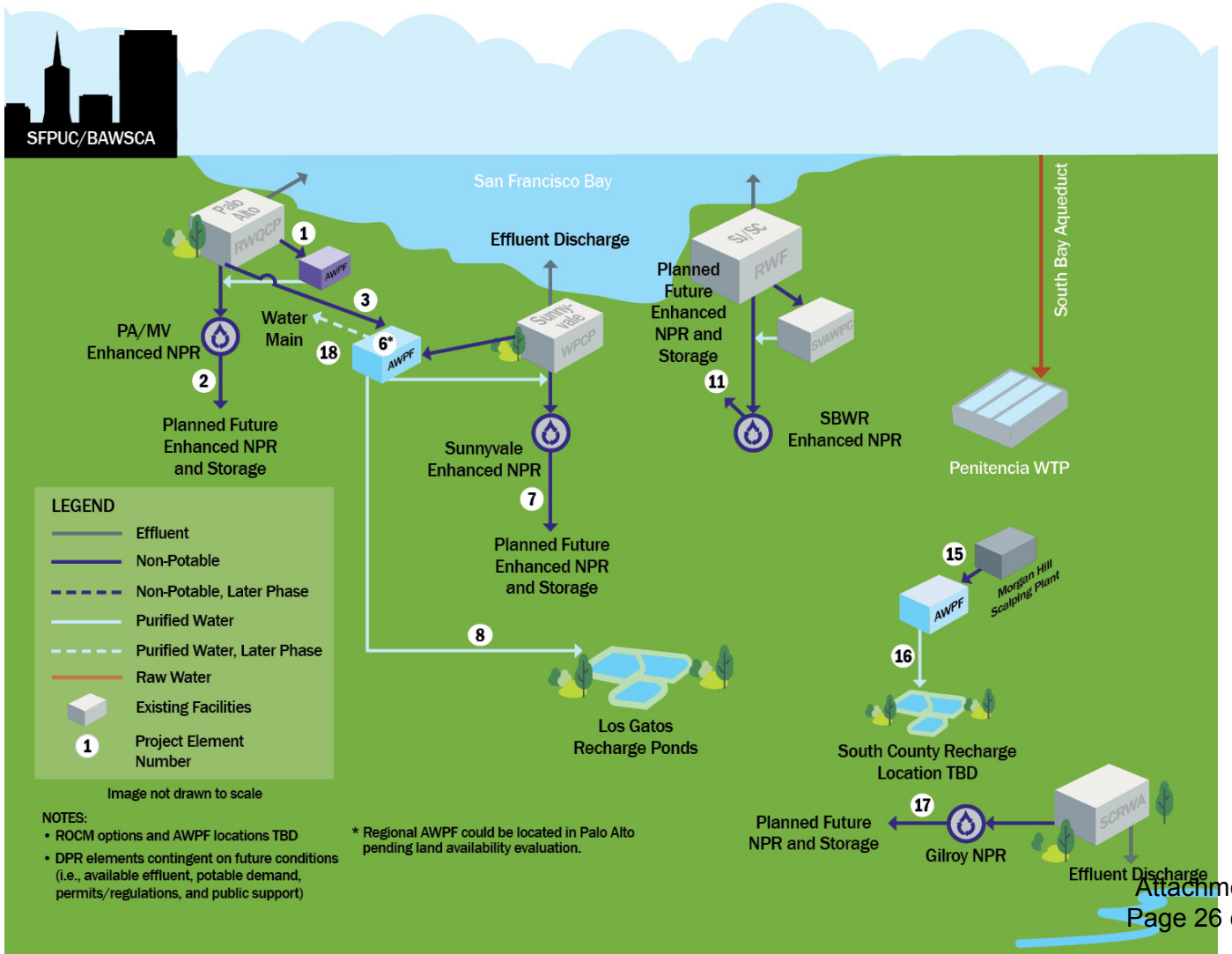
Alternative 2 – IPR/Phased DPR (from Palo Alto/ Sunnyvale) and Expanded NPR



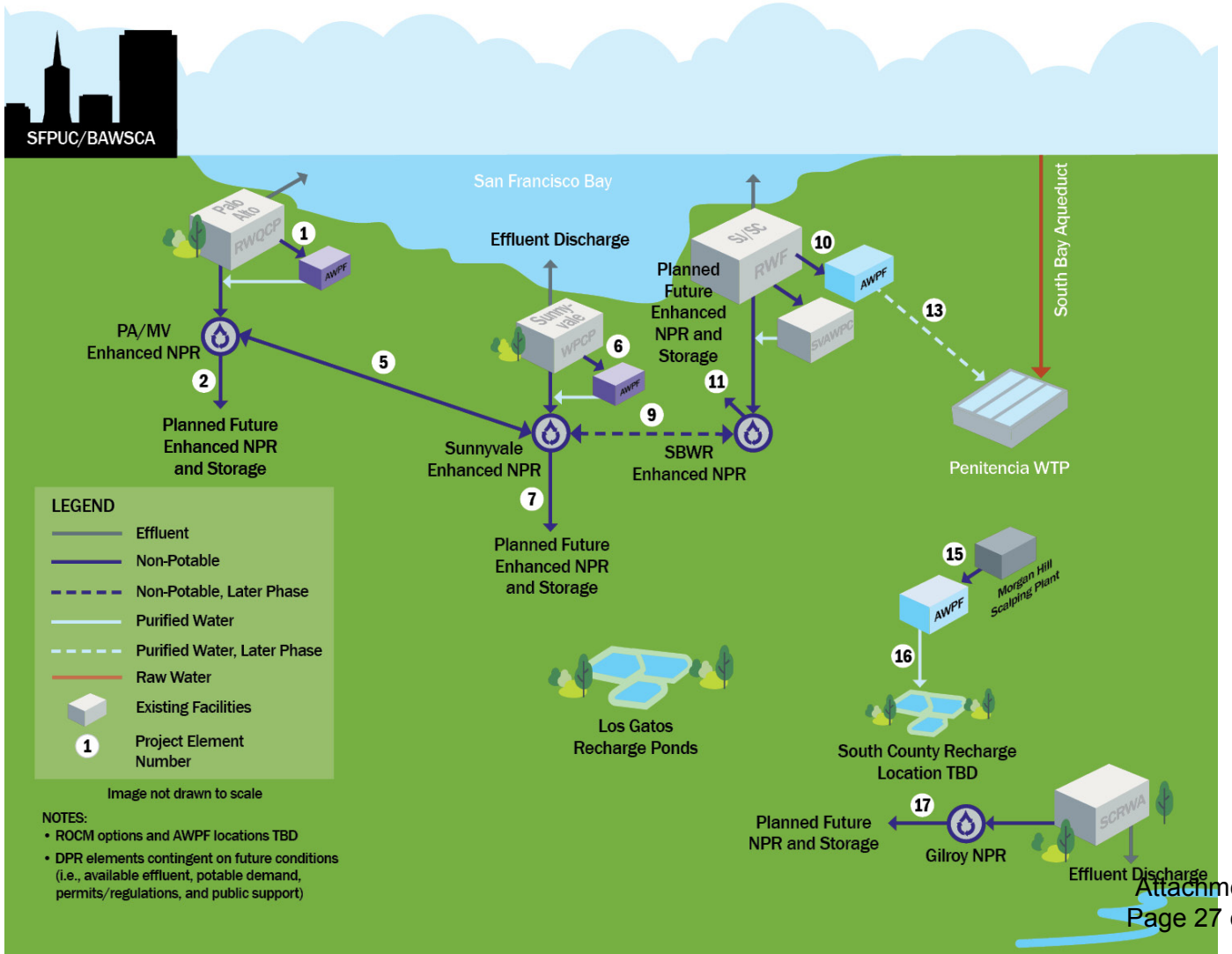
Alternative 3 – IPR (from Palo Alto and Morgan Hill) and Expanded NPR



Alternative 4 – IPR/Phased DPR (from Palo Alto/ Sunnyvale), IPR (from Morgan Hill), and Expanded NPR



Alternative 5 – IPR (from Morgan Hill), Phased DPR (from SJ/SC), and Expanded NPR



Ranking Approach

Criterion	Description	Weighting
Economics	Including capital and O&M costs and rate/customer affordability impacts	25%
GW management and countywide supply reliability	Including groundwater protection (quality and quantity) and dry year/drought resilience benefits	25%
Environmental impacts/benefits and sustainability	Including environmental impacts/benefits, energy use, and GHG production	20%
Ease of implementation and permitting/regulatory	Including governance/partnership, public acceptance, permitting/compliance, environmental and social justice, timing (readiness to proceed), and staff resource considerations	15%
Engineering feasibility	Including water quality (source and product water), monitoring requirements, and treatment technology	15%

Ranking Approach, cont'd

Economics (25%)

- \+ Relatively few new facilities, relatively short pipe lengths, land available
- – Greater capital costs (relatively more, larger, and/or longer new facilities) and O&M requirements (e.g., PR monitoring), limited land available

GW management and countywide (regional) supply reliability (25%)

- \+ Relatively more volume for PR (reduces dependence on imported supplies), relatively more GWR, more interties (greater resilience)
- – Relatively less volume for PR, relatively less GWR, fewer interties

Environmental Impacts / Benefits and Sustainability (20%)

- \+ Relatively low energy requirements (and fewer GHG emissions), reduced imported water demand
- – Relatively high energy requirements (e.g., more treatment and pumping facilities)

Ease of implementation and permitting/regulatory considerations (15%)

- \+ Regulations in place, more experience with operational requirements, fewer agreements required
- – Regulations not yet in place (e.g., DPR), more permitting requirements, new agreements needed, more land restrictions, potential staffing/resource challenges

Engineering feasibility (15%)

- \+ Proven technologies, experienced staff, relatively short pipelines through less developed areas
- – Unfamiliar technology (DPR), staffing/resource challenges, long pipes through more developed areas

Scoring and Selection

- Each alternative was given a score from 1 to 5 for each criterion
- Relative scores were used to identify the top three alternatives to move forward to feasible alternatives (D7)

Conceptual Alternative Scoring						
Criterion	Weighting	Conceptual Alternative				
		1	2	3	4	5
Economics	25%	3.0	3.0	2.0	3.0	1.0
Groundwater (GW) management and countywide (regional) supply reliability	25%	3.0	3.0	2.0	4.0	5.0
Environmental impacts/benefits and sustainability	20%	4.0	4.0	3.0	4.0	2.0
Implementability and permitting/regulatory	15%	5.0	4.0	2.0	3.0	1.0
Engineering feasibility	15%	4.0	4.0	3.0	3.0	1.0
Total		3.7	3.5	2.4	3.5	2.2

Based on results of the scoring process, the top three alternatives include:

- **Alternative 1:** Phased IPR/DPR (from SJ/SC) and Expanded NPR
- **Alternative 2:** IPR/Phased DPR (from Palo Alto/Sunnyvale) and Expanded NPR
- **Alternative 4:** IPR/Phased DPR (from Palo Alto/Sunnyvale), IPR (from Morgan Hill), and Expanded NPR

Sensitivity Analysis

- Evaluated 11 scenarios, each based on comments from District staff and Partner Agencies, changing:
  - Scoring (7)
  - Weighting (4)
- Top 3 alternatives remained the same in all scenarios, although ranking order (1st, 2nd, or 3rd) changed

Partner Agencies' Feedback on Alternatives

- Generally supportive of:
  - Adding DPR elements (potentially phased)
  - Proceeding with Alternatives 1, 2, and 4
- Highly interested in next steps related to:
  - Estimating costs and impact to water rates/local economy
  - Understanding the planned approach to RO concentrate management (permitting complexity and cost)

Next Steps – Feasible Alternatives Development

- **Nov 2018.** Coordinate with RO concentrate management team and water retailers
- **Dec 2018.** Present top 3 alternatives to District Board
- **Feb 2019.** Develop Class 5 cost estimates and 10% designs, hold PPG meeting
- **March/April 2019.** Assess water supply integration, O&M, environmental benefits, regulatory considerations, and risk assessment; meet with Stakeholder Task Force
- **May 2019.** Meet with ELG/PPG to review Feasible Alternatives TM and recommended alternative

June/July 2019. Complete Master Plan report

Recommendation

- That the Recycled Water Committee direct staff to bring the Countywide Water Reuse Master Plan Conceptual Alternatives to the Board for discussion at its December 11, 2018 meeting.

Santa Clara Valley Water District

Santa Clara Valley Water District

Countywide Water Reuse Master Plan

Updated: November 6, 2018

Brown AND Caldwell

The purpose of this document is to provide an executive briefing (high-level update) as a storybook experience.

This slidedoc is not intended to be used as presentation slides.
Abbreviated content for slides will be prepared separately.

CONTENTS

Introduction

Section 01

Introduction

Master Plan Goals and Objectives

District policies include a goal to meet at least 10% of the County's total water demands by 2025 using water reuse.

To achieve this goal, the District is developing a Countywide Water Reuse Master Plan (Master Plan).

The Master Plan aims to improve water supply reliability through water reuse for Santa Clara County in collaboration with recycled water producers, wholesalers, retailers, users, and other interested parties. The Master Plan will:

- Identify the amount of water available for potential potable reuse (PR) development and non-potable reuse (NPR) expansion, and the appropriate split between NPR and PR;
- Evaluate options for system integration, optimizing use of supply and infrastructure to improve system reliability and flexibility;
- Guide system expansion through interagency agreements and governance; and
- Generate regional support for the Master Plan by engaging stakeholders throughout the process.

There are many drivers for supply diversification and expansion, including population/economic growth, increasing climate uncertainty, and other challenges. Recent technological advancements and regulatory developments have made it possible for the District to pursue water reuse as a viable local, drought-resistant supply.

One Water Vision and Approach

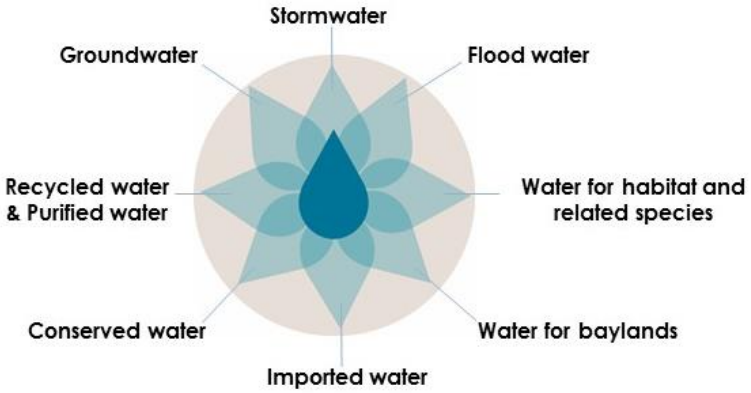
One Water Vision:

"To manage Santa Clara County water resources holistically and sustainably to benefit people and the environment in a way that is informed by community values."

The mission of the Santa Clara Valley Water District is to provide Silicon Valley safe, clean water for a healthy life, environment, and economy.

Achieving this mission requires a holistic, One Water approach.

The Countywide Water Reuse Master Plan aligns with the One Water vision by integrating and expanding recycled and purified water—a reliable, environmentally adaptive, and drought-resistant supply—through a collaborative process. The Master Plan builds upon existing planning studies by integrating information and further evaluating the potential for collaboration. The Master Plan will identify how to optimize recycled and purified water supplies and infrastructure from a regional planning perspective.



Introduction

Collaborative Approach

To meet the objective of purified water development within the county, partnerships and collaborations between recycled water producers, wholesalers, retailers, users, and other interested parties are necessary.

The District has executed agreements and MOUs related to reuse with each of the recycled water producers ("Partner Agencies"), including:

- Palo Alto/Mountain View Recycled Water System (RWS)
- Sunnyvale RWS
- South Bay Water Recycling (SBWR)
- South County Regional Wastewater Authority (SCRWA)

Additional agreements will be needed to advance the Master Plan. In addition, to develop and sustain a common vision for the region, the District is conducting robust engagement across various interest groups and levels, including policymakers, Partner Agencies, stakeholders (external to the District and Partner Agencies), industry experts, regulators, and the general public.

The District's collaboration strategy emphasizes multiple levels of engagement, allowing staff, general managers, and stakeholders to be meaningfully engaged through scheduled meetings and strategic workshops to gain buy-in, generate support, and garner good will within the community.

Partner Agency engagement

Board committees
- Recycled Water Committee (RWC) (District Board only)
- Joint Committees (District Board and Partner Agency city council members)

Executives
- One-on-one meetings
- Executive Leadership Group (ELG)

Staff representatives
- Project Partner Group (PPG)

External collaboration

Stakeholder Task Force
Representing interests/organizations:
- Business/economy
- Chambers of Commerce
- Planning
- Public policy
- Environment
- Environmental justice
- Medical community
- Diversity
- Stormwater
- Groundwater
- Other water and recycled water suppliers/agencies/organizations

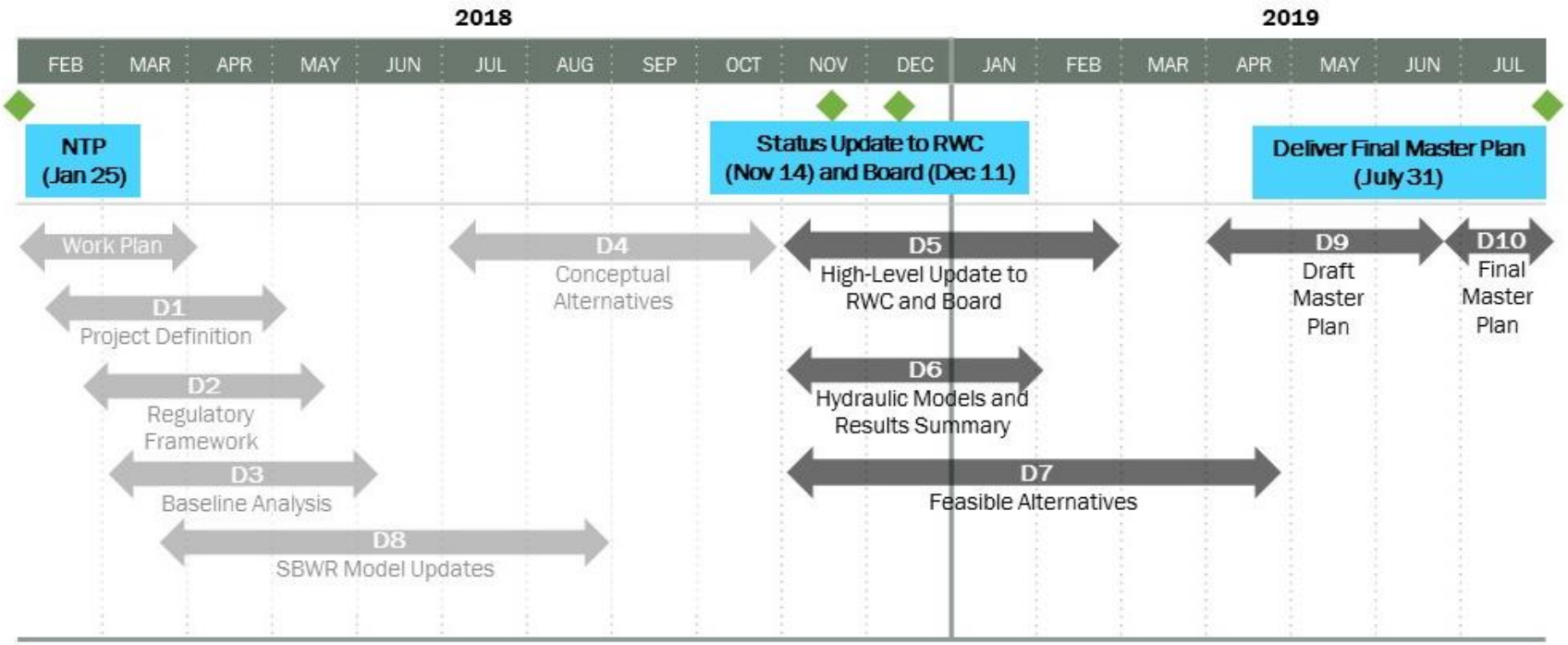
Regulators

Independent Advisory Panel (IAP)

Public

Introduction

Key Milestones and Schedule



Regulatory Framework

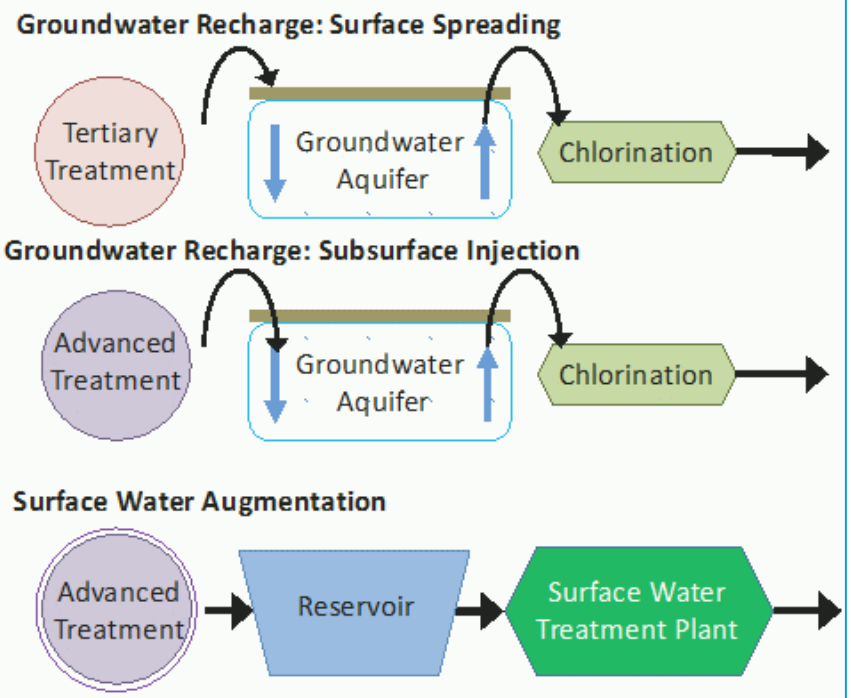
Section 02

Reuse Terminology

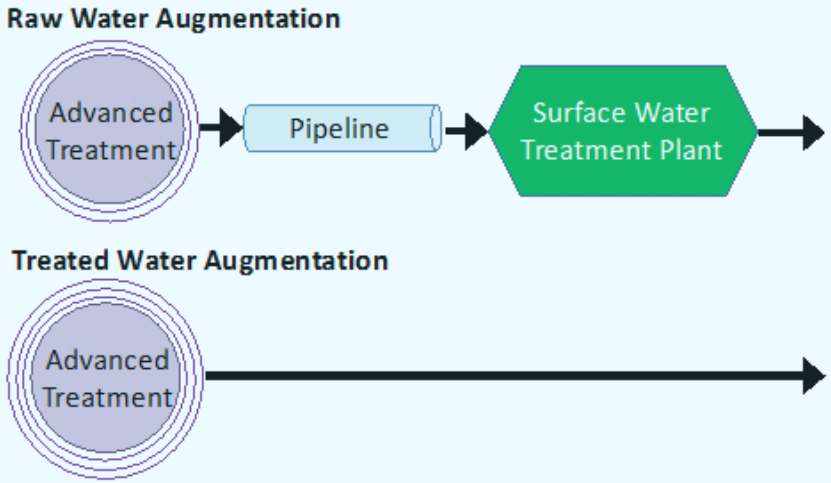
Non-Potable Reuse (NPR) – Title 22 "purple pipe" recycled water

Potable Reuse (PR)

Indirect potable reuse (IPR) – environmental buffer



Direct potable reuse (DPR) – no significant environmental buffer



As the forms of reuse become more direct, regulations require higher levels of treatment

Regulatory Framework

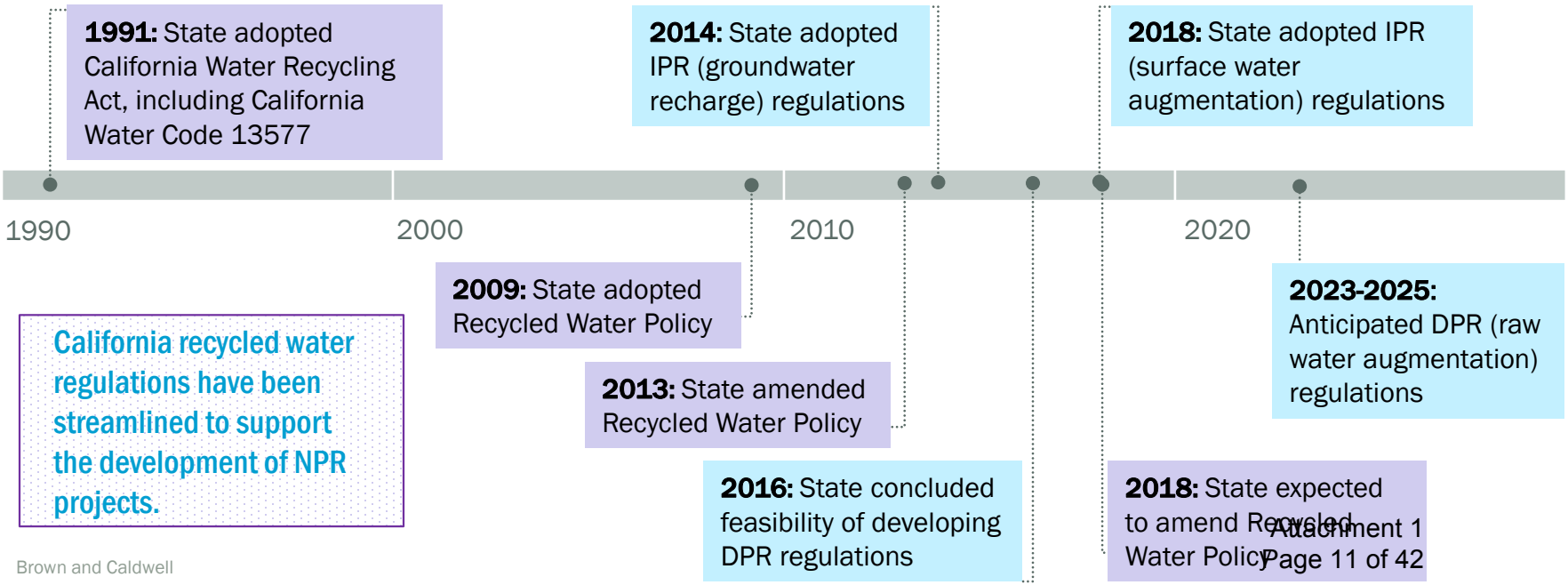
Reuse Regulations

Recycled water for NPR is carefully regulated, but considered a traditional application. Thus, NPR has a relatively straightforward permitting process.

In general, water reuse regulations fall under two categories:

(1) **public health protection criteria,** including requirements for treatment, monitoring, and effluent water quality for the designated end use (e.g., landscape irrigation and groundwater recharge), and

(2) **environmental discharge criteria,** consisting of water quality requirements to protect surface water and groundwater quality for all designated beneficial uses.



Potable Reuse

Potable reuse applications exist along a spectrum, based on distance and time of treatment to purified water levels and its ultimate consumption by the public.

Indirect potable reuse (IPR) is characterized by the use of an environmental buffer, while direct potable reuse (DPR) has no significant environmental buffer. California distinguishes two forms of DPR: raw water augmentation (RWA) and treated water augmentation (TWA). Generally, as the forms of reuse become more direct, the regulations require higher levels of treatment. In principle, this is to compensate for the protections that are lost by the water spending less time in the environment.

To maintain and/or improve existing groundwater quality, the District will recharge the aquifer with advanced treated water.

Status

NPR regulations: complete ✓

IPR regulations: complete ✓

DPR regulations: pending* ⏳

*specific projects may be approved before regulations are final

Surface water augmentation at San Diego's North City Water Reclamation Plant

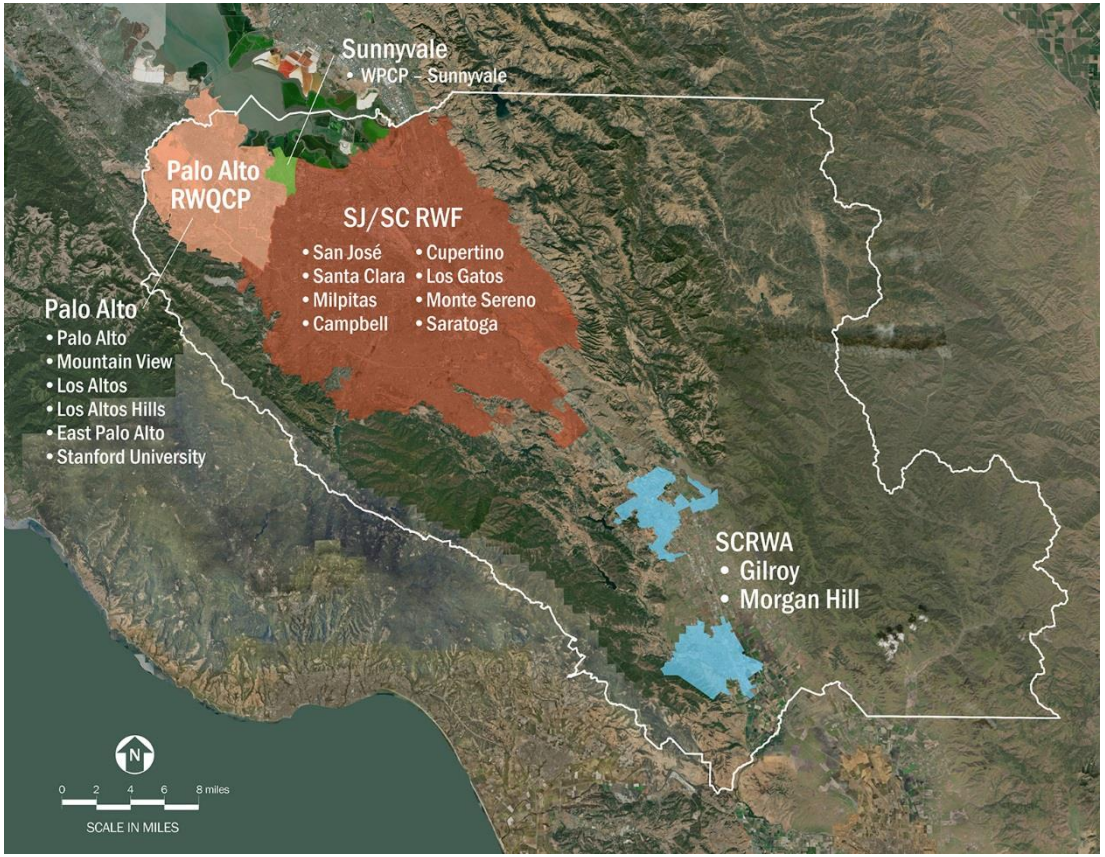
Existing Reuse Systems in Santa Clara County

Section 03

Wastewater Service Areas (Sewersheds)

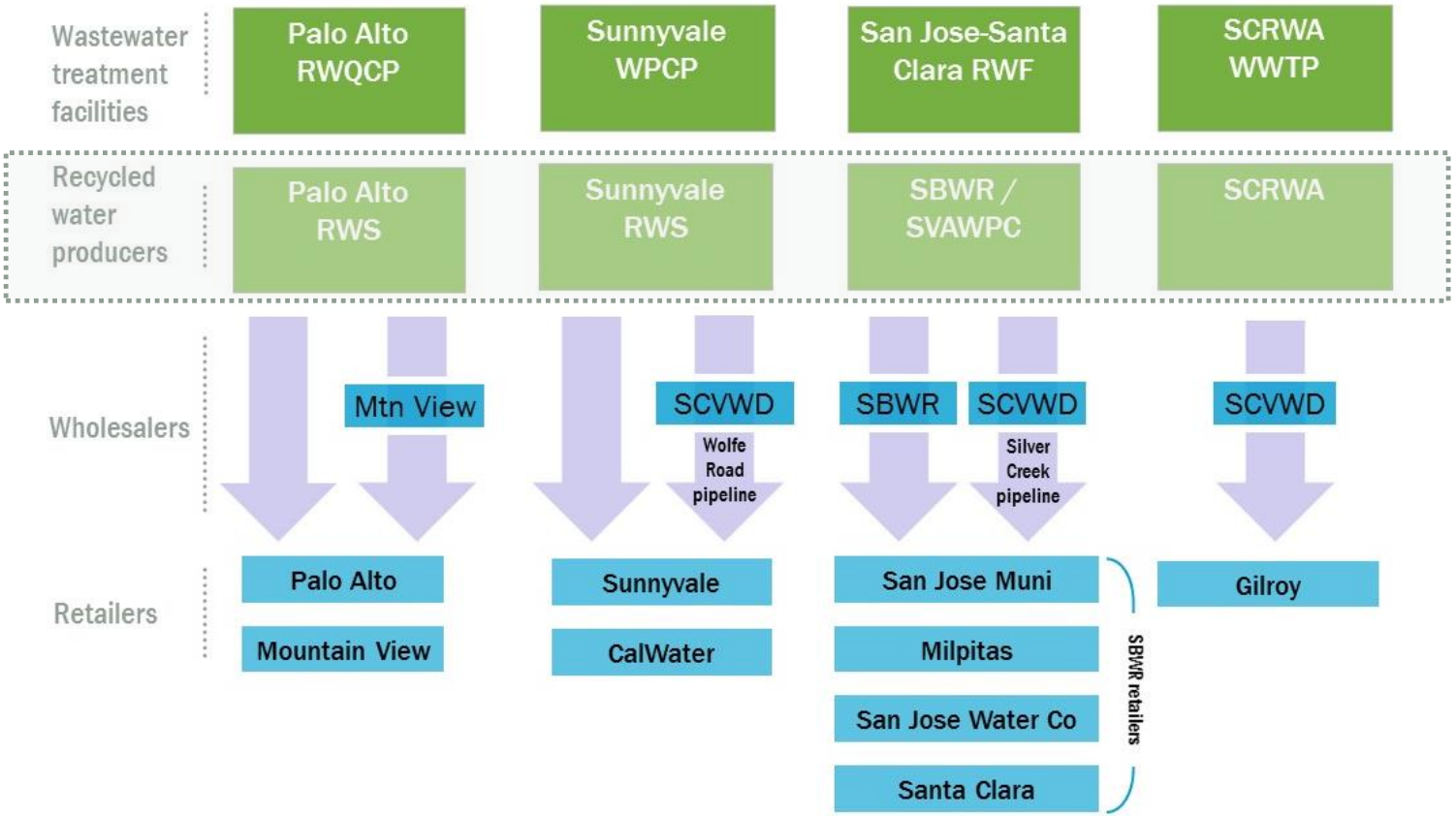
Four wastewater facilities treat source water for reuse in Santa Clara County:

- Palo Alto Regional Water Quality Control Plant (RWQCP)
- Sunnyvale Water Pollution Control Plant (WPCP)
- San José-Santa Clara Regional Wastewater Facility (SJ/SC RWF)
- South County Regional Wastewater Authority (SCRWA) WWTP



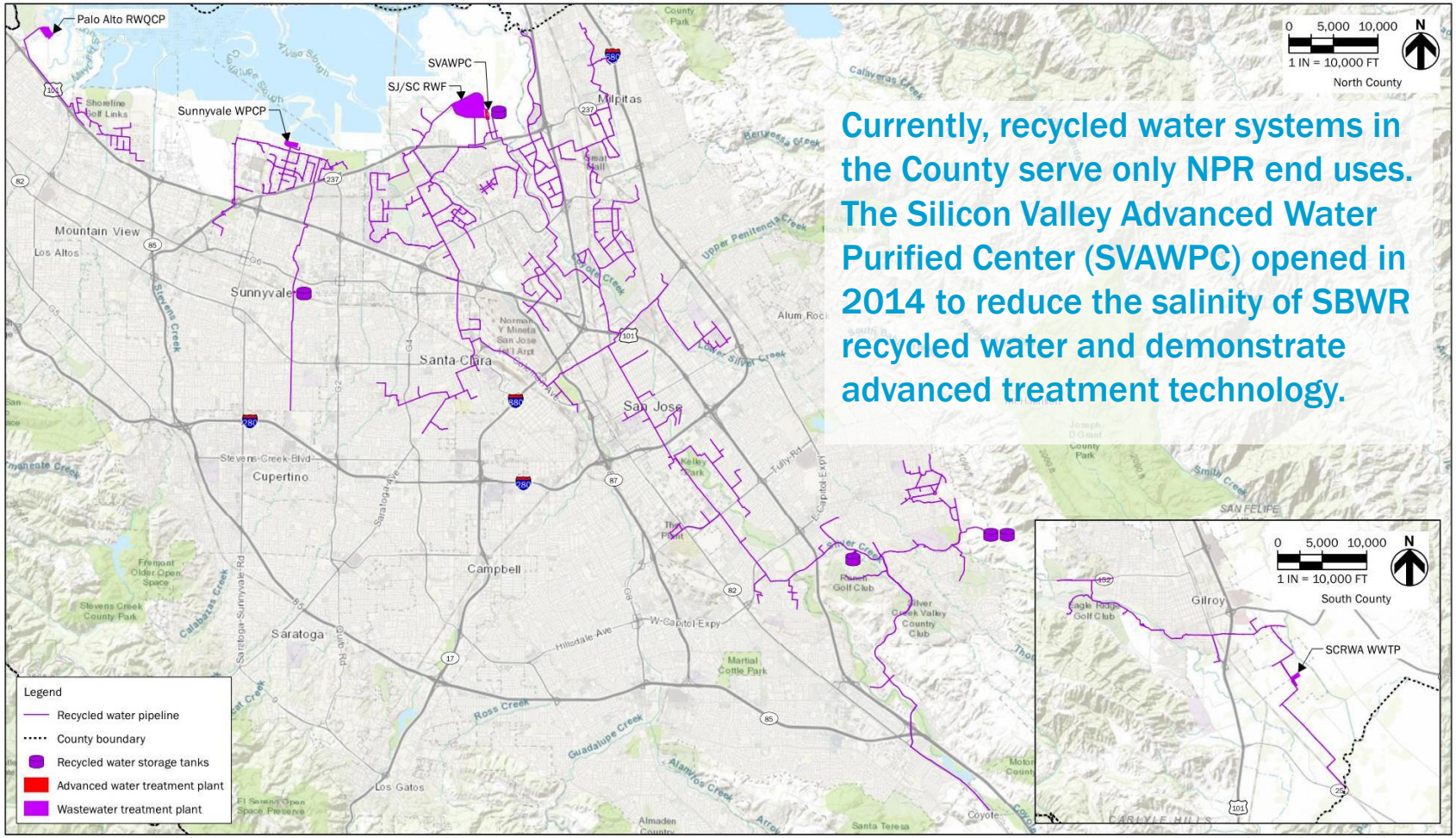
Reuse Roles

Treated effluent from the four wastewater treatment facilities supplies the four recycled water systems, referred to as Partner Agencies.



The recycled and purified water produced at these facilities is distributed either by a wholesaler to retailers, or directly by retailers to end users.

Non-Potable Reuse Distribution Systems



Governance and Finances

The District has entered into several agreements and MOUs with Partner Agencies to coordinate efforts related to water reuse planning and development.

These agreements (and others) define the agencies responsible for various financial and operational requirements, such as those listed below.

- The communities of **Palo Alto, Mountain View, Los Altos Hills, East Palo Alto Sanitary District, Stanford University,** and **Los Altos** agreed to share the capital improvement and maintenance costs of the Palo Alto RWQCP according to their respective sewershed share. The RWQCP Partner communities listed above have the right to acquire all the wastewater by-products (such as recycled water) in proportion to their percentage of influent flow.
- The cities of **Palo Alto** and **Mountain View** own the recycled water distribution systems within their respective service areas, and Mountain View has a right to up to 3 mgd of recycled water supply.
- The **City of Sunnyvale** operates and maintains the Wolfe Road Recycled Water project facilities, but the **District** owns the facilities and has the right to receive wholesale recycled water and up to 1,096 AFY for resale.
- **California Water Service Company** (CalWater) owns, operates, and maintains the portions of the **Sunnyvale** distribution system that it constructed.
- **SBWR** is responsible for operating the recycled water production facilities that it owns and conveying recycled water to the four recycled water retailers. Wholesaler-Retailer agreements specify the quantities of recycled water available, as well as delivery limitations. SBWR is responsible for recycled water quality and all regulatory permitting.
- The **District** paid to upsize the **City of San José's** Silver Creek Pipeline in exchange for the rights to at least 5 mgd of recycled water from the pipeline.
- **San Jose Water Company** owns, operates, and maintains portions of the **SBWR** distribution system that it constructed.
- The existing **South County** recycled water distribution system is operated by the **District** (in coordination with the **City of Gilroy**).

The Master Plan is expected to help inform the governance, terms, and contents of future agreements between the District and the Partner Agencies.

Current NPR Demands

Recycled water demands have steadily increased over the years until the recent extreme drought (2013–2016), which led to a slight reduction in demand.

NPR demands are expected to stay steady or increase as additional customers receive recycled water by retrofit, redevelopment, or constructing new infrastructure.

Partner Agency	Water Retailers	2015 NPR Demand, mgd (AFY) [a]
PA/MV RWS	City of Palo Alto City of Mountain View	1.1 (1,300)
Sunnyvale RWS	City of Sunnyvale California Water Service Company (Cupertino) San Jose Water Company (Cupertino)	0.6 (700)
SBWR	City of Santa Clara San José Municipal Water System San Jose Water Company City of Milpitas	8.9 (10,000)
SCRWA	City of Gilroy City of Morgan Hill	1.8 (2,000)
County total		12.4 (13,900 [b])

a. *NPR demands adapted from retailers' 2015 UWMPs, rounded to the nearest 100 AFY.*
b. *Difference due to rounding.*

System Performance and Challenges

Across all four systems, some recycled water infrastructure is nearing the end of its useful life and requires significant rehabilitation and replacement.

Furthermore, treatment plant operators may need to replace newer, functioning equipment as they anticipate future regulation (e.g., nutrient removal).

Planned and potential capital improvement projects are considered as part of the conceptual alternatives.

Recycled Water System Deficiencies			
System	Quantity	Water Quality	Reliability
PA/MV	N/A	High salinity	Insufficient storage; No potable water backup
Sunnyvale	N/A	High salinity; Recycled water has greenish tint	Insufficient storage; Recycled water production highly manual
SBWR	Peak hour demands approaching system capacity	N/A	Insufficient distribution system storage; Lack of isolation valves
SCRWA	N/A	High salinity	No potable water backup

N/A = not applicable.

Projected Reuse Demands and Available Source Water

Section 04

Projected NPR Demands

The District developed an NPR market assessment using 2035 projections from the water retailers' 2015 urban water management plans (UWMPs).

Demand projections by Partner Agency provide a basis for developing conceptual alternatives to meet future demands. Countywide NPR demands are expected to more than double by 2035.

Partner Agency	Water Retailers	Actual NPR Demand – 2015 mgd (AFY)	Projected NPR Demand - 2025 mgd (AFY)	Projected NPR Demand - 2035 mgd (AFY)
PA/MV RWS	City of Palo Alto City of Mountain View	1.1 (1,300)	2.5 (2,800)	2.5 (2,800)
Sunnyvale RWS	City of Sunnyvale California Water Service Company (Cupertino) San Jose Water Company (Cupertino)	0.6 (700)	1.4 (1,600)	1.5 (1,700)
SBWR	City of Santa Clara San José Municipal Water System (SJMWS) San Jose Water Company City of Milpitas	8.9 (10,000)	18.1 (20,000) *	21.5 (24,100) *
SCRWA	City of Gilroy City of Morgan Hill	1.8 (2,000) --	2.8 (3,100) 2.6 (2,900) **	3.3 (3,700) 2.6 (2,900) **
County total		12.4 (13,900)	27.4 (30,400)	31.4 (35,200)

Actual and projected NPR demands from retailers' 2015 UWMPs (except for City of Morgan Hill), rounded to the nearest 100 AFY. Difference due to rounding.
** SBWR anticipates future NPR demands will exceed previous projections. Updates currently in process.*
*** City of Morgan Hill's projected demands based on conceptual buildout demands from 2015 Couth County Recycled Water Master Plan Update.*

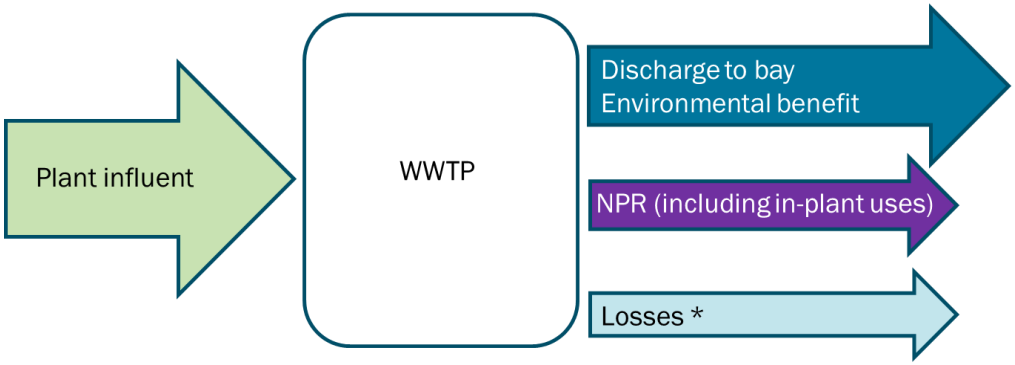
Potential Source Water for Reuse

The District analyzed current and projected conditions at each of the four recycled water producers in the County to determine the remaining effluent available.

Current monthly averages (2015-2017) and annual projections (2025 and 2035) were collected for the following flows:

- Plant influent
- NPR demands
- Evaporation and/or other losses
- Required flow for environmental benefit

Using this information, a flow balance was created to determine the remaining effluent available – this flow could be used for discharge, blending, or as source water for additional reuse.



*Losses include consumptive uses in and around the Palo Alto RWQCP and Sunnyvale WPCP

Monthly distribution factors for plant influent and NPR demand were calculated from current monthly flow data. By applying these factors to future annual projections, future monthly flows were estimated.

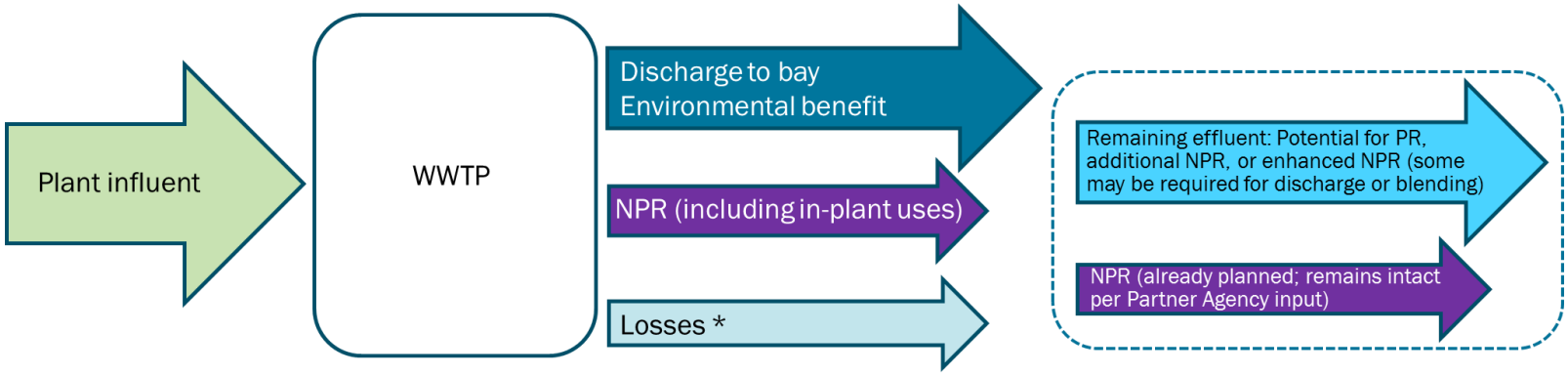
Assumptions for future losses and environmental flow requirements were coordinated with each of the Partner Agencies.

Potential Source Water for Reuse, cont'd.

For this analysis, it was assumed that the remaining effluent would be fully available as source water for additional reuse (above and beyond the 2015 UWMP recycled water demand projections).

These flows may not be available year-round, particularly in the summer months, and some may need to be reserved for discharge or blending. Furthermore, some agencies have contractual agreements restricting the use of certain flows. Reallocating these flows for countywide use may require new agreements or governance structures.

Assuming that NPR demands will increase per the estimates in the 2015 UWMPs, the remaining effluent could be used as source water for **potable reuse**. Some of this source water for PR may be rejected in the RO concentrate stream, or used to dilute the concentrate for discharge, pending findings from the District's ROCM Plan.



*Losses include consumptive uses in and around the Palo Alto RWQCP and Sunnyvale WPCP

Potential Source Water for Reuse, cont'd.

Preliminary flow calculations from D3.1 provided an estimate of remaining effluent to inform conceptual alternatives

Projected Effluent Remaining for Discharge, Blending, or Additional Reuse (Beyond Existing Plans for NPR) in 2025 and 2035					
Partner Agency	Available Influent, mgd (AFY)	NPR Demands, mgd (AFY)	Losses/ Environmental Flows, mgd (AFY)	Remaining Effluent, mgd (AFY)[a]	Current Contractual Obligation[b]
2025					
Palo Alto RWQCP	21.0 (23,400)	2.5 (2,800)	1.3-3.3[c] (1,500–3,700)	15.2-17.2 (16,900–19,200)	Mountain View has the right to receive up to 3 mgd of peak flow
Sunnyvale WPCP	14.6 (16,300)	1.4 (1,600)	1.4-4.0[d] (1,600–4,500)	9.2-11.8 (10,300-13,200)	See footnote (e).
SJ/SC RWF	103.2 (115,600)	18.1 (20,300)	0	85.1 (95,300)	District has the right to at least 5 mgd from the Silver Creek Pipeline
SCRWA WWTP	6.5 (7,300)	2.8 (3,100)	0	3.7 (4,200)	N/A
Total, 2025[f]	**145.3 (162,700)**	**24.8 (27,900)**	**2.7-7.3 (3,000-8,200)**	**113.2–117.8 (126,700-131,800)**	
2035					
Palo Alto RWQCP	22.1 (24,700)	2.5 (2,800)	1.3-3.3[c] (1,500–3,700)	16.3-18.3 (18,200–20,400)	Mountain View has the right to receive up to 3 mgd of peak flow
Sunnyvale WPCP	17.3 (19,400)	1.5 (1,700)	1.4-4.0[d] 1,600–4,500	11.8-14.4 (13,200-16,100)	See footnote (e).
SJ/SC RWF	107.4 (120,200)	21.5 (24,200)	0	85.9 (96,000)	District has the right to at least 5 mgd from the Silver Creek Pipeline
SCRWA WWTP	6.5 (7,300)	3.3 (3,700)	0	3.2 (3,600)	N/A
Total, 2035 [f]	**153.3 (171,600)**	**28.8 (32,400)**	**2.7-7.3 (3,000-8,200)**	**117.2-121.8 (131,000-136,200)**	

Notes

a. Calculated as available influent less the sum of 2015 UWMP NPR demand estimates, environmental flows, and other losses (such as in-plant process water losses)

b. Projected NPR demands do not fully capture potential allocations per contractual agreements. New agreements may be needed to access portion of available effluent for additional reuse. Governance considerations will be further evaluated feasible alternatives (Deliverable 7).

c. Range reflects flow to Renzel Marsh currently included in the NPDES permit (1 mgd) and a high estimate (3 mgd), in case of a future expansion, along with an estimated 20% loss of effluent used for in-plant processes (equivalent to 0.3 mgd).

d. Range reflects current evaporation rates and higher estimate reserved for evaporation, capping, and other losses.

e. Per agreement between Sunnyvale and the District, the District can receive 595 AFY for distribution within Sunnyvale and at least 500 AFY for distribution outside Sunnyvale's city limits. The District and Sunnyvale meet annually to discuss the anticipated quantity of recycled water to be delivered through the Wolfe Road Pipeline to District customers.

f. Difference due to rounding

Potential Source Water for Reuse, cont'd.

Where new AWPFs are considered for enhanced NPR*, recovery rates of microfiltration (MF) and RO increase the amount of flow required to meet NPR demands

Assuming MF and RO efficiencies of 93% and 85%, respectively, it takes approximately 1.27 units $(1 \div [0.93 \times 0.85])$ of effluent to produce 1 unit of purified water.

Enhanced NPR is a blend of purified water with Title 22 recycled water, and it takes approximately 1.1 units of effluent to produce 1 unit of enhanced NPR water. That is, for every 1,000 AFY of NPR demand, approximately 1,100 AFY of effluent is needed to produce 1,000 AFY of enhanced NPR. Therefore, accounting for improved NPR water quality at the Palo Alto RWQCP, Sunnyvale WPCP, and SJ/SC RWF reduces the volume of water available for additional reuse.

Projected Purified Water Supply Available in 2035 (AFY)					
Partner Agency	Available Influent	Influent Required to Produce and Meet Enhanced NPR Demands	Losses/ Environmental Flows	Remaining Effluent (AWPF Feed)	Available Purified Water
Palo Alto RWQCP	24,700	3,100	1,500–3,700	17,900–20,100	14,100–15,900
Sunnyvale WPCP	19,400	1,900	1,600–4,500	13,000–15,900	10,300–12,600
SJ/SC RWF					
• With Morgan Hill enhanced NPR [a]	120,200	29,400	0	90,800	71,800
• Without Morgan Hill enhanced NPR	120,200	26,300	0	93,900	74,300
SCRWA Service Area					
• Potential Morgan Hill AWPF & Scalping Plant [b]	3,600	N/A	0	3,600	2,800
Countywide Total	167,900	31,300-34,400	3,000-8,200	125,300-133,600	99,000-105,600

a. *Two of the conceptual alternatives include enhanced NPR in Morgan Hill.*
b. *Assumes 3,600 AFY will be scalped from the existing trunk sewer to produce purified water in Morgan Hill. No project elements were identified that involved SCRWA WWTP as the AWPF feed source.*

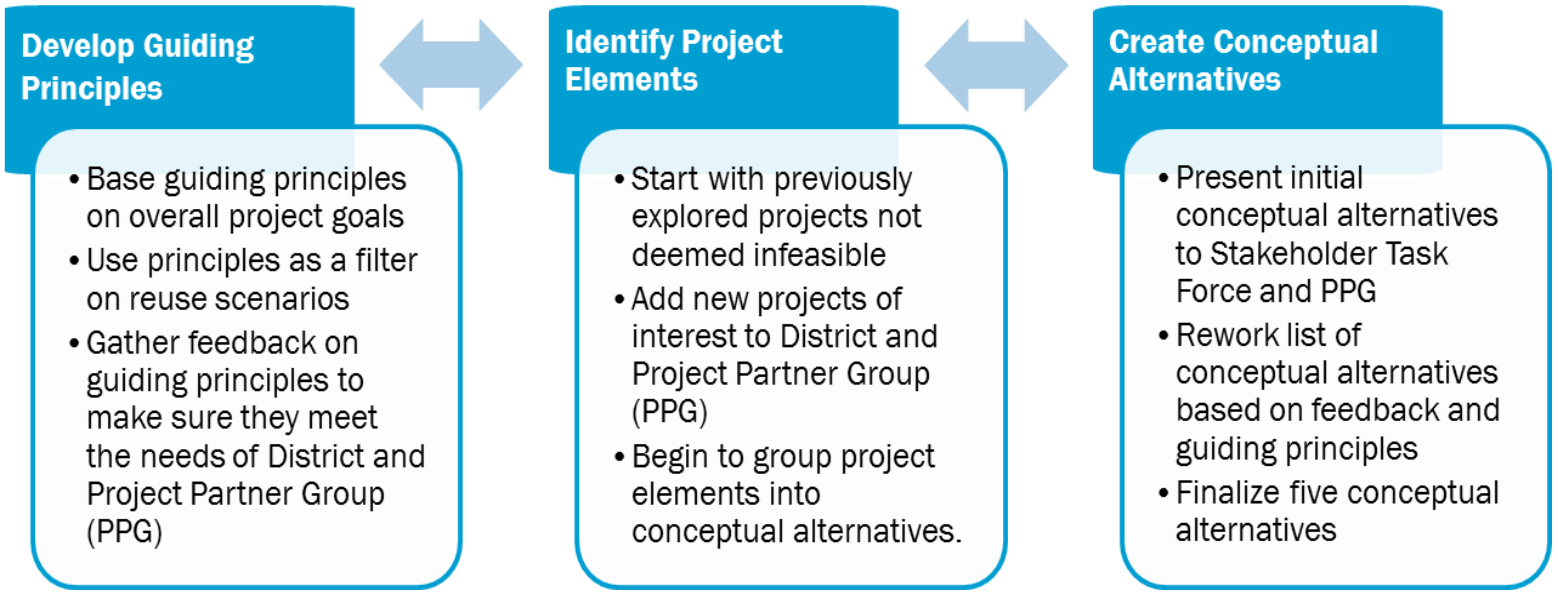
**Enhanced NPR = blend of purified water [full-advanced treatment or equivalent water quality] with Title 22 recycled water for improved NPR water quality; referred to as "Enhanced Recycled Water" in the District's RO Concentrate Management Plan.*

Conceptual Alternatives

Section 05

Conceptual Alternatives Development

The process used to develop conceptual alternatives for the Master Plan is illustrated below.



Guiding Principles

Each alternative must meet the following tenets; these guiding principles support the overall project goal and objectives and provide an early filter on the vast range of possible reuse scenarios.

- Consider previously explored projects (not previously deemed infeasible, unless circumstances have changed) and new projects
- Reflect a mix of NPR and PR projects
- Aim to develop 24,000 AFY (~21.4 mgd) of PR supply by 2025 to meet the County's water supply demands (per the District's 2018 Water Supply Master Plan update)
- Expand countywide reuse (NPR and/or PR) using source water from each of the Partner Agencies
- Leverage existing infrastructure where possible

Project Elements

The District identified 18 potential project elements for consideration.

Project elements consider previously explored projects (i.e., not previously deemed infeasible, unless circumstances have changed) and new projects.

NPR elements include expanding the existing NPR system, adding advanced treatment for enhanced NPR, and interconnecting distribution networks.

All indirect potable reuse (IPR) involve groundwater recharge. Potential IPR elements in the northern part of the county involve source water from the Palo Alto RWQCP, Sunnyvale WPCP, and SJ/SC RWF and the production and conveyance of purified water to the Los Gatos Recharge Ponds. Potential IPR elements in South County are limited to those within the Llagas Subbasin (exact recharge location TBD).

Direct potable reuse (DPR) options involve raw water augmentation (delivering purified water from a new AWPF near the SJ/SC RWF to the Penitencia WTP) and, in a later phase, treated water augmentation (delivering water from new North County AWPF directly to treated water pipelines in Palo Alto).

While most project elements were not previously deemed infeasible, one exception is Morgan Hill. Morgan Hill's 2016 Recycled Water Feasibility Evaluation did not recommend developing an NPR system; however, an NPR project may be more feasible in the context of a larger, countywide plan. Therefore, the District is further exploring project elements in Morgan Hill.

Conceptual Alternatives

Based on Partner Agency input, the District combined the 18 potential project elements into five conceptual alternatives for evaluation.

Alternative 1: Phased IPR/DPR (from San José-Santa Clara) and Expanded NPR

Alternative 2: IPR/Phased DPR (from Palo Alto/Sunnyvale) and Expanded NPR

Alternative 3: IPR (from Palo Alto and Morgan Hill) and Expanded NPR

Alternative 4: IPR/Phased DPR (from Palo Alto/Sunnyvale), IPR (from Morgan Hill), and Expanded NPR

Alternative 5: IPR (from Morgan Hill), Phased DPR (from San José-Santa Clara), and Expanded NPR

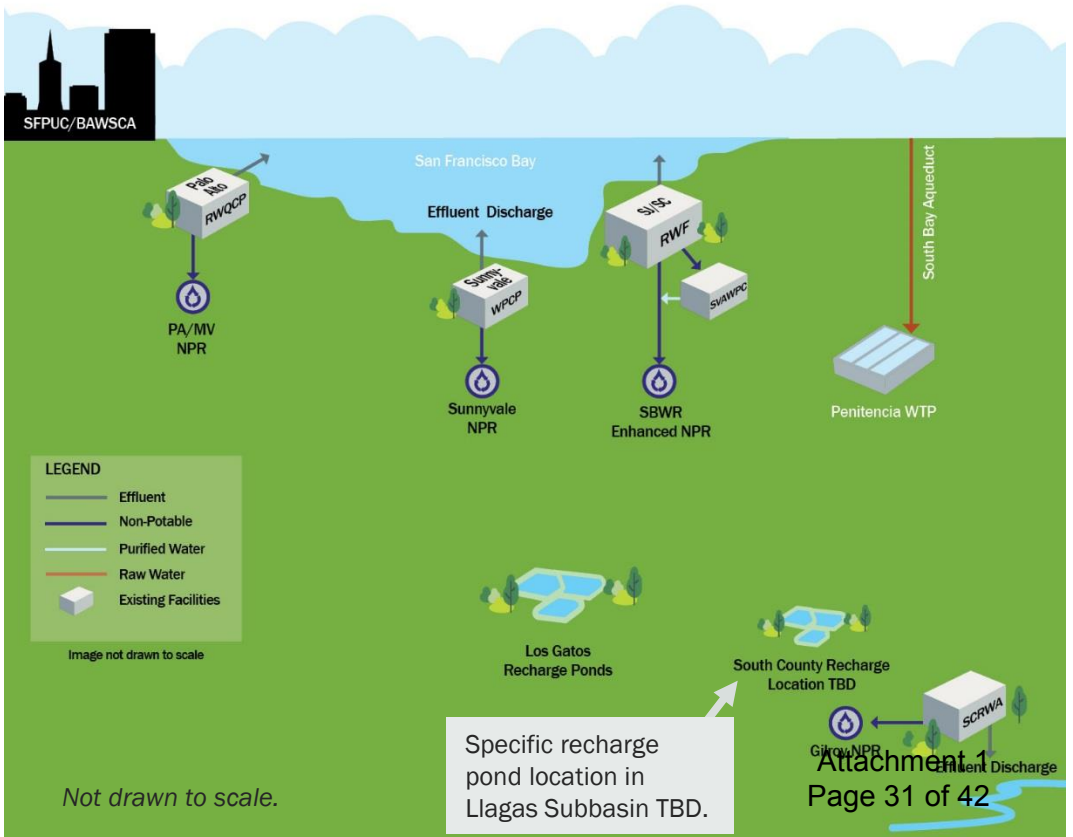
Alternatives include a mix of potential project elements, including some previously proposed projects (from various recycled water master plans) and some new elements.

Existing/Baseline Conditions

The conceptual alternatives utilize existing treatment plants, reuse facilities and related infrastructure.

Capacities of Recharge Ponds and WTP to Potentially Receive Purified Water for PR		
Receiving Facility	Reuse Type	Annual Capacity (AFY)
Los Gatos Recharge Ponds	IPR via groundwater augmentation	24,000 [a]
Penitencia WTP	DPR via raw water augmentation	26,900 [b]
South County recharge ponds [c]	IPR via groundwater augmentation	7,300 [c]

a. Source: District Expedited Purified Water Program Plan.
b. Based on 24 mgd (26,900 AFY) delivery to new 3 MG purified water tank near Penitencia WTP.
c. Specific location in Llagas Subbasin TBD in feasible alternatives. The annual capacity of Church Recharge Ponds is currently referenced as a proxy. Source: Morgan Hill 2016 RWFE.

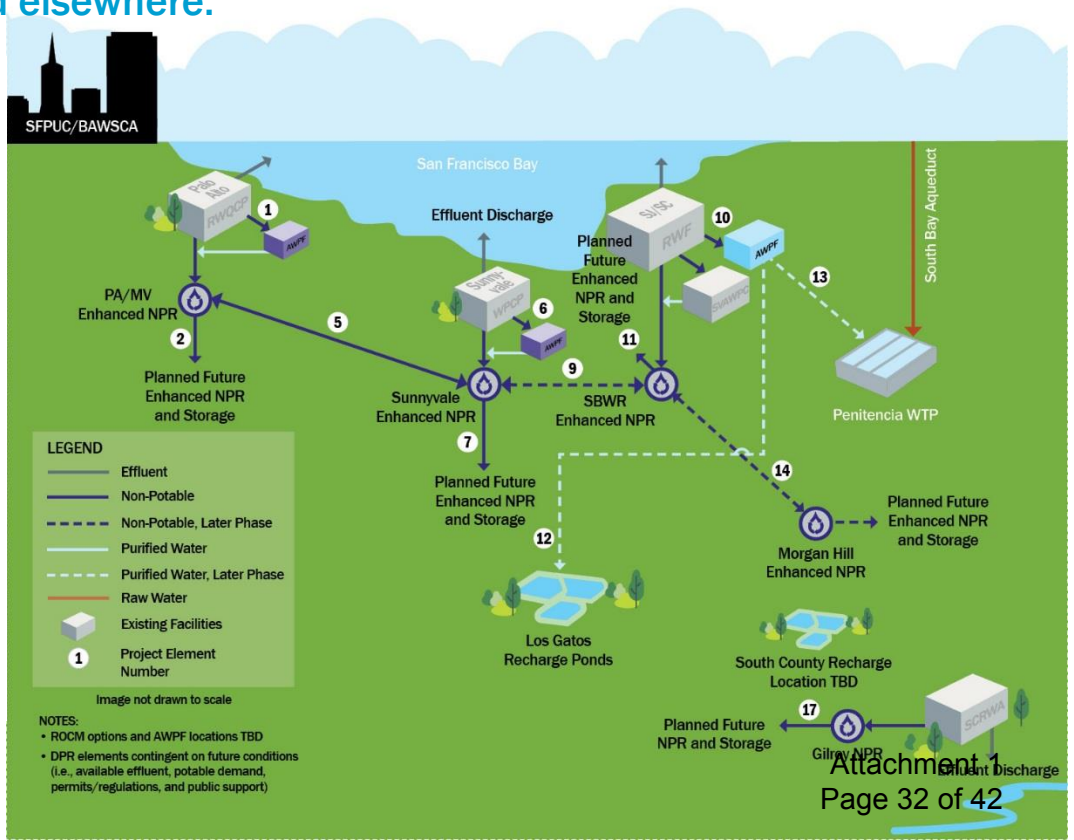


Alternative 1 – Phased IPR/DPR (from San José-Santa Clara) and Expanded NPR

Alternative 1 combines expanded and interconnected enhanced NPR systems with phased IPR/DPR supply from the SJ/SC RWF. As reflected through all alternatives, potable supply needs must be met in San José Muni and Santa Clara service areas before SJ/SC RWF source water may be transferred elsewhere.

This alternative also includes a new AWPF in San José (**10**) to support IPR through distribution facilities to transport purified water to the Los Gatos Recharge Ponds (**12**) and/or DPR via raw water augmentation at the Penitencia WTP (**13**).

New AWPFs would be located in Palo Alto (as currently planned) and Sunnyvale for enhanced NPR (**1** and **6**), allowing for future connection to the SBWR system (**5** and **9**) and enhanced NPR deliveries (**2**, **7**, and **11**). In addition, a new NPR system in Morgan Hill would be supplied by SBWR (**14**). An expanded Gilroy system (**17**) would remain separate and maintain its current NPR water quality.

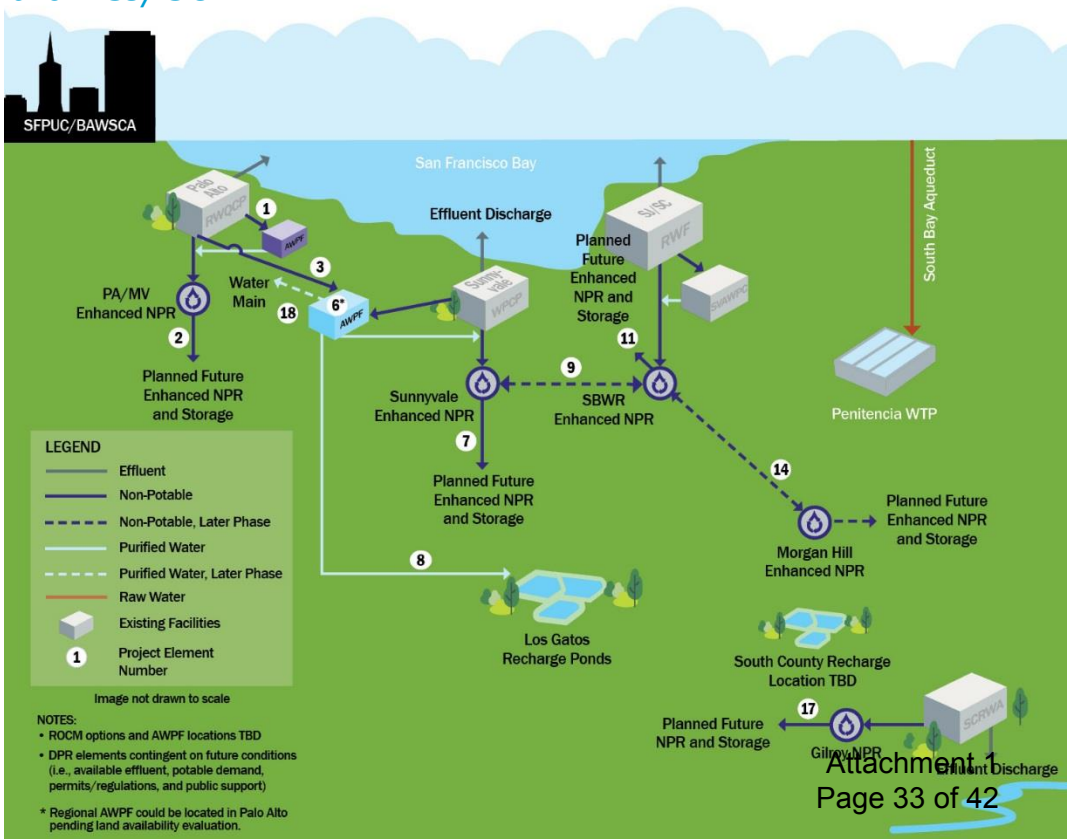


Alternative 2 – IPR/Phased DPR (from Palo Alto/Sunnyvale) and Expanded NPR

Alternative 2 features expanded and interconnected enhanced NPR systems in North County, similar to Alternative 1, except IPR/DPR supply would come from a regional AWPF in Palo Alto or Sunnyvale, rather than SJ/SC.

A new, regional AWPF would take effluent from both the Palo Alto RWQCP and the Sunnyvale WPCP (3 and 6) and supply purified water to either the Los Gatos Recharge Ponds (8) for IPR or, in a later phase, directly to treated water pipelines for DPR in Palo Alto (18). In addition, the AWPF would allow for enhanced NPR deliveries in Sunnyvale (7) and a connection to SBWR (9). A new AWPF would allow for enhanced NPR deliveries in Palo Alto (1 and 2).

South County elements (14 and 17) are identical to Alternative 1.

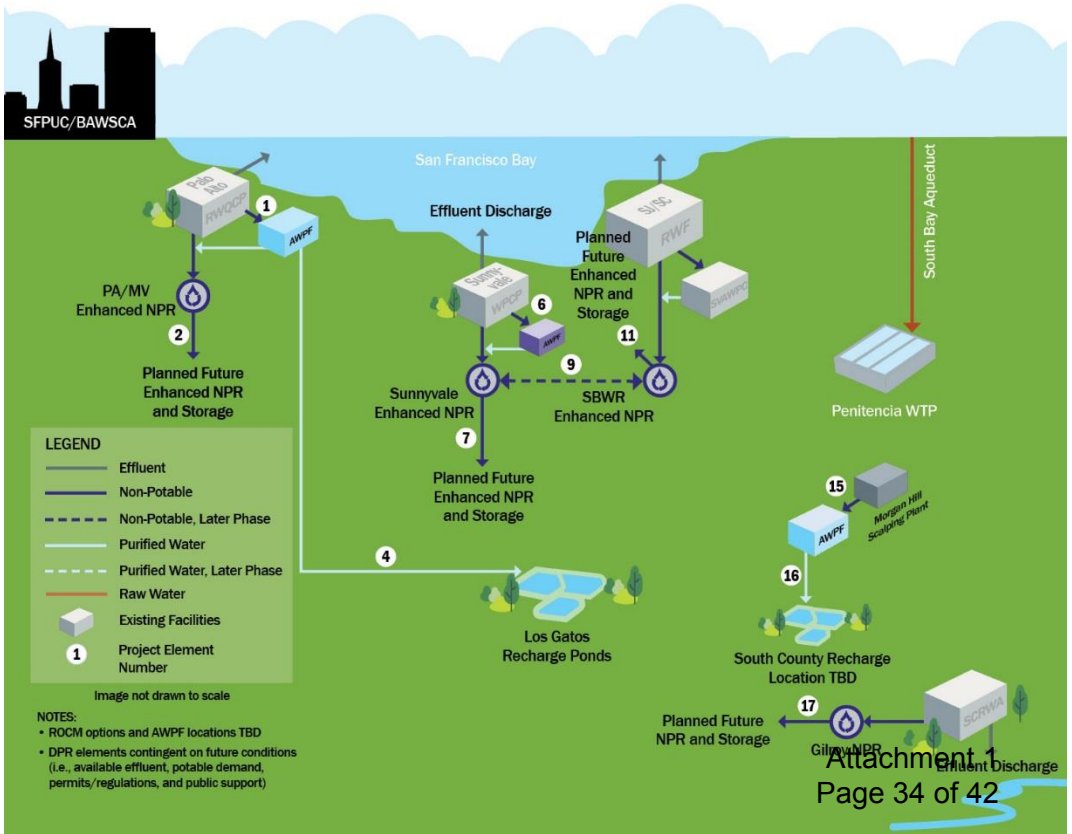


Alternative 3 – IPR (from Palo Alto and Morgan Hill) and Expanded NPR

Alternative 3 shifts the IPR supply to the Palo Alto RWQCP, which would feed a new AWPF in Palo Alto.

Purified water would be delivered from the new Palo Alto AWPF (1) to the enhanced NPR system for blending (2) and the Los Gatos Recharge Ponds via a new pipeline (4). In contrast to Alternatives 1 and 2, the PA/MV system would remain entirely separate from Sunnyvale. A new AWPF in Sunnyvale (6) would improve NPR water quality if connected to SBWR (9) and allow for expansion of both systems (7 and 11).

In South County, new treatment and purification facilities would scalp wastewater on its way to the SCRWA WWTP (15) for treatment and delivery to South County recharge ponds (16). An expanded Gilroy system (17) would remain separate.

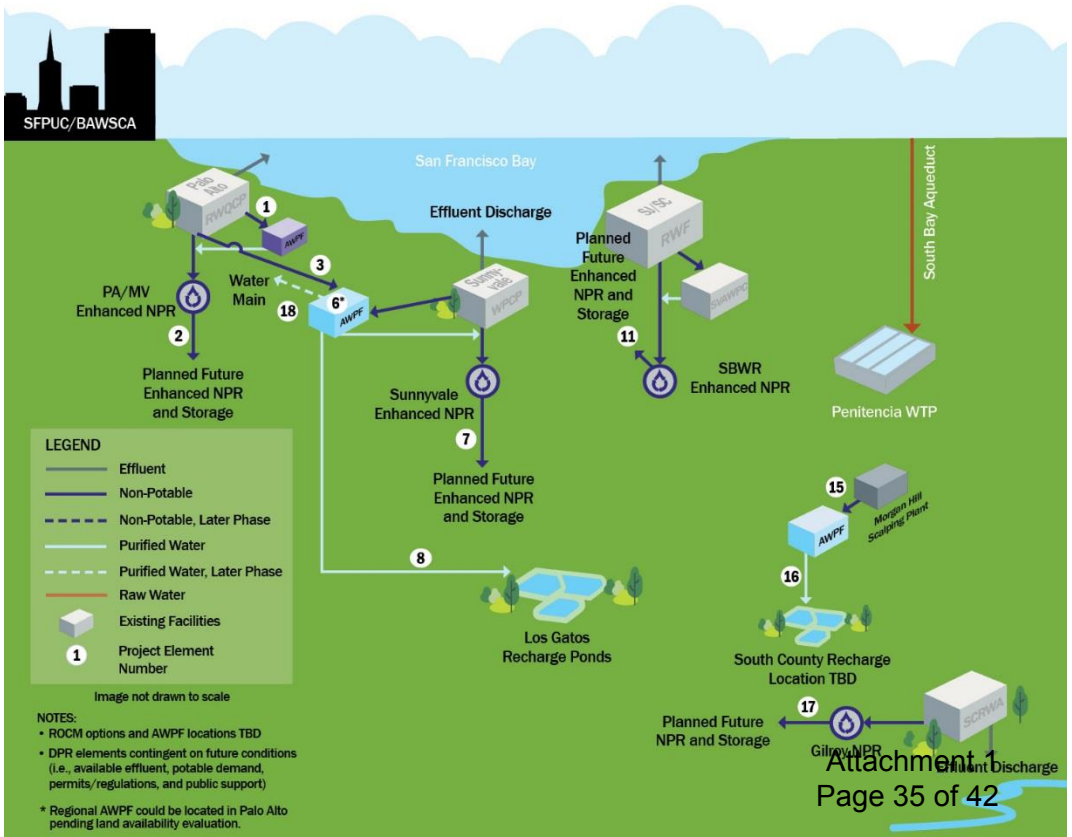


Alternative 4 – IPR/Phased DPR (from Palo Alto/ Sunnyvale), IPR (from Morgan Hill), and Expanded NPR

Alternative 4 favors IPR/DPR over system interties.

A new AWPF in Palo Alto would produce purified water for enhanced NPR (1 and 2). Effluent from both the Palo Alto RWQCP and Sunnyvale WPCP would be combined (3) and purified at a new regional AWPF (6) for delivery to the Los Gatos Recharge Ponds for IPR (8) or, in a later phase, DPR via treated drinking water augmentation in Palo Alto (18). The regional AWPF would also allow for enhanced NPR in Sunnyvale (7).

The PA/MV and Sunnyvale systems would be connected, but SBWR would remain separate. As in Alternative 3, Morgan Hill would scalp and treat wastewater before purifying effluent for groundwater recharge (15 and 16). As in Alternatives 1, 2, and 3, an expanded Gilroy system (17) would remain separate and maintain its current NPR water quality.

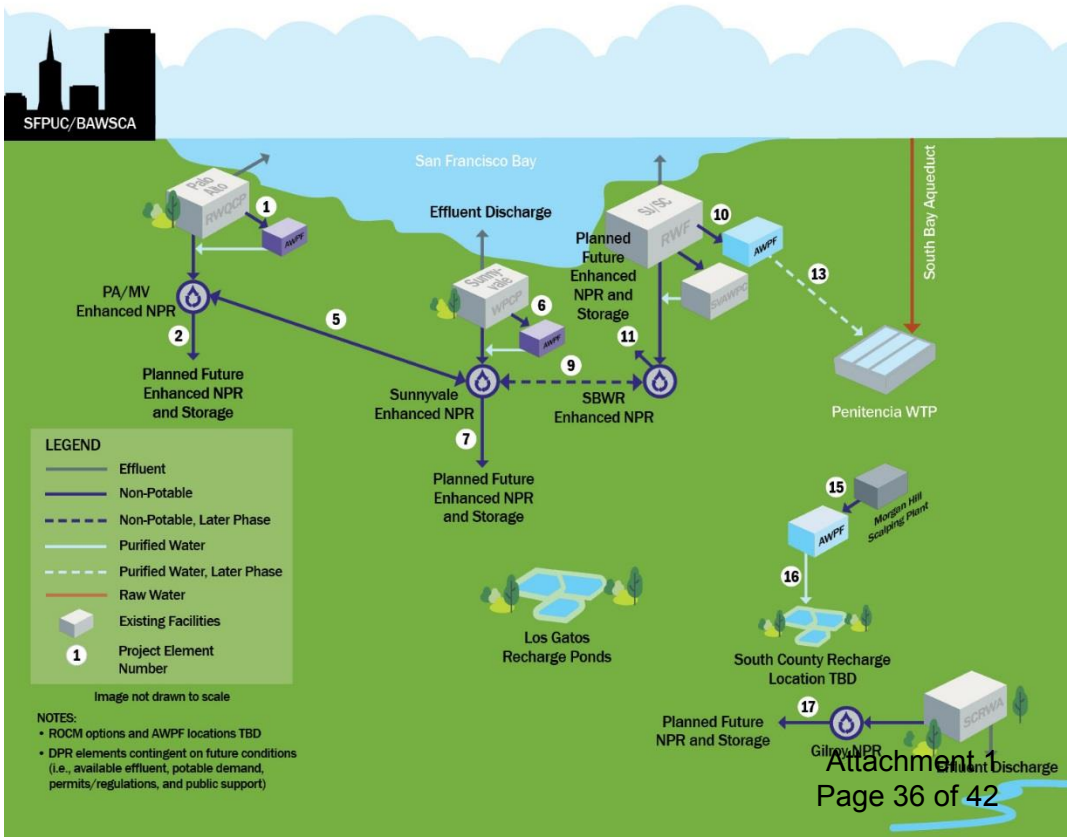


Alternative 5 - IPR (from Morgan Hill), Phased DPR (from SJ/SC), and Expanded NPR

Alternative 5 includes DPR (raw water augmentation) at the Penitencia WTP.

Similar to Alternative 1, Alternative 5 includes new AWPFs in Palo Alto and Sunnyvale for enhanced NPR (**1** and **6**), allowing for connection to the SBWR system (**5** and **9**) and enhanced NPR deliveries (**2**, **7**, and **11**). A new AWPF would also be constructed in San José to produce purified water from SJ/SC RWF effluent (**10**). However, instead of sending purified water to the Los Gatos Recharge Ponds, the new SJ/SC AWPF would augment raw water at the Penitencia WTP (**13**).

Similar to Alternatives 3 and 4 in South County, Morgan Hill would implement IPR (**15** and **16**). An expanded Gilroy system (**17**) would remain separate.



Purified Water Allocations

Alternative 5 has the potential to deliver the most purified water for PR, a result of the higher capacity at the Penitencia WTP relative to the Los Gatos Recharge Ponds and potential Morgan Hill scalping plant and AWPF. Alternative 3 delivers the least because Palo Alto alone cannot meet the Los Gatos Recharge Ponds' capacity.

Purified Water Allocated for PR Alternatives						
Supply Source	Source Water Available for PR, Considering Treatment Losses (AFY)	Purified Water Provided for PR (AFY)[a]				
		Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Palo Alto RWQCP	14,100[b]	0	14,000	14,000	14,000	0
Sunnyvale WPCP	10,300[b]	0	10,000	0	10,000	0
SJ/SC RWF						
• With Morgan Hill enhanced NPR[c]	71,800[d]	24,000 to 26,900	0	N/A	N/A	N/A
• Without Morgan Hill enhanced NPR	74,300[d]	N/A	N/A	0	0	26,900
SCRWA Service Area • Potential Morgan Hill Scalping Plant and AWPF	2,800	0	0	2,800[e]	2,800[e]	2,800[e]
County total						
• With Morgan Hill enhanced NPR[c]	99,000	24,000 to 26,900	24,000	17,200	26,800	29,700
• Without Morgan Hill enhanced NPR	101,500	24,000 to 26,900	24,000	17,200	26,800	29,700
PR locations		Los Gatos Recharge Ponds, or Penitencia WTP	Los Gatos Recharge Ponds	Los Gatos Recharge Ponds, South County recharge ponds	Los Gatos Recharge Ponds, South County recharge ponds	Penitencia WTP, South County recharge ponds

a. Purified water provided is limited to recharge capacity or treatment capacity of receiving facility.
b. Based on high estimates of future losses and environmental flows.
c. Alternatives 1 and 2 include Morgan Hill enhanced NPR. Alternatives 3, 4, and 5 do not.
d. Per the assumptions in D3.1, no potential environmental flows were considered for SJ/SC RWF. However, all alternatives result in substantial remaining SJ/SC effluent.
e. Delivered to recharge ponds in South County; exact location TBD.

Prioritization Methodology

The District developed initial evaluation criteria considering objectives of the Master Plan and typical criteria of funding opportunities with the U.S. Bureau of Reclamation and the California Department of Water Resources.

Based on Partner Agencies' feedback, the District refined and confirmed prioritization criteria and respective weighting, as summarized below.

Prioritization Criteria and Weighting		
Criterion	**Notes**	**Weighting**
Economics	Including capital and O&M costs and rate/customer affordability impacts	25%
GW management and countywide (regional) supply reliability	Including GW protection (quality and quantity) and dry year/drought resilience benefits	25%
Environmental impacts/benefits and sustainability	Including environmental impacts/benefits, energy use, and GHG production	20%
Ease of implementation and permitting/regulatory considerations	Including governance/partnership, public acceptance, permitting/compliance, environmental and social justice, timing (readiness to proceed), and staff resource considerations	15%
Engineering feasibility	Including water quality (source and product water), monitoring requirements, and treatment technology	15%
	Total	100%

Ranking and Selection

Each alternative was awarded a score between 1 and 5 based on how well it satisfies each individual criterion.

The alternatives' relative rankings were used to identify three alternatives to be carried forward to feasibility-level assessment.

Conceptual Alternative Scoring						
Criterion	Weighting	Conceptual Alternative				
		1	2	3	4	5
Economics	25%	3.0	3.0	2.0	3.0	1.0
Groundwater (GW) management and countywide (regional) supply reliability	25%	3.0	3.0	2.0	4.0	5.0
Environmental impacts/benefits and sustainability	20%	4.0	4.0	3.0	4.0	2.0
Implementability and permitting/regulatory	15%	5.0	4.0	2.0	3.0	1.0
Engineering feasibility	15%	4.0	4.0	3.0	3.0	1.0
Total		3.7	3.5	2.4	3.5	2.2

Based on results of the scoring process, the top three alternatives include:

- Alternative 1: Phased IPR or DPR (from SJ/SC) and Expanded NPR
- Alternative 2: IPR or DPR (from Palo Alto/Sunnyvale) and Expanded NPR
- Alternative 4: IPR or DPR (from Palo Alto/Sunnyvale and Morgan Hill) and Expanded NPR

Next Steps

Section 06

Feasible Alternatives Evaluation

The following considerations, among others, will be used to further evaluate the three alternatives in D7 (Feasible Alternatives TM) and select one recommended alternative:

Economics. A Class 5 cost assessment and economic comparison matrix will be included in D7, including the total unit cost of the three alternatives.

Environmental benefits, impacts, and permitting. D7 will include a more detailed analysis of potential environmental impacts, including energy and GHG emissions, along with permitting and regulatory considerations (e.g., NPDES permits and CEQA compliance) and RO concentrate management (ROCM). Any additional effluent flow requirements (e.g., for discharge or blending) will be considered at this stage.

Residuals management. ROCM options will vary depending on location and capacity. Various management options are being considered as part of the District's ROCM Plan that is currently being developed in parallel with the Master Plan. The feasible alternatives evaluation will be informed by the ROCM team, specifically in terms of site-specific ROCM options, costs, and permitting complexity.

Emerging technologies and research. Alternatives will be evaluated according to the most up-to-date research on potential PR treatment and distribution technologies.

Water supply integration, operations, and maintenance. The feasible alternatives analysis will include a plan to evaluate existing contracts, water supply models, infrastructure parameters, seasonal variation, energy use, and permit requirements. This evaluation will consider estimated utilization rates and impacts of proposed alternatives on the countywide water cycle.

Risk. D7 will include a risk assessment to evaluate potential opportunities for each alternative, identify and manage adverse effects, and define potential contingency plans.

Final Master Plan Report

The following considerations will be addressed in the Final Master Plan Report, along with an implementation plan for the recommended alternative.

Governance considerations and potential partnership arrangements. The alternatives all involve project elements that require new or extended agreements, such as an extension of the Silver Creek Pipeline (SCP) agreement, ownership and operations of a joint AWPF, and significant changes to wastewater effluent delivery to SCRWA in the case of a Morgan Hill scalping plant. Roles and responsibilities of NPR and potential PR producer(s), wholesaler(s), and retailer(s) will be further detailed in the Master Plan, along with potential new agreements.

Regulatory compliance. The Master Plan will include recommendations on the elements and steps necessary to support expansion of NPR and development of potential PR in the county, implement the recommended project alternative, and achieve regulatory compliance.

Rate impacts. Potential impacts to District water rates will be estimated for the recommended alternative.

The Final Master Plan Report will be developed in close coordination with the Partner Agencies and other stakeholders.

Other interim deliverables include SBWR hydraulic model simulation results and a capital improvement program (CIP) implementation tool based on the recommended alternative.

File No.: 18-0906

Agenda Date: 11/14/2018
Item No.: 3.3.

COMMITTEE AGENDA MEMORANDUM

Recycled Water Committee

SUBJECT:
Update on Reverse Osmosis Concentrate Management (ROCM) Plan Engineered Treatment Cell Pilot: Initial Water Quality Results.

RECOMMENDATION:
Receive information and discuss next steps.

SUMMARY:
The following information provides an update on ROCM items since the past Committee meeting, held on August 8, 2018:

A. Engineered Treatment Cell (ETC) Pilot

On September 19, 2018, District staff conducted a workshop with researchers from the University of California at Berkeley, Stanford University, and the San Francisco Estuary Institute to discuss preliminary results from the ETC pilot study. Preliminary results from data collected from April 2018 through August 2018 were promising, and indicate that under varying experimental conditions:

- Nutrients (including nitrate) were reduced up to 25%,
- Pharmaceutical compounds were reduced 40% to 80%,
- Pesticides were reduced 40% to 80%.

These early experimental results indicate that ozonation dosed (20 mg/L vs. 40 mg/L) at the beginning of the treatment cell enhanced the removal rates for certain indicator compounds that included trace level pharmaceuticals and pesticides. Furthermore, considering the likelihood of future nutrient regulatory objectives for the Bay, innovative projects that can reduce overall nutrient loading may garner greater interest and merit further academic investigation to enhance nutrient removal systems.

The removal of trace metals, such as copper and nickel, has proved much more challenging. Removal efficiencies are significantly impacted due to the structural complexities associated with metal EDTA complexes; and coupled with the difficulties of treating extremely low part-per-billion concentrations found in RO Concentrate. District staff is now investigating treatment system optimizations, such as pH adjustment and chemical pretreatment, as well as

evaluating other state-of-the-art treatment technologies to address the issue of trace metal removal in RO Concentrate. District staff are also currently reviewing proposed research studies from our academic partners to supplement their treatment cell investigations and maximize treatment efficiency.

In September 2018, our academic research partners added bags of wood chips to small sections of the ETCs, which will act as an additional carbon source for the mix of algae and bacteria present the treatment cells. By adding additional carbon, the research team will assess opportunities to further increase the biological density and subsequent contaminant removal from the system. Water quality sampling will continue through the fall to measure the effects of the added carbon.

B. Next Steps

The District has held two technical workshops with external stakeholders to solicit feedback on the development of RO Concentrate management alternatives. Participants have included representatives from recycled water producers, State and Federal regulators, universities, and environmental non-governmental organizations such as San Francisco Estuary Institute. These workshops have been conducted to define and understand the regulatory and technological problems associated with ROCM, and evaluate the available options and associated constraints. The workshop settings have been effective in obtaining input from the stakeholders on problem definition, business drivers and criteria for selection of alternatives.

The ROCMP team will soon begin incorporating new information to develop site-specific ROC management solutions for the cities of Sunnyvale and Palo Alto as conceptual alternatives are refined for future advanced water purification facilities through the Countywide Water Reuse Master Plan (CWRMP). To better align with the development and refinement of the CWRMP, the third ROCMP stakeholder workshop has been rescheduled for spring 2019. In this workshop the ROCM preferred options for each site will be presented and discussed.

The final ROCMP workshop is planned for November 2019 and will focus on presenting the final results and collaborative work conducted with the University of California at Berkeley and Stanford University on the economic and technical feasibility of RO Concentrate treatment by ETC. This will lead into a final report to be presented by the end of December 2019.

ATTACHMENTS:
Attachment 1: PowerPoint

UNCLASSIFIED MANAGER:
Garth Hall, 408-630-2750

Reverse Osmosis Concentrate Management Plan Update

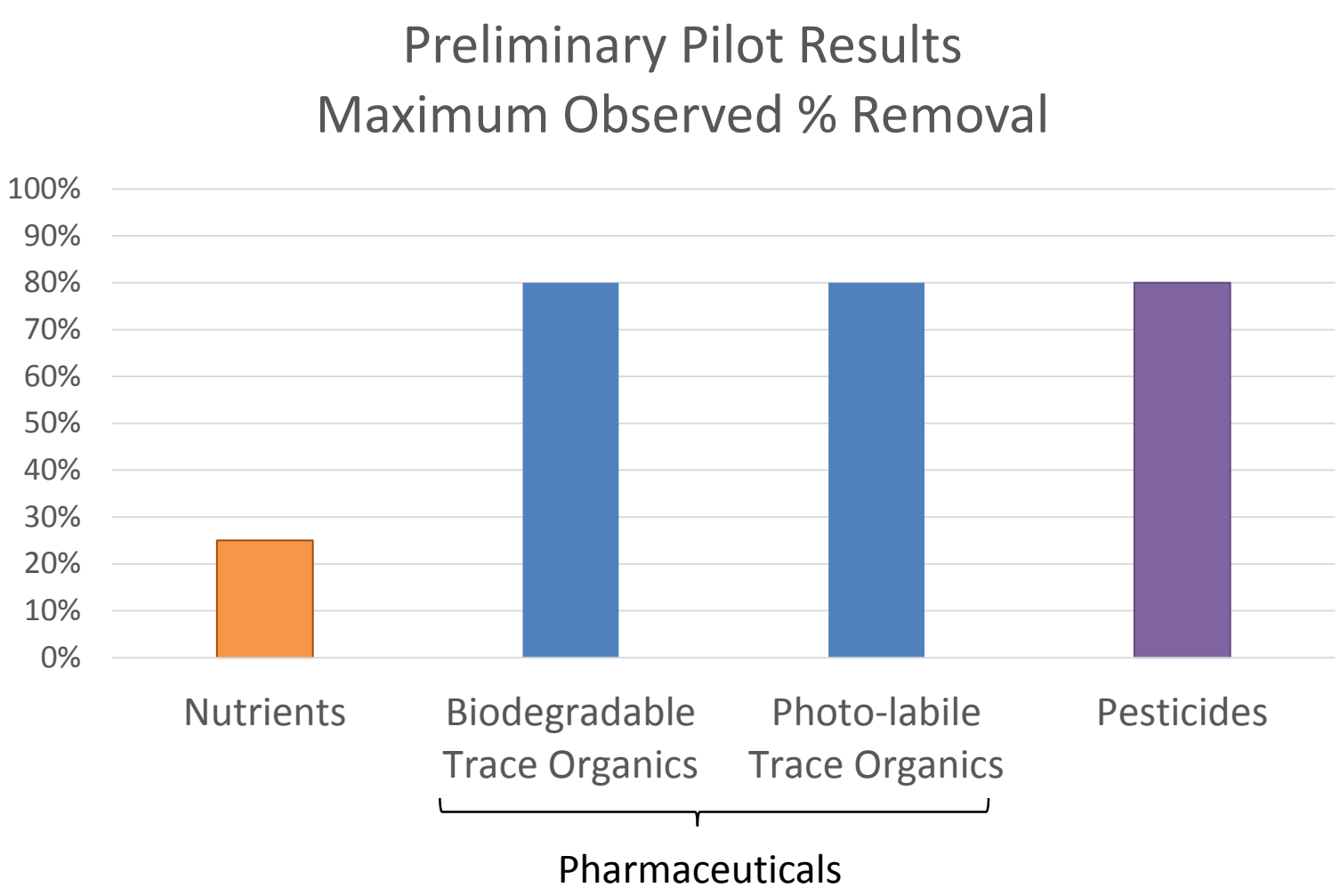
Santa Clara Valley Water District

ROCMP Project Updates

- **Carbon Amendment Trials**
  - Bags filled with woodchips installed in ETC
  - Woodchips act as additional carbon for biomat, increasing growth

Week 5 Growth

Interim Pilot Results



- Samples collected between April 2018 and September 2018.

ROCMP Next Steps

- Evaluation of potential ETC augmentations to improve removal of metals.
- Continue sampling and analysis of engineered treatment cells.
- Hydrodynamic modeling of the South San Francisco Bay.
- Develop site-specific ROC solutions for new alternatives identified in CWRMP for the City of Sunnyvale and City of Palo Alto.
- Final ROCM Plan by December 2019.

Santa Clara Valley Water District

File No.: 18-0907

Agenda Date: 11/14/2018
Item No.: 3.4.

COMMITTEE AGENDA MEMORANDUM

Recycled Water Committee

SUBJECT:
Update on District/City of Palo Alto/City of Mountain View Agreements.

RECOMMENDATION:
Receive information and discuss next steps.

SUMMARY:

The purpose of this agenda item is to provide the Recycled Water Committee (Committee) with an update on the development of a Comprehensive Agreement between the District and the City of Palo Alto (Palo Alto) to develop potable water reuse options in northwestern Santa Clara County (Northwest County).

At the last Joint Recycled Water Committee with Palo Alto held on September 26, 2018, staff presented an update on the development of a term sheet for a local 1-2 million gallons per day (MGD) Advance Water Purification Facility (AWPF) and a regional 9 MGD AWPF. Several meetings between District, Palo Alto, and Mountain View staff have occurred since. The last meeting with District and Palo Alto staff occurred on November 1, 2018. Palo Alto City Council is scheduled to have a work study session on recycled water expansion and development of other water reuse opportunities on November 19, 2018. Even though negotiations are not complete, Palo Alto staff released their report (Attachment 1) discussing several of the draft terms of the long-term agreement. A verbal update will be provided to the Committee on progress to date.

ATTACHMENTS:
Attachment 1: City of Palo Alto City Council Staff Report
Attachment 2: PowerPoint

UNCLASSIFIED MANAGER:
Garth Hall, 408-630-2750

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City of Palo Alto (ID # 9731)

City Council Staff Report

Report Type: Study Session **Meeting Date: 11/19/2018**

Summary Title: Recycled Water Study Session

Title: Study Session Regarding the Recycled Water Expansion and Other Water Reuse Opportunities

From: City Manager

Lead Department: Public Works

Recommendation

This is an informational report to facilitate the Council Study Session discussion on recycled water expansion and other water reuse opportunities. No action by Council will be taken.

Executive Summary

The Regional Water Quality Control Plant (RWQCP) is a local source of drought-proof, sustainable recycled water, of which only a small fraction is currently used for irrigation and toilet flushing. Investments in pipeline expansions and/or additional treatment facilities would increase the RWQCP's ability to be a local water source to meet future non-potable and potable demands and decrease Palo Alto's dependence on imported Tuolumne River water. To the extent wastewater is recycled rather than being discharged to the Bay, it lowers the risk of potential additional treatment costs associated with stricter discharge regulations staff expects to be adopted in the future.

Staff continues to explore expanded treated wastewater re-use through the Northwest County Recycled Water Strategic Plan (Strategic Plan). That work has led to discussions with the Santa Clara Valley Water District (District) on a potential new agreement in two areas. First, Palo Alto and its RWQCP partners (Partners) are seeking an 80% cost share from the District for a $16 million dollar facility to remove salt and upgrade the quality of its current recycled water. Secondly, the District is seeking cooperation from the Partners as it studies the potential for sending treated wastewater south of Mountain View, most likely for groundwater recharge (indirect potable reuse). In the spring of 2019, the Strategic Plan will be completed and Council will be briefed on the potential for expanded reuse in the Northwest County. At that time, staff may recommend an alternative use for the water in the form of an agreement with the District to enable pumping treated wastewater from the RWQCP south. This will raise the policy question of how much treated wastewater to reserve for future Northwest County reuse projects. Discussion of that and related policy questions is being initiated at this Study Session.

Staff will provide an overview of reuse possibilities and preliminary results from the Strategic Plan. Staff will then give an update on discussions with the District on the potential agreement noted above.

Background

Council Policy

In November 2016 Council adopted the Sustainability and Climate Action Plan (S/CAP) Framework (Staff Report #7304) including four water-specific goals, all of which have implications for water reuse:

1. Utilize the right water supply for the right use;
2. Ensure sufficient water quantity and quality;
3. Protect the Bay, other surface waters, and groundwater; and
4. Lead in sustainable water management.

Two relevant strategies identified in the S/CAP are:

1. Verify ability to meet City's long-term water needs; and
2. Investigate all potential uses of recycled water.

Palo Alto's Current Water Supply

Palo Alto receives 100% of its potable water (about 11,000 acre-feet (AF)[1] per year) from the City and County of San Francisco's Regional Water System (RWS), operated by the San Francisco Public Utilities Commission (SFPUC). This supply is predominantly from the Sierra Nevada, delivered through the Hetch Hetchy aqueducts. About 85% of the supply on the RWS is from the Tuolumne River. The SFPUC allocation to Palo Alto is a qualified 16.57 million gallons per day (MGD). Currently Palo Alto uses less than 10 MGD. On August 20, 2018, Council voted unanimously that the City of Palo Alto "express its support for the State Water Resources Control Board's (SWRCB) Bay Delta Plan to have 30-50% of unimpaired flow in the San Joaquin Valley enter the Delta from February to June and associated Southern Delta salinity objectives." Adoption of the Bay Delta Plan would reduce the amount of Tuolumne River water available to RWS customers, including Palo Alto, during dry years. The decision to support the Bay Delta Plan reaffirmed Council's commitment to reduce the City's dependence on imported water. Water reuse is one of a limited number of water supply alternatives to imported water.

Description of the RWQCP Water Resource

The RWQCP treats and discharges wastewater collected from the communities of Palo Alto, Mountain View, Stanford University, Los Altos, Los Altos Hills, and the East Palo Alto Sanitary District. In 2017, the RWQCP treated 23,056 AF, or 7,513 million gallons of wastewater, of which 97% was discharged to the Lower South San Francisco Bay and 3% was treated further to produce high-quality recycled water for non-potable reuse in the City and Mountain View. The RWQCP currently has the treatment capacity to produce 5,040 AF per year, or 4.5 million gallons per day of non-potable reuse water, or 22% of the total wastewater treated in 2017. As

[1] Large volumes of water are often measured in acre-feet (one acre of water one foot deep). One acre-foot is equal to 435.6 hundred cubic feet (CCF) of water or 325,828 gallons.

a regional plant, only a portion of the total wastewater treated is owned and available for reuse by the City; this amount is equal to how much wastewater the City sent to the RWQCP for treatment. In 2017, this was 8,565 AF (2,791 million gallons) or 37% of the total flow. More of this wastewater could be used as a local source of sustainable water for the City.

Water Reuse Planning

In December 2016, Council approved a contract with RMC Water and Environment (now Woodard and Curran) for the development of the Strategic Plan in collaboration with the District (Staff Report #7024). City staff from the Public Works and Utilities Departments have worked closely with the consulting team and the District to evaluate the most effective uses of recycled water inside Palo Alto as well as within the RWQCP service area. All of the work under the Strategic Plan evaluates how best to implement the water-related sustainability goals adopted by the City in the December 2017 Sustainability Implementation Plan (Staff Report #8487).

In parallel, the District has been developing a Countywide Water Reuse Master Plan. One alternative under consideration is a water transfer from the RWQCP to the District for use in other parts of the county. City staff and the District are collaborating on potential contract structures for such a transfer, recognizing that no decision has been made regarding the use of that water within Palo Alto or by the other RWCQP partners.

Treatment Options

Investments in pipeline expansions and/or additional treatment facilities would increase the demand and types of approved uses for the RWQCP recycled water, increasing the RWQCP's ability to be a local source to meet future non-potable and potable water demands. Since the construction of the current RWQCP recycled water treatment and transmission system, severe droughts and advances in treatment technology have driven regulatory support and municipal demand for the use of recycled water for potable reuse.[2] As expected, the treatment requirements for potable reuse are higher than that for non-potable reuse (Figure 1 & Attachment A). Similarly, the regulatory framework for indirect potable reuse is further along than that for direct potable reuse.

[2] Recycled water can be treated to a level suitable for non-potable uses like irrigation or toilet flushing, which requires a separate distribution system (purple pipe). This is the most common use. Less commonly, it can be treated by reverse osmosis followed by ultraviolet disinfection and advanced oxidation to a level suitable for potable use. Best practices and regulations are less developed for potable reuse.

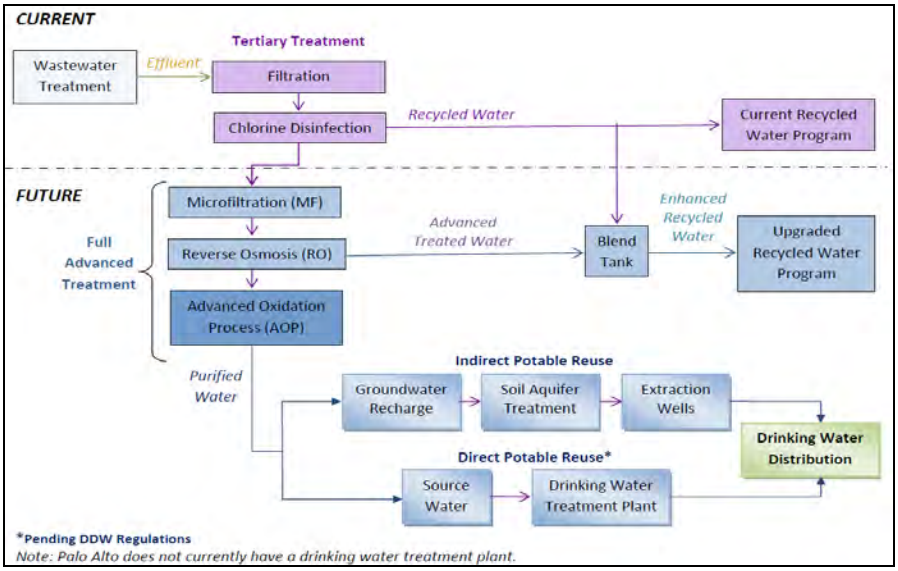


Figure 1: Treatment Requirements for Production of Different Types of Water Reuse

Recycled Water Distribution System Expansion and the Strategic Plan

In August 2018, the Utilities Advisory Commission (UAC) was briefed on the Recycled Water Phase 3 Expansion Business Plan, as a possible expansion opportunity for non-potable reuse being evaluated under the Strategic Plan. Phase 3 is a non-potable water pipeline extending the current recycled water distribution system to the Stanford Research Park. No recommendation regarding Phase 3 was made because the project is only one of many water reuse alternatives being evaluated in the Strategic Plan. In October 2018, the UAC was briefed on water reuse opportunities. No recommendation regarding these water reuse opportunities was made because the Strategic Plan has not been completed.

Discussion

In the coming months Palo Alto and the RWQCP Partners may recommend approval of an agreement with the District consisting of two parts:

1. Small Salt Removal Plant at the RWQCP

The first part concerns the funding of a relatively small salt removal plant to upgrade the quality of the RWQCP's current recycled water, used principally for irrigation in Mountain View. In discussions to date, Palo Alto and Mountain View are seeking an 80% cost share from the District for this $16 million facility which would be located at the RWQCP. District staff are currently suggesting a 50% cost share, well below the 80-90% cost share precedent set by agreements between the District and Palo Alto on recent recycled water planning projects. Palo Alto and Mountain View property taxpayers pay a tax for State Water Project (SWP) water, even though Palo Alto receives none and Mountain View receives a small percentage. Therefore, Palo Alto and Mountain View staff believe that the maximum District cost share should be used to partially offset this tax, which is between $1 million

and $2 million per year in Palo Alto alone. Discussion and input from Council on this issue is being sought in this Study Session. Refer to Attachment B for the October 26, 2018 letter from Palo Alto to the District concerning the SWP tax.

2. Potential Transfer of Treated Wastewater to the District for Use South of Mountain View

The second part of a potential agreement with the District concerns the District's interest in a transfer of approximately half of the RWQCP's treated wastewater for reuse south of Mountain View. The District is seeking a firm water transfer commitment for 40 years, with "off-ramps" before and after the 40 year period. The RWQCP Partners would receive approximately $1 million per year in compensation for the water. This raises a number of policy issues for discussion by Council during this Study Session.

The first issue is whether any transfer should be made in light of uncertainties of future water supplies. A regional transfer would require, at a minimum, pipeline infrastructure to transfer the treated wastewater from the RWQCP to somewhere outside of the City. It may also include building a purification facility at the RWQCP that would further treat the recycled water prior to the transfer pipeline, or building a purification facility at the terminus of the transfer pipeline. The purification facility and the transfer pipeline would be paid for by the District. However, a regional transfer, whether the purification facility is constructed in Palo Alto or not, would preclude City and RWQCP Partner use of approximately half of the RWQCP's treated wastewater for a period of about 40 years, beginning two to ten years from now. While the remaining half of the water is sufficient to meet local needs for the next two to ten years; the longer-term water supply need is much more uncertain given threats to imported water such as climate change and State regulations. If the purification facility is constructed in Palo Alto, there may be an opportunity for Palo Alto to receive potable water after 40 years. If the purification facility is located at the terminus of the transfer pipeline, there will be no opportunity for Palo Alto to benefit from those water purification facilities in the future.

Any water transfer must be weighed against the potential for future water reuse projects in Palo Alto and the RWQCP Partner agency service territories. Preliminary evaluations under the Strategic Plan as well as parallel work for the District's Countywide Water Reuse Master Plan indicate that multiple water reuse opportunities are feasible for the City to meet both near and long term water demands (Table 1 and Figure 2). Near term projects that can be implemented within 5 years include a regional transfer and expanding the existing non-potable reuse program.

Long term opportunities that could be implemented within 10 – 40 years include indirect and direct potable reuse. Preliminary results indicate that indirect potable reuse is feasible within the City, but requires a purification facility at the RWQCP, injection wells, and the routine use of groundwater. Similarly, preliminary results also indicate that direct potable reuse is feasible within the City but requires a purification facility at the RWQCP. Preliminary results indicate that the City could reduce future reliance on water supplied by the RWS by more than 50% by

investing in potable reuse. However, potable reuse (both indirect and direct) when compared to non-potable reuse requires large investments into additional treatment and distribution facilities and presents some public acceptance challenges.

It should be noted that the near and long term solutions are not all explicitly distinct from each other; it may be possible to pursue a combination of near and long term solutions as shown in Figure 2. More important to note for this discussion is that both indirect and direct potable reuse opportunities within the City would require the full Palo Alto wastewater allocation and restrict a regional transfer of water. As shown in Figure 2, a regional transfer of water would not reduce Palo Alto's dependence on imported water (the blue bars), unless an opportunity to utilize that water in the future (via indirect or direct potable reuse) was explicitly included in the potential agreement with the District. This is demonstrated by the four, right hand bars. Only in these four bars does the blue portion (imported water) go down significantly.

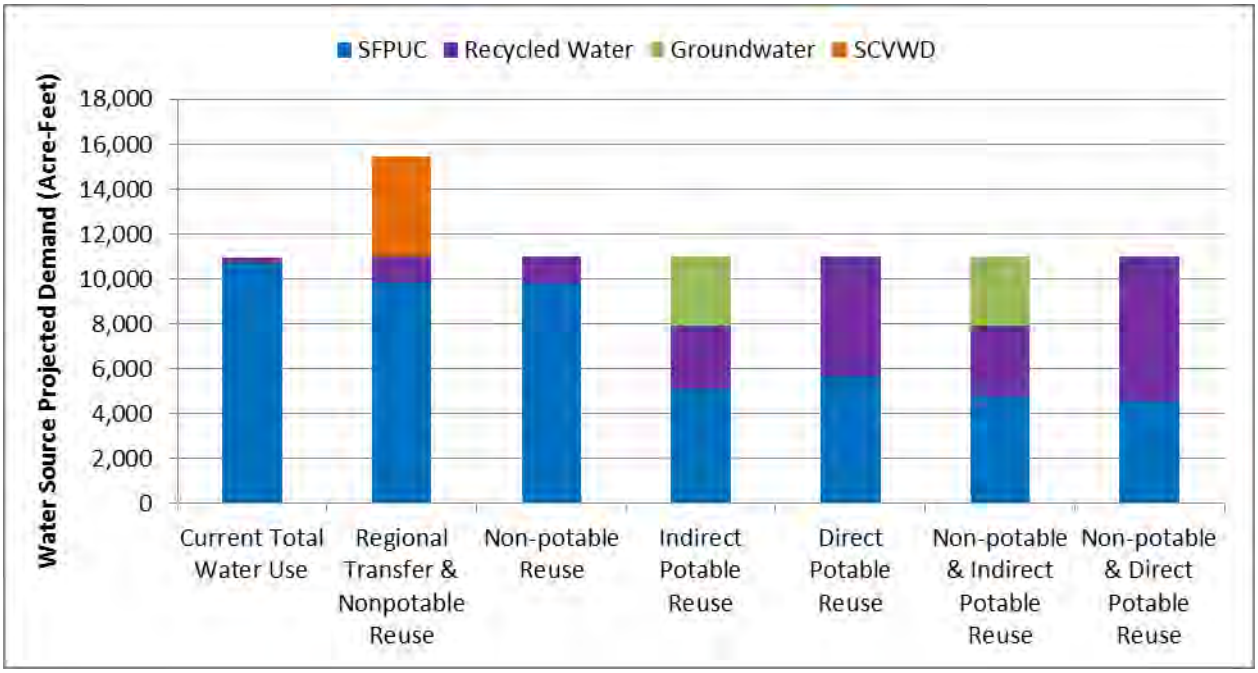


Figure 2: Potential Impacts to Amount of Palo Alto Imported Water Needed Under Different Water Reuse Opportunities Being Evaluated Under the Northwest County Recycled Water Strategic Plan (sources: Palo Alto 2015 Urban Water Management Plan & preliminary results from Northwest County Recycled Water Strategic Plan).

As previously mentioned, one of the City's water-specific goals as outlined under the S/CAP is to utilize the right water supply for the right use. For recycled water, this would be applied by using the right quality of recycled water for the right purpose. Recycled water can be used for various demands based on its level of treatment. Non-potable reuse requires more treatment than typical wastewater that is discharged to the Bay; similarly, potable reuse requires significantly more treatment than non-potable reuse to ensure public safety when ingesting the water. The additional treatment needed to make the water potable is expensive, and would not

be recommended if the water was to be used to meet irrigation, toilet flushing, and/or industrial process demands alone.

Sub –issues related to future water reuse in the Palo Alto area are:

a) Will the Palo Alto community accept groundwater as a future potable supply if it would enable indirect potable reuse?
b) Is the Palo Alto community likely to accept purified water in a direct potable reuse project at some point in the future? If so, under what circumstances?
c) Should Palo Alto pursue further non-potable project alternatives in the short-term with the knowledge that potable alternatives may be additionally implemented in the future, or should Palo Alto forego further non-potable projects now and wait for potable alternatives to become more feasible and more necessary to meet demands?

A third related issue is whether a transfer would be more acceptable if it could be for less than 40 years. The District believes that anything less would not be worth making the very large infrastructure investment.

A fourth issue is whether the District's proposed $1 million per year in compensation for the treated wastewater is sufficient. One consideration is that the current plan for rehabilitating the nearly 50 year old RWQCP calls for approximately $88 million in project expenses over the next five to ten years. This investment will affect wastewater rates for partner agencies, as the primary revenue source for RWQCP expenses. The treated wastewater could not be produced and transferred to the District without this capital expenditure. Therefore, the rehabilitation costs are a factor in the valuation of the treated wastewater. The Finance Committee is tentatively scheduled to review the proposed RWQCP capital rehabilitation plans and associated project financing at its December 4, 2018 meeting.

Table 1: Summary of Palo Alto Water Reuse Opportunities for Further Discussion

TYPE OF WATER REUSE	REGIONAL TRANSFER	NON-POTABLE REUSE	INDIRECT POTABLE REUSE	DIRECT POTABLE REUSE
BRIEF DESCRIPTION	Transfer of RWQCP effluent or recycled water to the Santa Clara Valley Water District	Enhanced recycled water used for irrigation and commercial uses.	Purified recycled water introduced into an environmental buffer, such as a groundwater basin, before being sent to the drinking water distribution system.	Purified recycled water introduced directly into the drinking water distribution system.
OPPORTUNITIES	• Near term implementation • Increases use of RWQCP recycled water regionally without City-funded infrastructure • No additional enforcement & administrative oversight of Palo Alto users • Reduced county-wide reliance on imported water, surface water, and/or groundwater	• Near term implementation • Clear regulatory obligations • Slightly reduce City reliance on RWS & Tuolumne River water	• Unlimited uses • Utilizes the RWQCP as a larger source of water • Clear regulatory obligations • No additional enforcement & administrative oversight of users • More potential to reduce City reliance on RWS & Tuolumne River water	• Unlimited uses • Utilizes the RWQCP as a larger source of water independent of groundwater use • No additional enforcement & administrative oversight of users • Significantly reduce City reliance on RWS & Tuolumne River water
OBSTACLES	• Significant amount of water would no longer be available for City use for contract term (20-60 years minimum)	• Limited uses per regulations • Requires significant pipeline infrastructure and additional capital funds for salt removal • Requires significant enforcement & administrative oversight of users	• Long term implementation • Requires significant additional RWQCP treatment processes • Requires the use of groundwater with different aesthetic properties than current sources	• Long term implementation • Requires significant additional RWQCP treatment processes • Requires significant engineered storage • Regulations not yet developed • Public acceptance

NEXT STEPS

Feedback received from UAC and Council will be incorporated into the Northwest County Recycled Water Strategic Plan. Staff will return to the UAC and Council with a recommendation regarding water reuse alternatives identified in the Strategic Plan, including a recommendation regarding the Phase 3 Recycled Water Expansion Project. Staff will also make a recommendation regarding a RWCQP water supply transfer agreement with the SCVWD. The two recommendations are expected to be considered in tandem and will be made in 2019.

Resource Impacts

This is an informational CMR for the November 19, 2018 Study Session on Recycled Water. As such, no financial resource decisions will be proposed or made at this time. Council is being asked, however, to discuss several projects which would have financial impacts. The first is a relatively small Palo Alto salinity removal facility which would cost approximately $16 million; with a Palo Alto cost share of approximately $800,000, likely spread over 20 to 30 years. The second is the transfer of treated wastewater to the District for use outside the Palo Alto area. This would generate at least $1 million per year in revenue to the RWQCP. Another factor, however, in valuing the water is the fact that Palo Alto will likely be spending approximately $88 million over the next five to ten years to rehabilitate the nearly 50 year old RWQCP.

Policy Implications

While there is no recommendation at this time, expanding the use of recycled water would be consistent with the Sustainability Climate Action Plan Framework (Staff Report #7304), the Sustainability Implementation Plan (Staff Report #8487), and the Council's decision to support the Bay Delta Plan.

Environmental Review

Council's review of the concepts in the forthcoming Northwest County Recycled Water Strategic Plan does not require California Environmental Quality Act review, because the review does not meet the definition of a project under Public Resources Code 21065.

Attachments:

- Attachment A ReW Reference Sheet
- Attachment B SWP Tax Letter to District Joint Recycled Water Committee

RECYCLED WATER REFERENCE SHEET

(last updated 9/7/2016)

ATTACHMENT C

REGIONAL WATER QUALITY CONTROL PLANT

GLOSSARY

WATER TYPES AND QUALITY

EFFLUENT is the treated water leaving the wastewater treatment plant to be discharged to the San Francisco Bay. At the RWQCP, only some of the effluent is treated further to produce recycled water.

RECYCLED or RECLAIMED WATER is wastewater that has undergone secondary or tertiary treatment to allow for beneficial reuse. Recycled water produced at the RWQCP is treated to tertiary standards including disinfection.

SECONDARY TREATMENT is a process where dissolved and suspended biological matter (including suspended solids) is removed so that the water may be disinfected and discharged into a stream or river, or used for irrigation at controlled locations.

TERTIARY TREATMENT is an additional treatment process beyond secondary treatment, where water is further filtered and disinfected. It can also include treatment processes to remove nitrogen and phosphorus in order to allow discharge into a sensitive ecosystem.

ENHANCED RECYCLED WATER is recycled water blended with advanced treated water to support additional uses and reduce total dissolved solids (TDS).

ADVANCED TREATED WATER is water that has undergone additional treatment beyond tertiary treatment to reduce salts, nutrients, trace organics and constituents of emerging concern (CECs). Common treatments include microfiltration, reverse osmosis, and advanced oxidation.

PURIFIED WATER is recycled water that has been verified through monitoring to be safe for augmenting drinking water supplies. Some of these processes include microfiltration, reverse osmosis, and if needed advanced oxidation.

SURFACE WATER is water stored in a reservoir typically conveyed from another surface water source via pipelines or aqueducts.

RAW WATER is surface or groundwater that has not gone through an approved water treatment process.

GRAYWATER is water segregated from a domestic wastewater collection system and reused on site for nonpotable uses, it can come from showers, bathtubs, washing machines, and bathroom sinks, but not toilets or kitchen sinks.

BLACKWATER is untreated wastewater from kitchen sinks, toilets, and other polluting activities.

WATER REUSE OPTIONS

NONPOTABLE REUSE is the beneficial reuse of recycled water for irrigation, industrial uses, or other non-drinking water purposes.

POTABLE REUSE is the use of recycled water for potable uses, such as drinking. This recycled water is purified to meet or exceed federal and state drinking water standards.

INDIRECT POTABLE REUSE (IPR) refers to the use of recycled water that has been further treated and introduced into an environmental buffer such as a surface water reservoir (through augmentation), or groundwater basin (through recharge), before being used for potable purposes. IPR regulations are specified in Title 22, Chapter 3, Division 4 of the California Code of Regulations (CCR).

DIRECT POTABLE REUSE (DPR) refers to the use of purified recycled water distributed directly into the raw water supply upstream of a drinking water treatment plant. In California, DPR regulations have not been adopted or specified in the CCR.

TREATMENT TECHNOLOGY

DUAL MEDIA FILTRATION (DMF) refers to the removal of particles in the water using two different types of filter media, usually sand and finely granulated anthracite (a type of coal). DMF can remove turbidity and suspended solids as small as 10-20 microns under high filtration rate conditions.

GRANULAR ACTIVATED CARBON (GAC) is a form of carbon that is processed to be porous, with large surface area for adsorption and used to remove dissolved contaminants. GAC can remove halogenated compounds containing chlorine and fluorine, organic contaminants, odor, and taste.

MICROFILTRATION (MF) is an advanced treatment process that removes contaminants from water using semi-permeable membranes. MF membranes can remove contaminants as small as 0.08 microns such as bacteria. Ultrafiltration (UF) membranes have smaller pore sizes and can remove contaminants as small as 0.005 microns such as viruses and proteins.

REVERSE OSMOSIS (RO) is an advanced treatment process that removes dissolved salts and trace contaminants from water. High pressure forces the water through a semi-permeable membrane, while filtering most contaminants. RO membranes have much smaller pore sizes than microfiltration and ultrafiltration membranes and can remove contaminants as small as 0.0001 microns.

- **RO PERMEATE** is the treated water that passes through the RO membrane.
- **RO CONCENTRATE** is the by-product from the RO process. It contains a high concentration of salts and other contaminants from the source water.

ADVANCED OXIDATION PROCESS (AOP) is a chemically reactive process that breaks down trace organic contaminants as well as pathogens in the water by oxidation. AOPs typically use hydrogen peroxide (H_2O_2) and ultraviolet (UV) light.

SOIL AQUIFER TREATMENT (SAT) is the natural process that occurs when water travels through the ground and is purified by the physical and biological processes that naturally occur in the soil.

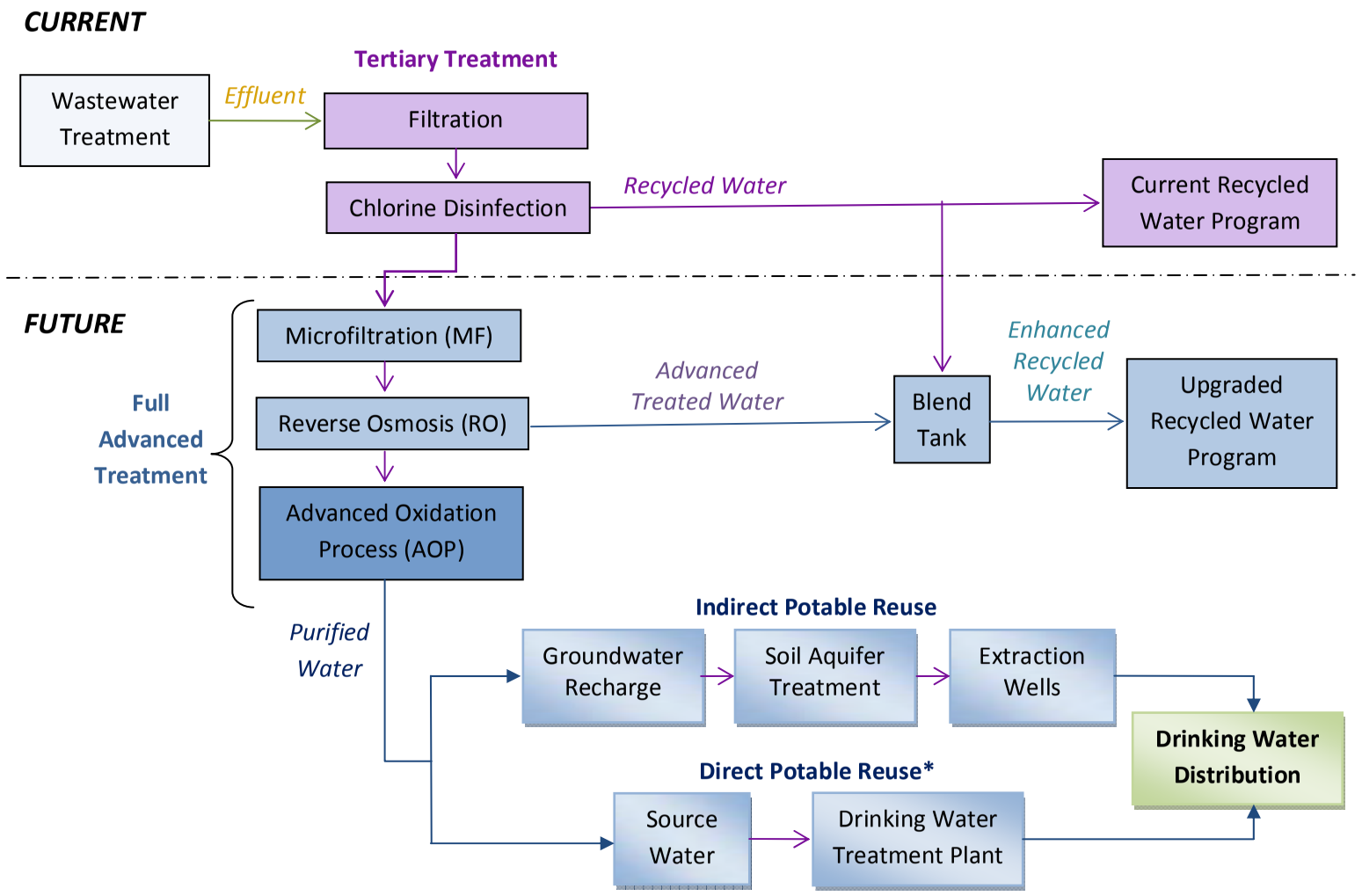
STATE REGULATIONS

TITLE 22 STANDARDS are requirements established by the State Water Resources Control Board Division of Drinking Water for the production, distribution, and use of drinking water and recycled water. Recycled water standards are covered under Chapter 3, Division 4 of the California Code of Regulations, which outlines the different levels of treatment required for allowable uses of recycled water.

SALINITY

TOTAL DISSOLVED SOLIDS (TDS) is a measurement of salinity: the amount of salts, ions, and dissolved minerals per volume of water. The RWQCP aims to produce recycled water with a TDS of 600 mg/L and is moving towards developing advanced treatment in collaboration with the Santa Clara Valley Water District and the City of Mountain View to produce enhanced water with a TDS of approximately 450 mg/L for use on salt-sensitive species.

GENERAL TREATMENT PROCESSES



***Pending DDW Regulations**

Note: Palo Alto does not currently have a drinking water treatment plant.

ALLOWABLE USES

Recycled Water

- Irrigation of:
  - Parks, playgrounds, schools
  - Residential & commercial landscapes
  - Cemeteries
  - Golf courses
  - Food crops, orchard, vineyard, pastures
  - Ornamental nursery & sod farm
- Impoundments & fish hatcheries
- Flushing toilets & urinals
- Decorative fountains
- Commercial laundries
- Street cleaning, dust control, soil compaction
- Boiler feed and cooling towers
- Flushing sanitary sewers
- Other uses approved under Title 22 Standards

Enhanced Recycled Water

- All uses listed under Recycled Water
- Irrigation of salt-sensitive species (e.g. Redwoods Trees)
- Sensitive industrial uses

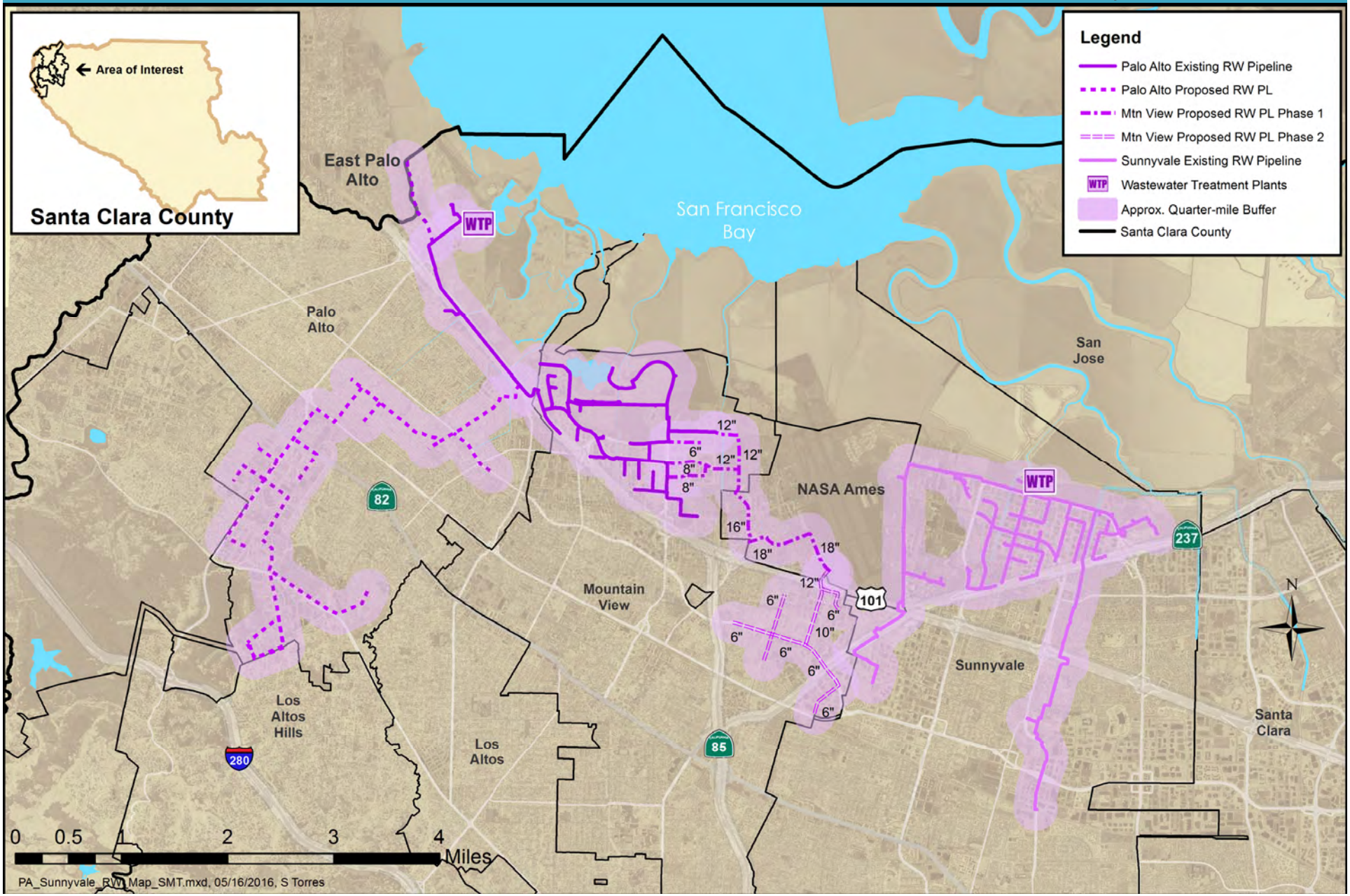
Purified Water

- All uses listed under Enhanced Water
- Indirect potable reuse
- Direct potable Reuse

STANDARD UNITS

MGD – Million Gallons per Day
PPM – Parts Per Million
mg/L – Milligrams per Liter

Palo Alto Recycled Water Delivery and Expansion



OFFICE OF THE CITY ATTORNEY

CITY OF PALO ALTO
250 Hamilton Avenue, 8th Floor
Palo Alto, CA 94301
650.329.2171

October 26, 2018

VIA FIRST CLASS MAIL AND EMAIL

Santa Clara Valley Water District Board of Directors
Joint Recycled Water Committee – City of Palo Alto/SCVWD
Chief Executive Officer Norma Camacho
5750 Almaden Expressway
San Jose, CA 95118-3686

Dear Members of the Santa Clara Valley Water District Board, Members of the Joint Recycled Water Committee of the City of Palo Alto and SCVWD, and SCVWD Chief Executive Officer Norma Camacho:

At the September 2018 meeting of the Joint Recycled Water Committee, the City of Palo Alto's continuing concern about the unfair collection of the State Water Project (SWP) tax from Palo Alto property owners was briefly discussed. The purpose of this letter is to reassert the City's position that the Santa Clara Valley Water District's longstanding practice of taxing property owners in Palo Alto and other parts of Santa Clara County who do not receive water from the SWP to pay for the entirety of the District's SWP contractual obligations, rather than attempting to fund those costs from rate payers who use SWP water, is clearly inequitable and legally tenuous. For many years, the City has expressed a willingness to work with the District to address these concerns shared by the City and other affected jurisdictions, but the District has taken no concrete action to redress the inequity and has instead continued to fully fund its SWP obligations through taxation without adequate justification. The City urges the District to take immediate steps to eliminate the ad valorem property tax collection in Palo Alto, develop revised rates to address the inequities in assessing Palo Alto taxpayers the full cost of a system they cannot and do not use, or implement another mechanism that provides tangible credit for SWP property taxes collected in Palo Alto. The City is prepared to work with the District to those ends, and requests a meaningful response and action to address the inequities perpetuated by the District's funding practice.

State Water Project

The Burns-Porter Act (Water Code §§12930 *et seq.*), approved by California voters in 1960, authorized the construction and operation of specified state water facilities, including dams, reservoirs, levees and an aqueduct system to convey water from the Sacramento-San Joaquin Delta to other parts of the state and a $1.75 billion bond for initial construction of

these facilities. The Act directed the State Department of Water Resources (DWR) to enter into contracts to sell water and power, so that revenue from those sales would pay to operate the facilities and repay the bond.

The Santa Clara Valley Water District ("SCVWD" or "District") is one of 29 contractors that purchases SWP water from the State. The SWP is one source of potable water that the District receives and sells to water customers in many areas of Santa Clara County. The District has a long-term contract with the DWR for deliveries from the SWP system. As part of that long-term obligation, the District can collect SWP costs through water rates, though the District has authority to collect funding shortfalls through property taxation where necessary.

District's Reliance and Burden on Taxpayers, Not Water Rate Payers, to Fund the District's SWP Obligations is Inequitable

Some parts of the County, including Palo Alto, do not receive SWP water from the District. Instead, their potable water is supplied by and through contracts with the San Francisco Public Utilities Commission (SFPUC) from the Regional Water System (RWS). Although these property owners do not rely on SWP water, the District for decades has imposed an ad valorem tax (based on the assessed property value) on property owners throughout the County (even those who do not benefit from SWP water) to meet 100% of its SWP contract obligations, instead of recovering those costs through water rates charged to its customers who use and benefit from SWP water. As of July 1, 2018, property owners pay a tax of approximately $42 per $1 million in property valuation to fund the District's SWP obligations. A property owner who directly benefits from SWP water pays the same as a property owner who does not receive SWP water. Palo Alto taxpayers collectively pay between $1 million and $1.5 million per year in property taxes to fund the SWP, effectively subsidizing the rates of SWP water consumers. These property owners who receive water from the RWS also separately pay for infrastructure and other contract costs associated with their water provider – SFPUC – which SWP water consumers do not pay.

In the past, the District acknowledged the inequity in charging taxpayers for a water system they do not use by providing jurisdictions who receive RWS water with an "in-county credit" to offset the amount paid for the SWP tax, but in 1982 stopped providing that credit to North County jurisdictions including Palo Alto. The District has continued providing the in-county credit in the South County, however.

District's SWP Funding Practice is Inconsistent with State Law; District Has Not Shown That Its Sole Reliance on Taxation to Fully Fund Its SWP Obligations is Necessary

The District has the authority to fund its SWP costs in a variety of ways, including through rates charged to water users. While property taxes may also be utilized, according to the District's contract with the DWR, the Water Code, and the Burns-Porter Act, property taxes are intended to be a secondary collection method that provides assurance to bond holders that

debts will be paid in years when other funding sources are insufficient to meet SWP costs. State law expresses a clear preference that water charges fund SWP obligations before taxation and that property taxes may be increased only if it is infeasible to increase the fees or rates of customers using system water or power or pumping groundwater. This hierarchy of funding sources is reflected in the legislative history of the Burns-Porter Act, as described at some length by the Attorney General:

> The Burns-Porter Act expresses a preference for water charges over taxation in that it provides that the state system would be supported primarily by the sale of water and power. It directs the Department of Water Resources to enter into contracts to sell the water and power and it pledges the revenues from those contracts to the operation of the system and the service of the bonded debt. (Wat. Code § 12937.) The Legislature and the voters clearly contemplated an essentially closed, self-supporting system. The Act even provides that revenues from water and power sales would be sufficient to reimburse the California Water Fund for amounts that had been expended for the construction of the State Water Resources Development System. (Wat. Code § 12937(b)(3).) The ballot argument in favor of the Burns-Porter Act echoed this preference:
>
> 'The program will not be a burden on the taxpayer; no new state taxes are involved; the bonds are repaid from project revenues through the sale of water and power. In other words, it will pay for itself.' (Voters Pamphlet, Nov. 8, 1960, p.3; emphasis in original.)
>
> The Burns-Porter Act and water contracts under that act do contemplate that local taxes may be required to pay the obligation to the state, and authorize such taxation. However, that authority is expressly limited to situations where it is necessary. The Burns-Porter Act incorporates by reference the Central Valley Project Act. ... The Central Valley Project Act authorizes local taxation, but only where necessary:
>
> 'The governing body [of any public agency that has contracted with the State] shall whenever necessary, levy upon all property owners not exempt from taxation, a tax or assessment sufficient to provide for all payments under the contract then due or to become due within the current fiscal year or within the following fiscal year before the time when money will be available from the next general tax levy.' (Wat. Code § 11652; emphasis added.)
>
> Similarly, the contract with the Metropolitan Water District authorizes taxation only where revenue from the sale of water proves insufficient:

> 'If in any year the District fails or is unable to raise sufficient funds by other means, the governing body of the District shall levy upon all property in the District not exempt from taxation, a tax or assessment sufficient to provide for all payments under this contract then due or to become due within that year.' (Metropolitan Water District of Southern California contract, article 34(a); emphasis added.)

(61 Ops.Cal.Atty.Gen. 373 (1978).) SCVWD's 1961 contract with DWR uses this same language as in the Metropolitan Water District contract cited by the Attorney General.

Disregarding both state law and the fair treatment of County taxpayers, the District has made no effort to collect SWP from water rates; nor has it demonstrated an inability to raise funds by means other than taxation or, conversely, a necessity to utilize taxation. The District has simply, as a default, resorted to taxation to fund 100% of its SWP costs. The course of action taken by the District is not the norm among local water districts throughout the state. In contrast, other local water districts collect their SWP costs at least partially from retail water sales, not taxes. For example, Metropolitan Water District (MWD) and Alameda County Water District rely on water rates, not taxes, to fund a significant portion of their SWP obligations.

Local water districts that undertake SWP funding in the same manner as the District are susceptible to legal challenge by taxpayers, advocacy groups, and public agencies. The City is aware of at least one citizen-initiated effort in another part of the state to redress such unfair taxation, and the impetus to challenge these practices will become greater if SWP costs increase substantially as anticipated.

Conclusion

The District should take prompt action to correct its practice of relying on property taxpayers to meet 100% of its SWP obligations, rather than waiting until litigation is filed against it. Taking corrective action would be fair to County taxpayers who receive no SWP water and would be consistent with state law and the promises made to voters when the SWP was approved. The City remains open to working with the District collaboratively to achieve a solution to this longstanding problem.

Sincerely,

Molly Stump
City Attorney

Ed Shikada
Assistant City Manager

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Update on Comprehensive Agreement between the District and City of Palo Alto

Santa Clara Valley Water District

Update on Comprehensive Agreement

Status Update on Term Sheet Development

- Local 1-2 million gallon per day (MGD) Advanced Water Purification Facility

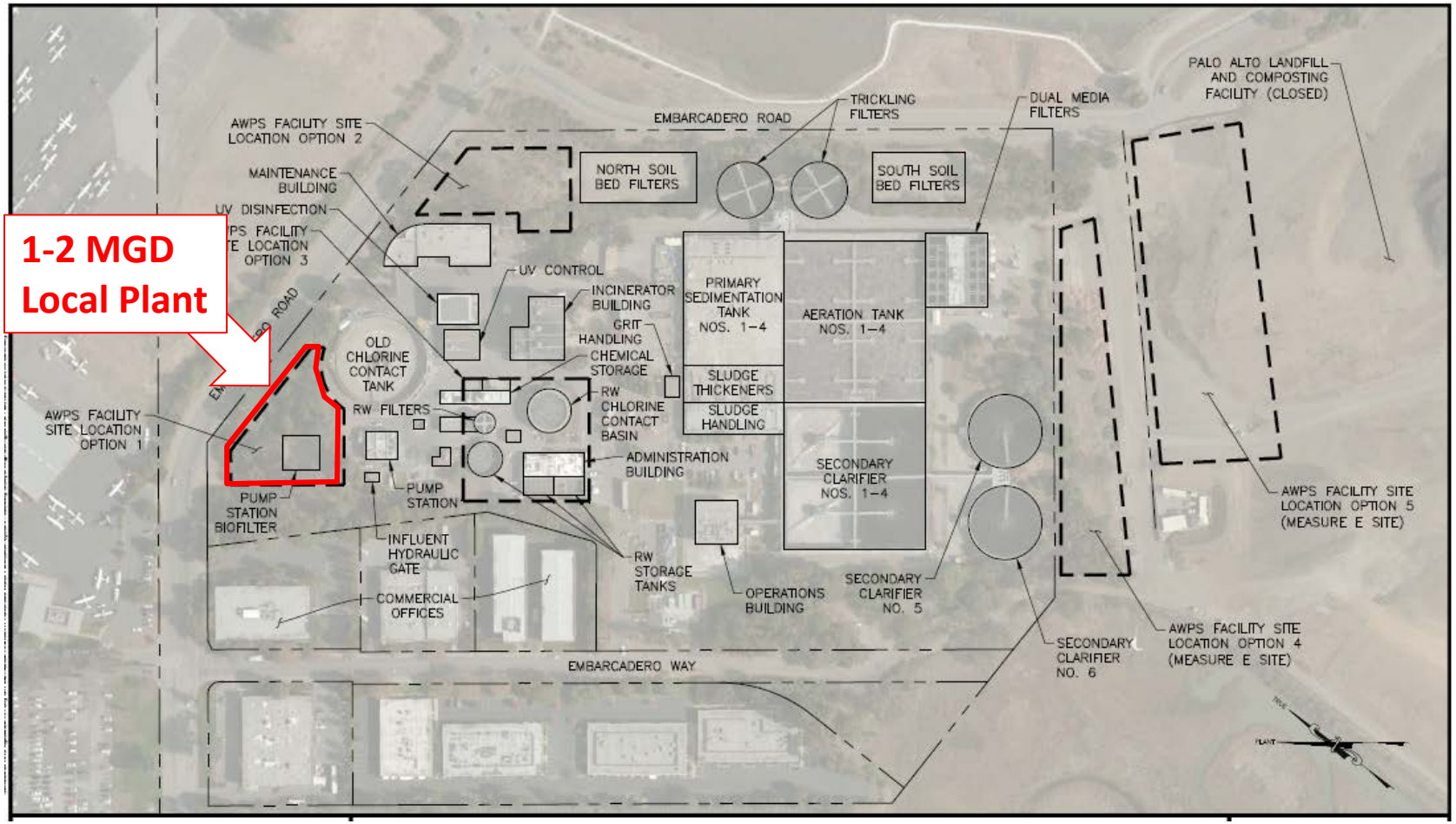
- Regional 9 MGD Advanced Water Purification Facility

District-Palo Alto Local Plant

Santa Clara Valley Water District

1-2 MGD Local Plant

Palo Alto Regional Water Quality Control Plant (RWQCP)

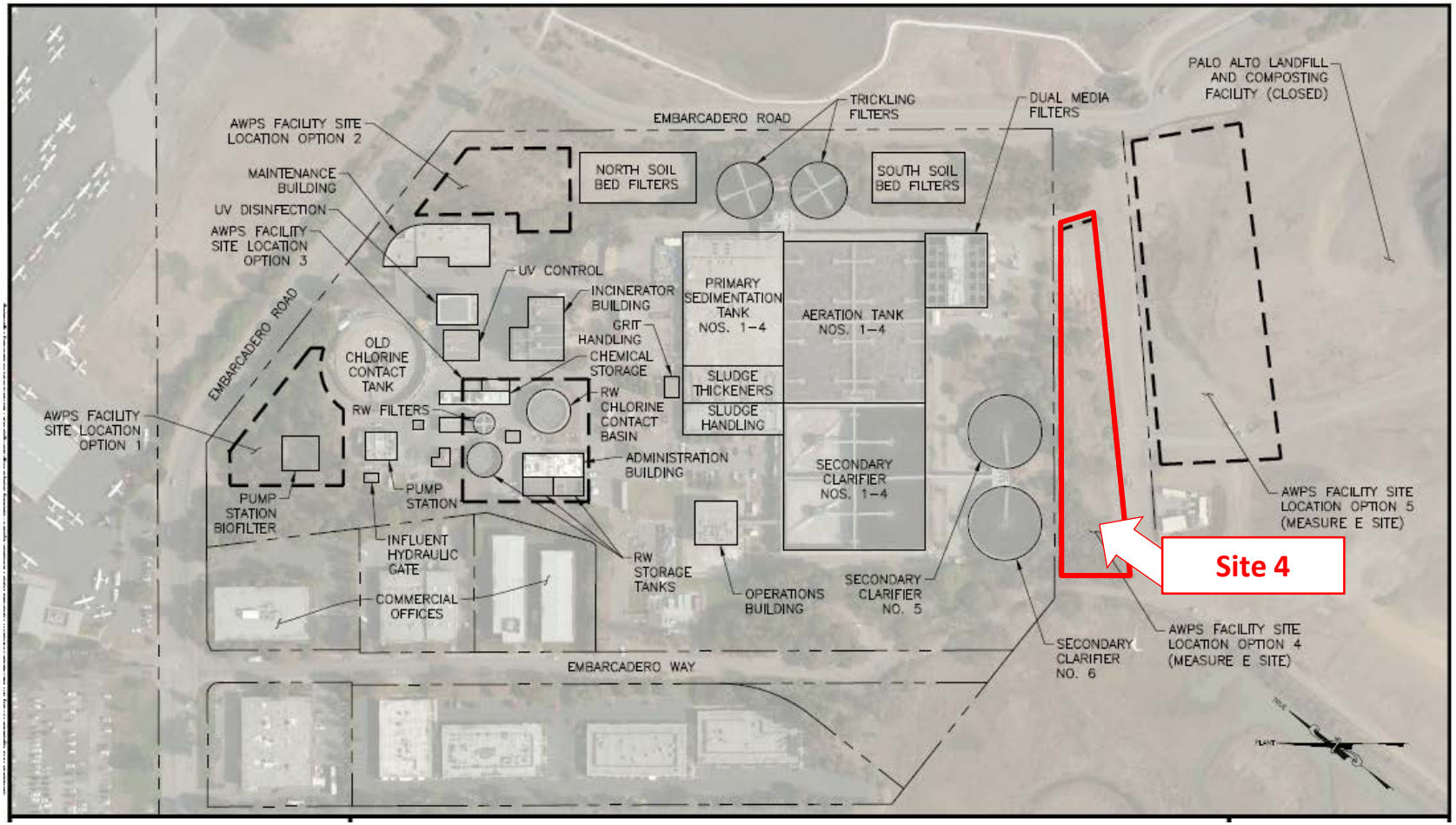


District-Owned
Regional Purification Plant

Santa Clara Valley Water District

Potential Site – District Regional Purification Plant

Purification Plant next to existing RWQCP*



* Other alternatives include delivery of treated wastewater for purification at remote sites

Santa Clara Valley Water District

File No.: 18-0903

Agenda Date: 11/14/2018
Item No.: 3.5.

COMMITTEE AGENDA MEMORANDUM

Recycled Water Committee

SUBJECT:
Review 2018 Recycled Water Committee Work Plan and Discuss 2019 Work Plan and Meeting Schedule.

RECOMMENDATION:
Review and make necessary adjustments to the 2018 Committee Work Plan, and and proposed 2019 Work Plan and Meeting Schedule.

SUMMARY:
Under direction of the Clerk, Work Plans are used by all Board Committees to increase Committee efficiency, provide increased public notice of intended Committee discussions, and enable improved follow-up by staff. Work Plans are dynamic documents managed by Committee Chairs, and are subject to change. Committee Work Plans also serve as Annual Committee Accomplishments Reports.

The 2018 Recycled Water Committee Work Plan is contained in Attachment 1. Information on this document was populated by staff as follows:

Schedule for Presentation of Materials:

Discussion topics have been populated on the proposed 2018 Work Plan from the following sources:

- Items referred to the Committee by the Board;
- Items requested by the Committee to be brought back by staff;
- Items scheduled for presentation to the full Board of Directors; and
- Items identified by staff.

ATTACHMENTS:
Attachment 1: 2018 RWC Work Plan
Attachment 2: Proposed 2019 RWC Work Plan and Meeting Schedule

UNCLASSIFIED MANAGER:
Michele King, 408-630-2711

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RECYCLED WATER COMMITTEE

Updated: 11/9/18

PURPOSE AND GUIDANCE

The Recycled Water Ad Hoc Committee was enacted by the Board of Directors on January 12, 2016. The Committee's purpose is to develop a long-term proposal for how the District can work together with other local agencies on recycled water opportunities within the district boundaries, to establish a collaborative process to facilitate policy discussion and sharing of technical information on recycled water issues. It is the role of the Recycled Water Committee to meet with the other entities (Sunnyvale, Palo Alto, CSJ SC/TPAC) in individual meetings as required and/or necessary. The Recycled Water Committee can also meet with new entities if the need arises.

The Board of Directors identified the following Issues, Challenges, Strategies and Opportunities related to Recycled Water during their October 4, 2016 Priorities and Strategic Directions Work/Study Session. As such, the Recycled Water Ad Hoc Committee, while doing its work, should seek out opportunities to address the Board's identified issues and challenges, and support the Board's identified strategies and opportunities, as follows:

Issues/Challenges	Strategies/Opportunities
• Public perception • Governmental Relations/Water Rights • Funding/Delivery Method	• Expedite Purified Water Program partnering with San Jose/Santa Clara, plus look at potential opportunity with South Bay Recycled Facilities • Develop Partnerships with Sunnyvale, Palo Alto, Mountain View for new recycled/purified water • Expand South County Recycled Water partnering with SCRWA

This annual work plan establishes a framework for committee discussion and action during the annual meeting schedule. The committee work plan is a dynamic document, subject to change as external and internal issues impacting the District occur and are recommended for committee discussion. Subsequently, an annual committee accomplishments report is developed based on the work plan and presented to the District Board of Directors.

RECYCLED WATER COMMITTEE

Updated: 11/9/18

PARKING LOT

The Parking Lot contains unscheduled items referred to the Committee by the Board of Directors, or requests to by the Committee to be brought back by staff.

Date Requested	Requesting Body	Assigned Staff	Discussion Subject	Intended Outcome(s)
05/30/17	RWC	K. Oven	Staff to bring back information on impacts associated with sudden staff resource expansion, including number of staff needed and input from HR.	Receive information and discuss next steps.
05/30/17	RWC	C. Sun	Staff is to continue providing updates until IRS letter is complete.	
12/19/17	Board of Directors	G. Hall	Consider the Conceptual Recycled Water Exchange Project with Contra Costa Water District and Central Contra Costa Sanitary District presented to the Board at the December 19, 2017 Board Meeting, Agenda Item 2.7, and come back to the Board with recommended next steps.	Receive information and discuss and develop a recommendation to the Board of Directors on next steps.
2/13/18	Board of Directors	G. Hall	Staff to continue monitoring and strategy development of Advanced Recycled and Purified Water Efforts with City of San Jose and other agencies.	Receive information and discuss next steps.
09/12/18	RWC	G. Hall	Direct Potable Reuse Regulatory Development in California	Receive information.

RECYCLED WATER COMMITTEE

Updated: 11/9/18

2018 WORK PLAN

MEETING DATE	WORK PLAN ITEM, BOARD POLICY, & POLICY CATEGORY	ASSIGNED STAFF	INTENDED OUTCOME(S)	ACCOMPLISHMENT DATE AND OUTCOME
11/14/18 12:00 pm	Approval of Minutes	Committee	Approve Minutes	
	Update on Countywide Water Reuse Master Plan.	G. Hall	A. Receive information and discuss next steps on: i. Deliverables Completed to Date; ii. Stakeholder Engagement; and iii. Conceptual Alternatives; and B. Direct staff to bring the Countywide Water Reuse Master Plan Conceptual Alternatives to the Board for discussion at its December 11, 2018 meeting.	
	Update on Reverse Osmosis Concentrate Management (ROCM) Plan Engineered Treatment Cell Pilot: Initial Water Quality Results.	G. Hall	Receive information and discuss next steps	
	Update on District/City of Palo Alto/City of Mountain View Agreements.	G. Hall	Receive information and discuss next steps.	
	Review Committee Work Plan and discuss 2018 meeting schedule.	Committee	Review and make necessary adjustments to Committee Work Plan, and confirm next meeting discussion subjects, and confirm next meeting time and date.	

RECYCLED WATER COMMITTEE

Updated: 11/9/18

2018 ACCOMPLISHMENTS REPORT

MEETING DATE	WORK PLAN ITEM, BOARD POLICY, & POLICY CATEGORY	ASSIGNED STAFF	INTENDED OUTCOME(S)	ACCOMPLISHMENT DATE AND OUTCOME
01/23/18 1:00 pm	Workshop to Receive Information from Public-Private Partnership (P3) Entities Interested in the District's Expedited Purified Water Program	K. Oven	Receive Information and Discuss Next Steps.	Continued to 02/08/18.
02/08/18 2:00 pm	Election of 2018 Chair, Vice Chair	Committee	Consider the nomination and approve the election of 2018 Committee Chair and Vice Chair	Director Estremera elected Chair. Director Keegan elected Vice Chair.
	Approval of Minutes	Committee	Approve Minutes	Approved 11/15/17 and 01/23/18 Minutes.
	Update on Countywide Water Reuse (Recycled and Purified Water) Master Plan.	G. Hall	Receive information and discuss next steps and Recommend the following to the Board: i. Approve a $395,000 Budget Adjustment and Authorize the CEO to Execute an Amendment to Agreement with GHD, Inc., for Reverse Osmosis Concentrate Mgmt Project; and ii. Adopt a Resolution to authorize the CEO to prepare and submit a grant application to State Water Resources Control Board Proposition 13 Grant Funding Opportunity, to partially fund the Reverse Osmosis Concentrate Mgmt Project.	Noted.
	Expedited Purified Water Program Update	K. Oven/G. Hall	Receive information and discuss next steps on: A. Summary of 01/23/18 RWC P3 Workshop; and B. P3 procurement Options.	Recommend Options B and C to the board, with the following modifications included: project labor agreement language; a stipend; a hybrid procurement process for discussion; and that there is a full team (designer/builder/operator/financer) in place from the beginning of the process (02/13/18 Item 4.3)
	Update on Public Outreach for Recycled and Purified Water, 2017 Potable Reuse Telephone Survey.	R. Callender	Receive information and discuss next steps.	Noted
	Update on the Contra Costa Water District/Central Contra Costa Sanitary District Recycled Water Exchange Project	G. Hall	Receive information and discuss enxt steps.	Noted
	Review Committee Work Plan and discuss 2018 meeting schedule (Continued from 11/15/17).	Committee	Review and make necessary adjustments to 2018 Committee Work Plan, and confirm regular meeting schedule for 2018.	Next Meeting March 21, 2018.

RECYCLED WATER COMMITTEE

Updated: 11/9/18

MEETING DATE	WORK PLAN ITEM, BOARD POLICY, & POLICY CATEGORY	ASSIGNED STAFF	INTENDED OUTCOME(S)	ACCOMPLISHMENT DATE AND OUTCOME
03/21/18 2:00 pm	Approval of Minutes	Committee	Approve the Minutes	Approved Minutes of 02/08/18.
	Discuss agenda items for the upcoming Joint Recycled Water Policy Advisory Committee (City of San Jose/SCVWD/City Of Santa Clara) meeting scheduled for April 19, 2018.	H. Ashktorab	Receive information and discuss next steps.	Committee made the following requests and noted without formal action: • Come back via Nonagenda w/info on SVAWC FY 17 budget projections vs actuals, and FY18-19 utilization/cost ratio, per acre foot; • Brief SJ staff on subjects planned for 04/19/18 RWPAC, including City SJ budget objectives, and overview of P3 and how City fits into this; and • Coordinate additional advertisement of the April 19, 2018 RWPAC meeting on the District's website.
	Update on District Recycled and Purified Water Efforts – Reverse Osmosis Concentrate Management:	M. Sinaki	Receive information and discuss next steps, and recommend that the Board approve a $452,000 budget adjustment and authorize the Chief Executive Officer (CEO) to negotiate and execute an amendment and time extension to the agreement with GHD, Inc., for the Reverse Osmosis Concentrate Management Project (Agreement No. A4034G), for an amount not to exceed $842,000; and that the Board of Directors adopt a resolution to authorize the CEO to prepare and submit a grant application to the State water Resources Control Board Proposition 13 Grant Funding Opportunity, to partially fund the Reverse Osmosis Concentrate Management Project.	The Committee recommends that the Board approve a $452,000 budget adjustment and authorize the Chief Executive Officer (CEO) to negotiate and execute an amendment and time extension to the agreement with GHD, Inc., for the Reverse Osmosis Concentrate Management Project (Agreement No. A4034G), for an amount not to exceed $842,000; and that the Board of Directors adopt a resolution to authorize the CEO to prepare and submit a grant application to the State water Resources Control Board Proposition 13 Grant Funding Opportunity, to partially fund the Reverse Osmosis Concentrate Management Project.
	Review Committee Work Plan	Committee	Review and make necessary adjustments to 2018 Committee Work Plan, and confirm regular meeting schedule for 2018.	Staff is to add discussion of P3 Term Sheets to 05/09/18 Agenda. Remainder of Work Plan continued to next meeting.

RECYCLED WATER COMMITTEE

Updated: 11/9/18

MEETING DATE	WORK PLAN ITEM, BOARD POLICY, & POLICY CATEGORY	ASSIGNED STAFF	INTENDED OUTCOME(S)	ACCOMPLISHMENT DATE AND OUTCOME
05/09/18 12:00 pm	Approval of Minutes	Committee	Approve Minutes	Approved.
	Expedited Purified Water Program Update.	K. Oven	Receive information on and discuss the P3 Expanded Shortlist of Qualified Firms, the Draft P3 Term Sheet, and next steps for the P3 Procurement process.	• Revise the Draft P3 Term Sheet to allow for proposals for facilities other than the City of San Jose facilities, as described Attachment 1, Page 4, Section 11; • Consider including language in the Draft P3 Term Sheet that allows the Water Unit Price Ceiling, discussed in Attachment 1, Page 10, Section 21, to be raised over time; • Investigate opportunities to broaden Attachment 1, Page 24, Section 48 so that P3 entities can propose innovative solutions to ownership issues, such as Reverse Osmosis Concentrate, as able, or as feasible within bond financing requirements; • Investigate options, and other agency's best management practices, for contractor or consultant contractual ability or restriction to issue press releases, advertise, or otherwise communicate with the public about projects (Informal Board Member Request No. I-18-0008); • Staff is to schedule a special Committee Work/Study Session on the Expedited Purified Water Program in July 2018; • Staff is to provide monthly updates to the Board on the Expedited Purified Water Program; and • Staff is to ensure that District Boardroom Live-Streaming audio issues are resolved, and provide live webcasting of all future Recycled Water Committee meetings.
	April 19, 2018 Joint Recycled Water Policy Advisory Committee (JRWPAC) Meeting Feedback, Follow Up, and Outcomes.	G. Hall	Receive information and discuss next steps.	Noted.
	Update on Countywide Water Reuse (Recycled and Purified Water) Master Plan.	G. Hall	Receive information and discuss next steps on progress on the Master Plan baseline efforts.	Noted.
	Update on Reverse Osmosis Concentrate Management.	G. Hall	Receive information and discuss next steps on: A. Status of the amendment and time extension to the consultant	Noted.

RECYCLED WATER COMMITTEE

Updated: 11/9/18

MEETING DATE	WORK PLAN ITEM, BOARD POLICY, & POLICY CATEGORY	ASSIGNED STAFF	INTENDED OUTCOME(S)	ACCOMPLISHMENT DATE AND OUTCOME
05/09/18 12:00 pm (Cont'd)			agreement with GHD, Inc; B. Status of the grant agreement with the State Water Resources Control Board for funding research studies; and C. Outcomes from the February 2018 stakeholder discussions about ROCM options.	
	Update on District/City of Palo Alto/City of Mountain View and City of Sunnyvale Collaboration Efforts.	G. Hall	Receive information and discuss next steps on: A. Northwest County Recycled Water Strategic Plan; B. Comprehensive Agreement between District and City of Palo Alto; and C. Comprehensive Agreement between District and City of Sunnyvale	• Include information on the District's Recycled Water Program in their presentations, when they go to Board or City Councils with presentations on Recycled Water Comprehensive Agreements; and • Expedite the Comprehensive Agreement negotiations with the City of Palo Alto in consideration of the planned joint meeting between the District Board of Directors and Palo Alto City Council.
	Update on District/SFPUC/BAWSCA Collaboration Efforts.	G. Hall	Receive information and discuss next steps on District/SFPUC/BAWSCA Feasibility Study.	Noted.
	Update on South County Recycled Water Projects and District, Producers, Wholesalers, and Retailers Agreements.	G. Hall/K. Oven	Receive information and discuss next steps on: A. Status of South County Recycled Water Master Plan Implementation; and B. Partnership Agreements.	• Look for opportunities to bring the South County Recycled Water Producers, Wholesalers, and Retailers Agreements into conformance with Recycled Water Agreements held, or being negotiated with, other areas in the county; and • Come back during the August 9, 2018 regular Committee meeting with policy proposals and an opportunity for Committee discussion regarding a recommendation to the Board on District engagement in the governance of the South County Recycled Water Authority.
	Review Committee Work Plan and Discuss 2018 Meeting Schedule.	Committee	Review and make necessary adjustments to Committee Work Plan, confirm next meeting discussion subjects, and confirm next meeting date and time.	Schedule July 2018 Special Work Session on Expedited Purified Water Program.

RECYCLED WATER COMMITTEE

Updated: 11/9/18

MEETING DATE	WORK PLAN ITEM, BOARD POLICY, & POLICY CATEGORY	ASSIGNED STAFF	INTENDED OUTCOME(S)	ACCOMPLISHMENT DATE AND OUTCOME
July 2018	Expedited Purified Water Program Update	K. Oven	Receive information on and discuss next steps for the P3 Procurement process.	Cancelled

MEETING DATE	WORK PLAN ITEM, BOARD POLICY, & POLICY CATEGORY	ASSIGNED STAFF	INTENDED OUTCOME(S)	ACCOMPLISHMENT DATE AND OUTCOME
08/08/18 12:00 pm	Approval of Minutes	Committee	Approve Minutes	Approved
	Update on Countywide Water Reuse (Recycled and Purified Water) Master Plan.	G. Hall	Receive information and discuss next steps on: A. Status of December 2018 Planned Completion of Draft Countywide Water Reuse Master Plan; B. Status of June 2019 Planned Completion of Countywide Water Reuse Master Plan; and C. Staff request for additional Committee meeting in September 2018.	Noted
	Reverse Osmosis Concentrate Management (ROCM) Update.	G. Hall	Receive information and discuss next steps on: A. Update on the Reverse Osmosis Concentrate Pilot study and other pertinent efforts; B. Status of the amendment and time extension to the Agreement between the District and GHD, Inc.; and C. Status of the grant agreement with the State Water Resources Control Board (SWRCB) for funding ROCM research studies.	Noted
	Update on District Collaboration Efforts with Other Public Entities for Recycled Water	G. Hall	Receive information and discuss next steps on: A. Collaboration Efforts with City of Palo Alto: i. Northwest County Recycled Water Strategic Plan; and ii. Comprehensive Agreement between District and Palo Alto;	Noted

RECYCLED WATER COMMITTEE

Updated: 11/9/18

MEETING DATE	WORK PLAN ITEM, BOARD POLICY, & POLICY CATEGORY	ASSIGNED STAFF	INTENDED OUTCOME(S)	ACCOMPLISHMENT DATE AND OUTCOME
08/08/18 12:00 pm (Cont'd)			B. Collaboration Efforts with City of Sunnyvale; and C. Collaboration Efforts with San Francisco Public Utilities Commission (SFPUC) and Bay Area Water Supply and Conservation Agency (BAWSCA).	
	Discussion on October 2018 Special Joint Recycled Water Policy Advisory Committee (JRWPAC) Meeting.	G. Hall	Receive information and provide direction to staff.	The Committee requested that staff: 1. Schedule a Special Meeting at 1:30 p.m.,09/12/18 to discuss agenda content for the Oct 2018 Special RWPAC meeting; 2. Provide copies of the City of San Jose Climate Smart Plan, accompanied by a briefing on the District's role and information on how the plan was developed; and 3. Come back with a briefing on the roles and responsibilities of cities to certifying a water supply in support of proposed land development projects.
	Public Outreach for Recycled and Purified Water – Expanding Taste Tests and Bottling Options of Advanced Purified Water.	R. Callender	Receive information on current activities and discuss expanding taste test opportunities, including bottling of purified water for marketing purposes.	Noted
	Review Committee Work Plan and discuss 2018 meeting schedule.	Committee	Review, make necessary adjustments, and confirm next meeting discussion subjects, time and date.	The Committee scheduled a Special Meeting at 1:30 p.m.,09/12/18 to discuss agenda content for the Oct 2018 Special RWPAC meeting

RECYCLED WATER COMMITTEE

Updated: 11/9/18

MEETING DATE	WORK PLAN ITEM, BOARD POLICY, & POLICY CATEGORY	ASSIGNED STAFF	INTENDED OUTCOME(S)	ACCOMPLISHMENT DATE AND OUTCOME
09/12/18 1:30 pm	Approval of Minutes	Committee	Approve Minutes	Approved.
	Discussion of Oct 2018 Special Joint RWPAC (City of SJ/SCVWD/SC) Mtg, Potential Item: Overall information on the District water supply planning efforts including demand projections	G. Hall	Receive Information and Discuss Next Steps	The Committee requested staff discuss during the Oct 2018 Special Joint RWPAC meeting: • A progress report on No Regrets Package items; • Info on challenges associated with not proceeding with recycled water program, including impacts to the groundwater basin, constituents, rate payers, and development; and • Info on how development effects water supply demand, and how water supply demand effects rates. The Committee additionally suggested that staff revise the proposed presentation materials to include a wider variety of fonts and graphics.
	Discussion of Oct 2018 Special Joint RWPAC (City of SJ/SCVWD/SC) Mtg, Potential Item: Water rates and complexities of associated economics	D. Taylor	Receive Information and Discuss Next Steps	The Committee requested that staff include during the Oct 2018 Special Joint RWPAC meeting: • An informational overview to City SJ/SC elected officials on District rate setting process; • A copy of Hetch Hetchy rate comparison chart used during prior rate setting presentations; • Information on funding strategies for the Pacheco Reservoir Expansion Project;

MEETING DATE	WORK PLAN ITEM, BOARD POLICY, & POLICY CATEGORY	ASSIGNED STAFF	INTENDED OUTCOME(S)	ACCOMPLISHMENT DATE AND OUTCOME
				• Revised presentation materials that include a wider variety of fonts and graphics; and • A more simplified version of the charts contained in Attachment 1, Slides 6 and 7.
	Discussion of Oct 2018 Special Joint RWPAC (City of SJ/SCVWD/SC) Mtg, Potential Item: District efforts pertinent to water recycling and purification	G. Hall	Receive Information and Discuss Next Steps	The Committee requested that staff provide a more simplified version of the chart contained in Slide 5 during the October 2018 Special Joint RWPAC meeting, and noted the information without formal action.
	Discussion with the Cities of Palo Alto and Mountain View on Recycled and Purified Water	G. Hall	Receive Information and Discuss Next Steps	The Committee made the following requests of staff: • Investigate short-term and long-term comprehensive agreement proposals; • Come back to the Committee with refinements on cost and other data, including analysis on projected off-ramp points and the agreement amendment requirements that would be associated with these; • Establish a target for completion of a comprehensive agreement by the end of 2018; • Provide a status update during the September 26, 2018 Joint Recycled Water Committee meeting with the Cities of Palo Alto and Mountain View; and • Schedule special meetings of the Recycled Water Committee as necessary to obtain Committee

RECYCLED WATER COMMITTEE

Updated: 11/9/18

MEETING DATE	WORK PLAN ITEM, BOARD POLICY, & POLICY CATEGORY	ASSIGNED STAFF	INTENDED OUTCOME(S)	ACCOMPLISHMENT DATE AND OUTCOME
				feedback and ensure this work is done.
	Status of Comprehensive Agreement with City of Sunnyvale for Recycled Water	G. Hall	Receive Information and Discuss Next Steps	Noted.
	Review Committee Work Plan and discuss 2018 meeting schedule.	Committee	Review, make necessary adjustments, and confirm next meeting discussion subjects, time and date.	The Committee requested that staff include on its next agenda, informational copies of the response to questions raised by Mr. Doug Muirhead, Morgan Hill resident, during a recent Water Conservation and Demand Management Committee meeting, pertaining to direct potable reuse regulations.
	Overview of Roles and Responsibilities in Certifying the Adequacy of Water Supply for Proposed Land Development Projects.	G. Hall	Receive and discuss the roles and responsibilities in certifying the adequacy of water supply for proposed land development projects.	Noted.

RECYCLED WATER COMMITTEE

Updated: 11/9/18

PURPOSE AND GUIDANCE

The Recycled Water Ad Hoc Committee was enacted by the Board of Directors on January 12, 2016. The Committee's purpose is to develop a long-term proposal for how the District can work together with other local agencies on recycled water opportunities within the district boundaries, to establish a collaborative process to facilitate policy discussion and sharing of technical information on recycled water issues. It is the role of the Recycled Water Committee to meet with the other entities (Sunnyvale, Palo Alto, CSJ SC/TPAC) in individual meetings as required and/or necessary. The Recycled Water Committee can also meet with new entities if the need arises.

The Board of Directors identified the following Issues, Challenges, Strategies and Opportunities related to Recycled Water during their October 4, 2016 Priorities and Strategic Directions Work/Study Session. As such, the Recycled Water Ad Hoc Committee, while doing its work, should seek out opportunities to address the Board's identified issues and challenges, and support the Board's identified strategies and opportunities, as follows:

Issues/Challenges	Strategies/Opportunities
• Public perception • Governmental Relations/Water Rights • Funding/Delivery Method	• Expedite Purified Water Program partnering with San Jose/Santa Clara, plus look at potential opportunity with South Bay Recycled Facilities • Develop Partnerships with Sunnyvale, Palo Alto, Mountain View for new recycled/purified water • Expand South County Recycled Water partnering with SCRWA

This annual work plan establishes a framework for committee discussion and action during the annual meeting schedule. The committee work plan is a dynamic document, subject to change as external and internal issues impacting the District occur and are recommended for committee discussion. Subsequently, an annual committee accomplishments report is developed based on the work plan and presented to the District Board of Directors.

RECYCLED WATER COMMITTEE

Updated: 11/9/18

PARKING LOT

The Parking Lot contains unscheduled items referred to the Committee by the Board of Directors, or requests to by the Committee to be brought back by staff.

Date Requested	Requesting Body	Assigned Staff	Discussion Subject	Intended Outcome(s)

RECYCLED WATER COMMITTEE

Updated: 11/9/18

2019 WORK PLAN

MEETING DATE	WORK PLAN ITEM, BOARD POLICY, & POLICY CATEGORY	ASSIGNED STAFF	INTENDED OUTCOME(S)	ACCOMPLISHMENT DATE AND OUTCOME
02/13/19 12:00 pm	Election of 2019 Committee Chair/Vice Chair	Committee	Nominate and elect a Chair/Vice Chair to serve for calendar year 2019.	
	Approval of Minutes	Committee	Approve Minutes	
	2018 Committee Accomplishment Report and 2019 Committee Meeting Schedule and Work Plan.	Committee	A. Approve and Authorize the Committee Chair to submit the 2018 Committee Accomplishment Report to the Board of Directors during the 02/26/18 Regular Board Meeting; and B. Provide direction to staff on the 2019 Committee Meeting Schedule and Work Plan	

RECYCLED WATER COMMITTEE

Updated: 11/9/18

MEETING DATE	WORK PLAN ITEM, BOARD POLICY, & POLICY CATEGORY	ASSIGNED STAFF	INTENDED OUTCOME(S)	ACCOMPLISHMENT DATE AND OUTCOME
05/08/19 12:00 pm	Approval of Minutes	Committee	Approve Minutes	
	2019 Committee Meeting Schedule and Work Plan.	Committee	Review, discuss, and provide direction to staff on the 2019 Committee Meeting Schedule and Work Plan.	

RECYCLED WATER COMMITTEE

Updated: 11/9/18

MEETING DATE	WORK PLAN ITEM, BOARD POLICY, & POLICY CATEGORY	ASSIGNED STAFF	INTENDED OUTCOME(S)	ACCOMPLISHMENT DATE AND OUTCOME
08/07/19 12:00 pm	Approval of Minutes	Committee	Approve Minutes	
	2019 Committee Meeting Schedule and Work Plan.	Committee	Review, discuss, and provide direction to staff on the 2019 Committee Meeting Schedule and Work Plan.	

RECYCLED WATER COMMITTEE

Updated: 11/9/18

MEETING DATE	WORK PLAN ITEM, BOARD POLICY, & POLICY CATEGORY	ASSIGNED STAFF	INTENDED OUTCOME(S)	ACCOMPLISHMENT DATE AND OUTCOME
11/13/19 12:00 pm	Approval of Minutes	Committee	Approve Minutes	
	2019 Committee Meeting Schedule and Work Plan.	Committee	Review, discuss, and provide direction to staff on the 2019 Committee Meeting Schedule and Work Plan.	