Santa Clara Valley Water District

Sunnyvale

**File No.:** 18-1111

**Agenda Date:** 12/17/2018
**Item No.:** 4.

## BOARD AGENDA MEMORANDUM

**SUBJECT**:
Overview of Current/Future Water Supply Planning Efforts, the District's Capital Improvement Program, and the Wholesale Rate-Setting Process.

**RECOMMENDATION**:
That the District Board and Sunnyvale City Council receive information on the District's Capital Improvement Program, current and future water supply planning efforts, and the wholesale rate-setting process.

**SUMMARY**:

The Santa Clara Valley Water District (District) serves all of Santa Clara County, providing groundwater management, wholesale water supply, flood protection, and stream stewardship services. The District was originally formed in 1929 to manage groundwater in response to groundwater overdraft and land subsidence. Maintaining groundwater supplies and avoiding land subsidence continue to be the core function of the water supply program.

Originally, the County relied solely on local runoff patterns and natural recharge. However, these were insufficient to maintain groundwater levels. Between the 1930s and 1950s, the District constructed 10 dams to store winter rains for use later in the year. Initially, these efforts were sufficient. However, the post-World War II development boom increased demands, and local supplies were no longer sufficient to meet the County's needs. The District began importing water in the 1960s, first from the State Water Project through the South Bay Aqueduct from the north and then from the federal Central Valley Project via San Luis Reservoir in the 1980s.

The District expanded water conservation and recycled and purified water programs in the 1990s in response to a prolonged drought and continued increases in water demands. The District implements nearly 20 different ongoing water conservation programs that use a mix of incentives and rebates, free device installation, one-on-one home visits, site surveys, and educational outreach to reduce water consumption in homes, businesses and agriculture. These programs are designed to achieve sustainable, long-term water savings and are implemented regardless of water supply conditions. Recycled and purified water is a local, reliable source of supply that helps meet demands in wet, normal and dry years. In 2014, in partnership with the City of San Jose the District commissioned the Silicon Valley Advanced Water Purification Center, an 8 million gallon per day

facility that uses advanced technologies to purify secondary treated wastewater and provides clean high-quality water expected to match California drinking water quality standards. Both agencies continue to work together to investigate expansion of the existing facility. The District is also working with local recycled water producers, retailers, and other stakeholders to develop a Countywide Water Reuse Master Plan that will recommend reliable and efficient projects for potable and non-potable reuse.

The District's system can deliver about 300 million gallons (about 900 acre-feet) of raw water and 200 million gallons (about 600 acre-feet) of treated drinking water every day. The District's distribution system includes 10 reservoirs, 3 pump stations, 142 miles of pipelines, 3 water treatment plants, 1 water purification center, 393 acres of recharge ponds, and 275 miles of jurisdictional streams.

Currently, the county's water supply portfolio includes 55 percent imported water sources, 40 percent local water sources (groundwater, surface water), and 5 percent recycled water. Long-term in-county water use averages about 350,000 acre-feet per year (AFY), though use is currently down following the drought. Water use in the County would be more than 70,000 acre-feet per year higher if not for the District's, cities', water retailers', and community's commitments to water conservation. Water use efficiency programs reduce demand on existing water and energy supplies, helping to lessen the cost and environmental impacts of developing additional supplies.

**Current and Future Water Supply Planning**

In 2012, the Board adopted the Water Supply and Infrastructure Master Plan (Water Master Plan), which outlines the District's strategy for providing a reliable and sustainable future water supply in a cost-effective manner. It describes the new water supply investments the District is planning to make, the anticipated schedule, and the associated costs and benefits. The Water Master Plan is based on an "Ensure Sustainability" strategy comprised of three elements:

1. Secure existing supplies and infrastructure;
2. Expand the water conservation and reuse; and
3. Optimize the use of existing supplies and infrastructure.

The District is in the process of updating the Water Master Plan based on current projections regarding future supplies and demands. The Water Master Plan modeling analysis indicates that droughts are and will continue to be the District's greatest water supply challenge. In year 2040, the approximate water supply shortfall is 152,000 AF during drought conditions, while only 36,000 AF during an average water supply condition.

To meet the future water supply needs and promote greater supply diversity, the District continues to explore additional water supply and demand management options. Water supply diversity helps reduce the County's exposure to the risk of any one supply investment not performing up to expectations. In addition, developing alternative supplies reduces the District's reliance on imported water supplies. Projects being considered include additional water conservation, non-potable recycled water, potable reuse, surface and groundwater storage, stormwater capture, additional

recharge ponds, dry year options, etc. Potential projects specific to North County include additional recharge ponds, a new raw water pipeline, and additional recycling.

In September 2017, the Board approved planning for a variety of water conservation and stormwater capture projects, referred to as the “No Regrets” package in the Water Master Plan update. These projects would be implemented in any future water supply scenario and are designed to reduce water demands by about 10,000 AFY and increase natural groundwater recharge by about 1,000 AFY. The package, which increases the conservation savings goal to 110,000 AFY by 2040, consists of the following water conservation and stormwater capture projects:

- Advanced metering infrastructure;
- Graywater rebate program expansion;
- Leak repair incentives;
- New Development Model Ordinance; and
- Stormwater capture (agricultural land recharge, stormwater recharge in the City of San Jose and Saratoga, rain barrel rebates, and rain garden rebates).

In December 2017, the Board approved pursuing a public-private partnership to develop up to 24,000 AFY of potable reuse capacity using the Los Gatos Ponds to percolate purified water into the groundwater basin. In May 2018, the Board approved participation in the California WaterFix to secure Delta-conveyed imported water supplies. In June 2018, the Board approved pursuing the Pacheco Reservoir Expansion Project, which is eligible to receive up to $484.5 million in State funding.

Staff analyzed the effect of these Board-approved efforts. The projects that are approved for planning are sufficient to meet the District’s water supply reliability level of service goal of meeting 100 percent of demands in normal years and at least 90 percent of demands in drought years.

All projects have challenges, uncertainties, and risks. These include but are not limited to climate change, policy changes, and regulatory action affecting the Delta (e.g., Bay Delta Water Quality Control Plan). This could result in some projects not materializing or resulting in a lower yield than expected. Therefore, the District continues to identify, analyze, and monitor projects that could serve as an alternative project should change be needed. This uncertainty will be managed through the annual review of the Water Master Plan and its assumptions and periodic updates to reflect changed conditions.

A primary purpose of the Water Master Plan is to inform investment decisions. Therefore, a critical piece of the water supply plan is a process to monitor and report to the Board on the demands, supplies, and status of projects and programs. Monitoring will identify where adjustments to the Water Master Plan might be needed to respond to changed conditions. The proposed Monitoring and Assessment Plan (MAP) approach for the Water Master Plan has four steps:

1. Develop an implementation schedule;
2. Manage unknowns and risk;
3. Report to Board annually, or as needed; and

4. Adjust the MAP as needed to serve as input to Capital Improvement Program, budget, and annual water rate setting processes.

**Capital Improvement Program**

The District manages and operates a complex and integrated water supply infrastructure, including storage, transmission, treatment, and recycled water facilities, to meet the Board's Ends Policy E-2, "There is a reliable, clean water supply for current and future generations."

The District currently plans to invest approximately $1.6 Billion in its 5-year Capital Improvement Program (CIP) to ensure the reliability of its water supply infrastructure. Some of these capital investments include a 5-year upgrade to the Rinconada Water Treatment Plant; a 10-Year Pipeline Inspection and Rehabilitation Program; the seismic retrofit and/or improvements to four of the District's ten dams; pump station upgrades; and installation of additional line valves on several large-diameter pipelines.

Two significant water supply investments in the District's CIP are the Pacheco Reservoir Expansion Project and the Anderson Dam Seismic Retrofit Project. A more detailed explanation of the purpose and status of these projects is provided in the paragraphs that follow.

*Pacheco Reservoir Expansion Project*
The District is proposing to develop up to a 140,000 acre-foot surface reservoir project by expanding the existing Pacheco Reservoir (Pacheco Reservoir Expansion Project), which is located on the North Fork Pacheco Creek in south-east Santa Clara County. Partners to this project include the District, San Benito County Water District (SBCWD) and Pacheco Pass Water District (PPWD), of which the latter owns and operates the existing 6,000 acre-foot Pacheco Reservoir. On June 26, 2018, the District Board approved an option agreement with PPWD that provides the District with an option to acquire fee ownership of the existing Pacheco Reservoir should the District decide to proceed with construction of the Pacheco Reservoir Expansion Project.

*Benefits*
Expansion of the existing Pacheco Reservoir will address several water supply, quality, and environmental issues. Specifically, the Pacheco Reservoir Expansion will:

- Improve the resiliency of imported CVP water supplied for recharge.
- Help alleviate taste and odor issues in treated water that typically result from the formation of algae in the San Luis Reservoir during the summer period.
- Mitigate supply interruptions that can occur in late summer/early fall due to lower San Luis Reservoir levels.
- Expand groundwater recharge for medium and high priority sub-basins which would ensure compliance with the Sustainable Groundwater Management Act
- Restore populations of the Federally threatened South Central California Coast Steelhead fish

species.

*Funding*
On March 14, 2017, the District executed a Principles of Agreement with SBCWD and PPWD, which committed the parties to coordinate and support the District's preparation and submittal of an application for California Proposition 1 Water Storage Investment Program (WSIP) funding for the Pacheco Reservoir Expansion. This application was submitted by the District to the California Water Commission (CWC) on August 14, 2017, and requested funding for public benefits amounting to $484.5 million, fifty percent of the estimated cost to construct the Pacheco Reservoir Expansion Project.

The CWC conditionally approved the District's full funding request of $484.55 million on July 24, 2018, which included an Early Funding award of $24.2 million. The Early Funding award was authorized by the CWC to reimburse the District for funds expended in the completion of the Environmental Documentation and Permitting for the Pacheco Reservoir Expansion Project. Staff anticipates that the Early Funding award agreement will be executed this month. In addition, for the District to remain eligible to receive the full amount of WSIP funds that have been conditionally awarded (beyond the Early Funding award), a draft CEQA Environmental Impact Report must be issued for public review by December 2021.

The District is also pursuing additional project funding through the Federal Water Infrastructure Improvements for the Nation (WIIN) Act. Should the Pacheco Reservoir Expansion qualify, the WIIN Act has the potential to fund up to 25 percent of the total project costs that are not covered by state investment through WSIP. The first step in the process to apply for WIIN Act funding is for the Governor of California to designate the Pacheco Reservoir Expansion as a "State-Led-Storage Project". As such, Governor Brown designated the Pacheco Reservoir Expansion a "State-Led-Storage Project" on August 27, 2018, and Department of the Interior has begun the process of determining the WIIN Act eligibility for the project.

*Anderson Dam Project Update*
The Anderson Dam Seismic Retrofit Project (Anderson Dam Retrofit Project) work is currently focused on design and environmental documentation. The 60% design plans were completed in April 2018 and are currently being reviewed by the state Division of Safety of Dams (DSOD) and the Federal Energy Regulatory Commission (FERC).

The Anderson Dam Retrofit Project's draft Environmental Impact Report (EIR) is currently being prepared. In parallel, the District has initiated meetings with various environmental regulatory agencies (California Dept. of Fish & Wildlife; Regional Water Quality Control Board; Army Corps of Engineers; U.S. Fish & Wildlife Service; National Marine Fisheries Service; and others) to discuss the Anderson Dam Retrofit Project construction, the likely environmental impacts, and to determine what mitigation measures and permit conditions will be required by these agencies before the Anderson Dam Retrofit Project can be constructed. The draft EIR will be released for public review in summer of 2019.

The Anderson Dam Retrofit Project's seismic retrofit construction is anticipated to begin in 2020 or

2021, depending on the permitting process. It is estimated to take 4 to 5 years to complete all the dam improvements.

**Wholesale Rate Setting Process**

The District is the groundwater management agency and primary wholesale water provider in Santa Clara County (County). The District actively manages the groundwater basins by replenishing them with local and imported water, and by operating surface water treatment plants that provide “in-lieu” recharge. A complex system that includes 10 reservoirs, 142 miles of pipelines, 4 water treatment plants, and 3 pump stations, helps keep water flowing across the County. The cost to operate and maintain this system is reimbursed primarily through groundwater charges and treated water charges paid by water retail customers. Groundwater charges differ depending on the “zone of benefit.” The North County (Zone W-2) is defined as the portion of the County north of the Coyote Valley. The South County (Zone W-5) is defined as the portion of the County extending from Coyote Valley to Gilroy.

Resolution 99-21 guides staff in the development of the overall pricing structure based on principles established in 1971. The general approach is to charge the recipients of the various benefits for the benefits received. More specifically, pricing is structured to manage surface water, groundwater supplies and recycled water conjunctively to prevent the over use or under use of the groundwater basin.

Each year, the Board establishes groundwater production charges as well as surface water charges, recycled water charges, treated water surcharges, and the amount of the State Water Project cost to be recouped through the State Water Project tax. The Board adopted groundwater charge increase for North County Zone W-2 for Fiscal Year 2018-19 equates to an increase of $3.92 per month to the average household and is driven by critical infrastructure repair and replacement needs, and efforts to bolster water supply reliability (this does not include any increase from the retail provider).

The groundwater charge setting process has many opportunities for stakeholder engagement between the months of January and May of each year, including engaging the Water Retailers Committee and several Board Advisory Committees. A public hearing process extends over several meetings each April. The Board typically adopts the budget and groundwater production charges in early May, which become effective on July 1.

**FINANCIAL IMPACT**:
There is no financial impact associated with this item.

**CEQA**:
The recommended action does not constitute a project under CEQA because it does not have a potential for resulting in direct or reasonably foreseeable indirect physical change in the environment.

**ATTACHMENTS**:
Attachment 1: PowerPoint

**UNCLASSIFIED MANAGER:**
Jerry De La Piedra, District Assistant Operating Officer, 408-630-2257
Christopher Hakes, District Deputy Operating Officer, 408-630-3126
Darin Taylor, District Chief Financial Officer, 408-630-3068

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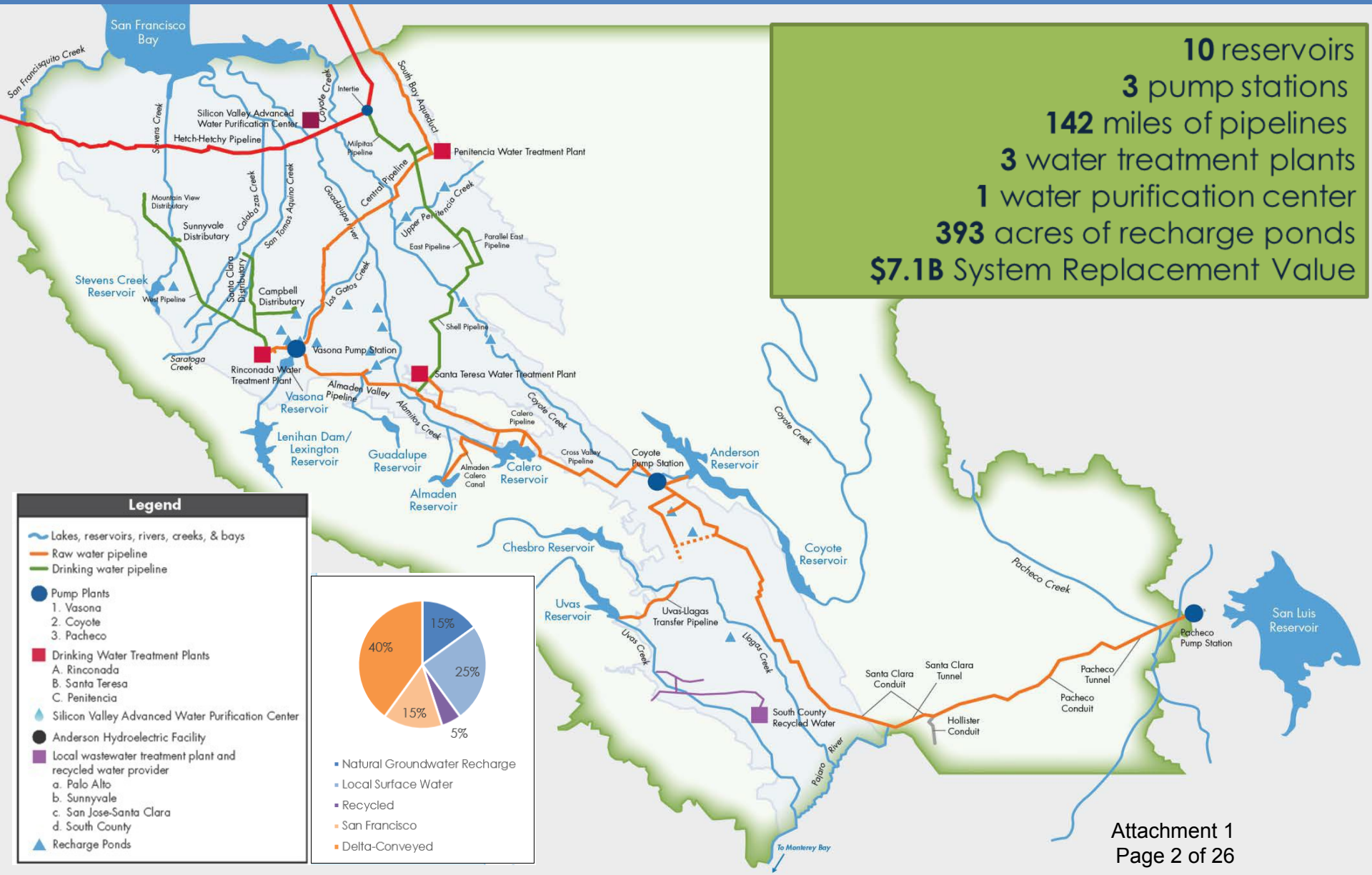
# Overview of Current/Future Water Supply Planning Efforts, the District's Capital Improvement Program, and the Wholesale Rate-Setting Process

Special Joint Meeting with City of Sunnyvale

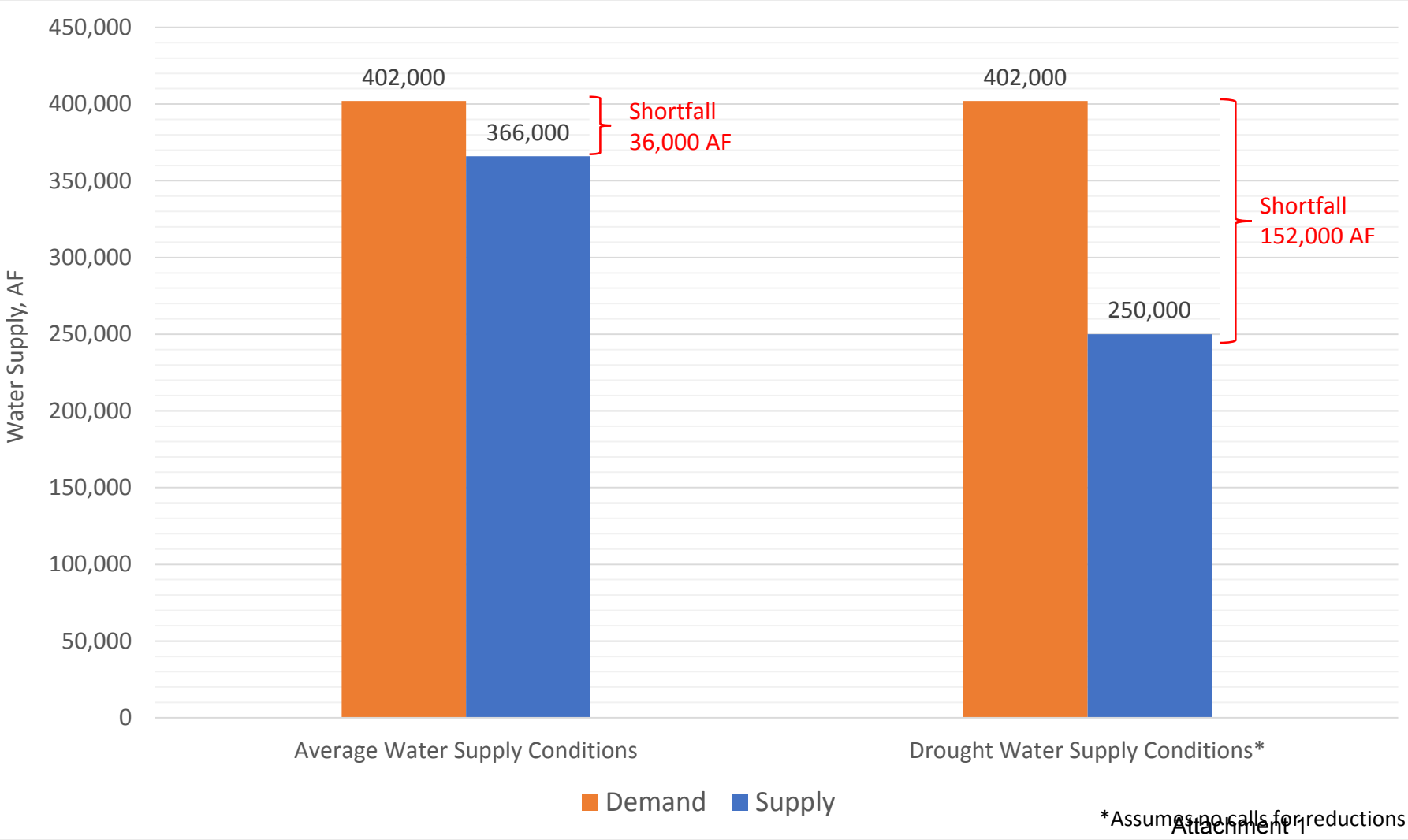
December 17, 2018

# A Comprehensive, Flexible Water System



# Water Supply Master Plan Update

## Analysis shows declining reliability in year 2040




*Assumes no calls for reductions

# Many Projects and Portfolios of Projects have been Evaluated for Filling the Gap







# 2012 Board-Adopted "Ensure Sustainability" Strategy

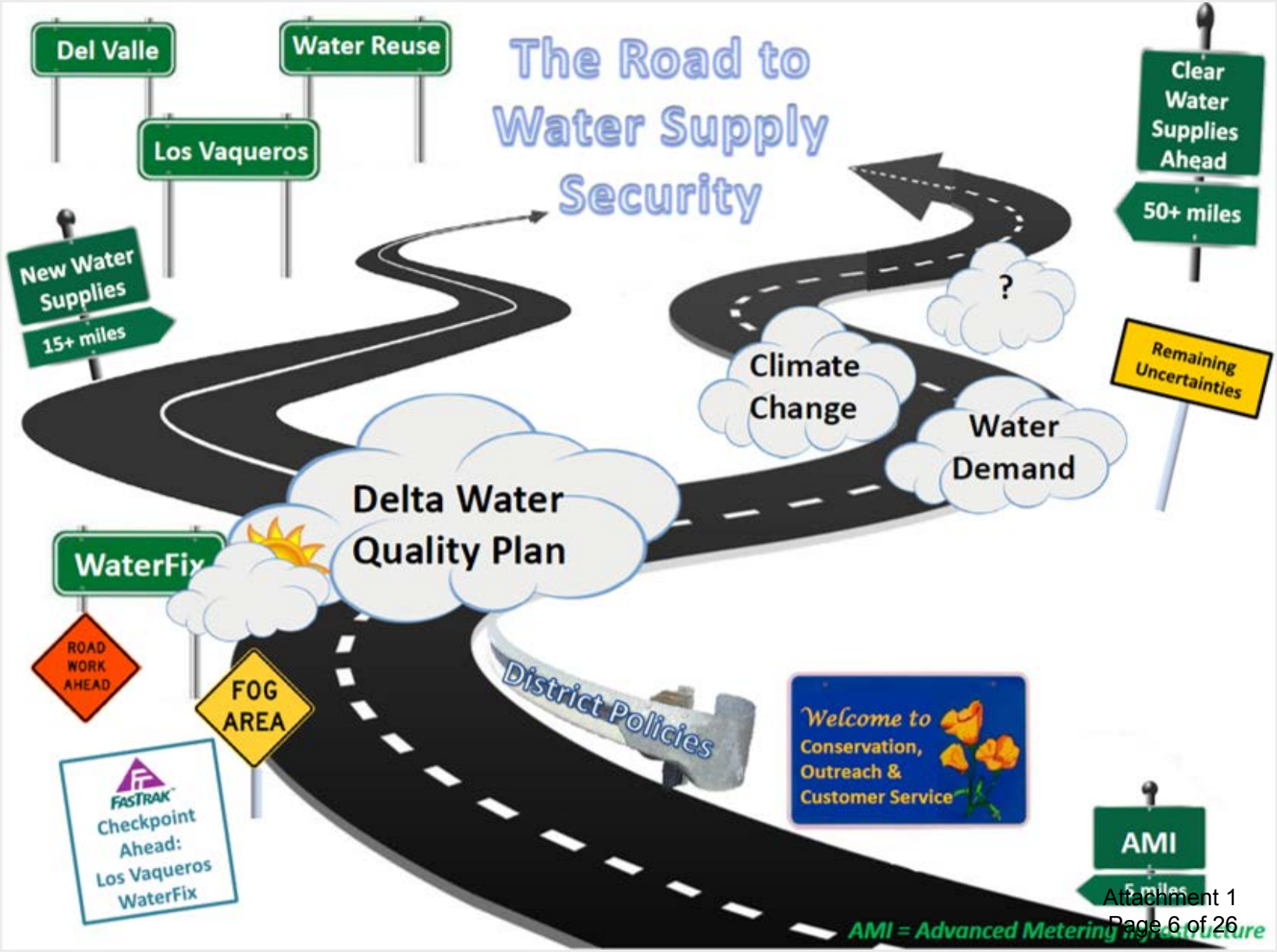
Three Elements:

1. Securing existing supplies and infrastructure

2. Expand conservation and reuse

3. Optimize the system

# Manage Unknowns and Risks



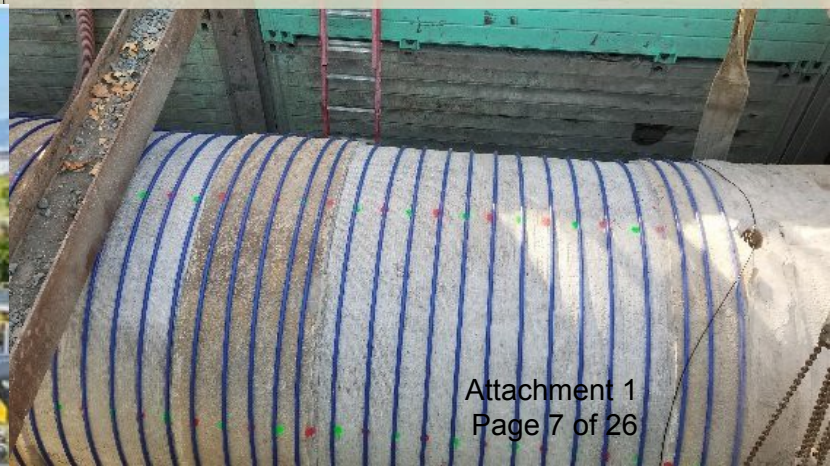
# Capital Improvement Program – Key Water Supply Projects

**Dam Seismic Retrofits/Improvements ($780 Million)**

**Rinconada WTP Reliability Improvements ($290 Millions)**

**10-Year Pipeline Rehabilitation ($125 Million)**

**Expedited Purified Water Program (EPWP) ($1 Billion)**

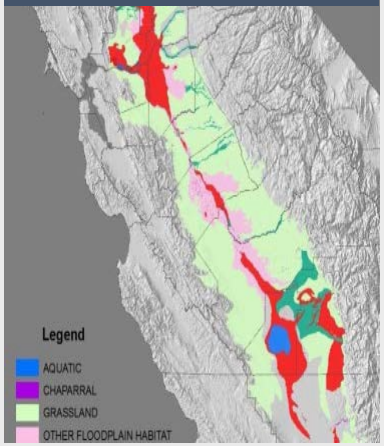


# The Pacheco Reservoir Expansion Will Address Five Big Challenges

## Restore Federally Threatened Fish

**90%** population decline in Pajaro watershed from 1960s to 1990s

## Improve the Delta

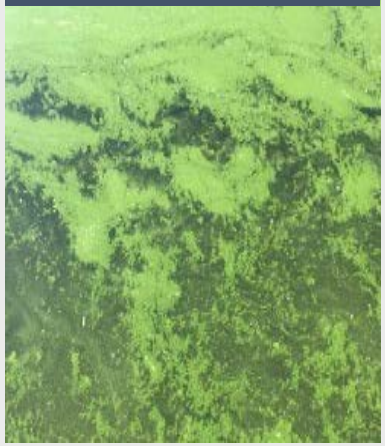



**90%** of Delta watershed wetlands have disappeared

## Improve Resiliency and Emergency Water Supply

**66%** chance of Delta earthquake in next 50 years; **45%** of water supply imported from Delta

## Eliminate Water Quality Issues in San Luis Reservoir



Water quality issues during summer months in **57%** of years

## Reduce Flooding to Disadvantaged Communities

Extensive flooding even for frequent/ small events; **20-year** flood in 2017 (pictured)

# Anderson Dam Project Update

## Anderson Dam Existing Configuration

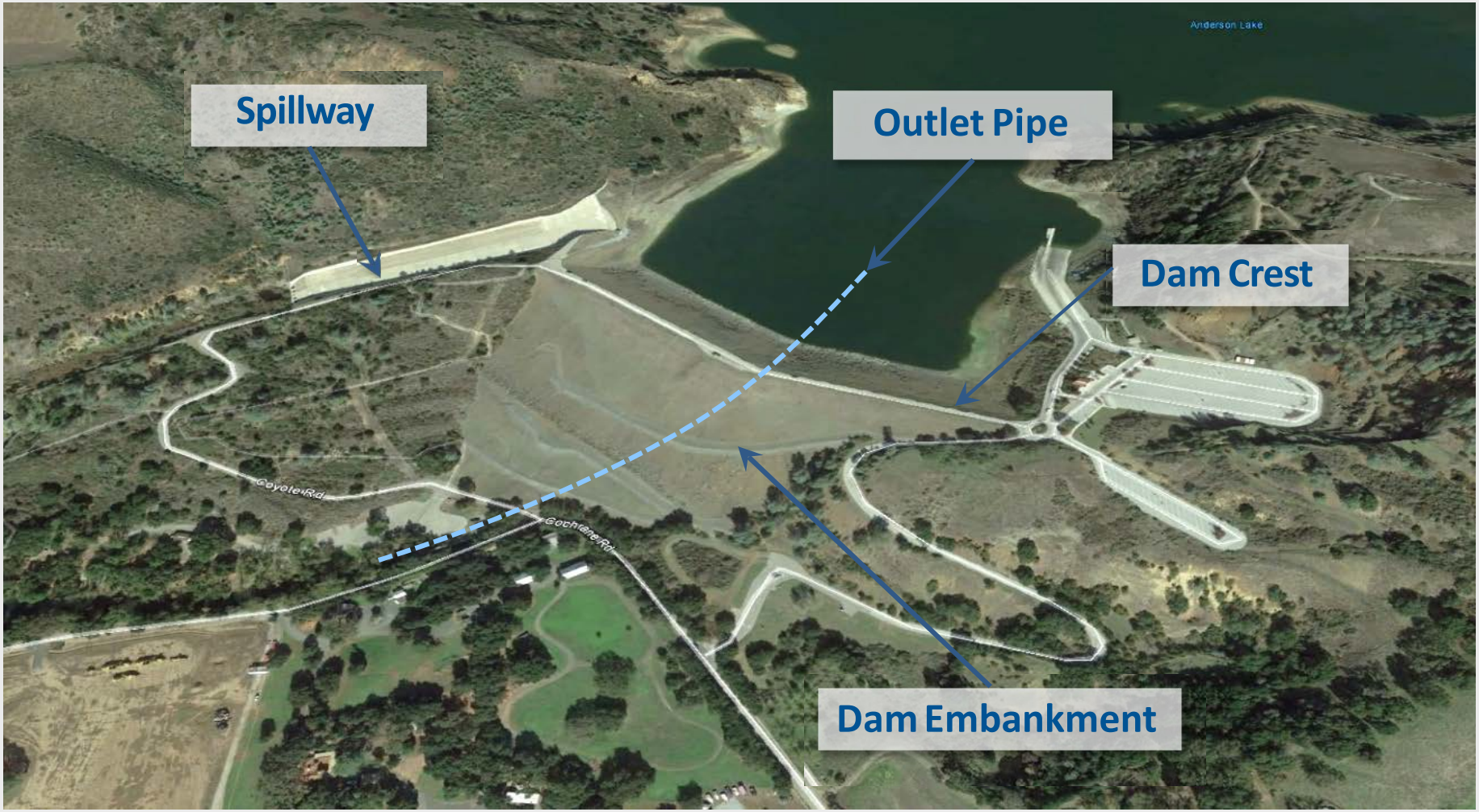
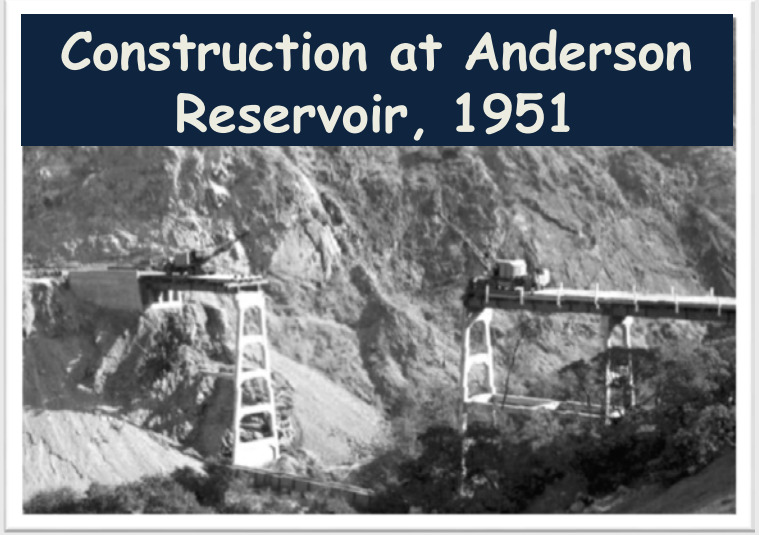
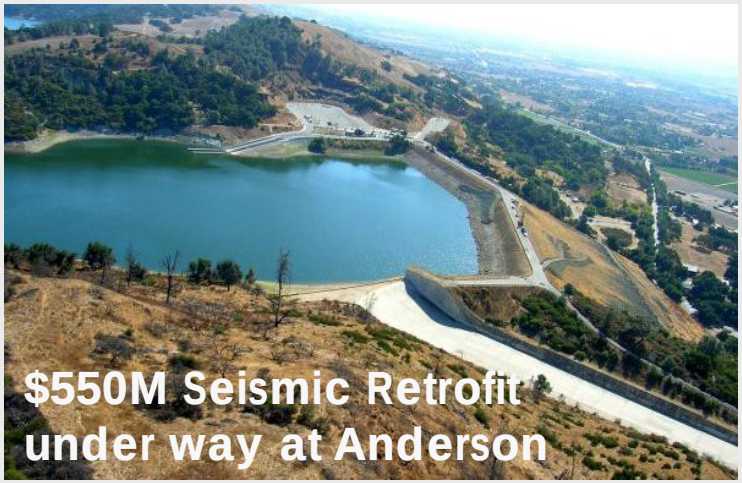



*Image Source: Google Earth*

# Why do well owners pay SCVWD to pump water from the ground?




- Local rainfall cannot sustain Santa Clara County water needs
- Planning in early 1900's called for construction of reservoirs to capture rainwater to percolate into the ground




- Groundwater Production Charge is a reimbursement mechanism
  - pays for efforts to protect and augment water supply

# Many activities ensure safe, reliable groundwater supplies

- Plan & construct improvements to infrastructure
- Operate & maintain local reservoirs
- Purchase imported water
- Operate & maintain raw & recycled water pipelines
- Monitor & protect groundwater from pollutants

Dam Seismic Retrofits/Improvements ($780 Million)

Rinconada WTP Reliability Improvements ($290 Million)

Expedited Purified Water Prgm (EPWP) ($1 Billion)

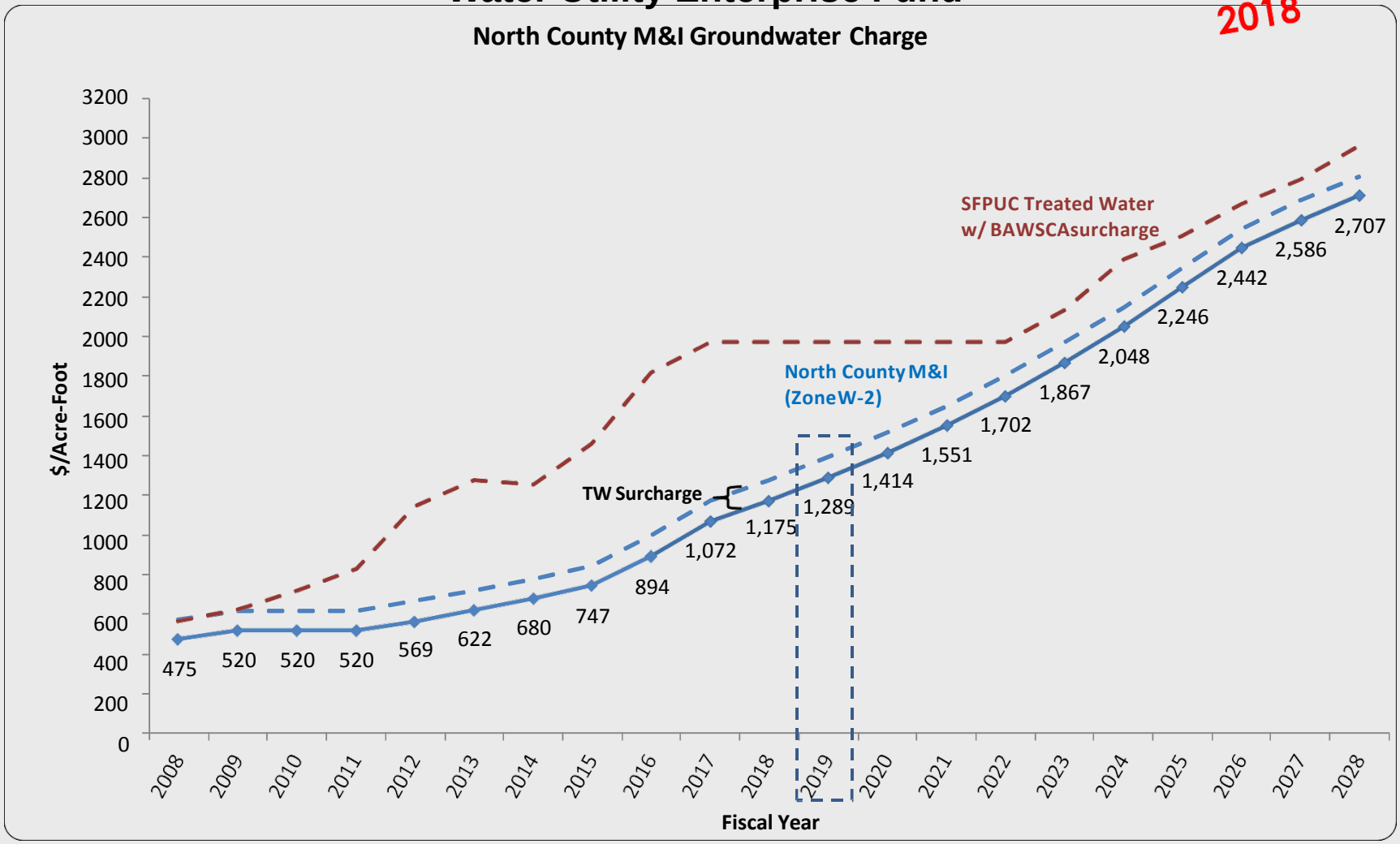
10-Year Pipeline Rehabilitation ($125 Million)

# Groundwater Production Charge Projection

**($ in millions)**

## Water Utility Enterprise Fund

As of May 2018



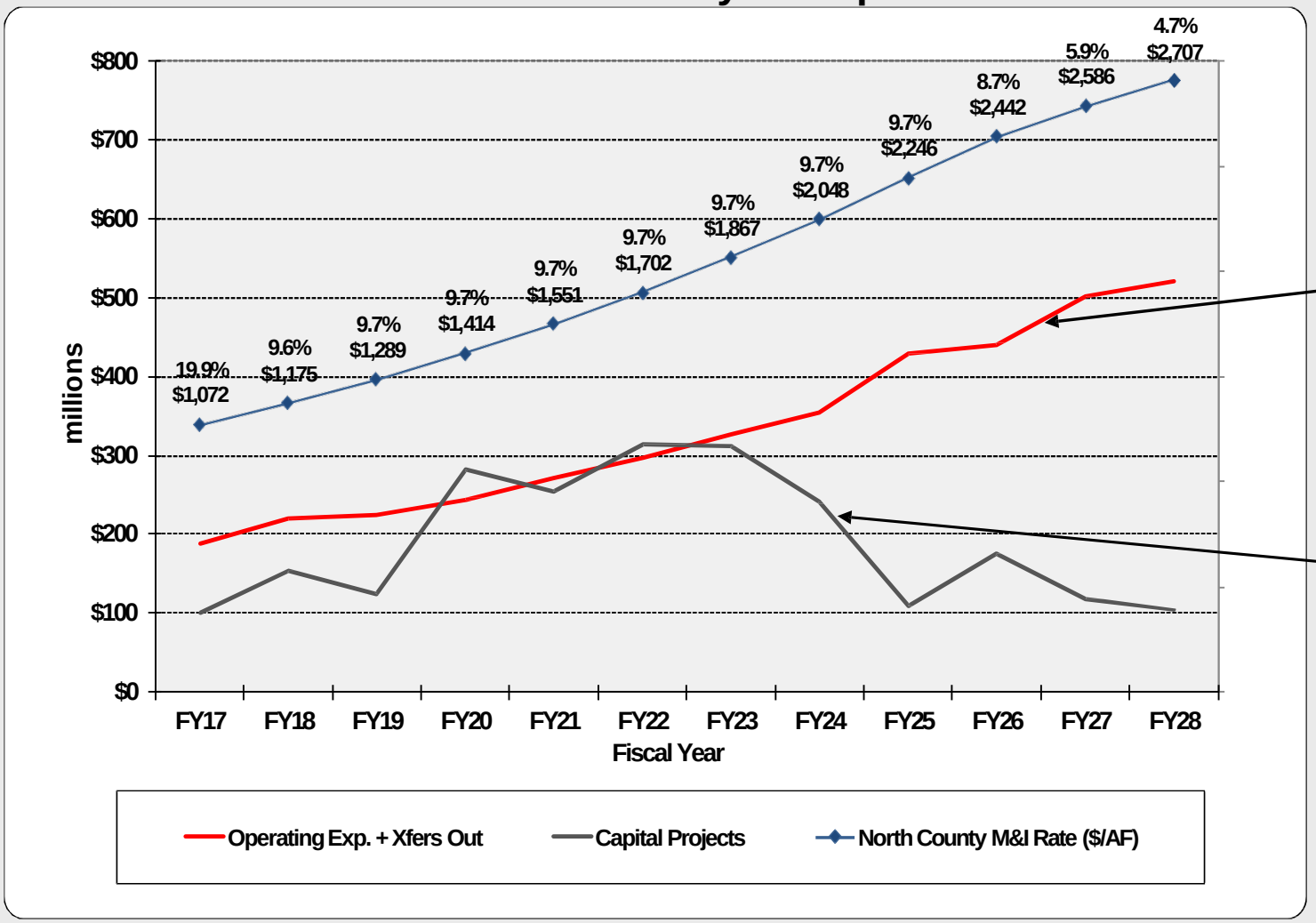

**Note: This projection does not account for impacts associated with the Bay Delta Water Quality Control Plan or Pacheco Reservoir Expansion**

# Groundwater Production Charge Projection

**($ in millions)**

As of May 2018

## Water Utility Enterprise Fund



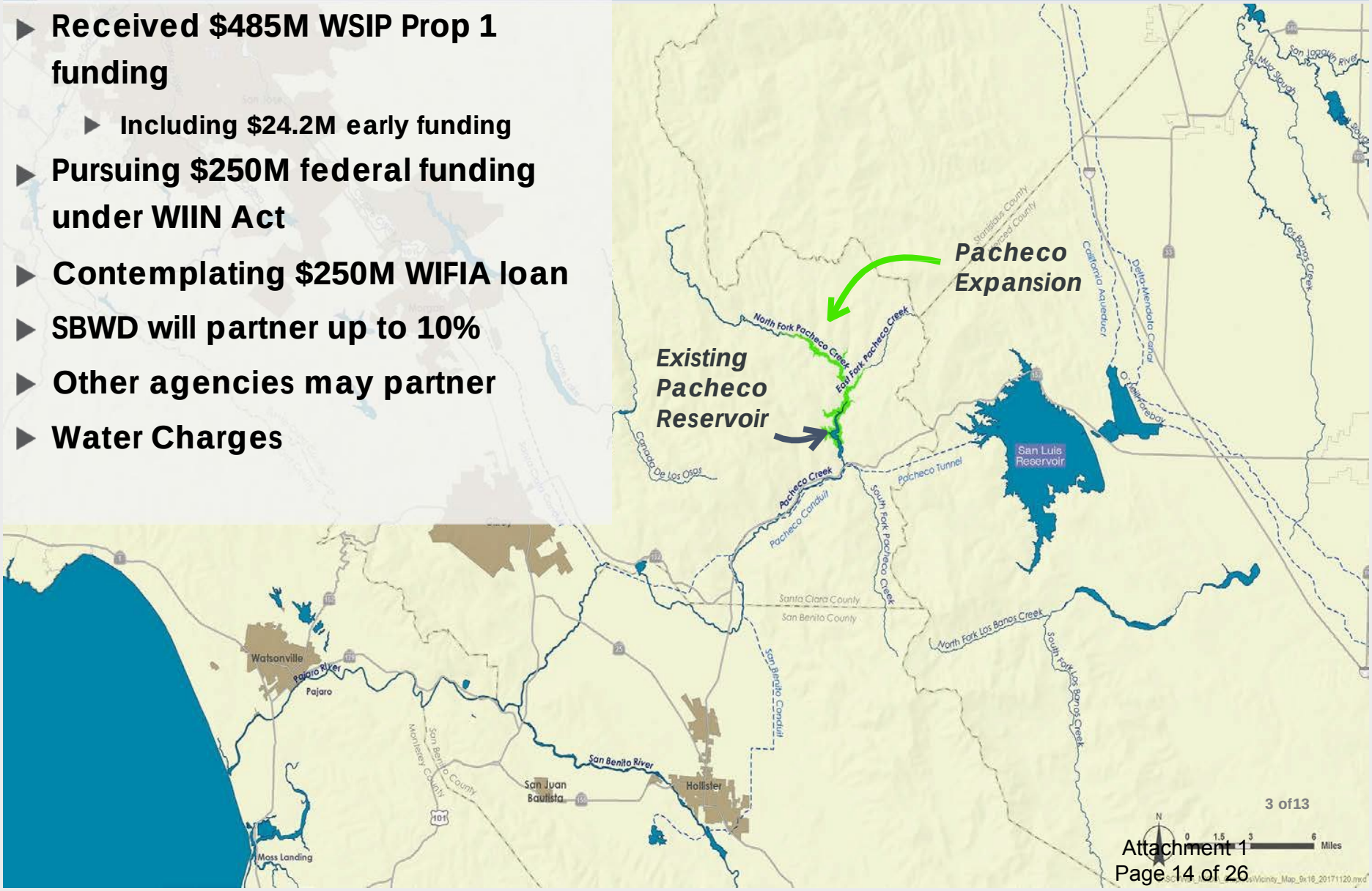

**O&M costs driven by California WaterFix & EPWP Water Services Agreement**

**Capital costs driven by Dam Seismic Retrofits, Rinconada WTP, & EPWP**

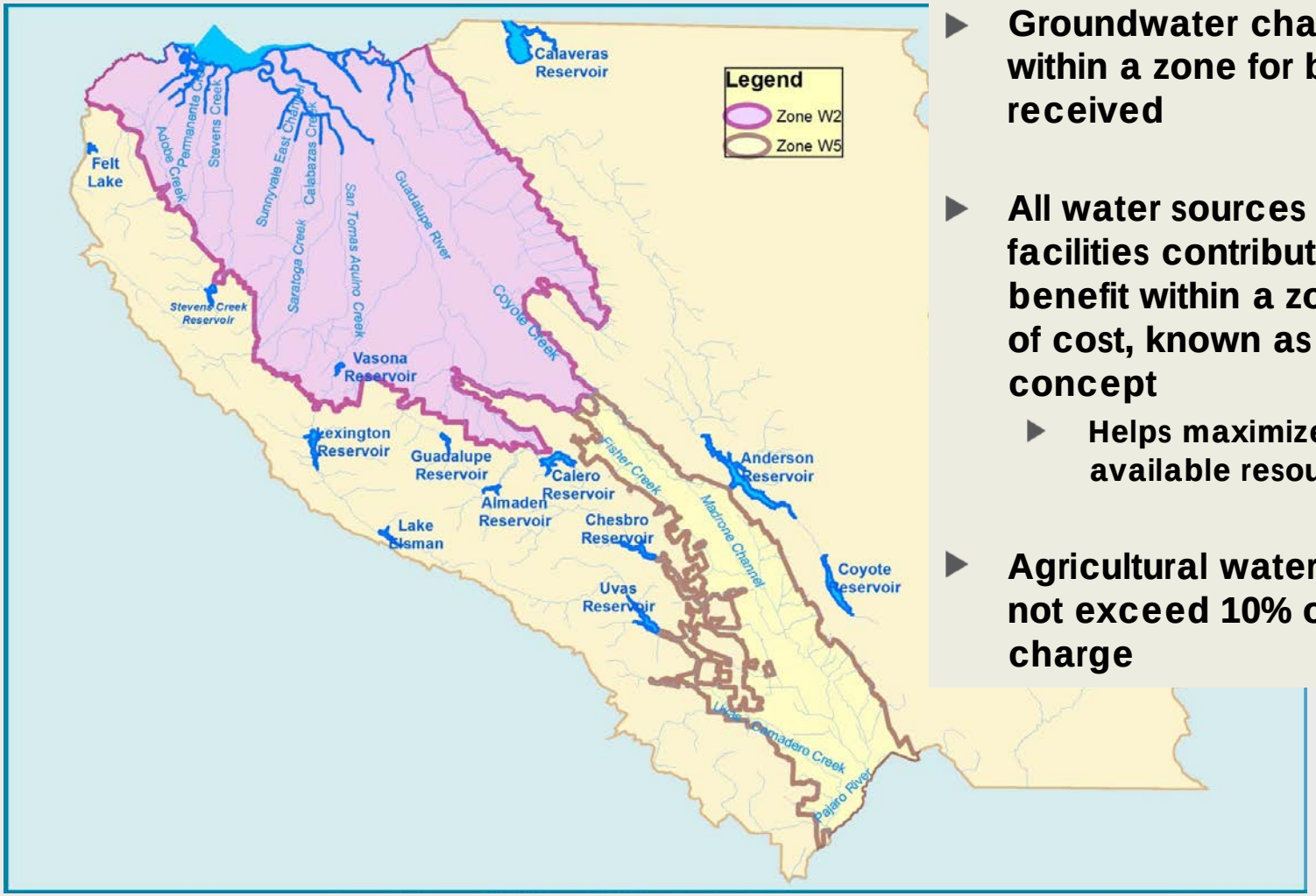
**Note: This projection does not account for impacts associated with the Bay Delta Water Quality Control Plan or Pacheco Reservoir Expansion**

# Pacheco Reservoir Expansion Funding Strategy

- Received $485M WSIP Prop 1 funding
  - Including $24.2M early funding
- Pursuing $250M federal funding under WIIN Act
- Contemplating $250M WIFIA loan
- SBWD will partner up to 10%
- Other agencies may partner
- Water Charges



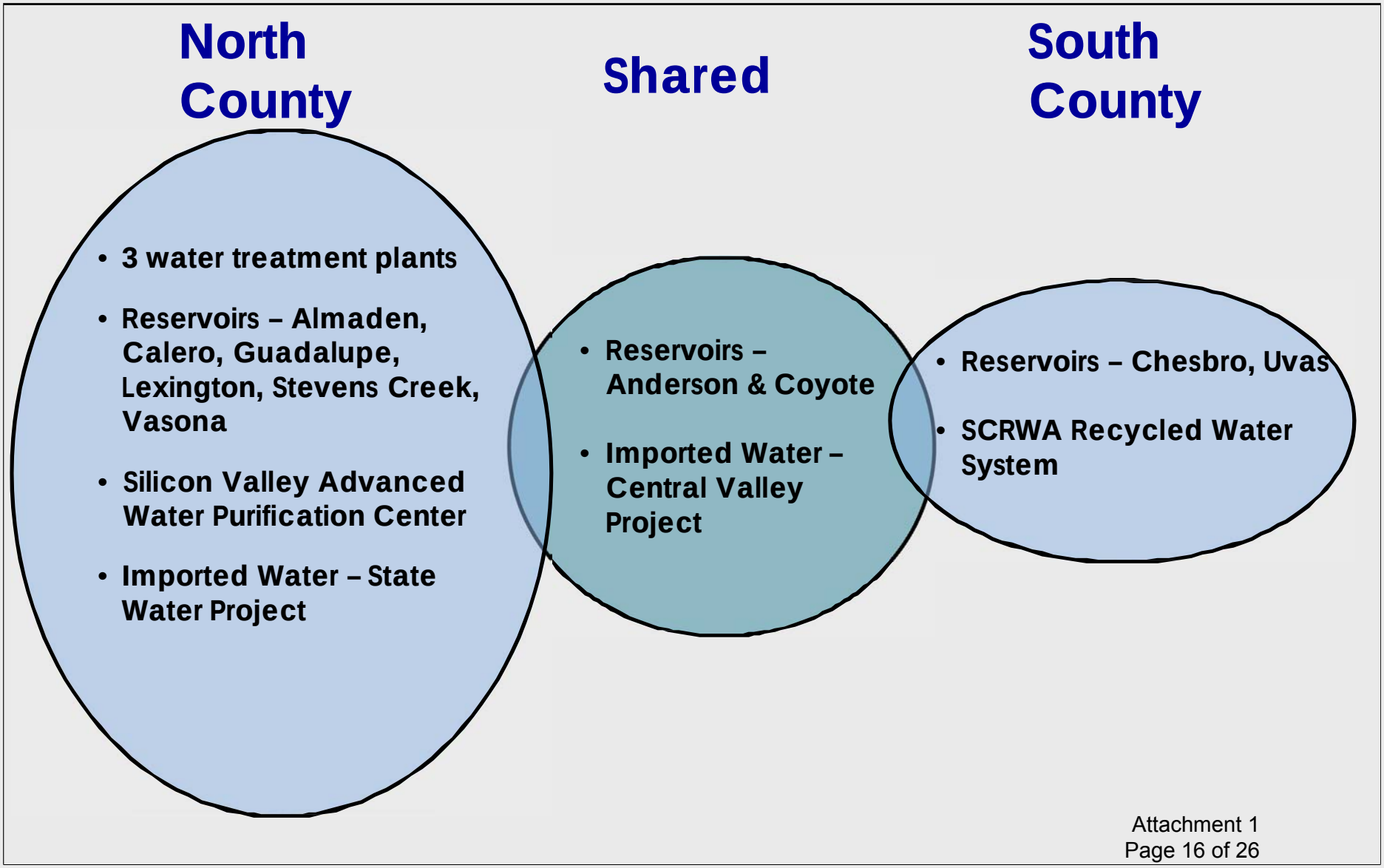
# Resolution 99-21 is the Board's Pricing Policy



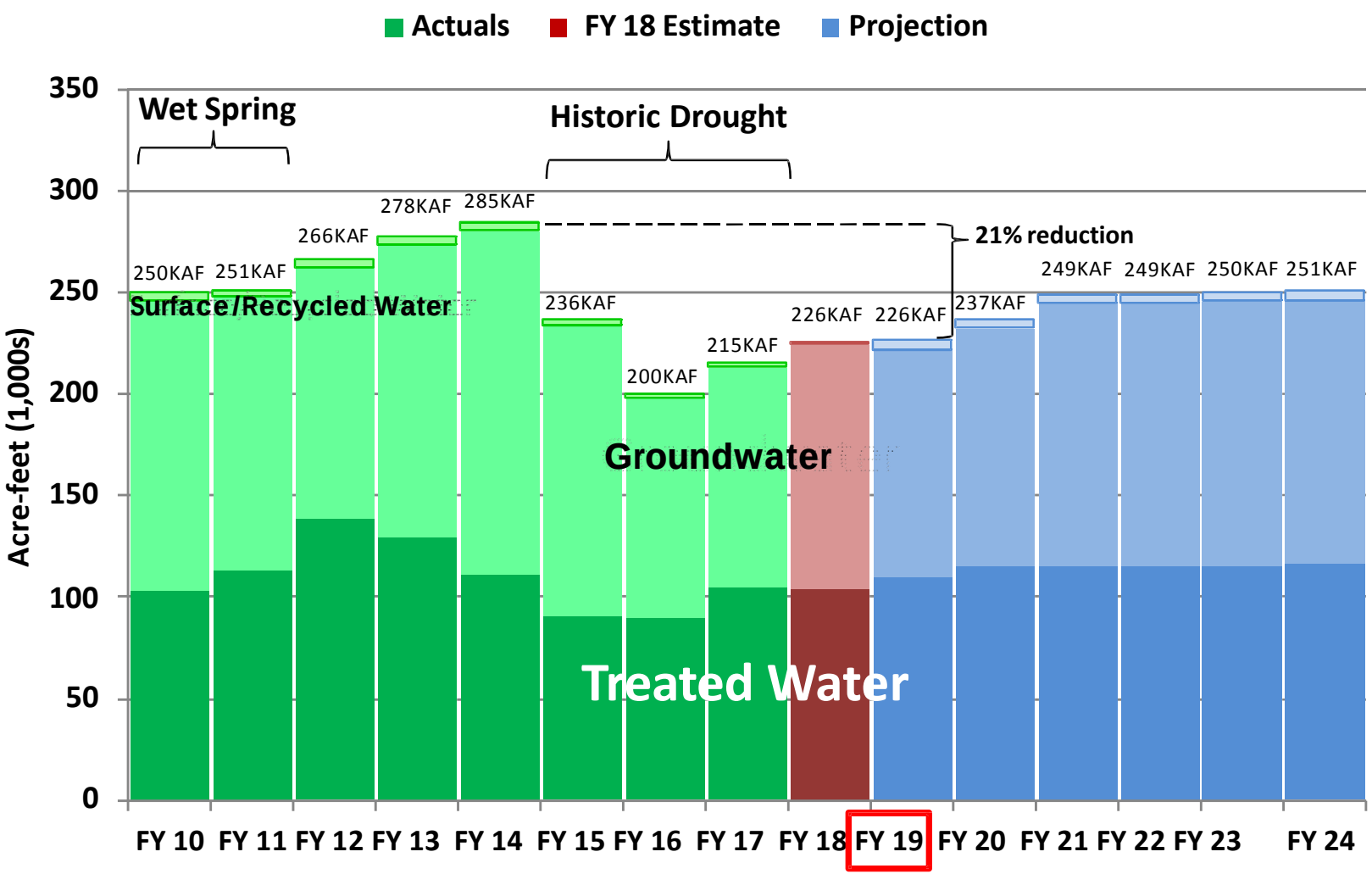

- **Groundwater charges are levied within a zone for benefits received**
- **All water sources and water facilities contribute to common benefit within a zone regardless of cost, known as "pooling" concept**
  - **Helps maximize effective use of available resources**
- **Agricultural water charge shall not exceed 10% of M&I water charge**

**Zone of Benefit Study in progress**

# Infrastructure differences drive different groundwater production charges in each zone



# Water Usage (District Managed)




Note: FY 17 refers to fiscal year 2016-17

# FY 2019-2020 Schedule (Tentative)

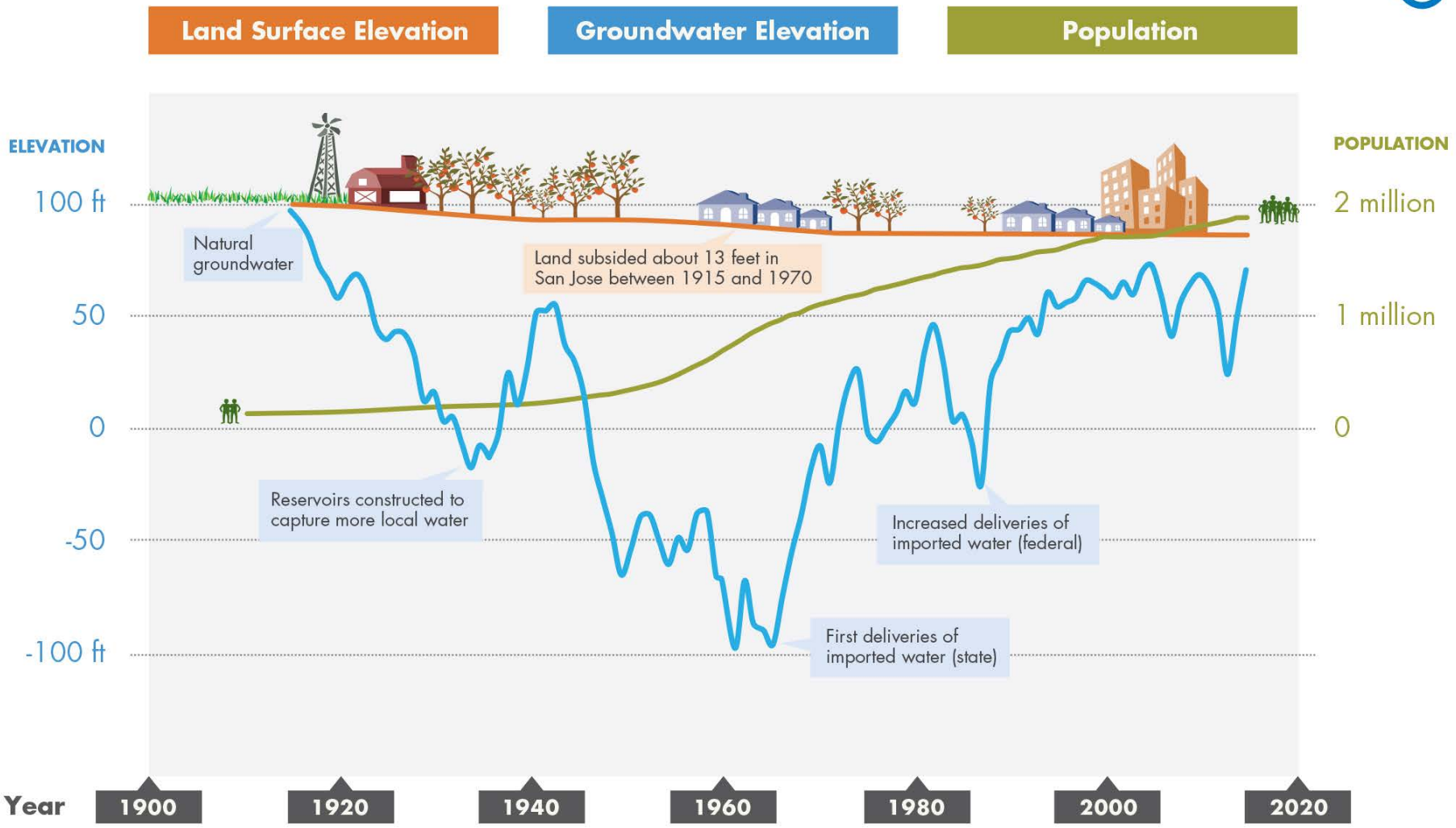
| | |
|---|---|
| Jan 8 | Board Meeting: Preliminary Groundwater Charge Analysis |
| Jan 16 | Water Retailers Meeting: Preliminary Groundwater Charge Analysis |
| Jan 23 | Water Commission Meeting: Prelim Groundwater Charge Analysis |
| Feb 12 | Board Meeting: Review draft CIP & Budget development update |
| Feb 22 | Mail notice of public hearing and file PAWS report |
| Mar 20 | Water Retailers Meeting: FY 19 Groundwater Charge Recommendation |
| Apr 1 | Ag Water Advisory Committee |
| Apr 2 | Landscape Committee Meeting |
| Apr 9 | Open Public Hearing |
| Apr 10 | Water Commission Meeting |
| Apr 11 | Continue Public Hearing in South County |
| Apr 23 | Conclude Public Hearing |
| Apr 24-26 | Board Meeting: Budget work study session |
| May 14 | Adopt budget & groundwater production and other water charges |

# Backup Slides

# SANTA CLARA COUNTY GROUNDWATER AT-A-GLANCE

*a graphic representation not intended as a technical exhibit*

Santa Clara Valley Water District

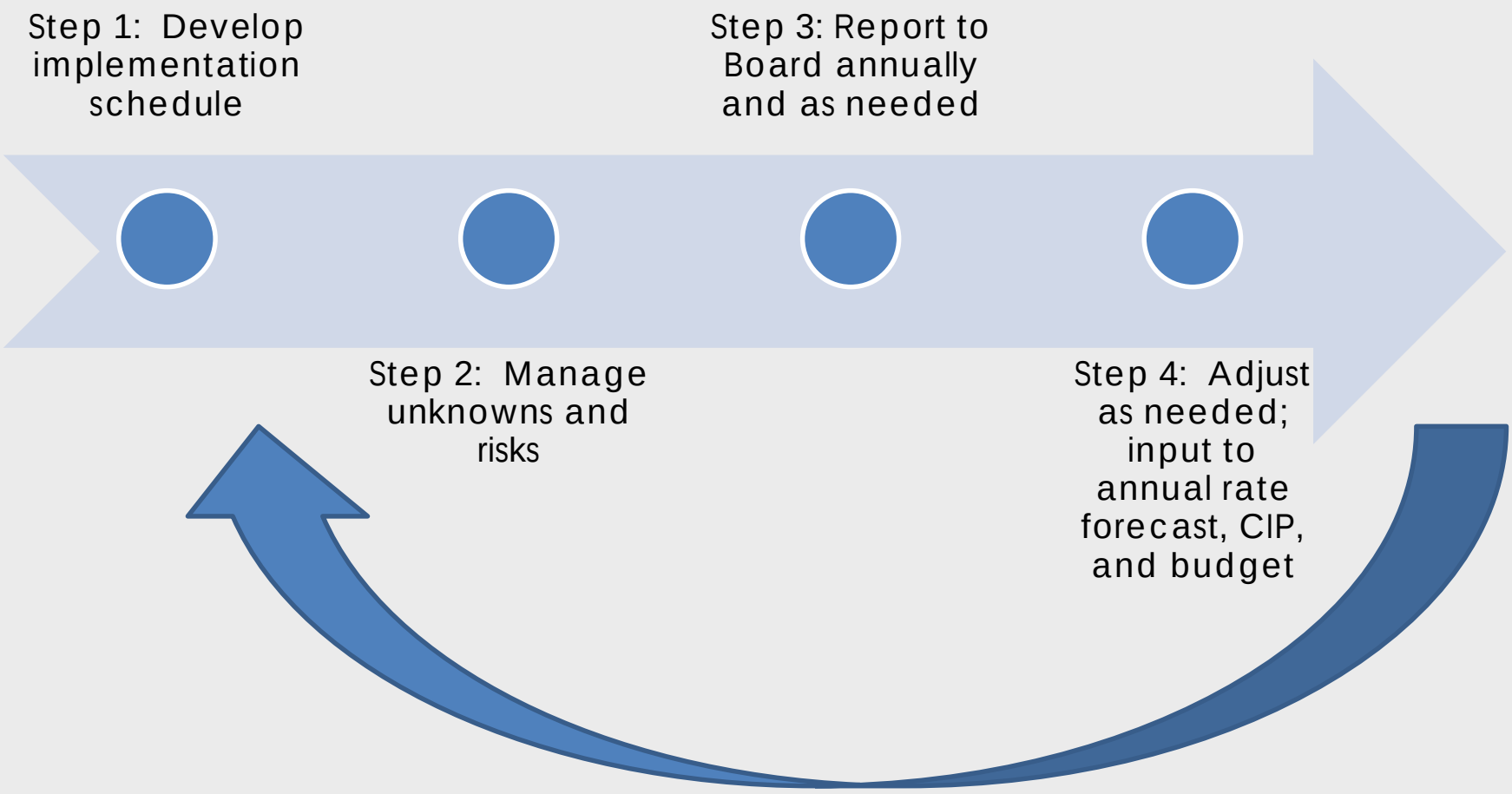



Last updated January 27, 2017

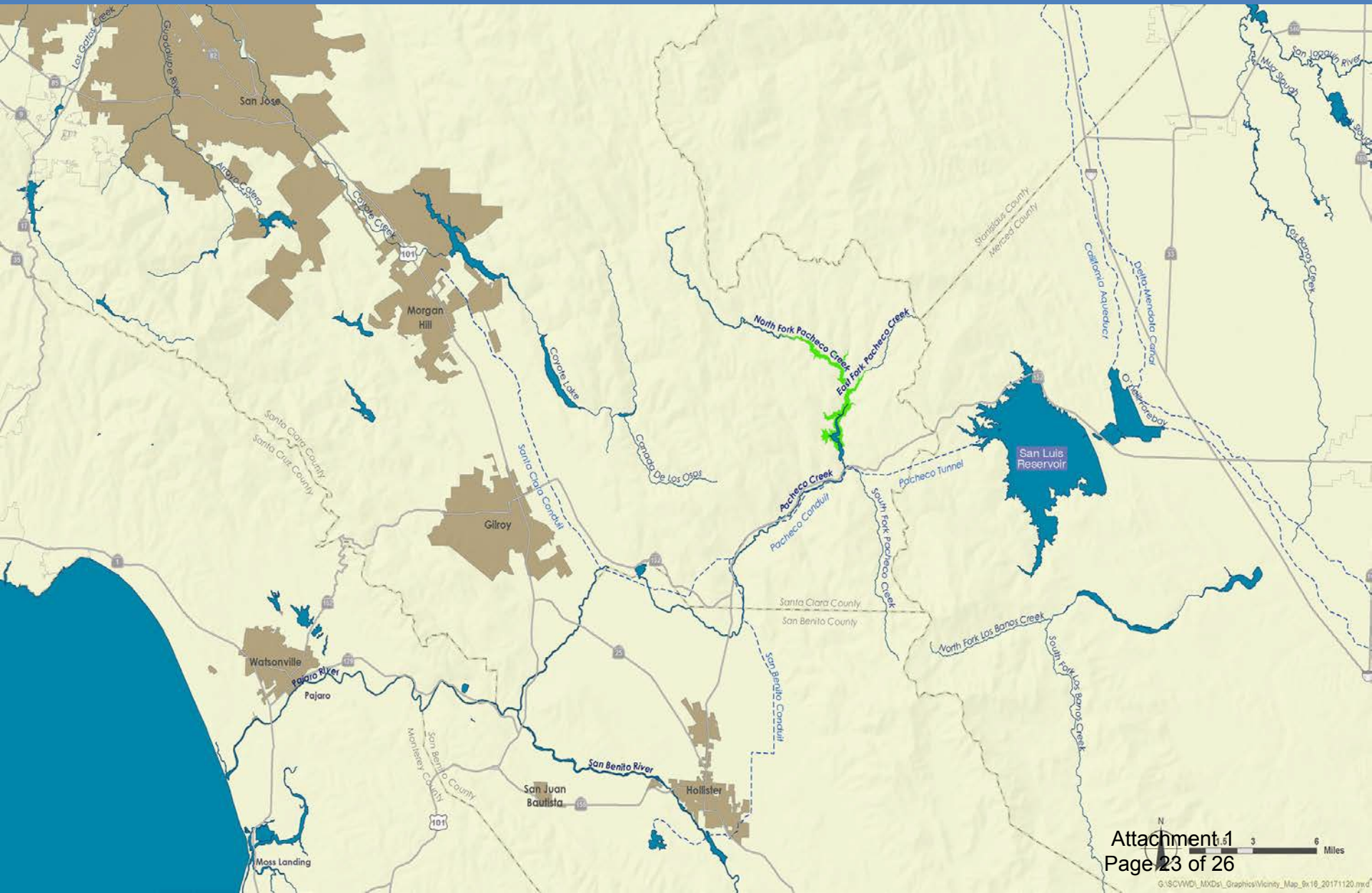
# Suggested Projects Achieve Recommended Level of Service Goal

| Scenario | Base Case | With Some Suggested Master Plan Projects | With All Suggested Master Plan Projects |
|---|---|---|---|
| **Minimum Drought Reliability** | Meets 50% of demands | Meets 80% of demands | Meets 90% of demands |
| **Present Value Benefits (2017$)** | Not applicable | $2,480,000,000 | $2,700,000,000 |
| **Present Value Cost to District (2017$)** | Not applicable | $1,600,000,000 | $2,450,000,000 |
| **Benefit:Cost Ratio** | Not applicable | 1.6 | 1.1 |
| | • Baseline Projects | • Baseline Projects<br>• No Regrets Package<br>• Potable Reuse<br>• South County Recharge<br>• CWF (State Side) | • Baseline Projects<br>• No Regrets Package<br>• Potable Reuse<br>• South County Recharge<br>• CWF (State Side)<br>• CWF (Federal Side)<br>• Pacheco<br>• Transfer-Bethany Pipeline |

# RoadMAP (Monitoring & Assessment Plan)



# Pacheco Reservoir Expansion Project Location



# Anderson Dam Project Update

Current Project Efforts:

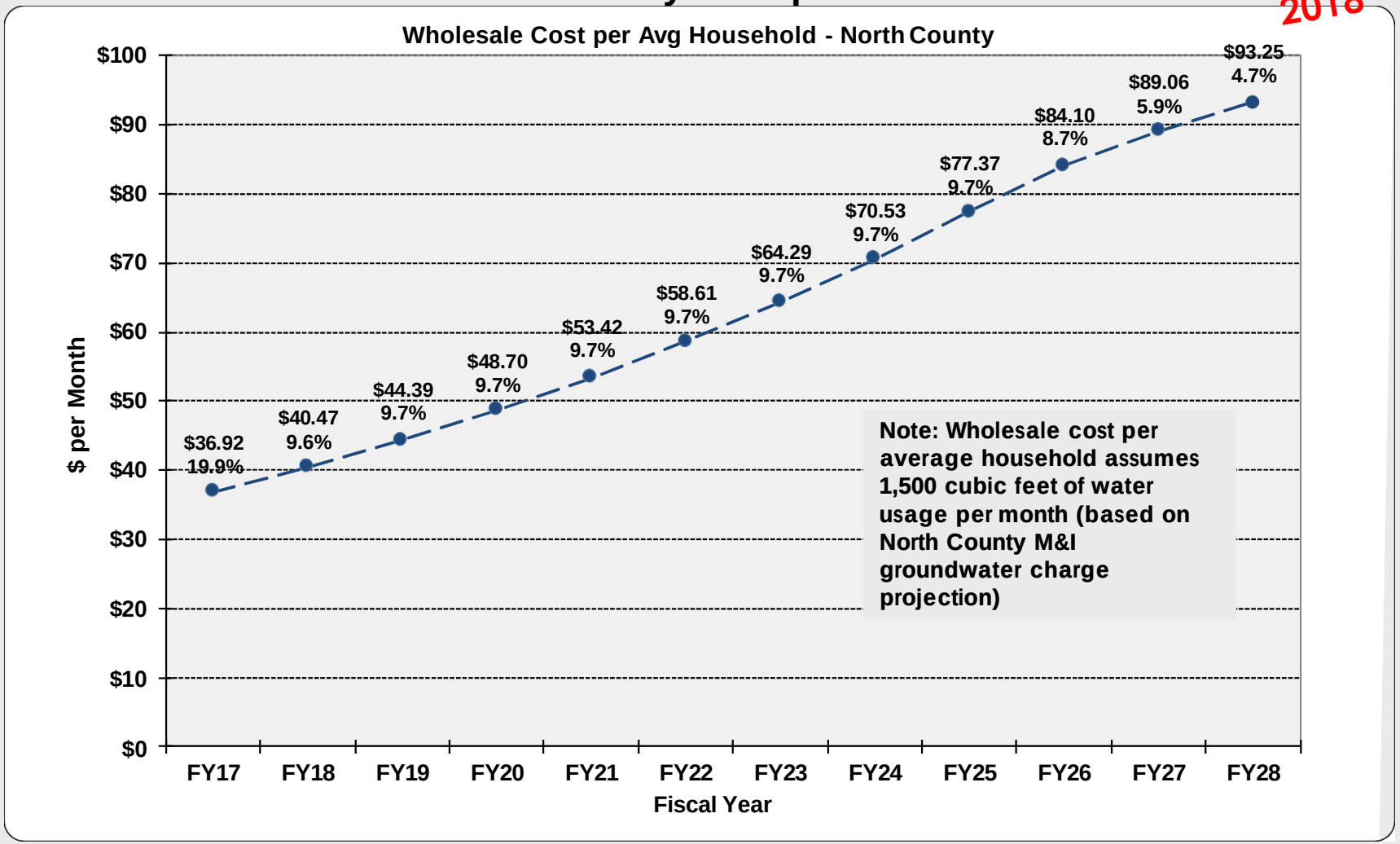
- 60% Design completed; under review
- Geotechnical investigations for spillway replacement
- Preparation of environmental and permit documents
- Full court press on permitting process.

# Groundwater Production Charge Projection

**($ in millions)**

## Water Utility Enterprise Fund

As of May 2018




**Note: This projection does not account for impacts associated with the Bay Delta Water Quality Control Plan or Pacheco Reservoir Expansion**

# District Act Defines Purposes for Groundwater Charges

1

**Imported Water Facilities**

2

**Imported Water Purchases**

3

**All Facilities which will "conserve or distribute water including facilities for groundwater recharge, surface distribution, and purification and treatment"**

4

**Debt**