Expedited Purified Water Program Work Study Session: *Water Agency Perspectives on Project Delivery Methods*

March 27, 2017 Board Meeting

Santa Clara Valley Water District

Purified Water Program Delivery

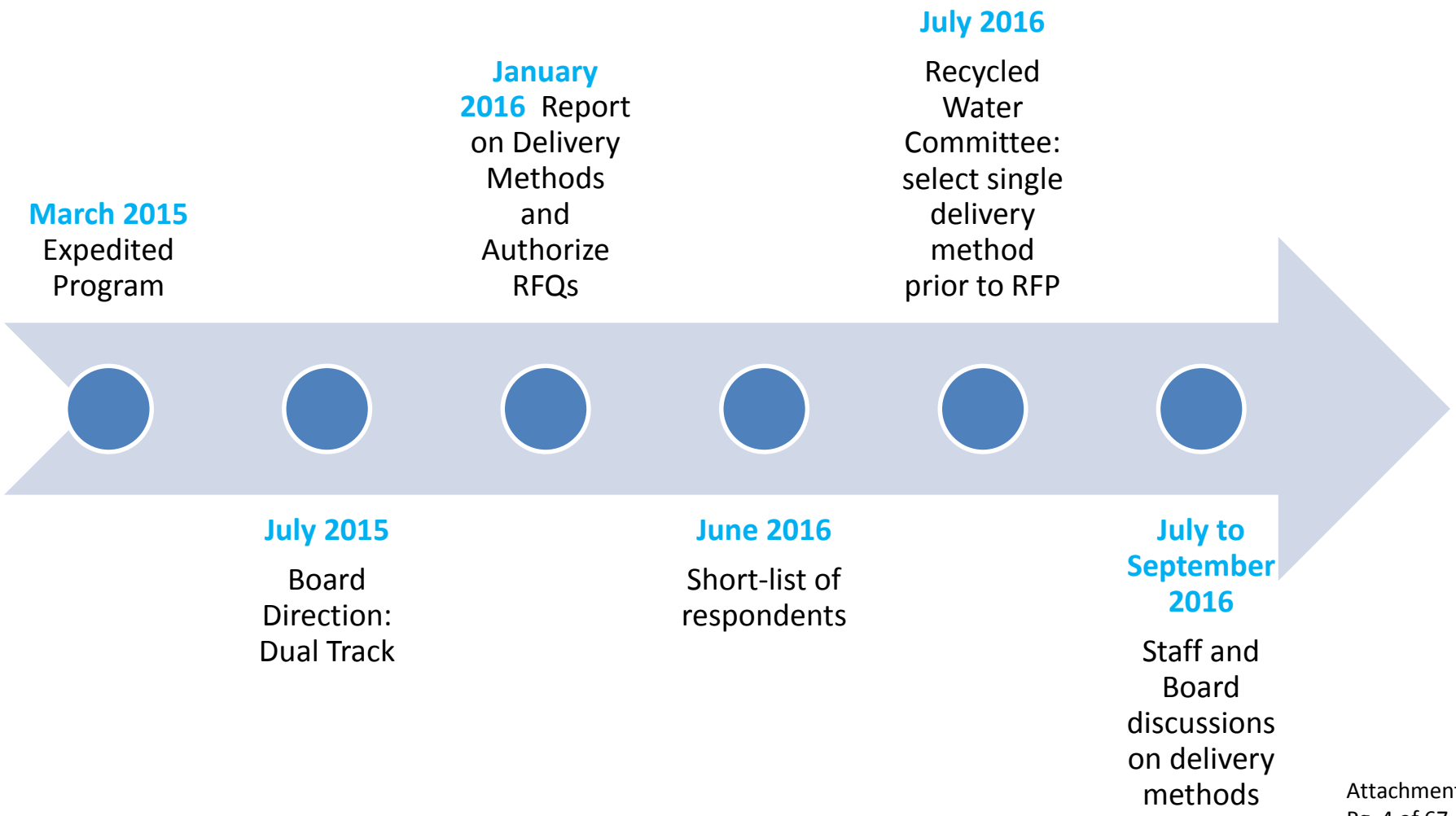
Two Alternative Delivery Methods under Consideration

1. Progressive Design-Build (PDB) and Public-Private Partnership (P3) project delivery methods represent departures from the District's historical design-bid-build approach.
2. Identified for their ability to deliver the Program faster, transfer project risks, and reduce costs.
3. Selecting one method prior to releasing Request for Proposals is highly recommended.

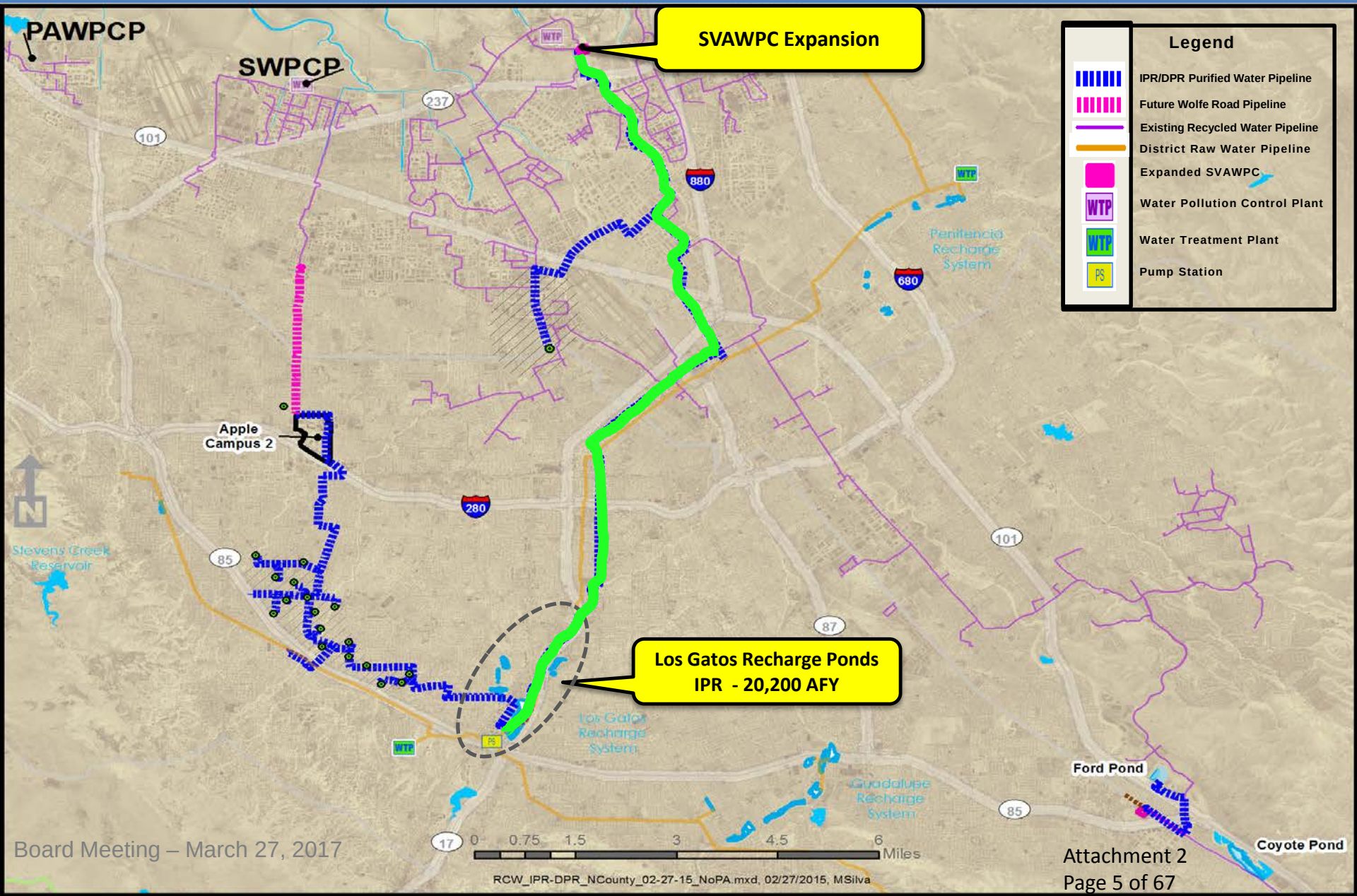
Work Study Session Objectives

- Provide other public agency perspectives on project delivery methods.
- Provide context on the issues, strengths, and constraints that have led each agency to select various delivery methods.
- Agencies' lessons learned and future directions.
- Allow for Board deliberation on choice of delivery method for Purified Water Program.

History of Program Procurement Discussion



RFQ Components – 24,000 AFY



Progressive Design-Build (PDB)

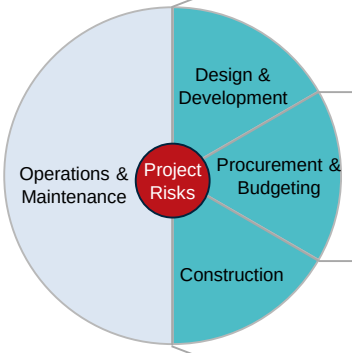
Advantages

- Compressed
- Cost analysis of options available as project progresses; opportunities for value-engineering
- Transfer of cost and schedule risk to contractor
- Maximizes owner flexibility, involvement and system control

Disadvantages

- Cost for construction not known at the time of initial contract signing
- Cost is determined through combination of negotiated and competitive processes
- Asset life-cycle maintenance not addressed

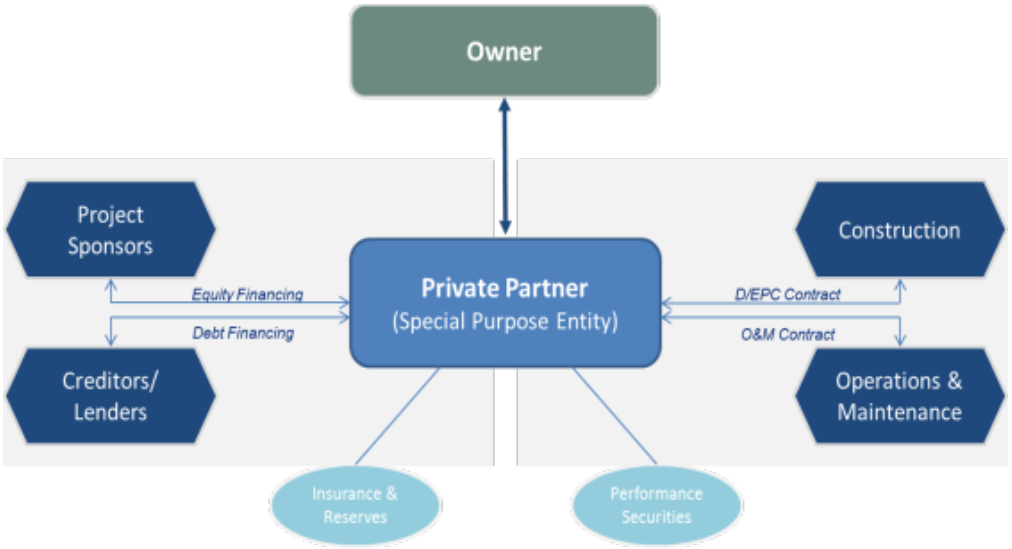
Risk Considerations



- **Design Risk (low) –** Single design-builder maintains responsibility for designs throughout process, with input from owner at various design levels.
- **Schedule delay risk (low) –** Risk of schedule delays shared between owner and Design-Builder through incentive structure
- **Procurement risk (low)** – Mitigated due to single procurement and increased competition driven by low preparation costs.
- **Budgetary risk (low) –C**ost certainty through Guaranteed Maximum Price and off-ramp.
- **Interface risk (low) –** Risk of integrating design and construction transferred to design builder.
- **Integration risk** (low) – Risk of integrating works within District system low, as District retains operation and control of entire system.

Design-Build-Finance-Operate-Maintain

- DBFOM is a long-term contract between a public agency and a “private partner” for the design, construction, financing, operation and/or maintenance of an infrastructure facility.
- Terms and conditions of agreement can vary greatly and will define scope of responsibilities, as well as level of risk transfer to private partner.
- Addresses life-cycle needs of the asset.
- Significant (not total) cost, schedule and performance risk transfer to private partner. District does retain significant risk, as well as contingent liabilities.
- District’s proposed approach (introducing a “progressive” element into the DBFOM) is innovative, but not industry standard.



September 20, 2016 Staff Recommendation

Progressive Design-Build recommended because:

- Simplified contract negotiations.
- District remains a “doer” rather than becoming a “regulator.”
- Given real-time and seasonal operational uncertainties, there is value in retaining control of system integration.
- District leverages and deepens core competencies.
- Full flexibility in managing county’s water supply.
- Key cost risks (construction, financing, O&M) can be managed.

Work Study Session Presenters

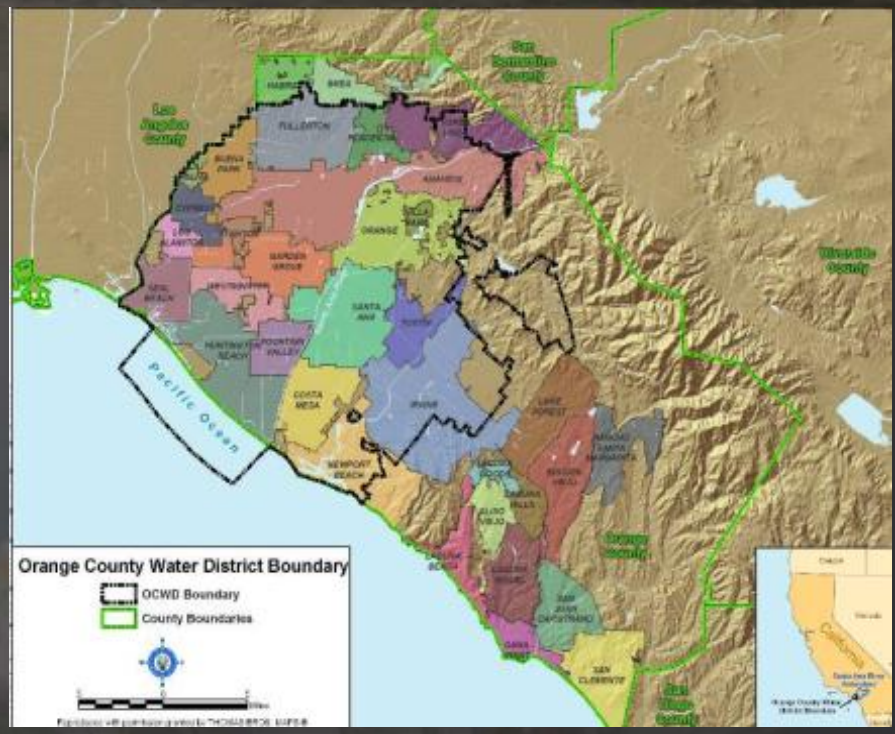
Name	Affiliation	Position
Mike Markus	Orange County Water District	General Manager
Ed Scott	City of Rialto	Mayor Pro Team
Ashwini Kanta	City of San Jose	Assistant Director – Environmental Services
Bob Granberg	City of Stockton	Assistant Director – Utilities

Presentations

- What project delivery methods considered?
- Rationale for choices
- Different choices in future?
- Lessons learned

ORANGE COUNTY WATER DISTRICT (OCWD)

- Formed in 1933 by an act of the California legislature to manage the OC Groundwater Basin and protect OC's rights to the Santa Ana River.
- OCWD provides groundwater to 19 municipal and special water districts that serve 2.4 million customers in north and central Orange County.
- Groundwater provides 75% of the total water demands in the service area.



GOVERNANCE

- OCWD governed by a 10 person Board of Directors.
- 7 members directly elected by the public.
- 3 members appointed (Santa Ana, Anaheim & Fullerton).
- Non-adjudicated groundwater basin.
- Each year the Board sets the Basin Production Percentage (BPP) which is the amount of groundwater that can be pumped (as a percentage of total water demands).
- Each year the Board Replenishment Assessment (RA) and Basin Equity Assessment (BEA) for the cost of pumping groundwater.
- Policy decisions are driven by providing water supply reliability for our service area at the highest quality and lowest cost.

THE GROUNDWATER REPLENISHMENT SYSTEM (GWRS)

- 100 million gallon per day (MGD) advanced water purification facility.
- Takes sewer water that otherwise would be discharged to the ocean, purifies it to near distilled quality and then recharges it into the groundwater basin.
- Provides a new 103,000 acre-feet per year (afy) source of water, which is enough water for nearly 850,000 people.
- Operational since January 2008 (70 MGD) expanded May 2015 (30 MGD)
- Largest potable reuse project in the world.

FINANCES

- **Credit ratings**
  - **Standard & Poor's – AAA; Fitch – AAA; Moody's – Aa1.**
- **Reserves**
  - **Total Reserves of $154.4 million – Refurbishment & Replacement ($54.4 million), PAYGO ($22.5 million), Operating ($35.5 million), Cleanup & Contingency ($7.0 million), SRF Loan ($9.5 million) & Restricted ($25.5 million).**
  - **Cash on Hand – 507 days, Coverage Ratio – 3.1**
- **Debt**
  - **Total Debt of $544.8 million – Fixed rate COP's ($179.0 million), Variable rate COP's ($ 130.0 million), State Revolving Fund fixed rate ($219.0 million), Commercial Paper ($16.8 million).**

FINANCING OF PROJECTS

- Original issuances of fixed and variable rate Certificates of Participation (COP's)
  - Fixed interest rate 5% over 30 year term.
  - Variable interest rate is currently 0.6% with a weekly reset.
- State Revolving Fund (SRF) loans
  - Fixed interest rate between 1.8% - 2.6% over 20 year term.
  - Program has been modified to allow for 30 year term.
- Would only seek private financing if we lacked the financial wherewithal.

OPERATIONS AND MAINTENANCE

- Operations and maintenance (O&M) capabilities
  - Staff fully operates our 100 mgd facility.
  - Provide operators on a 24 hour basis with maintenance, instrumentation and electrical support during a standard workweek (on-call support for off hours).
- Employees are unionized through the Orange County Employees Association (OCEA).
- Board evaluated outsourcing, but study showed staff could perform as economically
  - Over an 8 year period our O&M costs been flat.
  - Control costs through direct access and demand response programs on the electrical side.

PROJECT DELIVERY

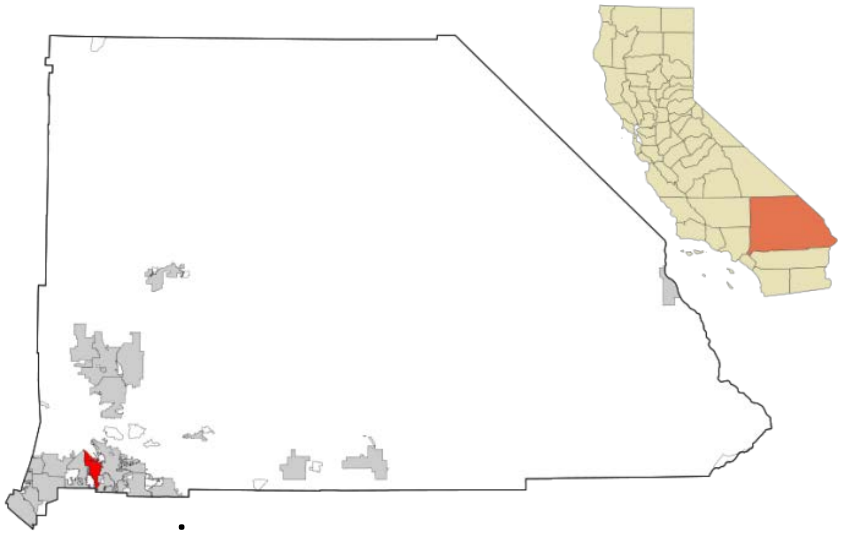
- Sole project delivery system has been Design-Bid-Build
  - Allows control of the design & materials of construction.
  - Historically good cost control with average change order rate of 3.8% contract cost.
  - Utilized pre-selection of major equipment (MF & UV) through pilot testing and life cycle cost proposal. Then assigned the contract to the construction contractor.
  - Key to success is developing a cooperative project team.
- Design-Build primary advantage is shorter schedule, but the owner does give up some control of design & materials.

LESSONS LEARNED

- Design-Bid-Build gives control to the Owner.
- Pre-selection of equipment helps lock-in price and allow for competitive proposals (It also helps the design consultant).
- Multiple benefits for Owner operations
  - More control over costs.
    - Potential for energy savings though demand access rates or demand response programs.
    - Ability to buy chemicals directly and in bulk.
  - More public trust.
- Public agencies have access to lower cost of capital through tax free bonds or SRF loans.

Background – Rialto, CA and Rialto Utility Authority

- City of Rialto
  - Population: 100,000
  - Median household income: $51,499 in 2010
  - Budgeted General Fund revenue: $58.6M in FY14
  - Major employers: school district, distribution centers, manufacturing, services



- Rialto Utility Authority (RUA)
  - Water service to 50k City residents (12k connections)
  - Wastewater service to entire City plus outside customers (20.4k connections; 100k customers)
  - Budgeted revenue of approximately $37M in FY14

Background

- Owned by the City, leased to RUA
- RUA obligated to make lease payments based on system fair market value
- Moderately integrated with surrounding systems
- Infrastructure aging with significant deferred maintenance & capital improvement needs
- Sources impacted by perchlorate, requiring water purchase from other systems

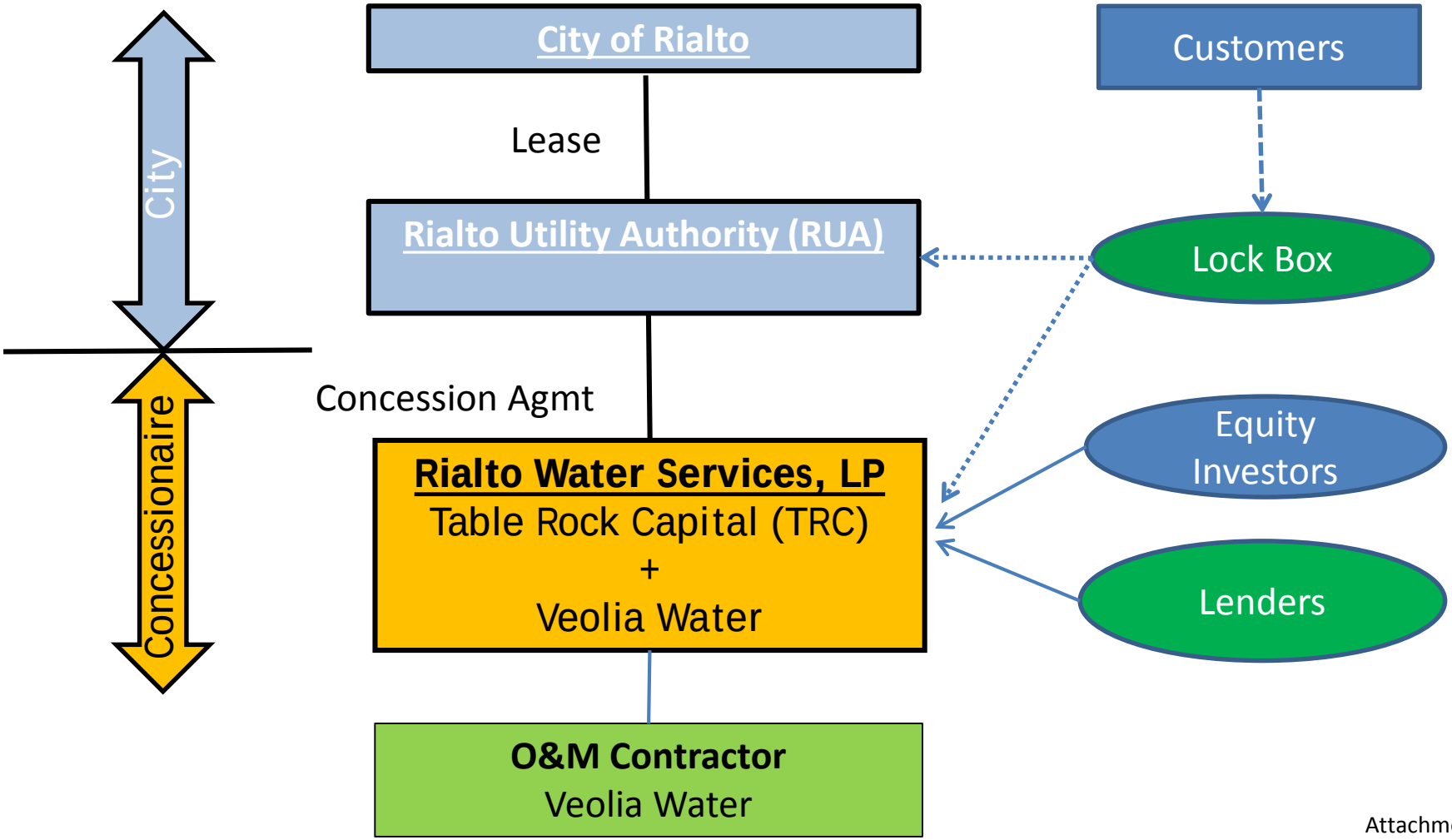
Public-Private Partnership (PPP) Transaction Drivers

- Unfunded Projects and Unfunded Liabilities
  - Unfunded projects to accommodate growth
  - Unfunded pension liabilities and other long-term costs
- Tight Budgets
  - Retirement pension cost strained the budget and posed long term negative rate impacts
- Project Delivery
  - Critical projects had historically been deferred due to lack of funding
  - Delays put the City at risk of higher construction cost over time
- Aging Infrastructure
  - Water and wastewater infrastructure challenges
  - Delays in replacements increased maintenance costs

PPP Transaction Objectives

- Desire to retain ownership
- Transfer as much risk as is reasonable (e.g., supply availability and wellhead treatment)
- Public Private Partnerships alternative considered
  - Concession Agreement
  - Qualified Management Contract
- Traditional Municipal vs. Private Financing
- Extensive community outreach was a priority
- After thorough evaluation, community outreach and labor negotiations, the City elected to move forward with a Concession Agreement

Rialto Transaction Structure



Key Elements of Deal

- 30-yr concession agreement to operate and maintain systems
- $42M capital improvement program
- $30M up front concession payment
- $2M per year contingent concession payment
- Financing provided by private bonds issued by Concessionaire
- Repayment of bonds are a fixed component of the service charge
- City pays concessionaire service charges based on amounts and formulas
- Service charges set with some automatic adjustments for inflation and periodic re-setting of certain components
- City council sets the rates for customers, subject to a rate covenant

Rialto Concession Arrangement Structure

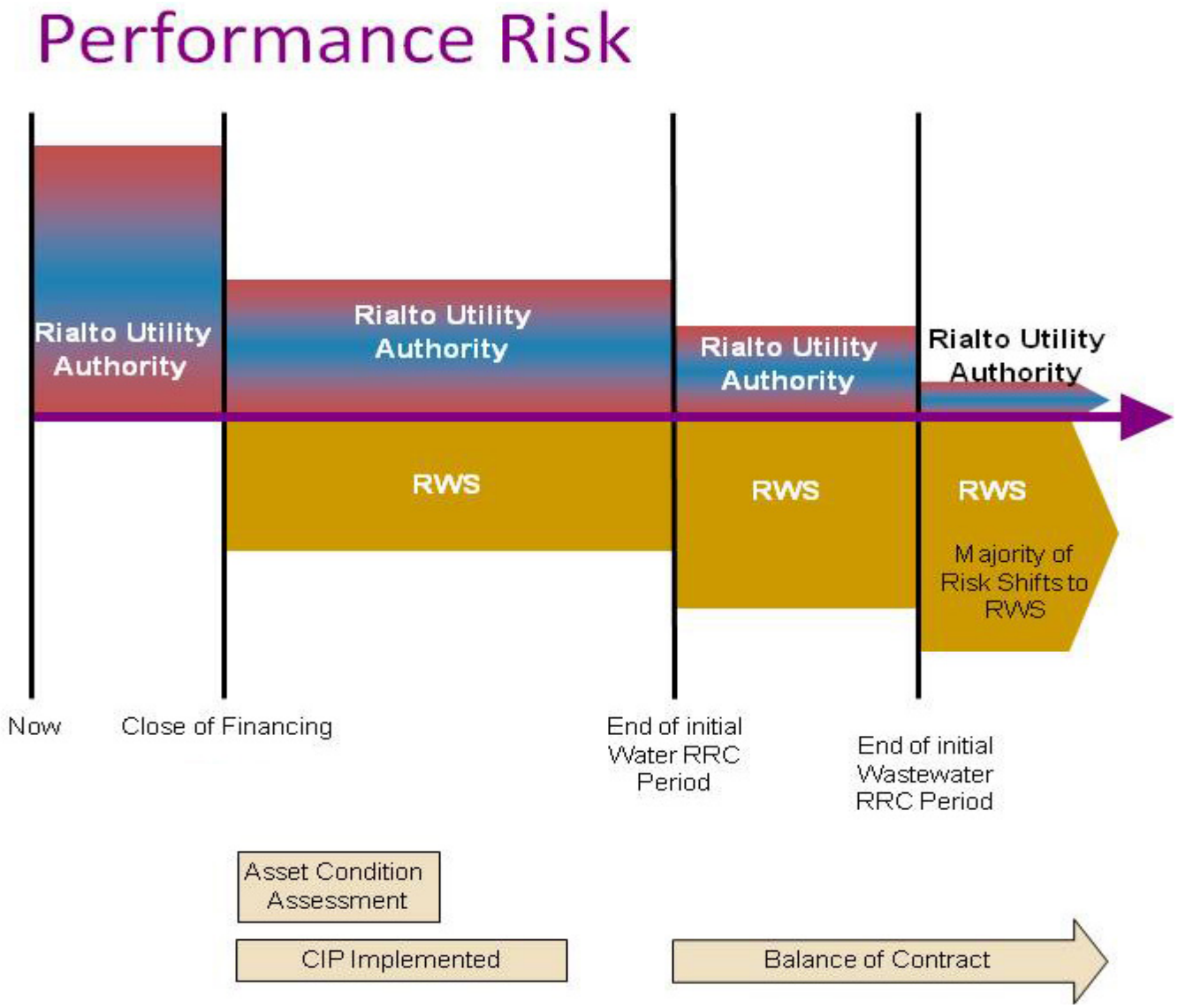
Rialto Utility Authority	Rialto Water Services, L.P. (RWS)	Contract between RWS and Veolia
Sets water/sewer rates in amounts sufficient to pay the Concessionaire Fee Defines and prioritizes capital improvements	30-year Concessionaire: ▪ Provides financing that conforms to a market standard financial security package ▪ Absorbs contracting and completion risk for the CIP ▪ Assumes long term O&M responsibility	30 year contract: ▪ Day-to-day operations and maintenance of facilities ▪ Billing and customer service ▪ Management of capital improvement projects ▪ Equipment repair and replacement

Structure delivers enhanced O&M and CIP management with an up-front payment, debt defeasance and capital improvement financing

Rialto Concession Arrangement Considerations

- Stakeholder communications
- Rate increase - cumulative 115% rate increase over 5 years
- No lease interest in any real property
  - Transaction structured as a Service Contract with access easements and licenses
- As-Is Risk – management & transfer
  - Maintenance vs. Repair, Replacement & Capital Project
- CIP definition & implementation risk transfer
- Existing O&M staff hired by Veolia

Rialto Concession Risk Transfer Over Time



Key Benefits of Transaction – 1 of 2

- Implementation of a much needed Capital Improvement Program (CIP)
- Contracting with a full service (O&M + CIP) vendor => more efficient method of operating, maintaining and upgrading facilities.
- CIP by a highly experienced team providing predictable costs and budgeting.
- Provides financial savings from reduced time and duplication in construction process.
- Savings associated with national purchasing power, economies of scale and increased operating efficiencies => passed along to the RUA through service fee calculations.

Key Benefits of Transaction – 2 of 2

- Implementation of an industry leading asset management and preventive and predictive maintenance program.
- 30-yr lease establishes long-term stability in rates.
- Vendor is responsible for paying performance damages if they fail to operate in accordance with applicable law.
- RUA benefits from energy savings related to power usage efficiencies.
- Performance risk transfer over time.

Significant / Potential Issues

- Ability to raise rates in the future to support contract charges
- Calif. Proposition 13
- Ability to fund future capital improvements
- Sharing of cost savings and guaranteed maximum consumption for electricity and chemicals
- Periodic re-setting of certain costs, e.g., labor and routine repair and replacement costs
- Incentives to maintain the condition of the system

Lessons Learned – Then

- City staff should be the external public face of the project
- Anticipating replacement of the operator prior to financial close
- Contract assurances to avoid CIP schedule delays
- Public vs. Private mentality – public service vs. profit
- Proprietary Information vs. public transparency – nature of two separate industries
- Attorney costs
- Successful PPP support is highly dependent on public communication effort

Lessons Learned – Now

- Gaps will exist that still are responsibility of agency and not covered in contract (e.g., conservation impacts).
- Implementation requires understanding the details of the agreements - don't underestimate the amount of effort required.
- Managing the entity requires resources: have hired on additional staff and relying less on consultants.

Alternate Project Delivery

Capital Improvement Program

March 27, 2017

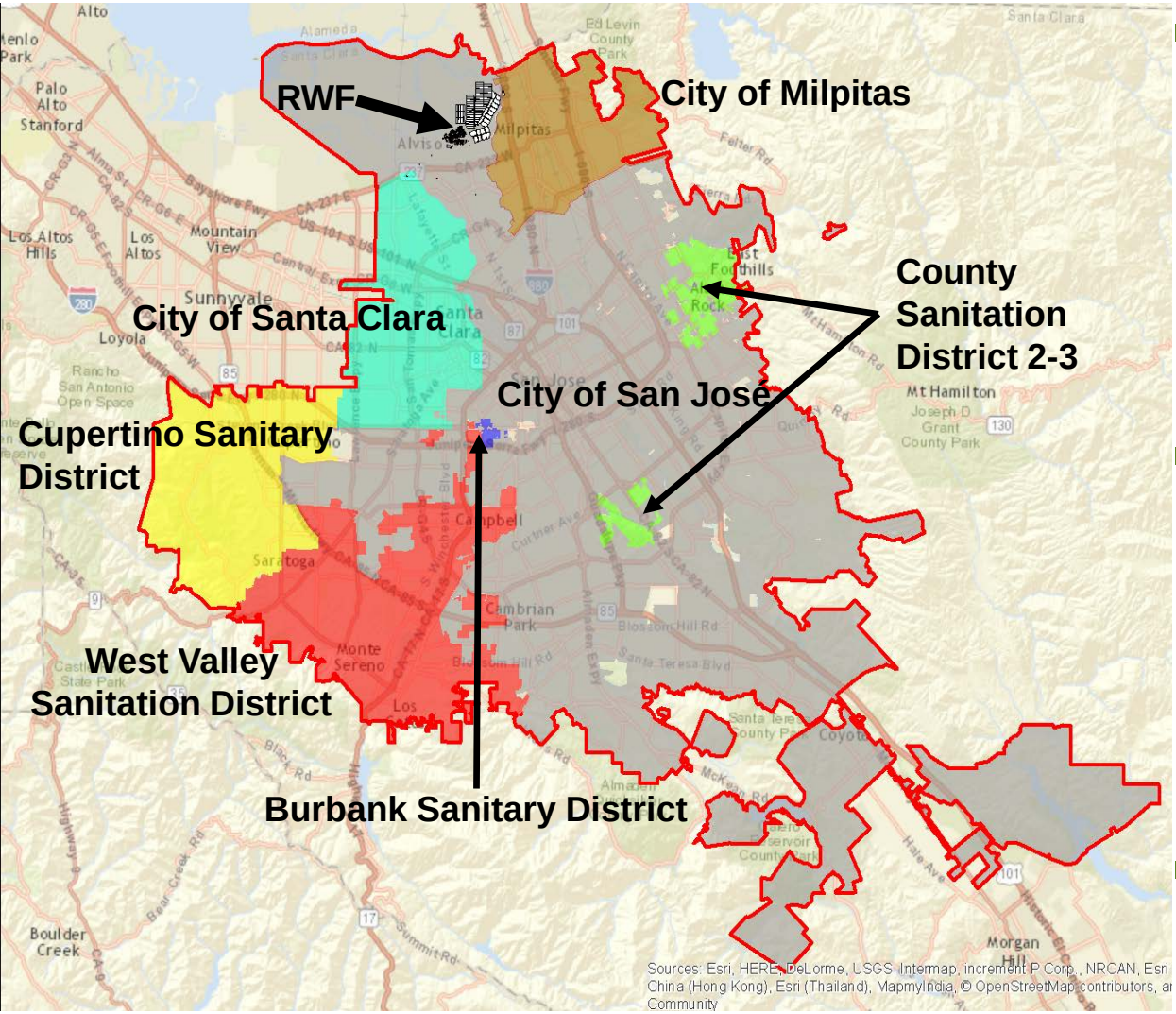
San José-Santa Clara Regional Wastewater Facility

Agenda

- Background
- Overview of Capital Improvement Program
- Alternative Project Delivery
- Q& A

Background

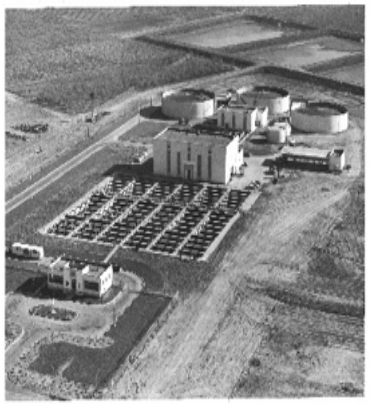
Regional Wastewater Facility



- Largest advanced wastewater facility on the West Coast
  - 167 MGD capacity
  - 2,600 acre site
- Serves
  - 1.4 million people
  - 17,000 businesses
  - 8 cities & County areas
- Continually operating 24/7 since 1956

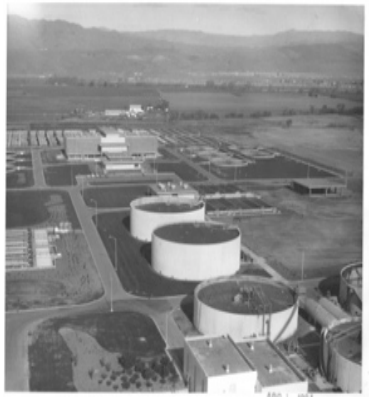
Historical Improvements

1956



Primary Treatment

1964



Secondary Treatment

1979

Tertiary / Advanced Treatment

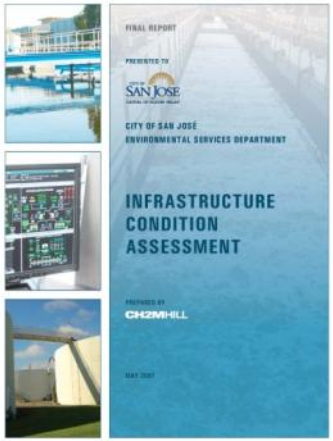
1997

Biological Nutrient Removal / South Bay Water Recycling

San José-Santa Clara Regional Wastewater Facility

Key Milestones

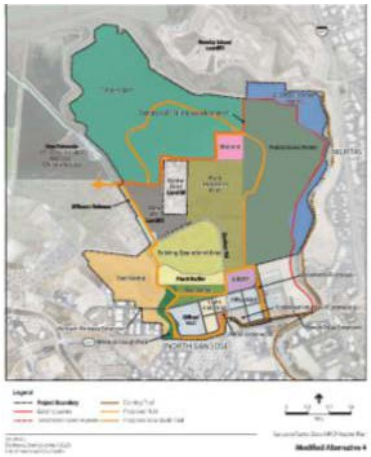
2007



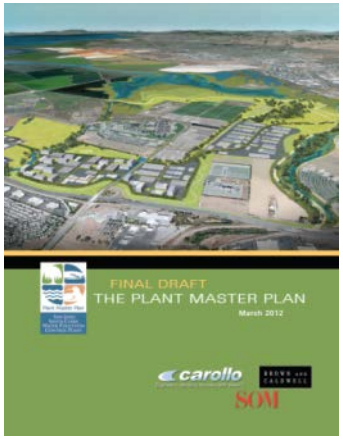
Infrastructure Condition Assessment Completed

2008

Planning Efforts Begin



2013



Environmental Review Documents Certified & Master Plan Adopted by Santa Clara & San José

2014

Current CIP Established & Project Needs Validated

San José-Santa Clara Regional Wastewater Facility

Capital Improvement Program

Capital Improvement Program

CIP PROGRAM MISSION

Rebuild and revitalize the Regional Wastewater Facility and deliver the CIP on time and within budget.

CIP Program

$1.4B Program

10 YEAR CIP Program

9 Plant-Wide Studies

57 Projects

50-100 CIP Program Staff

6 City Departments

50+ Year-Old Infrastructure

1 Mission **1** Vision **1** Team

4 Sanitation Districts Served

8 Cities Served

180 Acre Operational Area

2,600 Acre Site

110 MGD Treated

1.4 M Residential Customers

17,000 Commercial Connections

To deliver a world class facility that successfully serves the region.

CIP PROGRAM VISION

Effective Project Delivery

People

- Integrated Project Delivery Team
- Experienced Designers and Subject Matter Experts

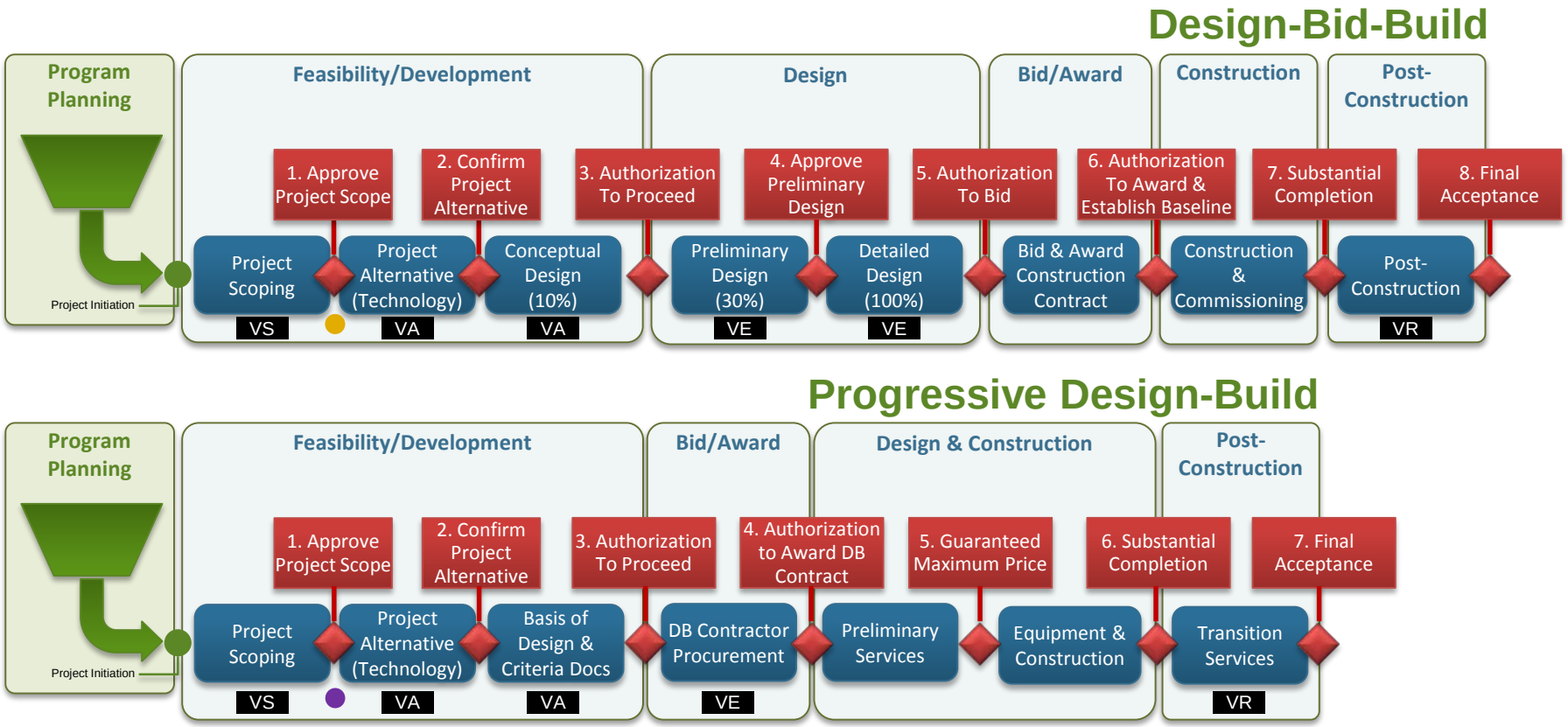
Systems and Processes

- Project Delivery Model
- Structure to Enable Collaboration and Decision Making
- Streamlined Procurement of Services

Tools

- Tools for Collaboration and Document Management
- Appropriate Project Delivery Method

Project Delivery Model



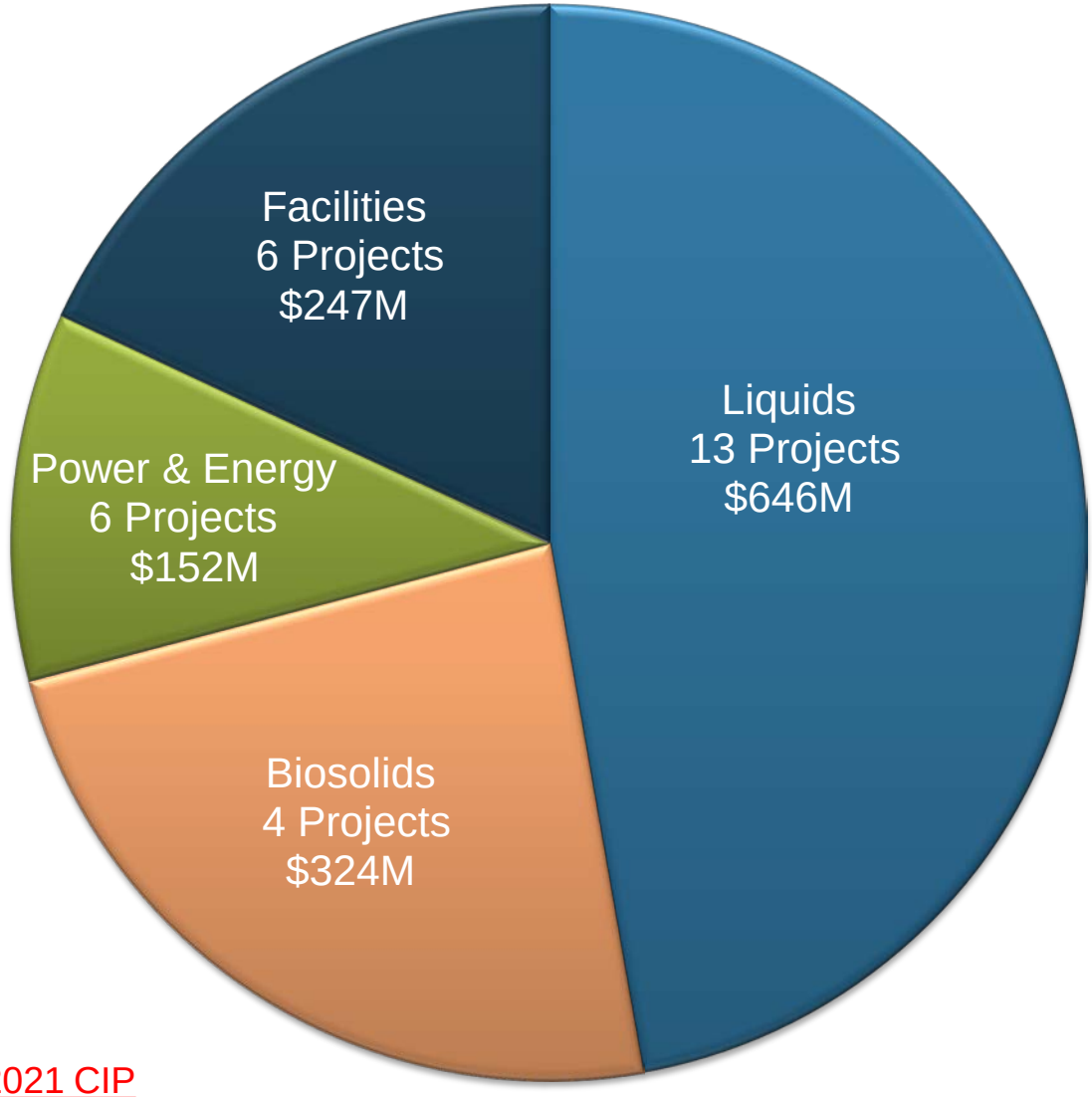
Key

- Stage Gates
- Stages
- Design Engineer Procurement
- Owner's Advisor Procurement

VS Value Scoping
VA Value Analysis
VE Value Engineering
VR Value Review

San José-Santa Clara Regional Wastewater Facility

Projects Organized Into Four Packages



Source: Adopted 2017-2021 CIP

San José-Santa Clara Regional Wastewater Facility

Alternate Project Delivery

Contracting Regulations

City of San José	State of California
City Charter requires **low bid selection** for projects valued more than **$100,000** Municipal Code requires a **pre-qualification process** for construction projects estimated to cost more than **$10M** If Council finds that design-build will save time or money, Council can award **design-build contracts** valued at **$5M or more**	As of January 1, 2015, California law allows agencies to use either a **low bid or "best value"** selection method for projects valued at more than **$1M**, if approved by the agency's governing body Price, design and construction expertise, lifecycle costs over 15 years, labor force availability and safety record must be considered when determining "best value"

<u>The Regional Wastewater Facility is subject to State law.</u>

Project Delivery Options

- Design-Bid-Build
  - 100% design documents completed prior to bidding
  - Contract awarded to lowest, responsive bidder
- Low Bid Design-Build
  - Partial design documents completed prior to bidding
  - Contract awarded to lowest responsive design-builder
- Progressive Design-Build
  - Partial design documents completed prior to bidding
  - Contract awarded to “best value” design-builder; allows negotiations to continue until Guaranteed Maximum Price is established

Project Delivery Options (contd.)

- **Design-Bid-Build**
  - Staff is most familiar with this method; 100% design control
  - Risk is borne by Owner; cost is unknown until bids; sequential schedule
- **Low Bid Design-Build**
  - Risk shared with DB entity; single point of responsibility; cost known at time of award
  - Owner has limited control over design; challenges with CEQA timing
- **Progressive Design-Build**
  - Risk shared with DB entity; single point of responsibility
  - Opportunity to collaborate and innovate; high level of design control; costs known through process, fixed at 60-70% design
  - Ability to accelerate schedule with design and construction overlap

Project Delivery Evaluation & Selection

Program delivery and procurement strategy approved by Council in 2015

- Evaluation and selection of delivery method occurs during Project Scoping Stage
- Decision Making Criteria
  - Size; Environmental Review & Permits; Complexity; Performance Risk; Design Control; Optimizing Quality/Scope; Schedule,
- Approval Process
  - Approval authority delegated to Directors of Environmental Services and Public Works; Information Memo sent to City Council and stakeholders

Cogeneration Facility Project

Conceptual rendering of new Cogeneration Facility

- Project Team:
  - Public Works Package Manager & Project Support Staff
  - MWH Project Manager
  - Black & Veatch (Owner's Advisor)
  - CH2M/Overaa (Design-Builder)

- Estimated Total Project Cost: $107M
- Estimated Completion Date: 2nd Quarter 2019
- Current Stage: Preliminary Services
  - April 2016: Design-Build Contract Awarded
  - February 2017: Basis of Design Report Finalized
- Scope:
  - Installation of engines capable of generating 12.5 megawatts, a biogas treatment system, emission controls & boilers

San José-Santa Clara Regional Wastewater Facility

Headworks Improvements & New Headworks

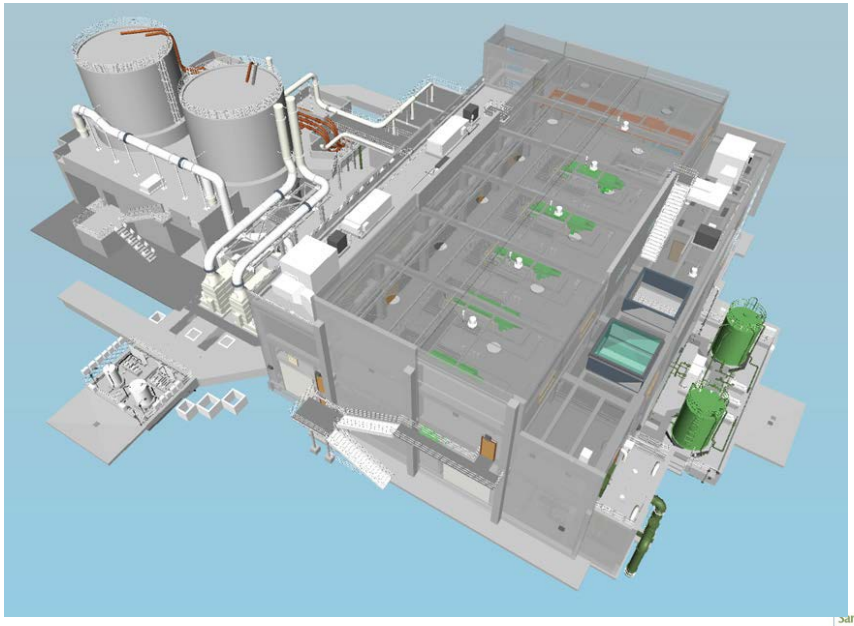
- Estimated Construction Cost: $120M
- Estimated Completion Date: 3rd Quarter 2022
- Current Stage: Conceptual Design
  - December 2016: Preferred Alternative Selected

- Scope:
  - Modify Headworks 1 to allow future decommissioning
  - Improve Headworks 2 to ensure long-term reliability as a wet weather & backup headworks
  - Construct a new headworks (Headworks 3) to serve as the dry weather headworks
- Project Team:
  - Carollo Package Manager & City Shadow Package Manager
  - MWH Project Manager
  - CDM Smith (Owner's Advisor)
  - To Be Procured (Design-Builder)

San José-Santa Clara Regional Wastewater Facility

Digested Sludge Dewatering Facility

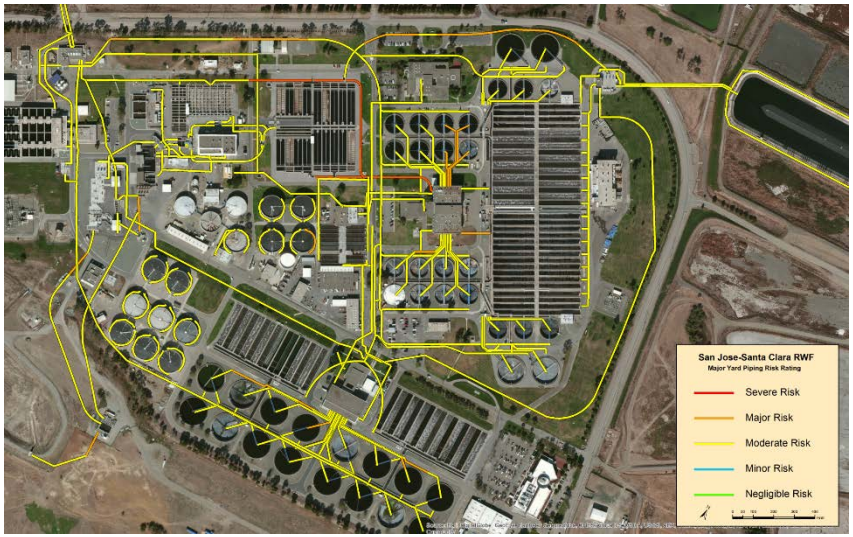
- Estimated Construction Cost: $65M
- Estimated Completion Date: 3rd Quarter 2022
- Current Stage: Project Alternative
  - October 2016: Owner's Advisor Selected
- Scope:
  - New multi-story building with mechanical dewatering equipment, polymer treatment systems, sludge cake conveyance facilities, truck load-out facilities, & ancillary facilities
  - Rehabilitation of existing structures for use as a transfer sludge pump station & sludge storage tanks
- Project Team:
  - City Package Manager
  - Carollo Project Manager
  - Brown & Caldwell (Owner's Advisor)
  - To Be Procured (Design-Builder)



San José-Santa Clara Regional Wastewater Facility

Yard Piping & Road Improvements

- Project Team:
  - MWH Package Manager
  - City Project Team
  - To Be Procured (Owner's Advisor)
  - To Be Procured (Design-Builder)



- Estimated Construction Cost: $85M
- Estimated Completion Date: 2nd Quarter 2026
- Current Stage: Project Alternative
  - March 2017: Advertise Request for Qualifications for Owner's Advisor
- Scope:
  - Rehabilitate, repair, and replace process pipes based on condition assessments
  - Construct new pipes to increase redundancy & reduce operational risk
  - Improve RWF road conditions

San José-Santa Clara Regional Wastewater Facility

Procurement Outreach

- Procurements advertised through BidSync www.bidsync.com
- Vendor Outreach Events
- CIP Document Library www.sjenvironment.org/cip
- San José-Santa Clara Regional Wastewater Facility www.sjenvironment.org/rwf

When procurements come out, the cone of silence comes down.

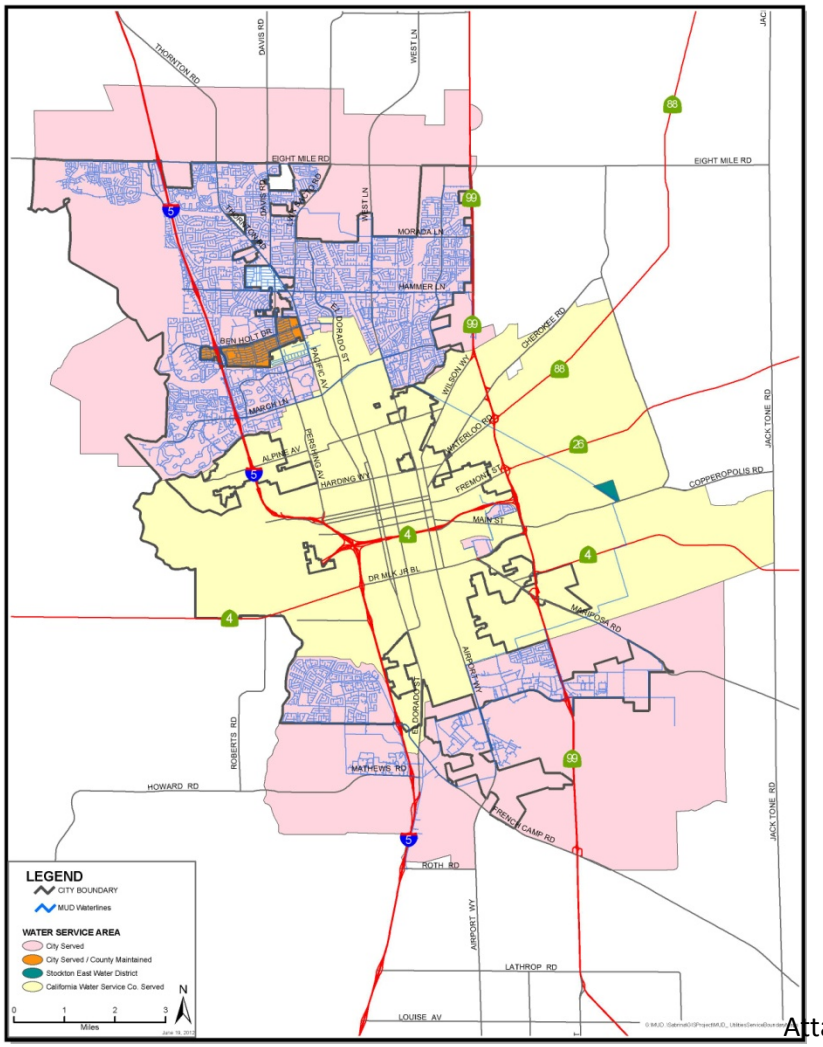
Source: http://thingsthatmadeanimpression.wordpress.com/2013/12/14/dialogue-from-get-smart-mr-big-cone-of-silence/

San José-Santa Clara Regional Wastewater Facility

Questions & Answers

Stockton Water Service Areas

- Population served: 310,000
- Metropolitan Area Water served by:
  - City of Stockton
  - California Water Service Company
  - San Joaquin County
- Water Supplies
  - Eastside Reservoirs
  - San Joaquin & Mokelumne Rivers
  - Groundwater
- Wastewater Treatment provided by City of Stockton



Stockton Governance

- Form of government is that of City Manager-Council.
- City Council is the governing body for the City of Stockton.
- City Council consists of seven members, six Councilmembers and the Mayor, each of whom have the right to vote on all matters coming before the Council.
- The six Councilmembers are nominated from districts and Mayor elected by the City at-large
- Utility Department (water, wastewater and stormwater) is one of 13 Departments

Stockton Utility Finances

Credit ratings

- Water: S&P: A (Senior), A- (Subordinate); Fitch: A-; Moody's A3
- Wastewater: S&P: A

Project Financing

- Water/Wastewater Revenue Bonds backed by all revenues to the Utility
- Cash on Hand – Minimum of 180 days, Council Policy
- Rates by Prop. 218, Fees set by Council

Debt

- Debt Service = Water = $23.5M/yr; Wastewater = $6.5M/yr

Recent Rate Increases

- 2009 to Finance Delta Water Supply Project
- 2010 to Finance Wastewater Treatment Plant Upgrade
- 2016 (Water) to Compensate for Conservation

Stockton Water System

- Most of System is less than 30 years old
- New surface water treatment plant
- Older wells being abandoned
- Balancing purchased water with other municipal water suppliers
- Recent chloramine conversion
  - Solved water quality problem but only in North Water System

Stockton Capital Improvement Program – Water and Wastewater

Have spent $250M in last 10 years combined

Wastewater CIP will include $250M over the next 10 years

Water CIP

- System Reliability and Water Quality (Current FY $2.5M)
- Future Automated Meter Reading ($12M)
- Planned Infrastructure Replacements
  - Water Treatment Plant Membranes ($5M)

Delta Water Supply Project

- $220M investment
- Project Elements
  - 30 MGD Water Treatment Plant
  - Raw and Treated Water Pipelines
  - Intake and Pump Station

Stockton Operations and Maintenance

Operations and maintenance (O&M) capabilities

- **Staff fully operates 30 mgd facility, 24/7.**
- **Maintenance, instrumentation and electrical support during a standard workweek (on-call support for off hours).**

Employees are unionized – Operating Engineers' Local 3, AFL-CIO

Utility was outsourced from 2003-2008

- **Contract voided due to CEQA lawsuit**
- **Future outsourcing contracts over $4M/yr require vote of the people**

Stockton Project Delivery

Traditional Design/Bid/Build

- Straightforward projects with clear objectives

Design/Build

- Few projects where ultimate goal was more prescriptive

Progressive Design-Build

- Water Treatment Plant delivery method
  - Less Prescriptive/More Creative and Allowed for Owner Input
- Current Wastewater Treatment Plant Upgrade
  - Large Complicated Project with Performance Criteria

Stockton Project Financing

Water Revenue Bonds

- Tax Exempt
- Debt Service paid by all revenues to the Utility

Build America Bonds

- $3.8M/yr reimbursement from Federal Government on taxable financing

Grants

- $12M Prop 84 Delta Water Quality Grant

Doubtful the City Council would seek private financing

Stockton Lessons Learned

Design-Bid-Build works for highly prescriptive projects; however:

- Lacks creativity
- More susceptible to disputes and claims
- More contracts
- Lose ability to overlap activities

Progressive Design-Build promotes:

- Creativity
- Cost Control/Cost Certainty
- Risk Balance/Costing

Privatization Risks

- Owner retains liability, unless negotiated in contract
- Must ensure adequate maintenance $ spent
- If facilities revert to owner, may be left with substantial infrastructure investment

Board Discussion

- **Additional Board questions/concerns**
- **Direction to staff**