



# Santa Clara Valley Water District Capital Improvement Program Committee Meeting

District Headquarters, Board Conference Room A-124  
5700 Almaden Expressway, San Jose, CA 95118

## REGULAR MEETING AGENDA

Wednesday, April 25, 2018  
12:00 PM

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

CAPITAL IMPROVEMENT PROGRAM  
COMMITTEE

Nai Hsueh, Chair, District 5  
Linda J. LeZotte, Vice Chair, District  
4  
Tony Estremera, District 6

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.

BETH REDMOND  
Committee Liaison

NATALIE F. DOMINGUEZ,  
CMC  
Board Admin. Assistant II  
Office/Clerk of the Board  
(408) 265-2659  
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**Note: The finalized Board Agenda, exception items and supplemental items will be posted prior to the meeting in accordance with the Brown**

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**Santa Clara Valley Water District  
Capital Improvement Program Committee  
REGULAR MEETING  
AGENDA**

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Wednesday, April 25, 2018

12:00 PM

Board Conference Room A-124

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**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:**

2.1. Approval of March 12, 2018 Meeting Minutes.

[18-0224](#)

Recommendation: Approve the minutes.

Manager: Michele King, 408-630-2711

Attachments: [Attachment 1: 031218 Capital Improvement Committee Meeting](#)

Est. Staff Time: 5 Minutes

**3. ACTION ITEMS: (3.1 - 3.2)**

3.1. Capital Projects Status Updates. [18-0212](#)

Recommendation: Receive and discuss information regarding the status of capital projects.

Manager: Katherine Oven, 408-630-3126  
Ngoc Nguyen, 408-630-2632

Attachments: [Attachment 1: Capital Project Monitoring Report - Design](#)  
[Attachment 2: Sole Source Procurement - Software Upgrade](#)  
[Attachment 3, Upcoming Consultant Agreements or Amendments](#)

Est. Staff Time: 10 Minutes

3.2. 10-Year Pipeline Inspection and Rehabilitation Program. [18-0235](#)

Recommendation: Receive information about the 10-Year Pipeline Inspection and Rehabilitation Program.

Manager: Emmanuel Aryee, 408-630-3074

Est. Staff Time: 10 Minutes

**4. REVIEW COMMITTEE WORK PLAN:**

4.1. 2018 Capital Improvement Committee Work Plan. [18-0226](#)

Recommendation: Review and make necessary revisions to the 2018 Capital Improvement Program (CIP) Committee Work Plan, and confirm the Committee's regular meeting schedule for 2018.

Manager: Michele King, 408-2630-2711

Attachments: [Attach 1 CIP Committee 2018 Workplan](#)

Est. Staff Time: 10 Minutes

**5. ADJOURN:**

5.1. Clerk Review and Clarification of Board 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.*

5.2. Adjourn to Regular Meeting at 10:00 a.m. on May 14, 2018, in the Santa Clara Valley Water District Headquarters Building, Conference Room A-124, 5700 Almaden Expressway, San Jose, California.

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**File No.:** 18-0224

**Agenda Date:** 4/25/2018  
**Item No.:** 2.1.

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## COMMITTEE AGENDA MEMORANDUM

### Capital Improvement Program Committee

**SUBJECT:**

Approval of March 12, 2018 Meeting Minutes.

**RECOMMENDATION:**

Approve the minutes.

**SUMMARY:**

In accordance with the Ralph M. Brown Act, a summary of Committee discussions, and details of all actions taken by the Capital Improvement Program 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 Committee's historical record archives, and serve as the official historical record of the Committee's meeting.

**ATTACHMENTS:**

Attachment 1: 031218 Capital Improvement Committee Meeting

**UNCLASSIFIED MANAGER:**

Michele King, 408-630-2711

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CAPITAL IMPROVEMENT PROGRAM COMMITTEE MEETING

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# MINUTES

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**Wednesday, March 12, 2018**  
**10:00 a.m.**

(Paragraph numbers coincide with agenda item numbers)

A regular meeting of the Capital Improvement Program (CIP) Committee was called to order on March 12, 2018, in the Santa Clara Valley Water District Headquarters Building, Conference Room A-124, 5700 Almaden Expressway, San Jose, California, at 10:00 a.m.

**1. Call to Order/Roll Call.**

Committee members in attendance were District 4 Director Linda LeZotte, District 6 Director Tony Estremera, and District 5 Director Nai Hsueh, Chairperson presiding, constituting a quorum of the Committee.

Staff members in attendance were A. Fulcher, J. Aranda, E. Aryee, N. Dominguez, V. Gin, S. Hosseini, N. Nguyen, M. Moore, B. Redmond, D. Taylor, S. Tikekar, and T. Yoke.

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

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

**3. Approval of Minutes.**

Recommendation: Approve the minutes.

The Committee considered the attached minutes of March 12, 2018. It was moved by Director Estremera, seconded by Director LeZotte, and unanimously carried to approve the minutes as presented.

**4. Action Items.**

4.1. Follow-Up to January 18, 2018 Review of the Long-Term Purified Water Program Elements Project.

Recommendation: Receive information and provide direction for the Long-Term Purified Water Program Elements Project

03/12/18

1

refinements or modifications to be incorporated into the Draft and/or Final FY2019-23 CIP.

Mr. Darin Taylor, Chief Financial Officer, reviewed the information on this item, per the attached Committee Agenda Memo.

The Committee confirmed without motion to recommend Board support for the Fiscal Year 2023 P3 (Public-Private Partnership) delivery method listed in the Committee Agenda Memo, Page 1, Table 1, as the preferred method of financing for the Long-term Purified Water Program Elements; and including the Long-term Purified Water Program Elements Project in the CIP.

Mr. Ngoc Nguyen, Deputy Operating Officer, and Mr. Saeid Hosseini, Capital Engineering Manager, reviewed the information on Items 4.2 and 4.3, per the attached Committee Agenda Memos, and corresponding Attachments; and the Committee considered Items 4.2 and 4.3 simultaneously.

- 4.2. Update on Construction of the San Francisquito Creek Flood Reduction, Ecosystem Restoration and Recreation Project, Project No. 26284002, Contract No. C0613.

Recommendation: Receive an update on the construction of the San Francisquito Creek Flood Reduction, Ecosystem Restoration and Recreation Project.

Director Estremera left the meeting and did not return.

- 4.3. Update on the Construction of the Permanente Creek Flood Protection Project – McKelvey Park Detention Basin, Project No. 26244001, Contract No. C0616.

Recommendation: Receive an update on the construction of the Permanente Creek Flood Protection Project – McKelvey Park Detention Basin.

The Committee requested that staff continue reviewing the cause of potential claims by the contractors. Also, to pursue avenues that will reduce the costs associated with project delays described in Items 4.2 and 4.3, investigate options for cost-sharing contractor claim resolution with PG&E, and report back to the Committee.

- 4.4. Update of South County Recycled Water Producer/Wholesaler/Retailer Agreements.

Recommendation: Receive information and provide feedback on next steps.

The Committee continued Item 4.4 to the April 25, 2018, meeting.



4.5. Capital Projects Status Updates.

Recommendation: Receive and discuss information regarding the status of capital projects in the construction phase.

Mr. Nguyen reviewed the information on this item, per the attached Committee Agenda Memo, and corresponding materials contained in Attachment 1.

The Committee noted the information, without formal action.

4.6. Agreement with AECOM for Planning Services for an Amount Not-to-Exceed \$621,848 for the Stevens Creek Fish Passage Analysis Project, Project No. 62044001 (Santa Clara County, Cupertino, Sunnyvale, Mountain View) (Districts 5 and 7).

Recommendation: Receive information and provide feedback on next steps.

Mr. Nguyen and Ms. Melissa Moore, Senior Water Resources Specialist, reviewed the information on this item, per the attached Committee Agenda Memo.

The Committee noted the information, without formal action.

**5. Review Committee Workplan and Meeting Schedule.**

Chairperson Hsueh reviewed Committee Workplan items for the next meeting agenda, and requested that staff reschedule the April 12, 2018 meeting to Wednesday, April 25, 2018.

**6. Clerk Review and Clarification of Committee Requests and Recommendations.**

Ms. Natalie Dominguez, Committee Clerk, confirmed there were no formal Committee requests, and read the following recommendation and direction to staff into the record:

The Committee recommends Board support for the Fiscal Year 2023 P3 (Public-Private Partnership) option listed in the Committee Agenda Memo, Page 1, Table 1, as the preferred method of financing for the Long-term Purified Water Program Elements; and including the Long-term Purified Water Program Elements Project in the CIP.

Staff to continue to pursue actions that will reduce the cost of potential claims by the contractor and to investigating the cause of these issues and have answers before bringing any related items to the full Board.

**7. Adjourn:**

Chairperson Hsueh adjourned the meeting at 1:50 p.m. to the rescheduled regular meeting at 12:00 p.m. on Wednesday, April 25, 2018, in the Santa Clara Valley Water District Headquarters Building, Conference Room A-124, 5700 Almaden Expressway, San Jose, CA 95118.

Natalie Dominguez, CMC  
Board Administrative Assistant II

Approved: April 25, 2018

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**File No.:** 18-0212

**Agenda Date:** 4/25/2018

**Item No.:** 3.1.

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## **COMMITTEE AGENDA MEMORANDUM**

### **Capital Improvement Program Committee**

**SUBJECT:**

Capital Projects Status Updates.

**RECOMMENDATION:**

Receive and discuss information regarding the status of capital projects.

**SUMMARY:**

The CIP Committee's 2018 Workplan includes monitoring of capital projects during all phases of development. Staff will provide a list of pending projects to the Committee at each Committee meeting and will present detailed information on those where significant potential issues have been identified. The projects presented for discussion will be organized by phases: construction, design and planning/feasibility; staff will present projects to the CIP Committee for review one phase at a time. Projects in the design phase are presented at this Committee meeting.

Attachment 1 is a list of projects in the design phase. Attachment 2 provides more detailed information about a sole source procurement for the Software Upgrades and Enhancements Project.

Staff is requesting the CIP Committee provide feedback on the projects in this report-most specifically those for which additional attachments are provided.

Attachment 3 describes capital projects consultant transactions that will be scheduled for Board consideration in the near future.

**ATTACHMENTS:**

- Attachment 1: Capital Project Monitoring Report - Design
- Attachment 2: Sole Source Procurement - Software Upgrades
- Attachment 3: Upcoming Consultant Agreements or Amendments

**UNCLASSIFIED MANAGER:**

Katherine Oven, 408-630-3126

Ngoc Nguyen, 408-630-2632

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## Capital Project Monitoring Report - 2018

### Design Phase

Row	Project No.	Project Name	Notes, Upcoming Board Actions or potential issues	Potential Updates
<u>Water Utility</u>				
1	91854001	Almaden Dam Improvements	Design for dam and Almaden Canal improvements underway	
2	91864005	Anderson Dam Seismic Retrofit	60% Design April 2018; draft EIR late summer 2018; Final EIR to Board for certification spring 2019	
3	91874004	Calero Dam Seismic Retrofit - Design & Construct	60% Design June 2018; cost estimate revisions forthcoming	X
4	91894002	Guadalupe Dam Seismic Retrofit - Design & Construct	60% Design June 2018; cost estimate revisions forthcoming	X
5	95084002	10-Yr Pipeline Inspection & Rehabilitation (Cross Valley Pipeline)	Current inspection and rehab schedule may be in conflict with SFPUC Intertie shutdown	X
6	92394051	RWTP FRP Residuals Management	Short-term remediation; advertise for construction July 2018	
7	93294058	RWTP Residuals Remediation	Begin design for long-term remediation	
8	91094009	SoCo Recycled Water Pipeline - Short-Term Implementation Phase 1B	Design complete, waiting for NEPA	
<u>Flood Protection</u>				
9	10394001	Palo Alto Flood Basin Tide Gate Structure Improvements	Start design June 2018	
10	26284002	San Francisquito Creek - Construction, SF Bay to Middlefield Road	Pope Chaucer design underway; FEMA cost share application in process	
11	26074002	Sunnyvale East and West Channels	MoU with Google for Sunnyvale West Channel Enhancement for Board action April 2018	
12	26154003	Guadalupe Rv-Upper, SPRR to Blossom Hill Road (R7-12)	Completed 65% design, reaches 7, 8 and bridges at Willow and Alma; currently no funding to continue design; USACE reevaluating costs	X
13	40264011	Cunningham Flood Detention Certification	Advertise April 2018	
14	40334005	Lower Penitencia Ck Improvements, Berryessa to Coyote Cks.	Completed 90% design in May 2018	
15	50284010	Llagas Creek-Lower, Capacity Restoration, Buena Vista Road to Pajaro River	On hold	
16	26174051s	Llagas Creek-Upper	Corps - USACE 404 permit pending	
17	26444001	San Francisco Bay Shoreline - EIA 11 Design & Part Construction	Reach 1 to be awarded August 2019 by USACE; District is bringing in dirt, assessing potential community issues and impacts to marina	X
<u>Water Resources Stewardship</u>				
18	26164001	Hale Creek Enhancement Pilot Study	60% design	
19	26044002	SCW Fish Passage Improvements at Bolsa Rd	Advertise June 2019; evaluating an alternative design to avoid UPRR R/W; complete CEQA initial study 7/18	
<u>Buildings &amp; IT</u>				
20	60204016	Almaden and Winfield Campus, Small Capital Improvements	Employee Work Space Study will be completed this summer	
21	60274062	Soft System Upgrades and ERP System Implementation		
22	73274008	Software Upgrades & Enhancements	<a href="#">Recommending sole source software procurement</a>	X

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# MEMORANDUM

FC 14 (01-02-07)

**TO:** Anil Comelo, Interim Chief, Administration

**FROM:** Tina N. Yoke, Deputy  
Administrative Officer,  
General Services

**SUBJECT:** Environmental Systems Research Institute  
(Esri) SOLE SOURCE to be discussed at CIP  
Committee

**DATE:** March 29, 2018

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The purpose of this memorandum is to provide information regarding the rationale of approving a sole source contract for software maintenance and support services from Esri.

The District began using Environmental Systems Research Institute (Esri) software as its standard Geographic Information Systems (GIS) platform in the mid-1990s. The District currently has an agreement in place with Esri to support GIS operations in the amount of \$54,787.67. Esri is also currently listed on the District's sole source software maintenance/support list.

The agreement requiring Board approval is for a new project. As such, it could not appropriately be classified under the existing sole source maintenance list. Further, the new project's value for the requested three-year initial contract term is \$968,800. This contract value exceeds any allowable use of a change order to the existing contract. Additionally, the scope of services for the new Agreement differs from the District's other agreement.

Funding for the new project to upgrade the District's enterprise GIS was approved in the Software Upgrades & Enhancements Capital project (73274008) for fiscal years 2018 and 2019. The funding to support maintenance of the upgraded enterprise GIS after fiscal year 2019 has been added to the Software Maintenance & License Operations project (60161001).

The District's Information Technology Division justified the value to the District to continue to standardize with the Esri GIS solution versus going out to bid to potentially end up with two different GIS systems used by the District. The District has been using Esri products for approximately twenty years. All District GIS datasets are in formats accessible by Esri applications and most District GIS datasets are in proprietary Esri formats. District staff have been trained to use Esri applications. Most District consultants/contractors, as well as other agencies that the District interacts with, are standardized on Esri products and data. The impact of not choosing Esri as a sole source vendor for our GIS Enterprise Agreement would be significant and require changes which potentially include conversion of thousands of GIS datasets and projects, dozens of applications (such as Flood Watch), and several integrations (with systems such as Access Valley Water and ALERT) as well as training of hundreds of District staff. Switching to another GIS vendor would take considerable staff time and resources and would make it harder to collaborate with both consultants/contractors and other agencies.

In this regard, the District requested Esri provide several executed agreements awarded to them from other public agencies via a competitive bid process. District staff reviewed two of the most similar agreements provided by Esri to compare similar scope of services to determine price reasonableness. The two awarded agreements from the Coachella Valley Water District and County of Sonoma were used to determine price reasonableness of the pricing proposed for the District. The comparable cost per user is slightly less for the District than the agreement cost for the Coachella Valley Water District of \$400 per user and much lower than County of Sonoma per user cost ranging from \$1,850 to \$2,050. Therefore, based upon the importance of using Esri as the standard and the reasonableness of the pricing structure, I support the use of sole-source contracting in this case.

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## Upcoming Consultant Agreements or Amendments

**Project:** Rinconada WTP Reliability Improvement Project, No. 93294057

**New Agreement**

**Scope of Services:** Project Integration and Support Services

**Agreement Not-to-Exceed Amount:** ~\$800K

**Budget Adjustment Required:** No

**Objective:**

The objective in contracting for the Project's Integration and Support Services is to have the consultant perform a review of the Project's design and construction documents to identify any potential issues that may negatively affect or restrict the District's ability to operate the Plant at all flow rates. The consultant shall recommend modifications to the design and Contract Documents, if needed, upon completing their review.

**Scope:**

The proposed Consultant Agreement includes the required tasks to provide Project support during construction to evaluate the Project's design and recommend modifications to the design and Contract Documents, if needed. The scope of services includes project management, review of Project design and construction documents including Basis of Design Report Technical Memoranda, Construction Contract Documents including Plans and Specifications, and construction phase documents, and supplemental services. The supplemental services task includes a budget for the Consultant to perform additional quantities of the basic services and provide additional services, depending on the review findings.

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**Project:** RWTP Residuals Remediation, No. 93294058

**New Agreement**

**Scope of Services:** Planning and Design Services

**Agreement Not-to-Exceed Amount:** ~\$3.3M

**Budget Adjustment Required: Yes.** The RWTP Residuals Management Project (No. 93294051) is being split into two projects to provide more effective and transparent accounting of remediation costs for the plant's residuals management system. The new

Project title is the RWTP Residuals Remediation (93294058) Project. A portion (\$5.0M) of the original Project's FY18 Board-approved budget will be transferred to the new RWTP Residuals Remediation Project to fund the Consultant Agreement and staff labor through FY2018 and FY2019.

**Objective:**

The RWTP residual solids management facility has experienced numerous operational deficiencies since construction completion in 2016 of the RWTP Residuals Management Project. It has been determined that the new residuals management system does not meet the District's objectives and requirements and is not reliable. The Consultant will evaluate the causes of the performance deficiencies and design remedial corrections to achieve the district's Project objectives

**Scope:**

The scope of services includes project management, data collection, investigations (such as geotechnical investigations and solids generation analysis report, consultant initial assessment, and review of District's ongoing remediation efforts), conceptual alternatives and basis of design, design tasks (30%, 60%, 90% and final design), and bid support. The supplemental services task includes a budget for the Consultant to perform additional basic services as well as geotechnical, public outreach, operational, or optimization tasks, supplemental design services for pumping and power improvements, and model renderings of proposed facilities.

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**File No.:** 18-0235

**Agenda Date:** 4/25/2018

**Item No.:** 3.2.

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## COMMITTEE AGENDA MEMORANDUM

### Capital Improvement Program Committee

**SUBJECT:**

10-Year Pipeline Inspection and Rehabilitation Program.

**RECOMMENDATION:**

Receive information about the 10-Year Pipeline Inspection and Rehabilitation Program.

**SUMMARY:**

This memorandum provides information regarding the Santa Clara Valley Water District's (District) 10-Year Pipeline Inspection and Rehabilitation Program (Program). The Program implements pipeline inspection and rehabilitation projects for 136 miles of raw (untreated) and treated water pipelines and tunnels, which range in diameter from 20 inches (Campbell Distributary) to 156 inches (Pacheco Tunnel).

The Program budget ranges from \$5 to \$20M per year to perform pipeline inspection and rehabilitation projects. The budgeted amount covers an average of one to three projects per year, each covering a major segment of pipeline, as well as the development of a dynamic risk model to provide real-time risk of failure information on pipelines. The scope of each project includes an inspection and may include one or more of the following: rehabilitation of pipeline appurtenances such as valves; rehabilitation of distressed pipe segments found during inspection; and installation of an Acoustic Fiber Optic monitoring system to enable continuous monitoring of pipe condition (PCCP only). Additional details regarding the scope of pipeline inspection and rehabilitation work is provided in the following sections.

#### ***Pipeline Inspection/Rehabilitation Schedule***

A projected schedule of projects/pipelines for the next ten fiscal years is provided below. Note that this schedule may change depending on changing priorities due to pipeline conditions, ability to obtain environmental clearance, and ability to take a pipeline out of service due to other operational constraints. Some short or adjacent pipelines may be grouped together to be accomplished as one project.

FY2019: Cross Valley and Calero Pipelines  
Develop Risk Model

FY2020: Central Pipeline  
Parallel East Pipeline  
Almaden Valley Pipeline potential repairs

FY2021: Santa Clara Conduit and Tunnel and Pacheco Tunnel Reach 2  
Coyote Discharge and Anderson Force Main  
Snell Pipeline

FY2022: West Pipeline  
Penitencia Delivery and Force Mains  
Pacheco Tunnel Reach 1

FY2023: Almaden Valley Pipeline and Santa Teresa Force Main  
Stevens Creek Pipeline and Rinconada Force Main

FY2024: East Pipeline  
Santa Clara and Campbell Distributaries

FY2025: Central Pipeline  
Milpitas Pipeline

FY2026: Santa Clara Tunnel and Pacheco Tunnel Reach 2  
Santa Teresa Tunnel  
Mountain View and Sunnyvale Distributaries

FY2027: Penitencia Delivery and Force Mains  
Pacheco Conduit and Pacheco Tunnel Reach 1

FY2028: Almaden Valley Pipeline and Santa Teresa Force Main

### ***Pipeline Inspections***

The current pipeline inspection strategy utilizes non-destructive testing (NDT) technologies for condition monitoring of our pipelines and to determine whether leaks are present. The majority of inspection techniques require the shutdown, depressurization and dewatering of the pipeline. The current frequency of testing was established in the fall of 2015, following the Santa Clara Conduit PCCP failure, and builds on the District's past experience and understanding of the maintenance practices established within the large diameter water pipeline community. The pipeline inspections are performed at the following intervals:

- 5-year inspection cycle for Pre-stressed Concrete Cylinder Pipe (PCCP),
- 5-year inspection cycle for United State Bureau of Reclamation (USBR) owned pipelines and tunnels (required per O&M agreements with USBR), and
- 10-year inspection cycle for steel pipelines.

Pre-stressed Concrete Cylinder Pipe (PCCP) is inspected via electromagnetic inspection, acoustic monitoring, sounding, and internal visual inspection. The District is also installing Acoustic Fiber Optic (AFO) Monitoring Systems in PCCP pipelines to enable continuous monitoring of pipe wire breaks in each segment of pipe and serves as an early warning system so the distressed pipe can be taken out of service and repaired before it fails. The District has installed AFO in the Pacheco Conduit and Almaden Valley Pipeline, and plans to install AFO in the remaining PCCP pipelines.

Inspection frequency for PCCP pipelines with AFO monitoring may be extended to up to a 10-year cycle if the lines have a minimal risk of failure based on the real-time monitoring. Staff plans to work with USBR to change the inspection frequency for the Pacheco and Santa Clara Conduits if AFO monitoring indicates minimal potential for failure. In addition, inspection frequency of the Cross Valley, Calero, and Snell Pipelines may be

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changed to 10 years if the AFO monitoring indicates minimal degradation of pipe condition. The above schedule assumes a 10-year frequency for these pipelines.

New emerging robotic technologies are also being developed that may allow for NDT without the need to dewater (or depressurize) the pipe. Techniques such as SMART Ball have already been used to determine if there is leakage in some pipelines. Steel pipelines are inspected using Magnetic Flux Leakage (MFL) technology, Ultrasonic Thickness Testing (UTT) technologies and internal visual inspection and sounding.

### ***Pipeline Rehabilitation***

Major rehabilitation and replacement of pipeline appurtenances such as in-line valves, air release valve assemblies, bypasses, and other equipment in vaults is scheduled at the same time as the pipeline inspections, since the pipelines will be dewatered and shutdown for the inspection. However, rehabilitation of appurtenances occurs less frequently than pipeline inspections, approximately every 25 to 30 years, or as conditions warrant. With the exception of the Cross Valley, Calero, and Parallel East Pipelines, all pipelines and appurtenances in the District's system have been inspected and rehabilitated at least once since they were installed.

Pipe cylinder rehabilitation is included in the scope of rehabilitation projects, but the extent of rehabilitation needs is unknown until the pipe is dewatered and inspected, unless AFO monitoring is present. The decision to repair/replace failed or structurally-distressed pipeline segments is made quickly and is based on risk. Pipe segment repair consists of either remove-and-replace or constructing a structural repair such as installing Carbon Fiber Reinforced Polymer (CFRP) wrap; post-tensioned cylinder repair; steel cylinder lining; or steel butt strap repair to restore a pipe's structural integrity.

As an example, in the recent inspection of Almaden Valley Pipeline (PCCP), the District found over one hundred pipe segments in poor condition and had to rehabilitate 80 pipe segments with CFRP wrap. Because the extent of rehabilitation was unknown prior to inspection, the additional cost to repair the Almaden Valley Pipeline was over \$12 Million.

Prior to the Almaden Valley Pipe (AVP) Unit II repairs, the District had repaired only six pipe segments (all PCCP) in the District's system. In the 1980's, a segment on the Penitencia Delivery Main and a segment on the Penitencia Force Main failed due to landslide movement. These pipeline segments were repaired in 1984 using replacement steel and the installation of a bellows joint system. These two pipelines were again upgraded in 2017 to earthquake resistant ductile iron pipe (ERDIP), which will better withstand seismic events, and long term landslide movement. The District replaced 670 feet (out of a total of 2,730 feet) of PCCP with ERDIP and replaced an additional 180 feet of PCCP with steel on these pipelines. In 2012, a PCCP section of the AVP failed as a result of loading from a bridge abutment and was repaired using a steel liner. In the 2015 Santa Clara Conduit failure, the failed PCCP section was replaced by new steel pipe. Two other pipe sections on the Santa Clara Conduit were repaired using CFRP wrap.

### ***Pipeline Asset Management Plan***

The District is currently developing a Pipeline Asset Management Plan which will update and document the inspection and repair strategies described above and will identify a future pipeline replacement strategy. In support of the Pipeline Asset Management Plan, the District is implementing a state-of-the-art dynamic pipeline risk model. The dynamic risk model will provide real-time risk of failure information based on operational pressures, acoustic fiber optic monitoring, failure and monitoring data from other PCCP in use across North America, and other inputs. The risk model will provide the District with the information needed to

develop and implement risk-based pipeline management strategies for the District's large diameter pipe systems. Staff anticipates completing the Pipeline Asset Management Plan by June 2019. This Plan will present an updated schedule for pipeline inspections, rehabilitation work, and pipeline replacements that will inform the projects in the current 10-Year Pipeline Inspection and Rehabilitation Project, and in the District's maintenance and capital programs in the future.

**ATTACHMENTS:**

None

**UNCLASSIFIED MANAGER:**

Emmanuel Aryee, 408-630-3074

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**File No.:** 18-0226

**Agenda Date:** 4/25/2018

**Item No.:** 4.1.

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## **COMMITTEE AGENDA MEMORANDUM**

### **Capital Improvement Program Committee**

**SUBJECT:**

2018 Capital Improvement Committee Work Plan.

**RECOMMENDATION:**

Review and make necessary revisions to the 2018 Capital Improvement Program (CIP) Committee Work Plan, and confirm the Committee's regular meeting schedule for 2018.

**SUMMARY:**

Work Plans are created and implemented 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 to assist to prepare an Annual Committee Accomplishments Reports.

The 2018 Capital Improvement Program Committee Work Plan is contained in Attachment 1. Information in this Plan document was provided by staff as follows:

Discussion of topics as stated in the Plan have been described based on information 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 CIP Committee Work Plan

**UNCLASSIFIED MANAGER:**

Michele King, 408-2630-2711

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# CIP Committee 2018 Workplan

		<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>
<b>CIP Implementation</b>												
10 Year Pipeline So Co Recycled Water Project w/ Environmental Justice Prioritization Criteria Long Term Purified Water Alternative Financing WUE Projects (Special Tax) Public Private Partnership (P3) Delivery for capital projects	<b>N</b>			X		X						
	<b>O</b>				X							
	<b>M</b>						X					
	<b>e</b>	X										
	<b>e</b>			X	X		X		X		X	
	<b>t</b>											
	<b>i</b>											
	<b>n</b>											
	<b>g</b>											
<b>Capital Project Monitoring</b>												
Construction Design Planning / Feasibility			X			X			X			
				X			X			X		
					X			X			X	
<b>CIP Development</b>												
Project ranking criteria Preliminary CIP Criteria for Ranking Stewardship Projects										X	X	X
										X	X	X
						X						