MINUTES OF THE REGULAR MEETING OF THE
BOARD OF DIRECTORS OF
VISTA IRRIGATION DISTRICT

April 1, 2020

A Regular Meeting of the Board of Directors of Vista Irrigation District was held on Wednesday, April 1, 2020 at the offices of the District, 1391 Engineer Street, Vista, California.

## 1. TO ORDER

President Vásquez called the meeting to order at 9:00 a.m.

## 2. ROLL CALL

Directors present: Miller, Vásquez, Dorey, and MacKenzie; Director Sanchez was also present by teleconference.

Directors absent: None.

Staff present: Brett Hodgkiss, General Manager; Lisa Soto, Secretary of the Board; Don Smith, Director of Water Resources; Randy Whitmann, Director of Engineering; Frank Wolinski, Director of Operations and Field Services; and Marlene Kelleher, Director of Administration. Staff present by teleconference: Greg Keppler, Engineering Project Manager and Ramae Ogilvie, Administrative Assistant. Also present by teleconference was General Counsel David Cosgrove.

Other attendees: Doug Gillingham of Gillingham Water was present by teleconference.

## 3. PLEDGE OF ALLEGIANCE

Director MacKenzie led the pledge of allegiance.

## 4. APPROVAL OF AGENDA

| | |
|---|---|
| 20-04-31 | ***Upon motion by Director Miller, seconded by Director Dorey and unanimously carried (5 ayes: Miller, Dorey, Sanchez, MacKenzie, and Vásquez), the Board of Directors approved the agenda as presented.*** |

## 5. ORAL COMMUNICATIONS

No public comments were presented on items not appearing on the agenda.

## 6. CONSENT CALENDAR

Director of Engineering Randy Whitmann provided clarification regarding Item 6.A., "Acknowledgement of Easement, Encroachment Permit, Joint Use Agreement and Grant of Right of Way" stating that the planned installation of storm drain facilities within the District's easement included a mix of existing and proposed facilities. He stated that the District is asking the developer to obtain an encroachment permit from the District in order to work within the Vista Flume (Flume) easement and requesting a Joint Use Agreement with the City of Escondido to clearly define the District's prior rights. Mr. Whitmann stated that the storm drain improvements will take up about half of the District's easement,

but another Flume segment could be built on the south side of the easement if needed. He clarified that the fees and construction costs of the storm drain improvements will be borne in full by the developer. Mr. Whitmann further noted that the District would be included in the review and approval process for relocating the 18-inch transmission main that will feed the Bennett service area in the Village 2 portion of the development.

| | |
|---|---|
| 20-04-32 | ***Upon motion by Director Miller, seconded by Director Dorey and unanimously carried (5 ayes: Miller, Dorey, Sanchez, MacKenzie, and Vásquez), the Board of Directors approved the Consent Calendar, including Resolution No. 20-10 approving disbursements.*** |

A. **Acknowledgement of easement, Encroachment Permit, Joint Use Agreement and Grant of Right of Way**

See staff report attached hereto. Staff recommended and the Board acknowledged existing easement via Tract Map, approved Encroachment Permit (131) and Joint Use Agreement and accepted Grant of Right of Way (L54) for a 380 dwelling unit residential subdivision consisting of approximately 109.3 gross acres owned by Lennar Homes of California, located in the northwest portion of the City of Escondido along Country Club Lane (LN 2018-010; APNs 224-210-53, 224-211-05, -12, -15, 224-230-36, -43, 224-430-04, 224-431-01, -02 -03, 224-490-05, -06 and 224-491-01).

B. Minutes of the Board of Directors special meeting on March 11, 2020

The minutes of March 11, 2020 were approved as presented.

C. Minutes of Board of Directors meeting on March 18, 2020

The minutes of March 18, 2020 were approved as presented.

D. Resolution ratifying check disbursements

**RESOLUTION NO. 20-10**

**BE IT RESOLVED, that the Board of Directors of Vista Irrigation District does hereby approve checks numbered 64009 through 64131 drawn on Union Bank totaling $2,941,312.72.**

**FURTHER RESOLVED that the Board of Directors does hereby authorize the execution of the checks by the appropriate officers of the District.**

**PASSED AND ADOPTED unanimously by a roll call vote of the Board of Directors of Vista Irrigation District this 1st day of April 2020.**

* * * * * * * * * * * * * * * * *

## 7. DIVISION REPORTS

See staff report attached hereto.

Director of Water Resources Don Smith pointed out that the calculations in the Water Production Data section of the Division Reports are based on new bathymetry for Lake Henshaw. He stated that 302 acre feet of the apparent gain is due to the new bathymetry data prepared by BHA in 2019, and the rest of

the gain is due to recent rainfall. Mr. Smith stated that, on a go forward basis, the District's water production calculations would be based on this new bathymetry data.

Mr. Smith commented on his meeting with Alexandra Stehl, Planning Chief with California State Parks (State Parks), in which staff and Ms. Stehl walked and discussed the historic alignment of the California Riding and Hiking Trail (CRHT). He stated that the main thing State Parks would want in a new agreement for the CRHT is a responsible party to operate and maintain the trail; the main thing the District would want is a responsive party to address any questions or concerns that the District may have regarding the portion of the trail that crosses District property. Mr. Smith added that the new agreement would also address the trail alignment, operation and maintenance issues and the District's right to terminate the agreement at any time. Director Sanchez suggested reaching out to other agencies that may have similar agreements with State Parks, indicating that it may be helpful to draw on their experience when it is time to draft the District's new agreement. Director MacKenzie suggested seeking a letter from State Parks affirming that it is agrees with the District's action to prohibit public use and unauthorized maintenance of the CRHT on District property. Mr. Hodgkiss said that with regard to those performing unauthorized maintenance on the portion of the CRHT on District property, Ms. Stehl said that she would reach out to those individuals and request that maintenance activities cease. Director MacKenzie asked that Ms. Stehl copy the District with any correspondence in this regard.

Mr. Hodgkiss updated the Board regarding the District's COVID-19 pandemic response stating that in addition to the regular disinfecting and sanitizing of surfaces around the District headquarters, onsite staffing has been reduced to about half (50% are onsite and 50% are teleworking) to minimize exposure and maintain business continuity should a case of COVID-19 occur on the premises. Field employees who are teleworking are completing online training and continuing education courses as well as working on field mapping and other related tasks; office employees have access to their District desktops and files from their home and are able to continue to perform work as if they were onsite. Regular maintenance activities and meter reading would continue as scheduled. Mr. Hodgkiss advised that no work on main replacement projects would be performed during this health crisis, thus avoiding disruptions to water service.

## 8. VISTA FLUME REPLACEMENT

See staff report attached hereto.

Mr. Whitmann said that with the Vista Flume (Flume) approaching the end of its useful life, a Water Supply Planning Study (Study) was prepared and reviewed by the Board over the course of three workshops; the Study evaluated whether the Flume should be replaced or retired. The Study showed that replacement of the Flume would be the least costly option ($120-130 million) and provide superior supply reliability and the opportunity for continued regional cooperation.

Mr. Whitmann recalled that at the conclusion of the final workshop, the Board reached consensus that replacement of the Flume would be the preferred alternative for the District. He noted that by taking action to select replacement of the Flume as its preferred alternative, the Board would be selecting the preferred alternative it wishes to evaluate with further studies; this decision would not commit the District to a specific project or funding level at this time. Studies that will follow include an alignment study, environmental documentation and financial planning.

General Counsel David Cosgrove provided clarification regarding the California Environmental Quality Act (CEQA) process going forward. At this point, the District's progress falls under Section §15262 of the CEQA Guidelines, which is a statutory exemption for planning and feasibility studies. Mr. Cosgrove also cited Section §15306 of the CEQA Guidelines, which provides a categorical exemption for information gathering. He stated that if the Board takes action to select Flume replacement as its preferred alternative

(as represented in the recommendation), it represents an iteration of further planning studies to develop Flume replacement alternatives and financial feasibility going forward. These studies are all necessary to develop a project description that will be meaningful for full environmental analysis. Director MacKenzie suggested that it be clarified how far in the planning process the District intends to proceed before beginning the CEQA process. Mr. Whitmann responded that staff would be reviewing the timing of all planning components, including CEQA, when developing the scope of work for the alignment study.

| | |
|---|---|
| 20-04-33 | ***Upon motion by Director MacKenzie, seconded by Director Dorey and unanimously carried (5 ayes: Miller, Dorey, Sanchez, MacKenzie, and Vásquez), the Board of Directors selected replacement of the Vista Flume as the preferred alternative project and authorized staff to initiate planning efforts which includes an alignment study, financial planning, and preparation of environmental documentation in an amount not to exceed $3 million.*** |

## 9. MATTERS PERTAINING TO THE ACTIVITIES OF THE SAN DIEGO COUNTY WATER AUTHORITY

See staff report attached hereto.

Director Miller reported on the recent meeting of the San Diego County Water Authority (Water Authority) Board of Directors, which was held by teleconference with no committee meetings held that day. He reported that the Water Authority Board authorized repairs to a stress fracture on Pipeline 5 in the Moosa Canyon area; Director Miller said that there would be a shutdown to install bulkheads to allow the carbon fiber repair to be made, and another shutdown to remove bulkheads once the repair has been completed.

Director Miller reported the sad news that Water Authority Board Member from the City of Escondido John Masson passed away, and an appointment would be made to fill the vacancy. Director Miller reported on the potential detachment of Fallbrook Public Utilities District (Fallbrook) and Rainbow Municipal Water District (Rainbow) from the Water Authority, stating that the two agencies have submitted applications to the Local Agency Formation Commission.

## 10. MEETINGS AND EVENTS

See staff report attached hereto.

Director MacKenzie reported on her participation via teleconference in a meeting of the California Special District Association (CSDA) Finance Corporation in which financing for the McKinleyville Community Service District in the amount of $1.8 million was approved. She reported on a second meeting of the CSDA Finance Corporation Board of Directors, which included a review of financial statements and a consultants' report that characterized the current financial climate as extremely volatile.

Director MacKenzie reported on her participation via teleconference in a meeting of the CSDA Board of Directors in which the board approved five new memberships and discussed membership dues and the COVID-19 pandemic. The CSDA Board also reviewed the financial reports and approved the appointment of two new CSDA Board members.

It was noted that the Spring ACWA Conference was rescheduled to July 28-31, 2020. Directors Sanchez and Dorey both advised that they may have potential scheduling conflicts with the new dates and would keep staff apprised of their availability as the dates get closer. In light of the rescheduling of the ACWA Conference, Director Sanchez asked if the Board meeting schedule for the month of May should

be put back to the first and third Wednesdays of the month. President Vásquez responded that he discussed this question with the General Manager and was advised that at this time there does not appear to be a need for a second meeting in May 2020. However, if the need for a second meeting should arise, the May Board meeting schedule will be agendized for discussion by the Board at its April 15, 2020 meeting.

Director MacKenzie requested to attend the Urban Water Institute Annual Water Conference in San Diego, August 19-21, 2020.

| | |
|---|---|
| 20-04-34 | ***Upon motion by Director Dorey, seconded by Director Miller and unanimously carried (5 ayes: Miller, Dorey, Sanchez, MacKenzie, and Vásquez), the Board of Directors authorized Director MacKenzie to attend the Urban Water Institute Annual Water Conference in San Diego, August 19-21, 2020.*** |

## 11. ITEMS FOR FUTURE AGENDAS AND/OR PRESS RELEASES

See staff report attached hereto.

Mr. Hodgkiss said that the District's Scholarship Contest and the 2019 Annual Report would be on an upcoming agenda after review by the Public Affairs Committee. He said that due to the COVID-19 pandemic there would not be scholarship or poster contest award presentations during a Board meeting this year. Mr. Hodgkiss said that the winning poster contest entries would be provided for the Board as an informational item on an upcoming agenda, and students would receive their awards by mail.

## 12. COMMENTS BY DIRECTORS

Director MacKenzie questioned whether it is clear that the three-part Water Supply Planning Study (Study) posted on the District's website has to do with replacing or retiring the Vista Flume. Mr. Hodgkiss responded that the article on the District's website as well as the press release both refer to the three-part Study as it relates to the Board considering replacement of the Vista Flume.

President Vásquez reported that he attended the Celebration of Life for Frank Mendenhall with Director of Water Resources Don Smith. He stated that he offered condolences to Mrs. Mendenhall on behalf of the District. President Vásquez commented that is was apparent to him by the large attendance and outpouring of love and support, that Mr. Mendenhall was a very beloved figure in his community. President Vásquez said that the District was fortunate to have Mr. Mendenhall and his wife Janice as the concessionaire for the Lake Henshaw Resort. He noted that it is his understanding that Janice will continue as the concessionaire, but there may be a change in ownership of the Mendenhall Cattle Company. Mr. Hodgkiss clarified that the Mendenhall Cattle Company has a license to graze cattle on a portion of the District's land (Warner Ranch); if the company is sold, the license may be transferred to the new owner. He said that the District hasn't been notified of any change of ownership to date. Mr. Hodgkiss added that the District would have the discretion to approve or deny such a transfer.

## 13. COMMENTS BY GENERAL COUNSEL

Mr. Cosgrove informed the Board about a proposed decision from the California Public Utilities Commission related to the California American Water Company (Cal-Am) acquisition of the water system of the City of Bellflower. The issue was whether the acquisition should be approved based on the cost to Cal-Am ratepayers. It was determined that all Cal-Am customers would be affected by the acquisition and would experience a ten percent increase in their water rates as a result; therefore, the acquisition would not be approved.

## 14. COMMENTS BY GENERAL MANAGER

Mr. Hodgkiss informed the Board that the District received a refund check from the Association of California Water Agencies Joint Powers Insurance Authority (ACWA JPIA) in the amount of $174,757.22 for the District's low loss ratio. Mr. Hodgkiss thanked Director of Operations and Field Services Frank Wolinski and Safety and Risk Manager Sherry Thorpe for their efforts on the main replacement program and other programs that were put in place to lower the District's loss ratios in all three of the ACWA JPIA programs: Liability, Property, and Workers Compensation.

Mr. Hodgkiss reported that after over 7.5 inches of rain in the month of March 2020, the water level at Lake Henshaw was at just over 7,000 acre feet, which equates to an increase of about 1,500 acre feet.

Mr. Hodgkiss advised the Board that Mr. Cosgrove was very helpful in preparing the "COVID-19 Response Procedures for Meeting" language used on the agenda to explain how the public could participate in the meeting (teleconference only) and that all Board members could participate via teleconference in accordance with Governor Newsom's recent Executive Orders related to the Brown Act. He thanked Mr. Cosgrove for his assistance.

## 15. ADJOURNMENT

There being no further business to come before the Board, at 10:17 a.m. President Vásquez adjourned the meeting to April 15, 2020 at 9:00 a.m.

Richard L. Vásquez, President

ATTEST:

Lisa R. Soto, Secretary
Board of Directors
VISTA IRRIGATION DISTRICT

VISTA IRRIGATION DISTRICT

# STAFF REPORT

**Agenda Item: 6.A**

| | |
|---|---|
| **Board Meeting Date:** | **April 1, 2020** |
| **Prepared By:** | **Matt Atteberry** |
| **Reviewed By:** | **Randy Whitmann** |
| **Approved By:** | **Brett Hodgkiss** |

SUBJECT: ACKNOWLEDGMENT OF EASEMENT, ENCROACHMENT PERMIT, JOINT USE AGREEMENT AND GRANT OF RIGHT OF WAY

RECOMMENDATION: Acknowledge existing easement via Tract Map, approve Encroachment Permit (131) and Joint Use Agreement and accept Grant of Right of Way (L54) for a 380 dwelling unit residential subdivision consisting of approximately 109.3 gross acres owned by Lennar Homes of California, located in the northwest portion of the City of Escondido along Country Club Lane (LN 2018-010; APNs 224-210-53, 224-211-05, -12, -15, 224-230-36, -43, 224-430-04, 224-431-01, -02 -03, 224-490-05, -06 and 224-491-01).

PRIOR BOARD ACTION: None.

FISCAL IMPACT: None.

SUMMARY: The District currently has an easement encumbering the project that is identified on the Tract Map; acknowledgment of the easement will allow the owner to record the map with the County Recorder. Approval of Encroachment Permit (131) and Joint Use Agreement will allow the owner to work within the Vista Flume (Flume) easement and install storm drain facilities for the City of Escondido (Escondido). Acceptance of Grant of Right of Way (L54) via an easement document will allow the District to secure a dedicated 30-foot specific easement over a relocated transmission main through the project.

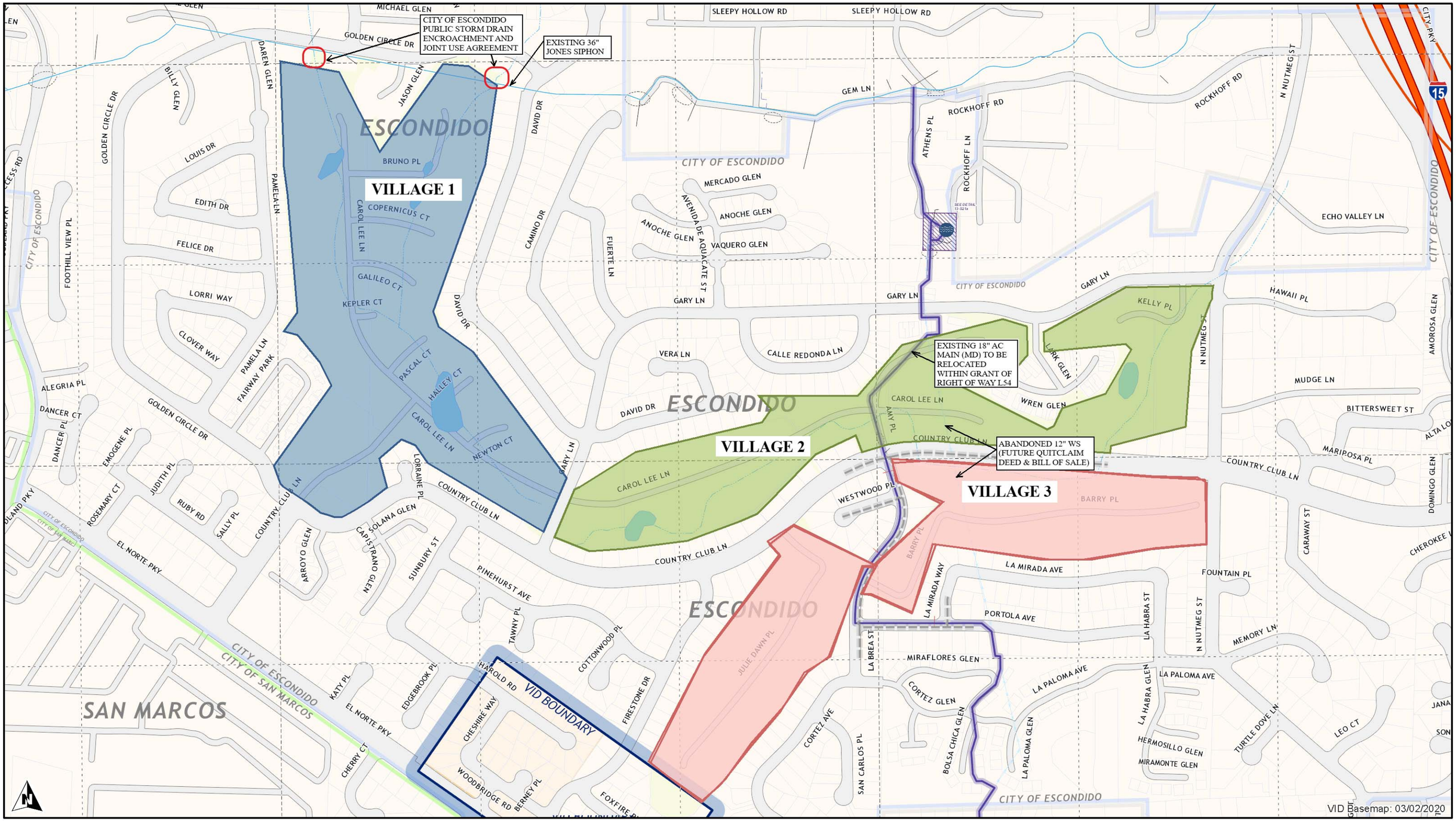
DETAILED REPORT: The proposed Villages project is located on approximately 109.3 acres of land that was previously the old Escondido Golf Course along Country Club Lane between Nutmeg Street and Pamela Lane in Escondido. The owner, Lennar Homes of California, is in the process of developing a 380 dwelling unit residential subdivision that will be served water by Escondido. Development is planned to occur in three phases, Villages 1, 2 and 3, with each having the following District involvement.

- Village 1 – the underground Jones Siphon portion of the Flume is located across the northern tip of the subdivision and storm drain improvements for Escondido are required within the District's easement. This work requires District acknowledgment of the District's existing easement on the Tract Map, an encroachment permit with the developer to install the storm drain facilities, and a joint use agreement with Escondido.
- Village 2 – proposes to relocate an existing 18-inch transmission main that feeds the Bennett service area and transfer ownership of an abandoned water main to the owner. This work requires District approval of the improvement plans, a new grant of right of way, acknowledgment of the new easement on the Tract Map, and a quitclaim and bill of sale for the abandoned water main.
- Village 3 – proposes to transfer ownership of an abandoned water main to the owner, which requires a quitclaim and bill of sale.

Acknowledgment, approval and acceptance of these items will allow the owners to proceed with the development of Village 1, and the District to secure an easement within Village 2. Additional approvals for Villages 2 and 3 will be brought to the Board for consideration at a subsequent Board meeting.

ATTACHMENTS: Project Map
Village 1 Storm Drain Encroachment Map

# VID INTRANET MAP




VID Basemap: 03/02/2020

Date Printed: 3/20/2020 at 11:58:52 AM

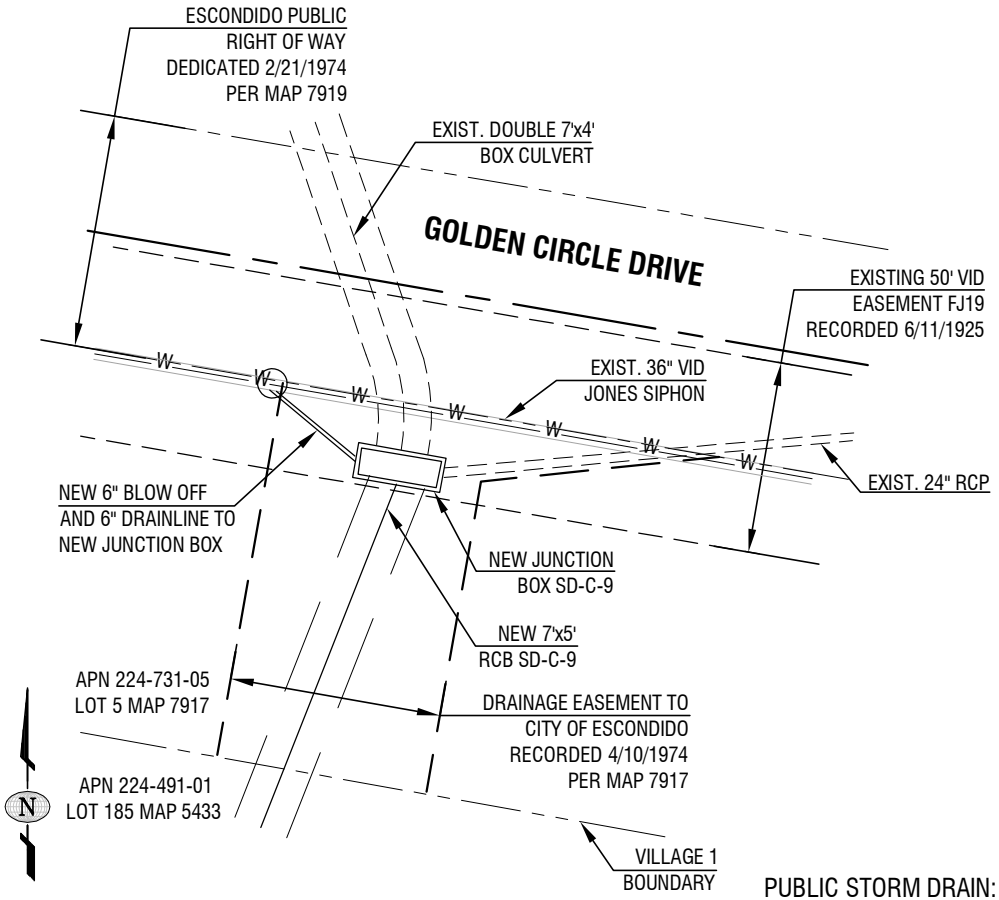
1:6,500

mi 0 0.09 0.18

km 0 0.1 0.2



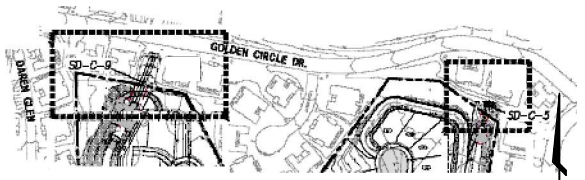
VISTA IRRIGATION DISTRICT




## WEST VID JONES SIPHON CROSSING

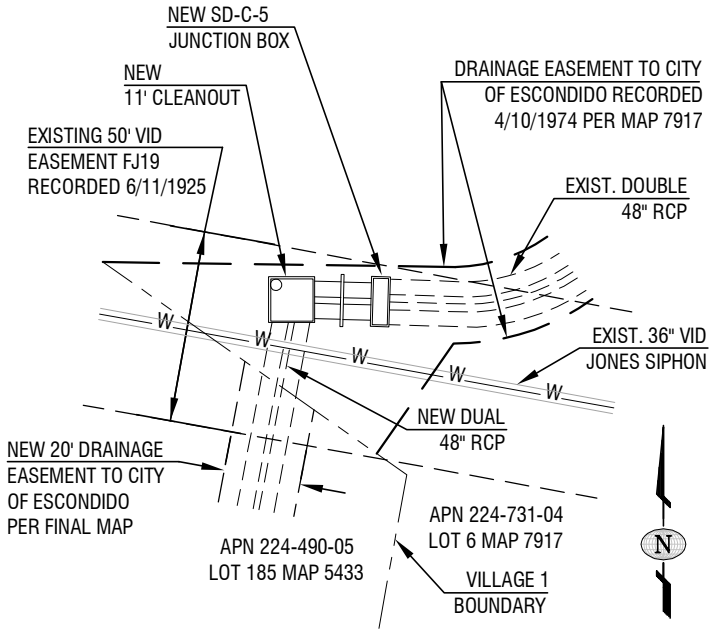
### PUBLIC STORM DRAIN "SD-C-9" ENCROACHMENT

**(PER SHEET 7 OF PUBLIC STORM DRAIN PLANS DWG D18-0001)**




## VICINITY MAP

NTS




## EAST VID JONES SIPHON CROSSING

### PUBLIC STORM DRAIN "SD-C-5" ENCROACHMENT

**(PER SHEET 12 OF PUBLIC STORM DRAIN PLANS DWG D18-0001)**

PUBLIC STORM DRAIN:
CITY OF ESCONDIDO
ENGINEERING SERVICES
201 NORTH BROADWAY
ESCONDIDO, CA 92025

DEVELOPER:
LENNAR HOMES OF CALIFORNIA, INC
16465 VIA ESPRILLO, SUITE 150
SAN DIEGO, CA 92127
ARNIE WHITE 858-618-4936

ENGINEER:
PROJECT DESIGN CONSULTANTS
701 B STREET, STE 800
SAN DIEGO, CA 92101
619-881-2556

# VISTA IRRIGATION DISTRICT

## THE VILLAGES JOINT USE AGREEMENT / ENCROACHMENT PERMIT NO. 131

| | | |
|---|---|---|
| APN 224-731-05; 224-731-04; 224-490-05 | | T.B. |
| SCALE 1" = 50' | | L.N. 2018-010 |
| APPD. BY | DATE | W.O. |
| DRAWN BY JB | DATE 1/22/20 | |
| SHEET 1 OF 1 | MAP R20; R21 | |
| REVISED: 3/23/20 Jeanette Bradshaw | | |

Z:\Engineering\JOBS\LN-Jobs\LN2018\LN 2018-010 The Villages EscondidoGC\JUA - Encroachmt - Highline -GROW\2018-010.dwg

# Cash Disbursement Report

Payment Dates 03/05/2020 - 03/19/2020

| Payment Number | Payment Date | Vendor | Description | Amount |
|---|---|---|---|---|
| 64009-64010 | 03/11/2020 | Refund Checks 64009-64010 | Customer Refunds | 130.34 |
| 64011 | 03/11/2020 | ACWA/JPIA | Medical & Dental Insurance 04/2020 - Cobra | 33.72 |
| | 03/11/2020 | | Medical & Dental Insurance 04/2020 - Cobra | 860.63 |
| | 03/11/2020 | | Medical & Dental Insurance 04/2020 - Cobra | 33.72 |
| | 03/11/2020 | | Medical & Dental Insurance 04/2020 - Cobra | 69.09 |
| | 03/11/2020 | | Medical & Dental Insurance 04/2020 - Cobra | 69.09 |
| | 03/11/2020 | | Medical & Dental Insurance 04/2020 - Cobra | 69.09 |
| | 03/11/2020 | | Medical & Dental Insurance 04/2020 - Cobra | 1,650.70 |
| | 03/11/2020 | | Medical & Dental Insurance 04/2020 - Cobra | 3,301.40 |
| | 03/11/2020 | | Medical & Dental Insurance 04/2020 - Employees | 171,895.13 |
| | 03/11/2020 | | Medical & Dental Insurance 04/2020 - Retirees | 42,264.61 |
| | 03/11/2020 | | Medical & Dental Insurance 04/2020 - P Dorey | 1,719.79 |
| | 03/11/2020 | | Medical & Dental Insurance 04/2020 - M Miller | 1,790.34 |
| | 03/11/2020 | | Medical & Dental Insurance 04/2020 - P Sanchez | 1,790.34 |
| | 03/11/2020 | | Medical & Dental Insurance 04/2020 - J MacKenzie | 1,790.34 |
| | 03/11/2020 | | Medical & Dental Insurance 04/2020 - R Vasquez | 1,719.79 |
| 64012 | 03/11/2020 | Airgas USA LLC | Bottle Exchange | 740.69 |
| | 03/11/2020 | | Welding Wire | 144.39 |
| | 03/11/2020 | | Welder | 3,045.46 |
| 64013 | 03/11/2020 | Amazon Capital Services | Hands Free Headset | 53.04 |
| 64014 | 03/11/2020 | American Water Works Association | AWWA Standards on CD Annual Dues | 1,600.00 |
| 64015 | 03/11/2020 | AT&T | Data Services | 698.93 |
| 64016 | 03/11/2020 | CDW Government Inc | iPad Pro 7th Gen with LTE | 603.07 |
| 64017 | 03/11/2020 | Cecilia's Safety Service Inc | Traffic Control - York Dr/Montgomery Dr | 8,787.50 |
| | 03/11/2020 | | Traffic Control - Monte Vista Dr | 3,040.00 |
| | 03/11/2020 | | Traffic Control - Hannalei Dr | 522.50 |
| 64018 | 03/11/2020 | 760Print | Door Hanger Policy Printing (10.000) | 3,031.00 |
| 64019 | 03/11/2020 | Core & Main | Lid 8" Slotted Valve (230) | 5,539.70 |
| 64020 | 03/11/2020 | Cozad & Fox | Structural Engineering Services 02/2020 - Pechstein | 3,968.30 |
| 64021 | 03/11/2020 | Direct Energy | Electric 02/2020 - VID | 945.14 |
| | 03/11/2020 | | Electric 02/2020 - Henshaw Buildings & Grounds | 393.67 |
| | 03/11/2020 | | Electric 02/2020 - Henshaw Well Field | 169.83 |
| | 03/11/2020 | | Electric 02/2020 - T & D / Cathodic Protection | 34.49 |
| | 03/11/2020 | | Electric 02/2020 - Reservoirs | 11.51 |

| Payment Number | Payment Date | Vendor | Description | Amount |
|---|---|---|---|---|
| | 03/11/2020 | | Electric 02/2020 - Pump Stations | 2,629.43 |
| | 03/11/2020 | | Electric 02/2020 - Treatment Plants | 28.11 |
| 64022 | 03/11/2020 | EDCO Waste & Recycling Services Inc | Trash & Recycling 02/2020 | 233.87 |
| | 03/11/2020 | | 40yd Dumpster | 428.62 |
| 64023 | 03/11/2020 | Eurofins Eaton Analytical Inc | Mid-Lake Samples 12/2019 | 340.00 |
| | 03/11/2020 | | UCMR 4 Lab Testing RD-10b | 600.00 |
| | 03/11/2020 | | UCMR 4 Lab Testing RD-10a | 600.00 |
| 64024 | 03/11/2020 | Ferguson Waterworks | 3/4" Gasket 1/8" Thick (100) | 29.23 |
| | 03/11/2020 | | 1" Gasket 1/8" Thick (100) | 35.72 |
| | 03/11/2020 | | Calder Coupling 4" Clay x 4" PVC (3) | 29.16 |
| | 03/11/2020 | | 0.5" PVC Pipe Sch 40 (20) | 4.76 |
| | 03/11/2020 | | Check Valve 1.5" PVC Sch 40 S x S (1) | 10.21 |
| 64025 | 03/11/2020 | Glennie's Office Products Inc | Office Supplies | 113.77 |
| 64026 | 03/11/2020 | Grainger | Filter - Hydration Station | 105.34 |
| 64027 | 03/11/2020 | Hawthorne Machinery Co | Filters - L6 | 57.04 |
| 64028 | 03/11/2020 | Home Depot Credit Services | Plywood | 39.92 |
| | 03/11/2020 | | Lumber | 20.12 |
| | 03/11/2020 | | Lumber, Buckets & Lids | 67.80 |
| | 03/11/2020 | | Parts & Tools | 44.61 |
| | 03/11/2020 | | Ice Machine Parts | 40.52 |
| | 03/11/2020 | | Ice Machine Parts | 10.54 |
| | 03/11/2020 | | Quick Links | 33.98 |
| | 03/11/2020 | | Asphalt Patch | 162.05 |
| | 03/11/2020 | | Plants | 58.39 |
| | 03/11/2020 | | Appliances for Dam House | 3,006.80 |
| | 03/11/2020 | | Door, Stain, Weather Stripping for Dam House | 117.30 |
| | 03/11/2020 | | Supplies for Dam House | 418.09 |
| | 03/11/2020 | | Ceiling Fan for Dam House | 410.44 |
| | 03/11/2020 | | Door Knobs & Hinges for Dam House | 312.20 |
| | 03/11/2020 | | Door & Flooring for Dam House | 304.43 |
| | 03/11/2020 | | Supplies for Dam House | 189.83 |
| | 03/11/2020 | | Door For Dam House | 72.72 |
| | 03/11/2020 | | Door Handles for Dam House | 32.26 |
| | 03/11/2020 | | Trim for Dam House | 7.76 |
| | 03/11/2020 | | Doors For Dam House (2) | 548.86 |
| | 03/11/2020 | | Repair Supplies for Regulator | 56.27 |
| | 03/11/2020 | | Heater | 98.59 |
| | 03/11/2020 | | Concrete 60lb bag (112) | 441.79 |
| 64029 | 03/11/2020 | Joe's Paving | Patch Paving - Montgomery Dr @ York Dr | 40,057.70 |

| Payment Number | Payment Date | Vendor | Description | Amount |
|---|---|---|---|---|
| 64030 | 03/11/2020 | Labor's Alliance | COWU Meeting 03/17/2020 - R Vasquez | 40.00 |
| | 03/11/2020 | | COWU Meeting 03/17/2020 - B Hodgkiss | 40.00 |
| 64031 | 03/11/2020 | Lightning Messenger Express | Messenger Service 02/28/20 | 52.50 |
| 64032 | 03/11/2020 | Magnum Plumbing Company Inc | Meter Tie-backs - Montgomery Dr | 14,902.80 |
| 64033 | 03/11/2020 | Moodys | Dump Fees (2) | 400.00 |
| | 03/11/2020 | | Dump Fee (1) | 200.00 |
| | 03/11/2020 | | Dump Fees (4) | 800.00 |
| 64034 | 03/11/2020 | NAPA Auto Parts | Hour Meter - A10 | 76.85 |
| 64035 | 03/11/2020 | North County Auto Parts | Vacuum Cap | 4.04 |
| | 03/11/2020 | | Fuel Filter - Truck 1 | 3.56 |
| | 03/11/2020 | | Filters, Oil, Protectant | 60.72 |
| 64036 | 03/11/2020 | One Source Distributors | Gas Detector Battery Packs (2) | 217.56 |
| 64037 | 03/11/2020 | O'Reilly Auto Parts | Vacuum Caps | 7.74 |
| | 03/11/2020 | | Gear Lube - E1 | 20.56 |
| 64038 | 03/11/2020 | Pacific Pipeline Supply | Angle Stops (2) | 306.85 |
| | 03/11/2020 | | Pipe Support Saddles (20) | 127.32 |
| 64039 | 03/11/2020 | Patrick Sanchez | Reimburse - CSDA Mtg, ACWA Mtg/Webinar | 140.60 |
| 64040 | 03/11/2020 | Benetrac | Employee Benefits Tracking 03/2020 | 400.00 |
| 64041 | 03/11/2020 | Paychex of New York LLC | Onboarding/Recruiting Service 03/2020 | 412.50 |
| 64042 | 03/11/2020 | Pollardwater | Debris Caps (8) | 517.78 |
| 64043 | 03/11/2020 | RDO Equipment Co | Maintenance Manual - C5 | 144.53 |
| 64044 | 03/11/2020 | Red Wing Shoe Store | Footwear Program | 203.85 |
| 64045 | 03/11/2020 | Richard Brady & Associates, Inc | HB Reservoir Rehabilitation 01/2020 | 575,616.00 |
| 64046 | 03/11/2020 | Richard Vasquez | Reimburse - ACWA Mtg, Urban Water Institute Conference | 388.26 |
| 64047 | 03/11/2020 | Right-of-Way Engineering Services, Inc | Easement Survey - Pala Vista Main Replacement | 1,200.00 |
| 64048 | 03/11/2020 | Rincon del Diablo MWD | MD Reservoir Water Service 02/2020 | 38.30 |
| 64049 | 03/11/2020 | Rutan & Tucker LLP | Legal 01/2020 | 1,028.00 |
| | 03/11/2020 | | Legal 01/2020 | 435.00 |
| 64050 | 03/11/2020 | San Diego Gas & Electric | Gas Use 02/2020 | 1,128.73 |
| | 03/11/2020 | | Electric 02/2020 - T&D | 93.50 |
| | 03/11/2020 | | Electric 02/2020 - T&D | 48.98 |
| 64051 | 03/11/2020 | Sherry Thorpe | Reimburse - Training Refreshments | 164.48 |
| 64052 | 03/11/2020 | SiteOne Landscape Supply, LLC | PVC 90 Degree Elbow 2' Socket (2) | 9.29 |
| | 03/11/2020 | | PVC Fittings (6) | 30.15 |
| 64053 | 03/11/2020 | Southern Counties Lubricants, LLC | Fuel 02/16/20-02/29/20 | 4,958.25 |
| 64054 | 03/11/2020 | Spok, Inc | Pagers | 43.90 |
| 64055 | 03/11/2020 | Tegriscape Inc | Landscape Maintenance 02/2020 | 1,787.50 |
| 64056 | 03/11/2020 | The UPS Store 0971 | Shipping 02/2020 | 483.97 |
| 64057 | 03/11/2020 | Trench Plate Rental Co | Trench Plate Rental | 271.66 |

| Payment Number | Payment Date | Vendor | Description | Amount |
|---|---|---|---|---|
| | 03/11/2020 | | Trench Plate Rental | 439.43 |
| 64058 | 03/11/2020 | TS Industrial Supply | Pump Utility 36" with hose (10) | 481.71 |
| | 03/11/2020 | | Marking Paint Roller (3) | 68.68 |
| | 03/11/2020 | | Cutter 30" Jet Model 700 Bolt (1) | 73.61 |
| | 03/11/2020 | | Pruner 26" (2) | 112.58 |
| | 03/11/2020 | | Cutter 1/8" to 1 5/8" Ridgid #RC-1625 PVC (3) | 203.78 |
| | 03/11/2020 | | Duct Tape #398 (5) | 57.37 |
| | 03/11/2020 | | Marking Paint Blue #203 (24) | 97.17 |
| | 03/11/2020 | | Goliath Safety Glasses Blk Frm / Smk Lens (24) | 214.34 |
| | 03/11/2020 | | Striping Paint White #710 (24) | 124.18 |
| | 03/11/2020 | | Wire Brush Small (10) | 26.63 |
| | 03/11/2020 | | Sea 2" Pipe Wrap Tape (50) | 351.81 |
| | 03/11/2020 | | Striping Paint Black #770 (24) | 124.18 |
| | 03/11/2020 | | Goliath Safety Glasses Blk Frm / Clr Lens (24) | 168.87 |
| | 03/11/2020 | | Striping Paint Blue #750 (24) | 124.18 |
| 64059 | 03/11/2020 | UniFirst Corporation | Uniform Service | 329.53 |
| 64060 | 03/11/2020 | Verizon Wireless | SCADA Remote Access | 368.89 |
| 64061 | 03/11/2020 | VG Donuts & Bakery Inc | Board Meeting 03/04/20 | 33.28 |
| 64062 | 03/11/2020 | Vinje & Middleton Engineering Inc | Trench Line Compaction - Montgomery | 830.00 |
| 64063 | 03/11/2020 | Vista Paint Corporation | Paint | 58.37 |
| 64064-64065 | 03/19/2020 | Refund Checks 64064-64065 | Customer Refunds | 274.79 |
| 64066 | 03/19/2020 | Airgas USA LLC | TIG Welder Supplies | 33.73 |
| | 03/19/2020 | | Drive Roll for Welder | 78.04 |
| | 03/19/2020 | | First Aid Kit Restock Supplies | 85.32 |
| | 03/19/2020 | | Welding Wire | 144.39 |
| | 03/19/2020 | | Angle Grinder | 86.19 |
| 64067 | 03/19/2020 | Metal Amore | Expanded Metal | 50.69 |
| 64068 | 03/19/2020 | Amazon Capital Services | Flap Discs (12) | 129.24 |
| | 03/19/2020 | | Ball Hitch - Truck 66 | 43.79 |
| | 03/19/2020 | | Office Supplies | 99.60 |
| | 03/19/2020 | | Meter Service Lateral Crimper | 315.08 |
| | 03/19/2020 | | Flash Memory Card SD Cards (2) | 105.38 |
| 64069 | 03/19/2020 | Answering Service Care, LLC | Answering Service | 395.00 |
| 64070 | 03/19/2020 | Auto Specialist Warehouse | Front Brake Pads - Truck 45 | 75.06 |
| 64071 | 03/19/2020 | Boot Barn Inc | Footwear Program | 138.75 |
| 64072 | 03/19/2020 | Cecilia's Safety Service Inc | Traffic Control - York Dr/Montgomery Dr | 6,697.50 |
| | 03/19/2020 | | Traffic Control - Tower Dr | 1,520.00 |
| | 03/19/2020 | | Traffic Control - York Dr/Montgomery Dr | 5,605.00 |
| | 03/19/2020 | | Traffic Control - Oak Dr/Monique Ct | 1,615.00 |

| Payment Number | Payment Date | Vendor | Description | Amount |
|---|---|---|---|---|
| 64073 | 03/19/2020 | 760Print | Business Cards | 528.26 |
| 64074 | 03/19/2020 | City Of Escondido | Water Treatment Plant FY 2018/19 | 1,036,719.97 |
| | 03/19/2020 | | San Pasqual Undergrounding Project FY 19 | 380,141.03 |
| | 03/19/2020 | | Escondido Water Treatment Plant 01/2020-02/2020 | 144,788.00 |
| 64075 | 03/19/2020 | City of Oceanside | Weese Treatment 02/2020 | 26,282.14 |
| 64076 | 03/19/2020 | CleanCapital HCA Borrower LLC | Solar Use 02/2020 | 4,988.13 |
| 64077 | 03/19/2020 | Coast Equipment Rentals | Excavator Rental | 795.11 |
| 64078 | 03/19/2020 | Core & Main | Lid 8" Slotted Valve (169) | 4,070.47 |
| | 03/19/2020 | | End Caps (4) | 330.90 |
| | 03/19/2020 | | Pipe .75" PVC Schedule 40 (40) | 10.83 |
| | 03/19/2020 | | Pipe 2" PVC Schedule 40 (20) | 18.40 |
| | 03/19/2020 | | Pipe Lube 5 gal (2) | 140.73 |
| | 03/19/2020 | | Flange 6" SOW 6-hole (7) | 250.06 |
| | 03/19/2020 | | Ball Meter Valve .75" Lockwing FIPxSwivel Mtr Nut (20) | 1,320.65 |
| | 03/19/2020 | | Coupling 1"x1" Female Flare Super Grip (10) | 252.66 |
| | 03/19/2020 | | Ball Valve 1" FIP x FIP with handle PSI 150 (5) | 402.95 |
| 64079 | 03/19/2020 | CoreLogic Solutions Inc | Real Quest Online Services 02/2020 | 300.00 |
| 64080 | 03/19/2020 | CW Wulff Associates | Distribution Review Classes (2) | 3,600.00 |
| 64081 | 03/19/2020 | Digital Deployment, Inc | Website Hosting, Maintenance & Support 02/2020 | 300.00 |
| 64082 | 03/19/2020 | Dion International Trucks, LLC - San Marcos | Turbo Boost Monitor Tube - Truck 44 | 79.87 |
| | 03/19/2020 | | Engine & Emission System Repair - Truck 44 | 2,760.29 |
| 64083 | 03/19/2020 | Drug Testing Network Inc | Random DOT Tests | 195.90 |
| 64084 | 03/19/2020 | Electrical Sales Inc | Photo Cell Controls (2) | 33.65 |
| | 03/19/2020 | | Ballasts | 410.94 |
| | 03/19/2020 | | Conduit Covers for Lighting | 5.76 |
| | 03/19/2020 | | LED Bulbs (60) | 578.69 |
| 64085 | 03/19/2020 | Ergostop Inc | Sit/Stand Desk | 1,746.56 |
| 64086 | 03/19/2020 | Eurofins Eaton Analytical Inc | UCMR4 Lab Testing RD-10c | 800.00 |
| | 03/19/2020 | | UCMR 4 Lab Testing RD-10d | 600.00 |
| | 03/19/2020 | | PFAS RD-1 Testing | 900.00 |
| 64087 | 03/19/2020 | Ferguson Waterworks | Lid 8" Slotted Valve (VID) (1) | 23.92 |
| | 03/19/2020 | | Weld Coupling 1" Black (Thick Walled) (10) | 24.90 |
| | 03/19/2020 | | Meter Bushing Ford 3/4" x 1" (#A34R-NL) (20) | 216.07 |
| | 03/19/2020 | | Air Vents (2) - E1 Reservoir | 649.50 |
| | 03/19/2020 | | DFW Meter Box Lid Large PW6C (VID Stamp) (5) | 432.46 |
| | 03/19/2020 | | DFW Meter Box Lid 3.5 DFW36C (VID Stamp) (35) | 1,439.73 |
| | 03/19/2020 | | DFW Meter Box Lid Small D1324 (VID Stamp) (120) | 6,884.70 |
| | 03/19/2020 | | DFW Meter Box Lid 4.5 486SA (VID Stamp) (5) | 213.79 |
| | 03/19/2020 | | DFW Meter Box Small DFW1324CH4-12 (108) | 9,346.95 |

| Payment Number | Payment Date | Vendor | Description | Amount |
|---|---|---|---|---|
| | 03/19/2020 | | DFW Meter Box Lid Medium 1220E (VID Stamp) (5) | 259.80 |
| | 03/19/2020 | | DFW Meter Box Small DFW1324CH4-12 (7) | 605.82 |
| 64088 | 03/19/2020 | Fleet Pride | Self Adhesive Metal Patches | 27.99 |
| 64089 | 03/19/2020 | Fredricks Electric Inc | Repaired Lighting | 2,000.00 |
| 64090 | 03/19/2020 | D.H. Maintenance Services | Janitorial Service 03/2020 | 2,366.00 |
| 64091 | 03/19/2020 | Glennie's Office Products Inc | Office Supplies | 93.32 |
| | 03/19/2020 | | Office Supplies | 107.86 |
| | 03/19/2020 | | Office Supplies | 88.59 |
| 64092 | 03/19/2020 | Grainger | Xenon Bulb (1) | 12.22 |
| | 03/19/2020 | | Utility Blades (200) | 16.74 |
| | 03/19/2020 | | Thread File (1) | 19.60 |
| | 03/19/2020 | | Barricade Marking Tape Roll (10) | 118.86 |
| | 03/19/2020 | | Water Filters for Ice Machines (2) | 34.32 |
| | 03/19/2020 | | Belt for Automatic Gate (1) | 6.28 |
| 64093 | 03/19/2020 | Hach Company | StablCal Calibration Set w. RFID | 499.79 |
| | 03/19/2020 | | Shipping | 223.46 |
| | 03/19/2020 | | PC sc (kit), pH Combination Convertible Sensor | 553.27 |
| | 03/19/2020 | | SC200 Controller, AC-DC, 2 DIG | 2,281.96 |
| | 03/19/2020 | | Process Head Holder, TU5xxx sc | 78.67 |
| | 03/19/2020 | | TU5300sc, Sys Chk RFID Flow ACM w/sc200 2 ch | 4,545.42 |
| | 03/19/2020 | | 3422 sc Digital Conductivity Sensor | 678.76 |
| | 03/19/2020 | | CL17sc Total Chlorine Analyzer with Standpipe | 2,534.94 |
| 64094 | 03/19/2020 | Hawthorne Machinery Co | Fuel Filter | 30.56 |
| | 03/19/2020 | | A/C Repair, Windshield Wiper Motor Replacement- L6 | (3,457.67) |
| | 03/19/2020 | | A/C Repair, Windshield Wiper Motor Replacement- L6 | 3,457.67 |
| 64095 | 03/19/2020 | HF Scientific Inc | Total Chlorine Regents DPD Dispenser | 383.83 |
| 64096 | 03/19/2020 | Horton Knox Carter & Foote LLP | Legal Services 03/2020 | 12,000.00 |
| 64097 | 03/19/2020 | HUB Construction Specialties | Honda Generator - Truck 10 | 2,101.22 |
| 64098 | 03/19/2020 | IDEXX Distribution Corporation | Bac-T Bottles & Colilert | 2,302.32 |
| 64099 | 03/19/2020 | Joe's Paving | Patch Paving - Montgomery Dr | 52,963.90 |
| | 03/19/2020 | | Patch Paving | 4,766.70 |
| 64100 | 03/19/2020 | John Ivicevic | Refund As-Built Deposit 03/2020 | 924.00 |
| 64101 | 03/19/2020 | Johnson Controls Fire Protection LP | Quarterly Fire Sprinkler Testing & Inspection | 1,124.00 |
| 64102 | 03/19/2020 | Ken Grody Ford Carlsbad | Radiator De-gas Tank & Cap - Truck 30 | 119.20 |
| 64103 | 03/19/2020 | Major League Pest | Monthly Pest Control | 225.00 |
| 64104 | 03/19/2020 | McMaster-Carr Supply Company | Strut Channels, Routing Clamps | 175.58 |
| 64105 | 03/19/2020 | Medical Eye Services | Vision Insurance 04/2020 - Cobra | 8.78 |
| | 03/19/2020 | | Vision Insurance 04/2020 - Employees | 1,621.78 |
| | 03/19/2020 | | Vision Insurance 04/2020 - P Dorey | 14.24 |

| Payment Number | Payment Date | Vendor | Description | Amount |
|---|---|---|---|---|
| | 03/19/2020 | | Vision Insurance 04/2020 - J MacKenzie | 14.24 |
| | 03/19/2020 | | Vision Insurance 04/2020 - M Miller | 14.24 |
| | 03/19/2020 | | Vision Insurance 04/2020 - R Vasquez | 14.24 |
| | 03/19/2020 | | Vision Insurance 04/2020 - P Sanchez | 14.24 |
| 64106 | 03/19/2020 | Moodys | Dump Fees (2) | 400.00 |
| | 03/19/2020 | | Dump Fees (2) | 400.00 |
| | 03/19/2020 | | Dump Fees (2) | 400.00 |
| | 03/19/2020 | | Dump Fee (1) | 200.00 |
| | 03/19/2020 | | Dump Fees (2) | 400.00 |
| | 03/19/2020 | | Dump Fee (1) | 200.00 |
| | 03/19/2020 | | Dump Fees (3) | 600.00 |
| | 03/19/2020 | | Dump Fees (2) | 400.00 |
| 64107 | 03/19/2020 | NAPA Auto Parts | Cabin Air Filter - L6 | 29.18 |
| | 03/19/2020 | | Toolbox Weatherstrip - Truck 30 | 12.98 |
| | 03/19/2020 | | Sandpaper Flapper Wheels (2) | 8.64 |
| | 03/19/2020 | | Tail Lamp Assembly | 8.65 |
| | 03/19/2020 | | Alternator Pigtail Connector - VM1 | 9.73 |
| 64108 | 03/19/2020 | North County Auto Parts | Filters | 141.87 |
| | 03/19/2020 | | Filter, Brake Fluid, Oil | 59.58 |
| | 03/19/2020 | | Bolts | 48.20 |
| | 03/19/2020 | | Filters, Chemicals, Oil | 129.41 |
| | 03/19/2020 | | Brake Cleaner,  Oil | 64.31 |
| | 03/19/2020 | | Toggle Switch (2) | 33.45 |
| | 03/19/2020 | | Filter - Truck 38 | 3.49 |
| | 03/19/2020 | | Trailer Light Cord Adapters | 28.77 |
| 64109 | 03/19/2020 | North County Lawnmower Inc | Weed Whip Heads | 107.71 |
| 64110 | 03/19/2020 | North County Pool Center Inc | Chlorine for Disinfection | 12.14 |
| 64111 | 03/19/2020 | One Source Distributors | Fluke Amp Meters (2) | 888.17 |
| 64112 | 03/19/2020 | O'Reilly Auto Parts | Battery - T7 | 252.20 |
| 64113 | 03/19/2020 | Pacific Pipeline Supply | Service Saddle 8x1 Brass AC (4) | 515.27 |
| | 03/19/2020 | | Fire Hydrant 6x4x2.5 (6) | 14,301.99 |
| | 03/19/2020 | | Coupling 4" Macro (5) | 1,055.44 |
| | 03/19/2020 | | Grease No-Oxide 1 gal (4) | 212.17 |
| | 03/19/2020 | | Nut Bolt Gasket Kit 6"-8" (6" gasket) 3/4 x 3 1/4 (25) | 202.96 |
| | 03/19/2020 | | Ball Valve .75" FIP x FIP  with handle PSI 150 (4) | 43.30 |
| | 03/19/2020 | | Pipe .75" PVC Schedule 40 (60) | 32.48 |
| | 03/19/2020 | | Air Vent 4" ARI Combination Valve (2) | 3,570.09 |
| | 03/19/2020 | | Pipe  4" PVC DR-14 C900 (20) | 64.95 |
| | 03/19/2020 | | Tubing 1.5" Copper Soft 20' (20) | 162.38 |

| Payment Number | Payment Date | Vendor | Description | Amount |
|---|---|---|---|---|
| | 03/19/2020 | | Pipe 8" PVC DR-14 C900 (60) | 584.55 |
| | 03/19/2020 | | Reducing Companion Flange (1) | 205.77 |
| | 03/19/2020 | | Spool for Fire Hydrant (1) | 299.46 |
| | 03/19/2020 | | Hose Reducer Fitting (1) | 23.82 |
| 64114 | 03/19/2020 | Panera Bread | Lunch 03/10/20 - Distribution Review Class | 567.10 |
| 64115 | 03/19/2020 | Pauley Equipment Rental Inc | Excavator Rental | 1,452.50 |
| 64116 | 03/19/2020 | Raymond Handling Solutions Inc | Preventative Maintenance - F3 | 98.00 |
| 64117 | 03/19/2020 | Richard Brady & Associates, Inc | HB Reservoir Rehabilitation 02/2020 | 226,238.00 |
| 64118 | 03/19/2020 | San Diego Gas & Electric | Electrical Transmission 02/2020 | 1,489.91 |
| 64119 | 03/19/2020 | Sloan Electric Company | Well MCP Parts | 1,559.24 |
| 64120 | 03/19/2020 | Bend Genetics, LLC | HABS Testing - Henshaw | 290.00 |
| 64121 | 03/19/2020 | Midas Service Experts | Tire & Alignment - Truck 55 | 568.66 |
| | 03/19/2020 | | Tires (4) - G25 | 397.84 |
| 64122 | 03/19/2020 | TS Industrial Supply | Wood Handle Hand Trowel (10) | 86.06 |
| | 03/19/2020 | | Marking Paint White #207 (24) | 97.17 |
| | 03/19/2020 | | Marking Paint Asphalt Black #770 (36) | 186.28 |
| | 03/19/2020 | | Teflon Tape 1" (24) | 29.88 |
| | 03/19/2020 | | Marking Paint Orange (12) | 48.58 |
| | 03/19/2020 | | Utility Knife (Stanley 10-499) (10) | 86.06 |
| | 03/19/2020 | | Hand Brush (2) | 16.89 |
| | 03/19/2020 | | 3" Stiff Wall Scraper (3) | 16.89 |
| | 03/19/2020 | | 1.25" Stiff Wall Scraper (3) | 13.80 |
| | 03/19/2020 | | Shut-Off Tool #85 (2) | 617.03 |
| | 03/19/2020 | | Gloves Thickster Nitrile XL 100 per box (24) | 370.22 |
| | 03/19/2020 | | Hat Hard Full Brim with Ratchet Head Gear (9) | 258.18 |
| | 03/19/2020 | | Poly Sprayer 1 gallon (4) | 235.99 |
| | 03/19/2020 | | Shovel 4" Trench (5) | 104.19 |
| | 03/19/2020 | | Wrench 1 1/8" Combination (2) | 97.10 |
| | 03/19/2020 | | Igloo Water Cooler 5 gal (2) | 90.82 |
| | 03/19/2020 | | Wire Wheel 5" (5) | 84.98 |
| | 03/19/2020 | | Wire Wheel 4" (5) | 83.89 |
| | 03/19/2020 | | Igloo Water Cooler 3 gal (2) | 80.65 |
| | 03/19/2020 | | Measuring Tape 25' Engineering (5) | 105.54 |
| | 03/19/2020 | | Mirror 3.25" Diameter Telescopic (2) | 51.42 |
| | 03/19/2020 | | Tape 3" Caution (5) | 48.44 |
| | 03/19/2020 | | Sling Lifting 2"x6' Heavy Duty (3) | 68.85 |
| 64123 | 03/19/2020 | Underground Service Alert of Southern California | Dig Alert New Tickets (240) | 406.00 |
| | 03/19/2020 | | Dig Safe Board Fee 02/2020 | 220.93 |
| 64124 | 03/19/2020 | UniFirst Corporation | Uniform Service | 329.53 |

| Payment Number | Payment Date | Vendor | Description | Amount |
|---|---|---|---|---|
| | 03/19/2020 | | Uniform Service | 329.53 |
| | 03/19/2020 | | Uniform Service | 329.53 |
| | 03/19/2020 | | Uniform Service | 329.53 |
| 64125 | 03/19/2020 | VG Donuts & Bakery Inc | Board Workshop 03/11/20 | 33.28 |
| 64126 | 03/19/2020 | Vista Brake & Smog | Tires (4) - Truck 33 | 1,111.47 |
| | 03/19/2020 | | Tires (2) - Truck 37 | 451.57 |
| | 03/19/2020 | | Tires & Alignment (2) - Trunk 10 | 1,055.24 |
| 64127 | 03/19/2020 | Vortex Industries Inc | Semi-Annual Gate Maintenance | 800.00 |
| 64128 | 03/19/2020 | Vulcan Materials Company and Affiliates | Cold Mix | 1,903.08 |
| 64129 | 03/19/2020 | Waterless Company Inc | Supplies for Waterless Urinals | 348.78 |
| 64130 | 03/19/2020 | WorkPartners OHS | DOT Physicals (2) | 250.00 |
| 64131 | 03/19/2020 | Xerox Corporation | Xerox Supplies & Services | 302.83 |
| | | | **Grand Total:** | **2,941,312.72** |

| VISTA IRRIGATION DISTRICT | Agenda Item: 7 |
|---|---|
| | **Board Meeting Date:** April 1, 2020 |
| | **Prepared By:** Don Smith, Randy Whitmann, Frank Wolinski & Marlene Kelleher |
| **STAFF REPORT** | **Approved By:** Brett Hodgkiss |

SUBJECT: DIVISION REPORTS

RECOMMENDATION: Note and file informational report.

PRIOR BOARD ACTION: None.

FISCAL IMPACT: None.

SUMMARY: Previous month's and anticipated activities are reported by each division.

## ENGINEERING DIVISION

***March***

- The District has replaced approximately 9.22 miles of Nipponite pipe since 2002. Of the 6.76 miles of Nipponite pipe remaining in the system, replacement of 1.50 miles is currently in design and 0.04 miles is in construction.
- The District has replaced approximately 6,590 feet (1.25 miles) of pipe (steel – 990 feet, PVC – 0 feet, non-Nipponite asbestos cement – 5,600 feet and Nipponite – 0 feet) in Fiscal Year 2020.
- Buena Creek (HB) Reservoir Rehabilitation – Richard Brady and Associates continued to remove roof demolition debris from site, remove roof shoring, clean inside of the reservoir, and perform inspections for slab and wall crack repairs. Cost estimate/bid summary table attached.
- Edgehill (E) Reservoir Replacement and Pump Station – Staff reviewed and provided comments to Dudek on 75% design submittal. As a requirement of the California Environmental Quality Act (CEQA), a draft Mitigated Negative Declaration (MND) was circulated for public comment for 30 days commencing March 25, 2020.
- Projects along Flume
    - The Villages – 380 dwelling unit residential subdivision along Country Club Lane between Nutmeg Street and Pamela Lane in Escondido. Project includes storm drain work along the Jones Siphon in addition to the relocation of an 18-inch transmission main feeding the Bennett service area. District review and approval of tract map, encroachment permit, joint use agreement, grant of right of way, improvement plan, and quitclaim and bill of sale are required.
    - Orchard Hills – 20 single-family home residential subdivision along Richland Road within a small unincorporated area between Escondido and San Marcos. Project requires District review and approval of de-annexation, grading plan, tract map, and irrevocable offer of dedication to the County of San Diego for a future trail along the Borden Bench. De-annexation approved by Board; all plans are currently in plan check.

***April***

- Mainline Replacement Projects in design (current projects): Alta Vista Dr., Vista Grande Dr.*, Lonsdale Ln.*, Plumosa Ave., Lita Ln., Catalina Ave.*, Friendly Dr.*, Oak Dr.*, San Clemente Way*, Calle Maria, Via Christina, Olive Ave.*, Green Hills Way, Elevado Rd. (Total length = 3.44 miles).
- Mainline Replacement Projects in planning (future projects): N. Citrus Ave.*., E. Vista Way, Mason Rd., Lado De Loma, Eddy Dr., Camino Patricia, Camino Corto, Nordahl Rd.*, HN Line- Gopher Canyon to Fairview Dr., Buena Creek Rd.*, Robinhood Rd., Lower Ln., Easy St., Rancho Vista Rd.,

Bandini Place, McGavran Dr., Oro Avo Dr., Shale Rock, La Mirada, Crescent Dr., Descanso Ave., Mar Vista Dr., Miramar Dr., Camino Culebra*, Camino Loma Verde*, San Clemente Ave.* (Total length = 8.49 miles).

- City of Vista Projects – (Paseo) South Santa Fe Streetscape Improvements: Phase II along South Santa Fe Avenue from Ocean View to Terrace Drive (CIP #8289); Phase III along South Santa Fe Avenue from Terrace Drive to Civic Center Drive (CIP #9291). Project currently in construction and District to continue inspecting water facilities installed by City's contractor. (Total length = 0.77 miles).
- Buena Creek (HB) Reservoir Rehabilitation – Richard Brady and Associates to form and pour concrete wall cap for aluminum dome roof and begin reservoir footing and inlet and outlet modifications.
- Edgehill (E) Reservoir Replacement and Pump Station – Dudek to incorporate District's 75% design submittal comments and begin working on 100% design submittal; receive public comments on draft MND.
- Four Reservoirs Seismic and Structural Analysis – MurraySmith to begin reservoir inspections to evaluate Virginia Place (A), Summit Trail (C), Cabrillo Circle (E-1) and Deodar reservoirs.

*Nipponite pipe

## WATER RESOURCES DIVISION

### VID Water Production
### February 2020

| Description | Current Month Production (mgd) | Current Month Production (af) | Average Production of Last 12 Months (mgd) | Average Production of Last 12 Months (af) | Total, Fiscal Year-to-Date (af) |
|---|---|---|---|---|---|
| ***VID's EVWTP Water Production*** | | | | | |
| Local Water | 0.99 | 88.20 | 3.99 | 374.42 | 2,311.10 |
| SDCWA Raw Water | 7.65 | 681.20 | 7.52 | 703.30 | 6,327.90 |
| **Subtotal (EVWTP Water Production)** | **8.65** | **769.40** | **11.51** | **1,077.72** | **8,639.00** |
| Oceanside Contract Water | 1.96 | 174.10 | 0.58 | 53.92 | 647.00 |
| SDCWA Treated Water | 1.31 | 116.30 | 2.20 | 205.79 | 1,904.10 |
| **TOTAL WATER PRODUCTION** | **11.91** | **1,059.80** | **14.29** | **1,337.43** | **11,190.10** |

Lake Henshaw and Warner Ranch Wellfield statistics are summarized as follows:

**Lake Henshaw**

| | |
|---|---|
| Storage as of March 24, 2020: | 6,581 af (13% of 51,832 af capacity) |
| Current releases: | 0 cfs |
| Change in storage for month of February: | -26 af (gain) |
| Total releases for month of February: | 0 af |
| Hydrologic year-to-date rain total: | 22.04 inches (March 24, 2020) |
| Percent of yearly average rain: | 90% (30-year average: 24.62 inches) |
| Percent of year-to-date average rain: | 99% (30-year average through March: 22.32 in.) |

**Warner Ranch Wellfield**

| | |
|---|---|
| Number of wells running in February: | 0 |
| Total production for month of February: | 23 af (equipment maintenance and cattle water) |
| Average depth to water table (March): | 99 ft (see attached historical water table chart) |

***March***

- Met with Alexandra Stehl, Planning Chief with California State Parks to walk the historic alignment of the California Riding and Hiking Trail (CRHT) across District lands and discuss issues related to its management and disposition. Ms. Stehl supported the District's prohibition of the public use of the trail and unauthorized maintenance activities until a new agreement with the State is executed.
- Received laboratory results from samples taken at Lake Henshaw, which confirmed that the levels of microcystin were below the State's guidelines for the "Caution" public notice for harmful algal blooms. Staff removed "Caution" signage at Lake Henshaw; they have been monitoring remote sensing data for the lake on a periodic basis, which has indicated a gradual reduction in the cyanobacteria concentration.
- Attended the Celebration of Life service for Frank Mendenhall.
- Submitted the District's proposed "Stephens' Kangaroo Rat (SKR) Avoidance and Minimization Measures - Warner Ranch Ditch Repair Project" to U.S. Fish and Wildlife Service (USFWS); the District was notified that USFWS had no further questions. Proceed with preparation of plans and specifications for the repair of 3,900 feet of concrete lined ditch on the Warner Ranch.

***April***

- Prepare plans and specifications for the Warner Ranch ditch repair project.

ATTACHMENTS:

- Lake Henshaw Resort, Inc., Activity Reports – January 2020
- VID's Warner Wellfield – Water Table Depth vs. Monthly Wellfield Production

## ADMINISTRATION DIVISION

***March***

- The District's total water production for February 2020 was 1,060 acre-feet (AF) compared to 1,028 AF in 2013, representing a 3% increase.
- Continued to present information regarding the poster contest to 4th grade classes located with the District's service area until schools closed because of the COVID-19 pandemic.
- Continued coordinating the development of the District Budget.
- Completed recruitments for Engineering Specialist II, Accountant and Welder Helper positions. Jose Sanchez accepted a job offer for the Engineering Specialist II position; Brian True accepted a job offer for the Accountant position; and Pat Smith accepted a promotion to the Welder Helper position.
- Attended California Special Districts Association Fiscal Committee meeting.
- Hosted training sessions for employees, supervisors and managers on workplace bullying and ethics. These trainings were open to other agencies.
- Coordinated Distribution Refresher classes for field personnel. These classes were open to other agencies.
- Coordinated implementation of Pandemic Response Plan in response to COVID-19 pandemic.

***April***

- Continue coordinating implementation of Pandemic Response Plan in response to COVID-19 pandemic.
- Continue coordinating the development of the District Budget.

## OPERATIONS & FIELD SERVICES

***March***

- Water Quality Calls/Incidents for March – received one discolored water call. The call was related to a scheduled system shutdown and was resolved with flushing.
- Conducted voluntary sampling for Per- and Poly-fluoroalkyl substances (PFASs). All lab results were non-detect or below the EPA health advisory set at 70 parts per trillion.
- Inspected and tested 15 new backflow devices that were integrated into the District's cross-connection control program.
- Pechstein Reservoir Beam Reinforcement Project – completed welding of stainless steel reinforcement plates and associated bracketry; awaiting delivery of strut material to complete assembly.
- Mainline replacement work is complete on Montgomery Drive except for four system and five customer tiebacks; project completion is on hold so water is not shut-off while customers are sheltering in place per the Governor's Executive Order related to the COVID-19 pandemic.

***April***

- Collect data and submit the Annual Report to the Division of Drinking Water.
- Continue Pechstein Reservoir Beam Reinforcement Project.
- Begin planning and potholing for mainline replacement on York Drive.

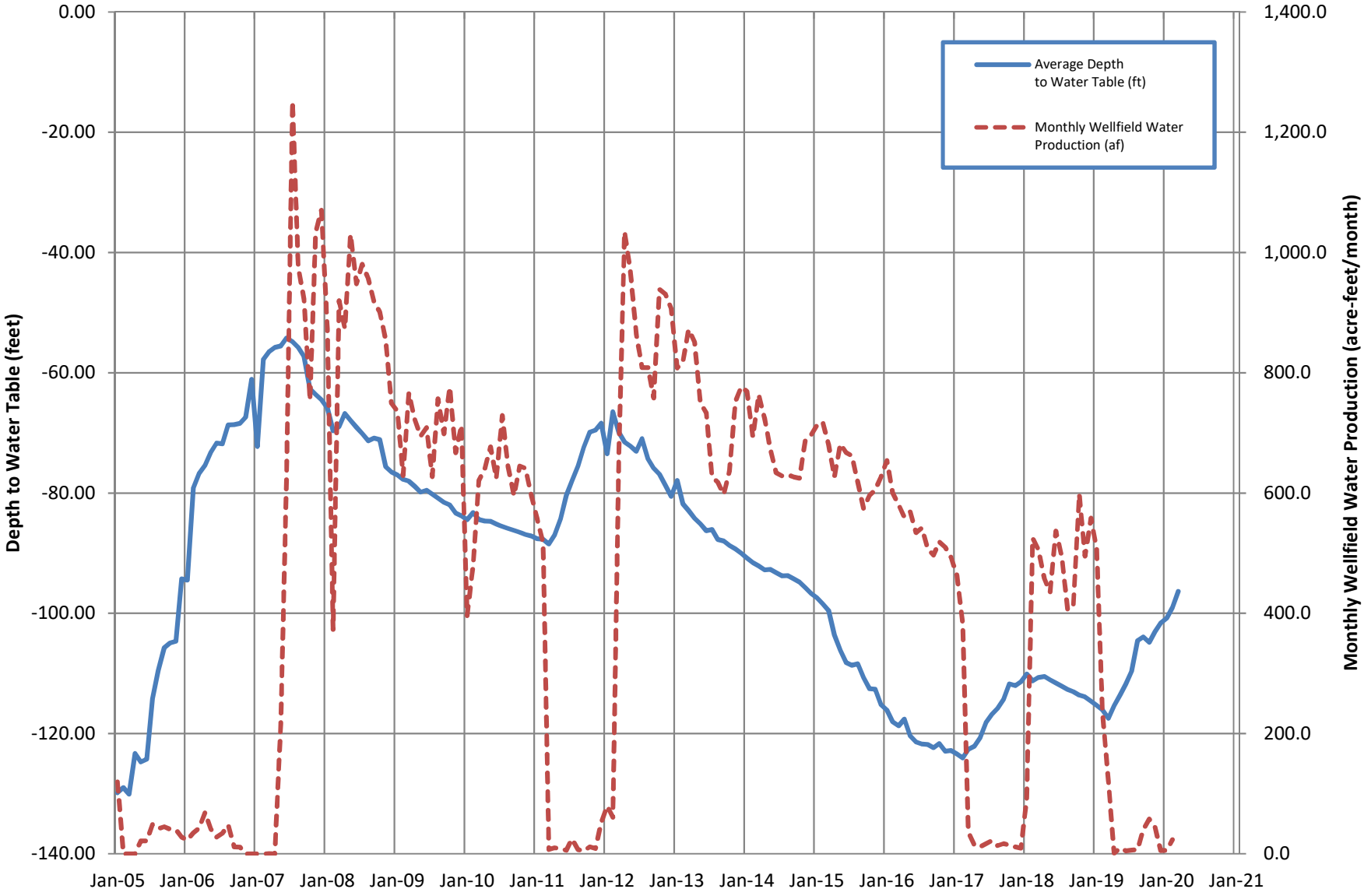
**Electrical Energy Use at VID Headquarters**
**February 2020**

| Description | Current Month Production (kWh) | Average of Last 12 Months (kWh) | Total, Fiscal Year-to-Date (kWh) |
|---|---|---|---|
| Solar Production ($0.18 per kWh) | 29,001 | 32,840 | 249,946 |
| Power purchased from Direct Energy ($0.05 per kWh) | 14,297 | 10,476 | 106,447 |
| **TOTAL ELECTRICAL ENERGY USE** | **43,298** | **43,315** | **356,393** |


# LAKE HENSHAW RESORT, INC.
## ACTIVITY REPORT
## AS JANUARY 31, 2020

| | 2019 Jan | 2019 Feb | 2019 Mar | 2019 Apr | 2019 May | 2019 Jun | 2019 Jul | 2019 Aug | 2019 Sep | 2019 Oct | 2019 Nov | 2019 Dec | 2020 Jan | 12 MO AVG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fishing Permits | 161 | 74 | 356 | 633 | 384 | 749 | 751 | 687 | 404 | 301 | 244 | 112 | 102 | 405 |
| Boat Launches | 0 | 0 | 4 | 43 | 30 | 43 | 50 | 23 | 82 | 7 | 0 | | 0 | 26 |
| Motor Boats (full day rental) | 0 | 0 | 0 | 0 | 11 | 48 | 47 | 42 | 19 | 7 | 4 | 2 | 7 | 15 |
| Motor Boats (half day rental) | 0 | 0 | 0 | 0 | 2 | 7 | 4 | 13 | 15 | 1 | 0 | 0 | 0 | 4 |
| Campground/Head Count | 35 | 56 | 319 | 590 | 599 | 879 | 979 | 1,188 | 488 | 196 | 128 | 39 | 110 | 458 |
| Campground/Cars, Trucks, etc. | 19 | 23 | 61 | 178 | 254 | 286 | 391 | 703 | 211 | 148 | 64 | 15 | 20 | 196 |
| Campground/Recreational Vehicles | 6 | 3 | 3 | 9 | 11 | 23 | 3 | 24 | 12 | 0 | 12 | 0 | 0 | 9 |
| Mobile Home/Spaces | 78 | 78 | 76 | 75 | 76 | 77 | 77 | 77 | 76 | 75 | 66 | 64 | 51 | 75 |
| M.H.P. Daily (Visitors/Head Count) | 42 | 41 | 56 | 62 | 41 | 54 | 56 | 100 | 102 | 98 | 67 | 63 | 28 | 65 |
| M.H.P. (Residents/Head Count) | 101 | 100 | 94 | 93 | 94 | 96 | 98 | 95 | 94 | 92 | 102 | 94 | 83 | 96 |
| Storage | 3 | 6 | 4 | 4 | 4 | 5 | 3 | 3 | 6 | 4 | 4 | 7 | 4 | 4 |
| Cabins | 105 | 59 | 111 | 184 | 188 | 108 | 158 | 177 | 126 | 144 | 144 | 98 | 88 | 134 |
| Hunters | 53 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 98 | 80 | 13 |

# VID's Warner Wellfield
# Water Table Depth vs. Monthly Wellfield Production




Printed 3/24/2020

# BUENA CREEK (HB) RESERVOIR REHABILITATION BUDGET UPDATE - APRIL 2020

| Description of Work | Budgeted Cost | Actual Bid Cost | Over or Under Budgeted Amount |
|---|---|---|---|
| **Initial Site Work - M-Rae** | | | |
| *Demolish Existing Fence, Steel Roof, Gate, Grub Site, Initial Site Work for Crane and Equipment Access* | *$59,693* | *$39,919* | *-$19,774* |
| **Exterior Stairs - Suez** | | | |
| *Disassemble, Transport, Protect, Store, and Reinstall Exterior Stairs* | *$52,718* | *$50,488* | *-$2,230* |
| **Roof Demolition - DN Tanks** | | | |
| *Roof Demolition, Remediate Existing Asbestos* | *$809,400* | *$1,064,236* | *$254,836* |
| **Tank Improvements - DN Tanks (see note 1)** | | | |
| *Footing Modifications, Seismic Cables, Wall Shotcrete, Tank Exterior Crack Repair, Pressure Wash Tank Interior, Interior Floor and Wall Crack Repairs, Seal Existing Floor Joints, Demolish Existing Inlet/Outlet, Modify Drain, Construct New Inlet, Outlet, Washdown, Demolish Exist Inlet/Outlet, Modify Drain, Construct Inlet, Outlet, Washdown, Construct New Concrete Floor, Construct New Concrete Cap Beam, CIM Wall-Slab Joint, Construct New Staff Gage, New Overflow, Post Construction Leak Test, Install Corrosion Protection System* | *$1,814,961* | *$1,578,240* | *-$236,721* |
| **Interior Reservoir Stairs - DN Tanks** | | | |
| *Design, Furnish, Install, New Interior Access Stairs* | *$170,400* | *$166,895* | *-$3,505* |
| **Interior Coatings - DN Tanks (see note 1)** | | | |
| *Prepare Surface, Apply Coatings to Interior Wall* | *$210,870* | *$323,630* | *$112,760* |
| **Aluminum Dome Roof - CST** | | | |
| *Design, Furnish, Install, New Aluminum Roof and Appurtenances* | *$785,570* | *$664,215* | *-$121,355* |
| **Yard Piping Improvements - M-Rae** | | | |
| *Demolish Exist Yard Piping, Fittings, Valves, and Appurtenances, Construct New Yard Piping, Construct New Valve Vault, Remove and Replace Drain Valve, Construct Yard Piping Corrosion Protection System* | *$651,569* | *$615,268* | *-$36,301* |
| **Electrical Improvements - M-Rae** | | | |
| *Construct New Conduit, Junctions and Pull Boxes* | *$37,275* | *$88,296* | *$51,021* |
| **Stormwater Drainage and Final Site Work - M-Rae** | | | |
| *Demolish Existing Asphalt, Rough Grade Site, Install Subsurface Waterproofing, Modify Underdrains, Construct New Storm Drain Inlet and Piping, Connect to Exist Manhole, Finish Grade, Construct Concrete V-gutter, Pave Site with Asphalt Concrete* | *$192,812* | *$339,307* | *$146,495* |
| **Additional AC Pavement** | | | |
| *Access Road Asphalt Paving* | *$101,500* | | |
| **Security Fence** | | | |
| *Construct New Chain Link Security Fence* | *$72,953* | | |
| **Exterior Reservoir Coating - DN Tanks** | | | |
| *Pressure Wash, Apply Coatings to Reservoir Exterior* | *$58,575* | *$59,281* | *$706* |
| **General Conditions (see note 2)** | | | |
| *Provide Trailer, Fencing, Porta Potty, Reproduction, Temporary Facilities, Insurance, Bonds, Special Inspection and Testing, Potholing, Surveying, Video, Install and Maintain Stormwater Best Management Practices* | *$343,692* | *$173,522* | *-$170,170* |
| **Construction Total To Date** | *$5,361,988* | *$5,163,297* | *-$198,691* |

[1] Actual bid cost shown does not include all value engineering / cost saving options that are still being considered.

[2] Actual bid costs to date are for underlined items only.

VISTA IRRIGATION DISTRICT

# STAFF REPORT

**Agenda Item: 8**

| | |
|---|---|
| **Board Meeting Date:** | **April 1, 2020** |
| **Prepared By:** | **Randy Whitmann** |
| **Approved By:** | **Brett Hodgkiss** |

SUBJECT: VISTA FLUME REPLACEMENT

RECOMMENDATION: Select replacement of the Vista Flume as the preferred alternative project and authorize staff to initiate planning efforts to replace the Vista Flume.

PRIOR BOARD ACTION: On March 11, 2020, the Board participated in the final workshop for the Water Supply Planning Study.

FISCAL IMPACT: Based on the findings in the Water Supply Planning Study, replacing the Vista Flume (Flume) is estimated to cost between $120 million and $130 million including planning, design, and construction. The study also estimates the planning efforts to cost between $1.7 million and $3.0 million and includes an alignment study, environmental documentation, and financial planning.

SUMMARY: The District maintains capacity rights from two sources, raw water treated at the Escondido-Vista Water Treatment Plant (EVWTP) located at Lake Dixon and multiple treated water connections along San Diego County Water Authority (Water Authority) aqueducts. To reduce costs, the District typically maximizes the locally treated water supply at EVWTP and relies on the 11-mile Flume for conveyance into the District. During a planned 10-day shutdown along the Water Authority's Second Aqueduct, the District is dependent on the Flume.

With the Flume approaching its useful life, a Water Supply Planning Study was prepared to evaluate whether the Flume should be replaced or retired. Results of the Water Supply Planning Study show that Flume replacement is the least costly option, providing superior supply reliability and affording the opportunity for continued regional cooperation. At the conclusion of the workshop, the Board reached a consensus that replacement of the Flume was the preferred alternative for the District; the Board also requested that an item be placed on a future agenda to consider approval of a Flume replacement project.

DETAILED REPORT: The purpose of the Water Supply Planning Study was to support a decision by the District as to the future of the Flume. Many factors weighed in the comparison of alternatives, including criteria of costs, reliability, water quality, environmental protection, existing water supply obligations and assets, and other non-cost factors. The evaluation of alternatives related to replacing the Flume sought to account for the full current and future cost of the District's local water supply operation as well as the benefits to the District afforded by access to and management of its own local water supply. Likewise, the analysis of alternatives related to retiring the Flume altogether sought to account for the current and future costs of purchasing additional imported water, the possible need for additional treated water storage and/or other delivery reliability improvements, the future of the Boot and Bennett areas, and options to exchange the District's local water.

Results from the Water Supply Planning Study show that Flume replacement is the least costly water supply alternative, having an estimated first-year unit cost of $2,000 per acre-foot and total 30-year present-worth cost of $240 million. In comparison, the alternative of retiring the Flume and having complete reliance on the Water Authority has an estimated first-year unit cost of $2,200 per acre-foot and total 30-year present-worth cost of $350 million. In addition to the significant cost savings, the Flume replacement alternative also provides the non-cost advantages of increased water supply reliability and the opportunity for continued regional cooperation with the City of Escondido and Rincon del Diablo Municipal Water District.

Next step planning efforts for implementing Flume replacement include an alignment study, initial environmental studies, and financial planning. Once planning efforts are completed, the next phase will include project design, California Environmental Quality Act (CEQA) documentation and construction. Staff proposes budgeting for the multi-year planning phase work to start in Fiscal Year 2021 and to proceed with preparing a request for proposal and scope of work that will be presented to the Board for consideration at a subsequent Board meeting.

ATTACHMENT: March 11, 2020 Workshop Briefing Document

VISTA IRRIGATION DISTRICT

Water Supply Planning Study

# Workshop No. 3 Briefing Document – FINE SCREENING

February 2020

Prepared by:

GILLINGHAM WATER
Gillingham Water Planning and Engineering, Inc.

Water Supply Planning Study

# Workshop No. 3 Briefing Document – FINE SCREENING

February 2020

---

Prepared by:

GILLINGHAM WATER
Gillingham Water Planning and Engineering, Inc.

In association with:

Brown AND Caldwell

DLM ENGINEERING, INC

HDR

Ken Weinberg Water Resources Consulting

Richard Haberman, P.E. Consulting Engineer

Hoch Consulting

Douglas P. Gillingham

Doug Gillingham, P.E., BCEE
Project Manager

# PROJECT TEAM

**CONSULTANT TEAM**

Gillingham Water

Doug Gillingham, P.E. BCEE

DLM Engineering

Don MacFarlane, P.E.

Weinberg Water Resources Consulting

Ken Weinberg

Brown and Caldwell

J.P. Semper, P.E.
Paige Russel, P.E.
Rob Davies, P.E.
Steven Payne
Mark Poppe
Flavia Boese
Lindsay Surio

HDR

Kathy Haynes, P.E.
Blaine Dwyer, P.E. (CO)
Carmen Sandoval

Hoch Consulting

Kyrsten Burr
Joseph Hinden

**VISTA IRRIGATION DISTRICT (DISTRICT)**

STAFF:

Randy Whitmann, P.E., Director of Engineering
Greg Keppler, P.E., Engineering Project Manager
Frank Wolinski, Director of Operations
Don Smith, P.E., Director of Water Resources
Mark Saltz, Water Resources Specialist
Richard Larson, Henshaw Superintendent
Marlene Kelleher, Director of Administrations
Brett Hodgkiss, General Manager

BOARD OF DIRECTORS:

Richard Vasquez – Division 2 (President 2020)
Jo Mackenzie – Division 5 (President 2019)
Patrick Sanchez – Division 4
Paul Dorey – Division 3
Marty Miller – Division 1

**Thank you also** to the following for providing valuable data and information for use in the Study:

City of Escondido (Escondido):

Chris McKinney, Lori Roundtree, Angela Morrow, Reed Harlan, Darren Southworth

Rincon del Diablo Municipal Water District (Rincon del Diablo):

Clint Baze, Karen Falk

Vallecitos Water District (Vallecitos):

James Gumpel

San Diego County Water Authority (Water Authority):

Chris Clemmons, Chris Castaing

# CONTENTS



## FIGURES

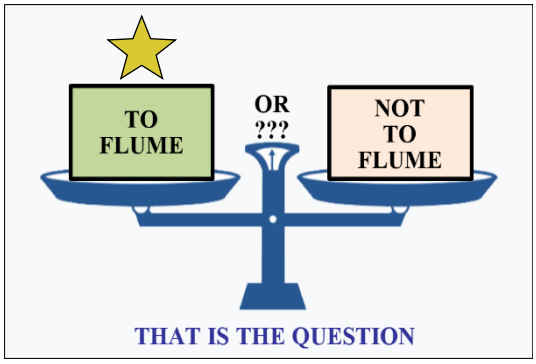
# 1. Overview / Introduction


**Summary:**

- **To Flume Ascendant:** At the Fine-Screening level of assessment, the balance scale tips in favor of the To Flume option. This is true even though the option will entail a capital investment on the order of $120 million.
- **Board Workshop No. 3:** The workshop will review the key findings of Fine Screening, and explore the sensitivity of the findings to assumptions about current and future conditions.
- **Next Steps:** Should the District elect to proceed with the To Flume option, its next steps would be to undertake a detailed alignment investigation, environmental documentation, and financial planning.


## 1.1. The balance scale tips in favor of To Flume.

At the conclusion of the fine-screening level of review, the Flume balance scale, which had been relatively even at the end of coarse screening, now tips in favor of the **To Flume option.** Considering present-worth costs over the next 30 years and beyond, the To Flume option achieves cost savings of more than 30 percent in comparison to the Not To Flume option and also scores favorably on non-cost evaluation factors. We'll provide more detail in the body of this document, but here are a few summary points to keep in mind:




- **Significant capital investment required:** The finding in favor of To Flume holds even though the option entails a capital investment on the order of $120 million. Costs for the Not To Flume option, driven in large part by the need to purchase additional water from the Water Authority at progressively increasing rates, are even higher.
- **The finding is sensitive to assumptions:** The balance scale is sensitive to many project variables for which a change in assumptions could tip the outcome. We'll review the most significant of those sensitivities with you later in the document.
- **Next Steps, Commitments, and Offramps:** The District's next steps will be to undertake advanced planning for either a Flume Replacement Project (To Flume) or retirement of the Flume and a transition to full reliance on Water Authority deliveries (Not To Flume). Should that work identify costs or conditions different than presented here, the District will have the option at that time to revisit and refine the direction as appropriate.

## 1.2. Here is a summary of what has changed subsequent to the previous round of review.

**Fine-Screening Key Changes and Updates**

| Topic | Change / Update | Significance |
|---|---|---|
| **Long-Term Financial Analysis** | • Thirty-Year Cost Analysis: In addition to examining the First-Year costs of each option, the analysis now presents a 30-Year net-present-value cost review.<br>• Differences in Cost Escalation Rates: The 30-year review accounts for differences in cost escalation rates. 30-year financing of a Flume Replacement project would utilize level payments that do not increase over time. In comparison, we project Water Authority rates will escalate at a rate faster than inflation.<br>• Interest Rates: We have researched the availability of State and Federal low-interest loans, and concluded a Flume Replacement Project would be a likely recipient, thereby lowering the District's cost of capital. | The changes provide a more complete picture of the District's long-term costs for each option. This accounting is to the significant advantage of the To Flume option. |
| **Local Water System (Box 3)** | • Confirmation of Approach: We have consulted with a national level Asset Management expert relative to budgeting approaches, a national dam expert relative to long-term cost exposure at Henshaw Dam, and with Escondido's Canal Maintenance Superintendent relative to long-term maintenance of the Escondido Canal. | The additional reviews have provided overall confirmation of our budgeting approach. Costs have increased, but not significantly. |
| **Local Water Exchange Options (Box 4)** | • Limitations on Available Exchange Partners: The District has determined the Settlement Agreement restricts the list of eligible exchange partners, leaving Escondido as the only practicable partner.<br>• Escondido Exchange Prospects: The District has worked with Escondido to review exchange opportunities and prospects for a Local Water Purchase agreement. An agreement appears achievable, but water treatment and demand constraints would leave Escondido able to utilize only a portion of the District's allocation. | The changes reduce the cost recovery potential for the Not To Flume option, increasing its overall cost. |
| **System Improvements (Box 2)** | • Incorporation of Pumping Cost Savings: The analysis now includes the pumping cost savings the District would realize with the Not To Flume option. | Provides a modest cost credit to the Not To Flume option |
| **Flume Replacement Options (Box 1)** | • Hybrid Alignment Lengthened / All-New Alignment Appears Preferred: We reconfigured the Hybrid alignment, including bypassing the Borden bench, adding length and cost to the alignment. At this conceptual level of review, an All-New alignment now appears preferred. Actual alignment determination would be made as part of a subsequent Alignment Study and Environmental Documentation process.<br>• Confirmation of Costs and Use of Welded Steel Pipe: We undertook additional review of pipeline costs and pipe materials, and confirmed the use of welded-steel as the most appropriate pipe material as a basis for our planning-level cost estimates of the project. | Cost estimates for a Flume Replacement project remain relatively unchanged, at approximately $120 million. |

## 1.3. Refresher: The primary goal of the project is to answer the To Flume or Not To Flume question. The evaluation criteria in play mirror the District's mission statement (economy, reliability, quality), and the long-list of initial alternatives is comprehensive.

### BACKGROUND AND OVERVIEW

The Vista Flume (Flume) is nearing the end of its functional service life. The Flume is an integral component of the District's water supply system, providing for delivery of the District's historical rights to water from the San Luis Rey River to the District service area. Local water is blended with raw imported water and treated at the Escondido-Vista Water Treatment Plant (EVWTP), where it feeds the Flume.

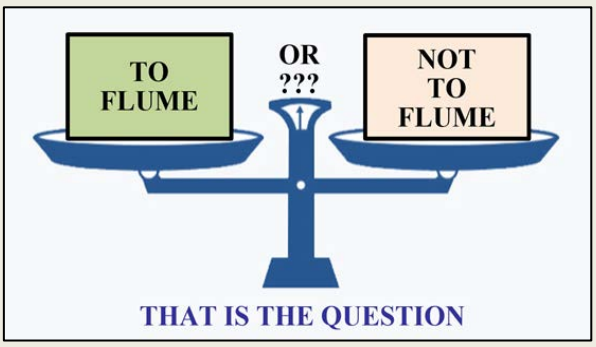
The capital investment needed to replace or rehabilitate the Flume will be significant. Accordingly, prior to making an investment decision, the District wishes to weigh carefully the merits of investing in the Flume against the merits of other water supply alternatives, including that of retiring the Flume altogether and relying on deliveries from the Water Authority in its place. To support its decision, the District is conducting the Water Supply Planning Study to develop an objective and complete evaluation and comparison of alternatives.

### PROJECT OBJECTIVES

The goals of the study are as follows:

1) **Alternatives Evaluation (To Flume or Not To Flume):** Identify and evaluate alternatives for rehabilitating or replacing the Flume, and weigh these against alternatives for retiring the Flume, including options for exchanging the District's local water.

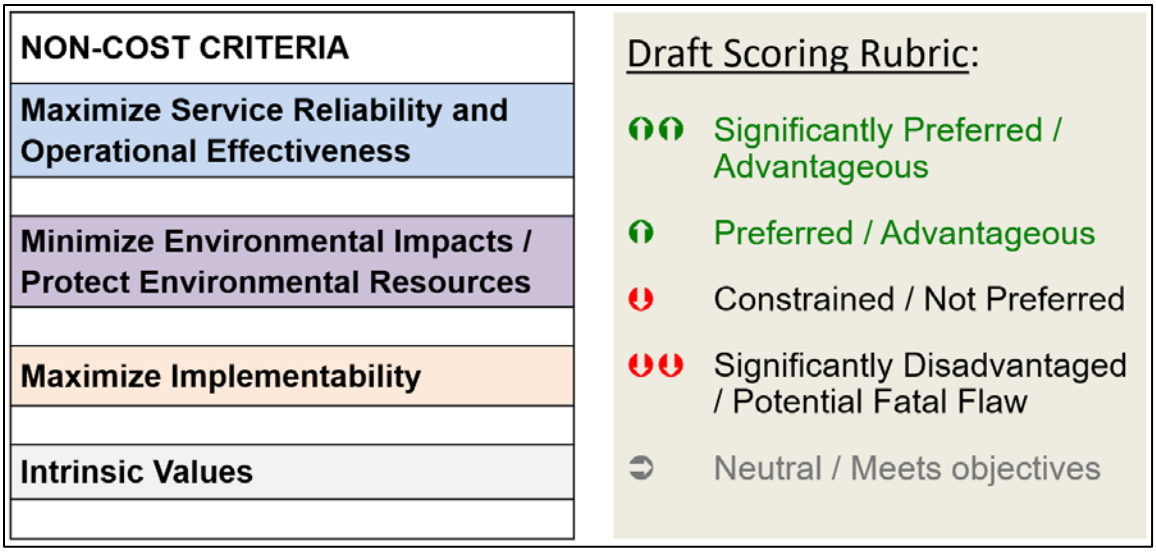
2) **Decision Support:** Provide analysis and recommendations that are clear, complete, and objective, and conduct planning workshops with District staff and the Board to facilitate project understanding and support the District's decision process.




**The overarching question.** The principal goal of the Water Supply Study is to weigh the alternatives and answer the question, and to do so based on analysis that is clear, complete, and trusted.

### EVALUATION CRITERIA

The study will weigh both cost and non-cost factors of the To Flume and Not To Flume alternatives. Costs will be a significant driver of preferences, but non-cost factors of service reliability and operational flexibility, water quality, environmental protection, agency relationships, and other factors will weigh on the balance scale. Evaluation criteria established at the beginning are subject to refinement as the study progresses. Non-cost criteria are summarized in the graphic below.




Many of the non-cost factors can be at least partially equalized between alternatives with additional costs. For example, the potentially negative service reliability aspects of a Not To Flume alternative, in which the District would no longer be largely immune from the effects of Water Authority treated water aqueduct shutdowns, can be mostly overcome with capital and operational expenditures to provide additional treated water storage or other reliability enhancements. This has the consequence of raising the profile of costs as an evaluation factor.

**LONG-LIST ALTERNATIVES**

The list of alternatives is summarized in the Investigation Box graphic in **Section 1.4.** At Workshop No. 1, the Board asked that the long-list also include consideration of the following:

- Out-of-the-box, comprehensive, holistic consideration of possible project configurations and of possible deals and arrangements with other agencies, e.g. exchange with other member agencies or the Water Authority, exchange via groundwater recharge, etc.
- Adherence to the District's Mission Statement
- Careful consideration of the domino effect of a Not To Flume (e.g. cost of stranded assets, impact to other agencies, other uses for local supply, etc.)
- Consideration of alternative Flume capacities

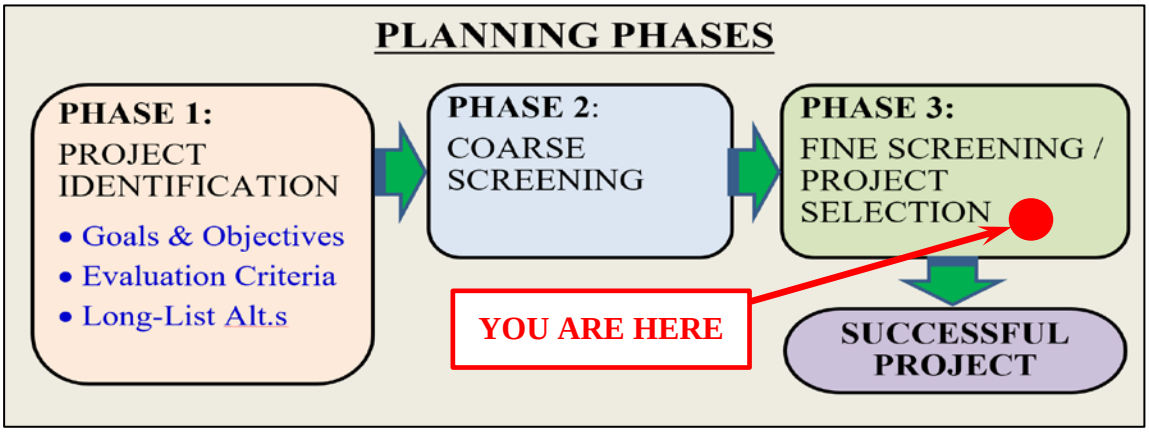
These requests have been incorporated into the Coarse and Fine Screening reviews.

## 1.4. Study Process: The study is organized into four Investigation Boxes, and sequenced into three phases. Workshop No. 3 will review the results and recommendations of the final study phase, fine screening.

**WATER SUPPLY STUDY INVESTIGATION BOXES**

| Box 1: Flume Rehab Options | Box 2: System Improvements (w/o Flume) | Box 3: Raw Water Supply/Treatment (w/ and w/o Flume) | Box 4: Local Water Exchange Options (w/o Flume) |
|---|---|---|---|
|  |  |  |  |
| Contents:<br>• **Alternatives:**<br>o HDPE Reline<br>o New pipe in place<br>o New pipe, new alignment<br>o Mix and match<br>o Other<br>• **Sizing / Capacity**<br>• **Hydraulic Design** (options to pressurize)<br>• **Demolition** (of retired Flume sections, if any) | Contents:<br>• **10-Day Outage reliability options:**<br>o Water Authority isolation valves<br>o New treated water storage<br>o Weese supply<br>o Vallecitos supply<br>o Other<br>• **Boot and Bennet**<br>o Transition to Vallecitos<br>o Other<br>• **PS Avoided Costs** | Contents:<br>• **Differences between w/ and w/o Flume options:**<br>o Warner Ranch<br>o Henshaw dam<br>o Escondido Canal<br>o EVWTP<br>o Settlement obligations<br>o Etc. | Contents:<br>• **Exchange Alternatives:**<br>o Escondido (raw)<br>o Rincon del Diablo (treated)<br>o Other (treated)<br>o Water Authority (raw)<br>o Indian Bands (raw)<br>o Environmental (raw)<br>o Other<br>• **EV-WTP Blending Requirements** |

**Categorizing the issues / structuring the analysis.** The study contains more than the usual number of moving parts. To manage the complexity of the charge, the study has organized the analysis into four main Investigation Boxes as listed above.



## 1.5. Water Authority water rates play a key role in the Study. Those rates are likely to escalate faster than inflation.

The Water Authority's average "All-In" treated water rate for calendar year 2020 is $1,686 per acre-foot ($/AF), which for planning purposes we will round to an even **$1,700/AF**. This price point provides a useful reference point for the Water Supply Planning Study as we evaluate the costs of other attributes of the District's long-term water supply options and the future of the Flume.

The Water Authority only projects future rates for a five-year forecast window; its most recent forecast for 2023 shows a low-band rate of approximately $1,700/AF (as already reached), and a high-band rate of approximately $2,200/AF.

Work being undertaken by study team member Ken Weinberg Water Resources Consulting is investigating long-term rate forecast scenarios on behalf of a group of Water Authority member agency managers and others. This work indicates that over the long-term, there is more upward pressure on Water Authority water rates than there is mitigating downward pressure. The largest upward pressure is the need to fund fixed costs, including the Water Authority's $1.5 billion outstanding debt and its take-or-pay purchase commitments, on a base of reduced water sales.

**Upward and Downward Pressures on Future Water Authority Rates**

| **Upward Rate Pressures** (factors favoring higher annual rate increases) | **Downward Rate Pressures** (factors favoring more moderate annual rate increases) |
|---|---|
| • Reduced sales due to conservation and local supply development<br>• Greater portion of total supply derived from most expensive sources, Desal and IID<br>• WaterFix and other MWD Capital Costs on Transportation rate component<br>• Increasing power costs<br>• Potential Salton Sea Mitigation cost greater that contractual Environmental Cap<br>• Low utilization of Twin Oaks Water Treatment Plant | • IID Transfer purchase price could increase at rate less than CPI<br>• Costs for WaterFix, if implemented, allocated to RTS Charge and not all to Transportation<br>• MWD Treatment Surcharge appears to have stabilized |

A preliminary finding of this work is that a reasonable mid-range forecast of Water Authority rates through 2045 shows those rates increasing at an average rate faster than base inflation. This would mean that on a current-dollar, inflation adjusted basis, the long-term average unit cost of Water Authority water is higher than the current $1,700/AF rate.

The Water Authority Board has formed a Fiscal Sustainability Taskforce made up of Board members and member agency managers to better define and address the long range impact that these factors have on Water Authority costs and the rate structure's current ability to equitably manage these expected rate pressures. Metropolitan Water District of Southern California (MWD) has started a similar process as the same factors the Water Authority faces are being faced by MWD. The Water Authority expects its Fiscal Sustainability process to conclude before the end of the current fiscal year. That process should provide greater clarity to member agencies on where Water Authority water rates are trending in the long term.

For the fine screening review, we will utilize the following range of escalation assumptions:

**Water Authority Rate Escalation Assumptions**

| Scenario | Description |
|---|---|
| **Low (Optimistic)** | Rates escalate at 1.0% above water system inflation for next 5 years, thereafter at rate of inflation |
| **Mid-Range** | Rates escalate at 1.5% above water system inflation the next 10 years, thereafter at rate of inflation |
| **High (Pessimistic)** | Rates escalate at 2.5% above water system inflation for next 10 years, thereafter at rate of inflation |

## 1.6. Market interest rates are already low. Project interest rates could be further lowered through State or Federal low-interest loan programs.

The economic comparison of the To Flume and Not To Flume options entails a comparison of merits of capital outlays with long-term annual costs. Equating these two, in terms of Net Present Values or Equivalent Annual Costs, is done based on an interest rate that reflects the District's cost of funds. Lower interest rates decrease the annual costs of capital financing and increase the present-worth value of future annual costs; higher interest rates do the opposite.

The prior coarse-screening review utilized the long-term (30 to 40 years) interest rates summarized in the table below:

**District Finance Rates and Terms (Unaided)**

| Scenario | Description | **Interest Rate** (%/yr) |
|---|---|---|
| **Low (Optimistic)** | Reflects continuation of low interest rates into the future | **3.0** |
| **Mid-Range** | Projected mid-range market conditions | **3.5** |
| **High (Pessimistic)** | Less favorable market conditions | **4.0** |

For the fine-screening review, we have expanded on the previous work by evaluating the project's potential to qualify for and receive low-interest financing through available State and/or Federal programs. The most likely sources for low-interest financing for the project are the State Water Resources Control Board's Drinking Water State Revolving Fund (DWSRF), and the Federal Water Infrastructure Financing Innovation Act (WIFIA) Credit Assistance Program, summarized below:

### DWSRF and WIFIA Low-Interest Loan Program Summaries

| Program | Description | Interest Rate[1] (%/yr) |
|---|---|---|
| **DWSRF** | Credit assistance for drinking water infrastructure projects.<br>• Up to 100% funding available<br>• Up to 30-year loan repayment term<br>• Fixed interest rate set at 50% of the average interest rate paid by the State on general obligation bonds issued the prior year<br>• No interest payments during construction | **1.4** |
| **WIFIA** | Credit assistance for water and wastewater systems.<br>• Up to 49% of total eligible project costs<br>• Up to 35-year loan repayment term<br>• Fixed interest rate tied to treasury securities rate for similar maturity date | **2.3** |

1. Interest rates are as of January 2020, and are subject to change

**Based on our review, we believe it reasonable to assume the project would be eligible for and would be likely to receive funding from one or both programs.** We believe a reasonable mid-range assumption is that the project would be awarded a DWSRF loan covering 50 percent of the project's capital cost, effectively lowering the project's average cost of financing by a considerable margin[1]. Combining Optimistic, Mid-Range, and Pessimistic financial assistance assumptions with the previous market interest rate assumptions results in the following range of project finance rates (Weighted Average Cost of Capital).

### Project Finance Rates and Terms Inclusive of Programs

| Scenario | Description | Melded Interest Rate (%/yr) |
|---|---|---|
| **Low (Optimistic)** | Reflects continuation of low interest rates into the future, and an optimistic assumption that the project would receive DWSRF funding covering **75%** of project capital costs. | **1.8** |
| **Mid-Range** | Reflects projected mid-range market interest rates, and a mid-range assumption that the project would receive DWSRF funding covering **50%** of project capital costs. | **2.5** |
| **High (Pessimistic)** | Reflects less favorable market interest rate conditions, and a pessimistic assumption that the project would not be awarded any low-interest loans. | **4.0** |

For the fine-screening analysis, we will use the mid-range adjusted rate of 2.5 percent, and an assumed finance period of 30 years. This results in a capital recovery factor (A/P) of 0.0478, meaning that every $1 million in capital financed would incur an annual repayment of $47,800 fixed over the 30-year repayment term.

[1] Actual loan awards are subject to funding availability and to year-to-year variation in the level of competition for available funds, and there is no guarantee the project would be awarded financing.

## 1.7. We assume most water system costs will inflate at the District's budgeted rate of 3.0 percent per year.

The rate of inflation of water system related costs will affect the economic comparison of the To Flume and Not To Flume options. For a mid-range assumption, we will use the rate used by the District in its budget projections, 3.0 percent per year. Water system cost inflation rates for use in the Study are summarized in the table below.

**Water System Cost Inflation**

| Scenario | Description | Inflation Rate (%/yr) |
|---|---|---|
| **Low (Optimistic)** | Reflects a rate lower than that used by the District in its budget projections | **2.0** |
| **Mid-Range** | The rate used by the District in its budget projections | **3.0** |
| **High (Pessimistic)** | Reflects a rate higher than that used by the District in its budget projections | **4.0** |

## 1.8. We estimate the long-term average annual yield of the system as currently operated is 5,000 acre-feet per year. The amount is important, and variable.

The delivery of local yield is the primary benefit of the Flume and the primary reason to consider capital investment in Flume rehabilitation or replacement. The average annual yield of the local water system is therefore a key study variable: higher yield averages would warrant additional capital investment, lower yields less.

The study team has worked with District staff to review historical system yields and adjust these to current conditions of District demands, local water blending requirements at EVWTP, terms of the San Luis Rey Indian Water Rights Settlement Agreement (Settlement Agreement), and other factors. Based on this review, we estimate the long-term average annual yield of the system, as currently operated, is 5,000 acre-feet per year (AF/yr). Probable long-term averages, for periods of 50 years and more, are summarized in the table below.

**Local System Future Average Annual Yield**

| Scenario | Description | Yield (AF/yr) |
|---|---|---|
| **Low** | Reflects dryer than historical average hydrology, and continuation of existing local water blend limits at the EVWTP | **4,000** |
| **Mid-Range** | Reflects current 60-year average hydrology (1960-2019), and continuation of existing local water blend limits at the EVWTP | **5,000** |
| **High** | Reflects one or more of wetter than historical average hydrology, Warner Basin wellfield expansion, and relaxation of local water blend limits | **6,500** |

In addition to the yield range presented in the table, the historical record indicates system yield over shorter periods of even thirty years is subject to even wider ranges than in the table. The next thirty years could be a repeat of the driest 30-year period of record, or of the wettest. We'll review the risks and opportunities inherent in this at the upcoming board workshop.

## 1.9. Document Outline

The remainder of this briefing document is organized into the following five sections. Yes, the Investigation Boxes are out of order . . . bear with us, there's a method to our madness.

# 2. Local Water System (Box 3)

**Summary:**

1) Increased investment will be needed for long-term sustainability.
2) System costs on a dollars per acre-foot basis are approximately one-half of the all-in Water Authority raw water cost.
3) Under a Not To Flume alternative, most of the District's system costs would continue unless another party assumed ownership.

## 2.1. Long-term sustainable maintenance and operations of the local water system will require additional investment beyond current budgeted levels of repair and replacement.

Over the long-term, sustaining the functionality of the local water system requires ongoing maintenance, repair, and sometimes replacement of system components. The District's current budget covers portions of what is needed in the long term, but has deferred some costs while the District was still engaged in negotiation of the Settlement Agreement, and while the District was uncertain as to the future of the Flume. Additional investment will be needed for long-term sustainability.

The study team has taken an Asset Management approach to budgeting for each component category of the system. Applying known conditions, industry experience, and professional judgement, the team has estimated three budgetary levels of investment: low, middle, and high (or optimistic, mid-range, and pessimistic). Some components, including the Escondido Canal, are budgeted for perpetual repair but not replacement; others for replacement on varying intervals. The resulting budgetary levels, inclusive of current budget items, and with accounting for cost-sharing arrangements with Escondido, are summarized in the table below.

**Annual Operation, Maintenance, Repair, and Replacement Costs (District Share)**

| Scenario | Well + Ditches | Henshaw Dam | Escondido Canal (EC) | S.P. Under-grounding[1] | Bear Valley | Other Budget[2] | Total |
|---|---|---|---|---|---|---|---|
| 2019 Budget | $554,000 | $214,000 | $375,000 | $20,000 | Included with EC | $459,000 | **$1.6M** |
| A) Low[3] | $795,000 | $374,000 | $435,000 | $956,000 | $342,000 | $459,000 | **$3.4M** |
| B) Middle[3] | $834,000 | $484,000 | $455,000 | $956,000 | $399,000 | $459,000 | **$3.6M** |
| C) High[3] | $891,000 | $794,000 | $477,000 | $956,000 | $479,000 | $459,000 | **$4.1M** |

1. The scenario costs assume the District's share of costs at $20 million, financed over 30 years at $i$ = 2.5%/yr
2. Includes costs not assigned to a facility such as buildings and grounds, legal services, consultants, and insurance
3. Total spending levels, inclusive of existing budget

The above costs are exclusive of Warner Ranch lease revenues. For this review, we have treated the District's ownership of the Ranch and the revenues it derives as independent of to the Flume or Not To Flume question.

## 2.2. The costs of the local water system, on a dollars per acre-foot basis, are modest in comparison to imported water costs, and appear affordable over the long term.

Assuming an average annual local yield of to the District of 5,000 AF/yr (see **Section 1.8**), the District's existing budget for the local system equates to approximately $325/AF exclusive of treatment costs. The three asset management ranges increase this cost to a new total of between $670 and $810/AF, exclusive of treatment. Treatment costs at the EVWTP add approximately $200/AF, $250/AF for asset management scenario C. Equivalent unit costs are summarized in the table below.

**Summary of Annual Cost Per Acre-Foot of Water Produced**

| Scenario | Total Annual Cost | Average Yield (AF/yr) | Unit Cost Before Treatment | Average Treatment Cost | Unit Cost With Treatment |
|---|---|---|---|---|---|
| 2019 Budget | $1,622,000 | 5,000 | $325 | $200/AF | **$535/AF** |
| A) Low | $3,361,000 | 5,000 | $670 | $200/AF | **$870/AF** |
| B) Middle | $3,587,000 | 5,000 | $720 | $200/AF | **$920/AF** |
| C) High | $4,056,000 | 5,000 | $810 | $250/AF | **$1,060/AF** |

The Middle Range estimate with treatment of **$920/AF** represents a 70 percent increase to existing budgeted spending levels. Nevertheless, viewed in comparison to current "All-In" Water Authority treated water rate of approximately **$1,700/AF**, the local system costs are modest.

## 2.3. Opportunities to reduce the District's share of local system costs as part of a Not To Flume alternative are limited.

Under a Not To Flume option, the EVWTP volumetric treatment cost component might[2] drop from the tally, but most of the rest of the District's cost obligations for the local water system facilities would continue unless another party assumed ownership of the facilities. This arises in part from the terms of the Settlement Agreement, which requires the parties to operate the local water system as it has been historically, and to deliver water to the Indian Bands when requested. Also, because most of the ongoing costs are fixed, being independent of the volume of water produced and delivered, the mere reduction of the District's use of local water would not alter the costs.

[2] The District's continuing treatment cost obligations if it terminated the Water Filtration Plant Joint Powers Agreement are not clearly defined. Section 8 of the Agreement requires the District to pay 20 percent of the costs of future capital improvements, revisions, and replacements not undertaken to increase Plant capacity. Termination of the Agreement is by mutual consent, so it appears the obligations would be negotiated. We have assumed these negotiations would absolve the District from responsibility for future costs.

## 2.4. Methodology Notes: Different facilities require different budgeting approaches

The Study team evaluated the District's existing budget levels along with three asset management scenarios for replacing the well field, conveyance ditches, the Hellhole Siphon, and the Bear Valley conveyance facilities upstream of the EVWTP**.** Costs for the Henshaw Dam were estimated by an HDR national dam expert (HDR, 2019). Costs for the Escondido Canal were estimated by combining current repair budgets with estimated extraordinary expenses, and after thorough review with Escondido staff including the Canal team field superintendent. The San Pasqual Undergrounding project converts a portion of the Escondido Canal to a pipeline, as required by the Settlement Agreement.

As shown in the previous table, the District's existing annual investment is approximately $1.6 million, while the three scenarios resulted in costs of between $3.4 and $4.1 million per year. The "Other Budget" column includes buildings and grounds, legal, consultant, and insurance costs in the District's 2019 Budget that were not assigned to a specific facility. This indicates the District should make additional investments in the system. The costs presented in **Section 2.1** are preliminary suggested budgets.

The table below lists the assumptions for the facilities and scenarios.

**Table 2: Summary of Assumed Replacement Frequencies and Added Costs**

| Scenario | Well + Ditches | Henshaw Dam | Escondido Canal | San Pasqual Undergrounding | Bear Valley Conveyance |
|---|---|---|---|---|---|
| A) Low | 70 Years | Budget | $150,000 | $20M, 30 yrs, 2.5% | 70 Years |
| B) Middle | 60 Years | 30% Replace | $300,000 | $20M, 30 yrs, 2.5% | 60 Years |
| C) High | 50 Years | 100% Replace | $450,000 | $20M, 30 yrs, 2.5% | 50 Years |

In general, Scenario A assumed all facilities are replaced in 70 years, Scenario B 60 years, and Scenario C, 50 years. The Henshaw Dam and appurtenances maintenance, repair, and replacement costs were estimated by HDR based on two reports by Findlay Engineering (2012, 2018) and costs for similar projects. The range of costs was developed based on the damage caused by low, moderate, or extreme earthquakes, floods, or other events. Given the Escondido Canal is generally excavated through rock on the side of a mountain, and through discussions with Escondido, the Canal will likely be maintained and repaired in its existing alignment and not replaced. However, additional budget is warranted to account for occasional extraordinary costs such as failures of sections or replacement of the Hellhole Siphon.

The Bear Valley conveyance facilities include the penstock, power plant, and conveyance facilities to the P1/P2 Pump Station at the headworks to the EVWTP. The cost of the Penstock was taken from the 2004 replacement project escalated to current costs. Cost of the Power Plant was taken from damages paid to Escondido in 1983 as a result of flooding.

Costs for the wellfield and ditches are shared by Escondido, which reimburses the District for 35.2 percent of these costs.

The following table summarizes the facility maintenance and replacement assumptions of asset management scenarios A, B, and C.

## Raw Water Facility Operation, Maintenance, Repair & Replacement Costs

| System Component | ASSET MANAGEMENT ASSUMPTION SETS [1] (Additional Costs Beyond Current Budget Levels) | | |
|---|---|---|---|
| | **A) Low (Optimistic)** Current + 70-Year Replacement + Historical Extraordinary | **B) Middle Ground** Current + 60-Year Replacement + Historical Extraordinary | **C) High (Pessimistic)** Current + 50-Year Replacement + Historical Extraordinary |
| a) Well Field | Replace within 70 Years or 1 New Well per 4.4 Years | Replace within 60 Years or 1 New Well per 3.8 Years | Replace within 50 years or 1 New Well per 3.1 Years |
| b) Ditches | Replace within 70 Years or 1,300 Feet per Year Average | Replace within 60 Years or 1,520 Feet per Year Average | Replace within 50 Years or 1,820 Feet per Year Average |
| c) Henshaw Dam | Current Expenses | Current + 30% of Replacement Cost | Current + 100% of Replacement Cost |
| d) Diversion Dam | $50,000 Extraordinary Expense Every 5 Years | $100,000 Extraordinary Expense Every 5 Years | $150,000 Extraordinary Expense Every 5 Years |
| e) Escondido Canal | $150,000 Extraordinary Expense Every 20 Years | $300,000 Extraordinary Expense Every 20 Years | $450,000 Extraordinary Expense Every 20 Years |
| f) Rincon Penstock | No District Responsibility | No District Responsibility | No District Responsibility |
| g) Bear Valley Penstock | Replace within 70 Years | Replace within 60 Years | Replace within 50 Years |
| h) Bear Valley Power Plant | Replace within 70 Years | Replace within 60 Years | Replace within 50 Years |
| i) Conveyance to EVWTP | Replace within 70 Years | Replace within 60 Years | Replace within 50 Years |

(1) The age and condition of existing facilities vary. A typical life of 50 to 70 years for water facilities was assumed to develop a range of annual costs. Replacement costs for pipelines and wells are based on current cost to construct. Replacement costs for 1) Henshaw Dam based on the 1981 Buttress Cost, 2) Bear Valley Penstock based on the 2004 replacement cost, and 3) Bear Valley Power Plant based on the 1983 costs of damages from flooding. We have assumed the Escondido Canal would not be replaced but would be rehabilitated and repaired as needed.

# 3. Local Water Exchange Options (Box 4)

**Summary:**

- The Settlement Agreement limits the list of possible exchange partners to the Agreement parties.
- It appears likely the District could strike a mutually beneficial exchange deal with Escondido, but Escondido would be able to utilize only a portion of the District's allocation.
- The net economic benefit to the District would cover only a portion of the District's local system costs, and would not generate any additional revenue to offset Flume replacement costs.

## 3.1. The Settlement Agreement effectively leaves Escondido as the District's only practicable exchange partner.

A key component of the Study's investigation of the Not To Flume option has been the evaluation of possible local water exchange agreements, under which the District would lease or exchange its allocation of local water to a partner agency. The Study's original scope of work presumed a long list of agencies with whom the District might be able to negotiate such an exchange agreement. We reported such during the Coarse Screening review, noting however that:

- the opportunities were constrained by the need for expensive conveyance facilities;
- none of the target agencies had been beating down our door to sign on; and
- Escondido appeared to be the most promising candidate.

Subsequent to the Coarse Screening review, the District has confirmed its position that the Settlement Agreement limits the use of local water to the sole and exclusive use of the Agreement parties. This constrains the list of potential exchange partners to Escondido and the Indian Bands. Because the Coarse Screening review had already determined that an exchange agreement with the Indian Bands was unlikely to generate revenue[3] for the District, this leaves Escondido as the only practicable exchange partner.

[3] The Settlement Agreement defines the Indian Bands' water entitlements and effectively removes any incentive for them to pay for such a transfer. The transfer is certainly possible, but not in a manner that would generate revenue for the District.

## 3.2. Opportunities exist for a win-win exchange agreement with Escondido.

Under a possible exchange agreement with Escondido, Escondido would purchase some or all of the District's allocation of local water at a price less than what it would pay for raw water from the Water Authority. The District in turn would benefit by selling its water at a price higher than its unit cost of the local water system. If the parties were to split the benefits, the District's sales price to Escondido would be as presented in the table below.

**Local Water Purchase Agreement Sales Price Example**

| | Description | Unit Cost |
|---|---|---|
| **District Local System Costs** | District mid-range costs for long-term operations, maintenance, and replacement of the local water system, per **Section 2.2** | $720/AF |
| **Water Authority Raw Water Purchases** | Water Authority's All-In price for raw water, CY 2020. Escondido would avoid this cost for every acre-foot it purchased from the District. | $1,400/AF |
| **Possible Sales Price** | The sales price could be set at the mid-point of the District's unit costs of the local system, and Escondido's avoided cost of Water Authority raw water purchases. This is just an example; actual price TBD. | **$1,060/AF** |

In early December of last year, the District sent a white paper to Escondido outlining the terms and benefits of a possible Local Water Purchase Agreement that could be implemented if the District were to proceed with the Not To Flume option. Subsequently, District staff met with Escondido staff to provide background on the Flume study, answer questions about the white paper, and explore Escondido's interest in advancing the development of a purchase agreement. The results of those discussions are summarized below:

- **Need for Careful Review:** Escondido staff advised that any agreement would be subject to considerable Escondido review, including legal review and careful evaluation of the costs and conceptual terms presented by the District.
- **Schedule for Review:** Escondido staff suggested the depth of review needed would require more time than available in advance of the Study's Workshop No. 3 Board meeting. Staff suggested the District proceed with its schedule using its best assumptions, and that should the District Board elect to pursue a Flume retirement option, the parties could then undertake further review and negotiations.
- **Prospect for Review:** Escondido staff advised that they were unable to offer an official Escondido position on the likelihood of an agreement, but noted that if in fact there were opportunities for Escondido to save money in the long-term, and without incurring exposure to new liabilities, then this seemed reasonable cause for Escondido to engage in good-faith review and negotiations with the District in pursuit of a deal.

In addition, Escondido noted that owing to the need to limit the blend of local water at the EVWTP to no more than 40 to 50 percent of total plant inflow, and owing to projected declines in its potable water demands, it was unlikely to be able to utilize the District's full allocation of local water. This reduces the net economic benefit available to the District, as described below.

## 3.3. The District's net economic benefits of an exchange agreement are limited by Escondido's inability to utilize all of the District's local water allocation.

As noted, the combination of local water blending requirements at the EVWTP, and Escondido's projected declining potable water demands, limits Escondido's ability to utilize the full amount of the District's local water allocation. Absent significant improvements in water quality at Lake Wohlford, or treatment capabilities at the EVWTP, or both, these limitations will result in Escondido being able to utilize at most approximately one-half of the District's allocation.

The table below summarizes our assessment of unit revenues available from an Escondido water purchase agreement. Our mid-range expectation is that an agreement would cover approximately 60 percent of the District's local water system costs. As described in **Section 2.2**, the District's mid-range unit cost for the local water system, exclusive of treatment costs, is approximately $720/AF.

**Water Purchase Agreement Revenue Projections**

| Scenario | Description | Unit Revenue[1] |
|---|---|---|
| **Low (Pessimistic)** | • Escondido average annual utilization: 1,500 AF/yr.<br>• Unit Purchase Price: mid-point between local water system costs and Water Authority rate, per **Section 3.2**. | **$320/AF** |
| **Mid-Range** | • Escondido average annual utilization: 2,000 AF/yr.<br>• Unit Purchase Price: mid-point between local water system costs and Water Authority rate, per **Section 3.2**. | **$420/AF** |
| **High (Optimistic)** | • Escondido average annual utilization: 2,500 AF/yr.<br>• Unit Purchase Price: mid-point between local water system costs and Water Authority rate, per **Section 3.2**. | **$530/AF** |

1. Unit revenues are expressed on the basis of the District's full 5,000 AF/yr of average annual yield.

# 4. System Improvements Without Flume (Box 2)

**Summary:**

For a Not To Flume option, the following findings apply:

- Delivery reliability concerns will be largely mitigated by a planned Water Authority isolation valve project, such that large volumes of new treated water storage will not be required.
- The Boot and Bennett areas would transfer to Vallecitos, with the District incurring significant annexation and capacity fees.

## 4.1. The delivery reliability consequences of a Not To Flume option will be largely (but not entirely) mitigated by a planned Water Authority isolation valve project.

During Water Authority aqueduct shutdowns, the District has always relied on the Flume to maintain full delivery reliability to the District service area. Retirement of the Flume would require compensating measures to maintain appropriate levels of delivery reliability.

The District's 2017 Master Plan identified possible compensating measures to maintain reliability with the Flume retired. Among the measures was the prospect of needing to construct up to 70 million gallons of new treated water storage, at a concept-level cost of up to $100 million. Upon further review, the study team has determined that other alternatives identified in the Master Plan will be able to compensate for the loss of the Flume at much more modest costs.

The primary mitigation for the loss of the Flume will be the Water Authority's planned Aqueduct Isolation Valve Project. With the proposed valves in place, the Water Authority will be able to limit future scheduled treated water aqueduct shutdowns to one or the other of the two treated water aqueduct pipelines south of Twin Oaks, maintaining full service to the District.

Although the isolation valve project will provide mitigation for scheduled aqueduct shutdowns, it still leaves the District at a disadvantage during rare *unscheduled* outages resulting from aqueduct facility failures and other catastrophic events. In these situations, the District could be reliant on its treated water storage, its access to water from the Oceanside Weese Water Treatment Plant, and its interconnections with Vallecitos for periods of up to 10 days. To supplement these capabilities, the study team recommends the District upsize its planned Pechstein II reservoir by approximately 10 million gallons beyond the capacity it would otherwise build, at an additional cost of approximately $15 million.

Delivery reliability compensation measures are summarized in the table below. The Water Authority isolation valve project is the linchpin of the package of mitigation measures. The other measures marked as "Included in Option" in the rightmost column are supplemental to the isolation valve project, to address unscheduled aqueduct outage scenarios not fully addressed by the isolation valve project. We recommend all measures so indicated be included as components of the Not To Flume option.

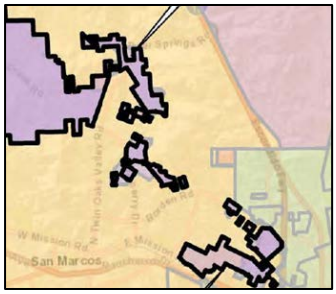
**Delivery Reliability Compensation Measures (for Not To Flume Option)**

| Option | Description | Included in Option? |
|---|---|---|
| **Water Authority Aqueduct Isolation Valves**[1] | Will allow Water Authority to operate the Twin Oaks Water Treatment Plant during a treated water shutdowns, with supply south continuing via one or the other of P3 and P4. This would immunize the District from the effects of scheduled treated water shutdowns. | **Yes.** Project had originally been planned for Water Authority 2020-21 budget cycle, but was deferred during budget review. The District should continue to monitor status and encourage timely project implementation. |
| **District Treated Water Storage**[1] | Build treated water storage to compensate for loss of Flume deliveries. Assuming Water Authority isolation valve project proceeds, need for additional treated water storage is modest. Assume 10 MG addition to District's planned Pechstein II reservoir. | **Yes.** Include 10 MG at cost to District of **$15M.** |
| **Oceanside Weese Water Treatment Plant**[1] | The District can access up to 5 mgd by agreement, and likely more in an emergency. | **Yes.** If District selects Not To Flume option, it should consider updates and/or revisions to existing agreement. |
| **Interagency Connections**[2] | The District has emergency interties in place, the most significant being with Vallecitos. Availability to the District during a shortage or emergency would likely be limited by agencies prioritizing service to their own customers. | **Yes.** Additional arrangements unnecessary with above measures. |
| **New Water Treatment Plant at Pechstein** | The District would build a new water treatment plant adjacent to Pechstein, served by a new raw water connection to the Second Aqueduct. Reliability benefits beyond above measures would be minimal, as the same catastrophic events causing outages of the treated pipelines would also likely affect the raw water pipeline. | **No.** Project costs appear unwarranted assuming above measures in place. |

1. The District's existing agreement with the City of Oceanside (Oceanside) provides the District access to up to 5 mgd of capacity from the Weese plant, but only on a surplus, "as-available" basis. Oceanside's projected usage of the plant indicates a high likelihood of surplus capacity remaining available for use by the District, but there remains the possibility Oceanside demands could increase or that the city could commit its surplus capacity to others (including the Rainbow Municipal Water District) through agreements. Additional capacity beyond the 5 mgd limit of the current agreement may be available during an emergency situation, but this is not guaranteed.
2. Vallecitos maintains considerable treated water storage reserves, and also has direct access to supply from the Water Authority's Carlsbad Seawater Desalination Facility. Vallecitos would naturally prioritize use of these assets for service to its own customers, but there could be emergency situations where a share of these assets could be made available to the District.

The full package of compensation measures would provide adequate delivery reliability safeguards for the District, although possibly not quite to the level of delivery redundancy provided by the Flume in combination with the District's treated water connections. This diminishment of delivery reliability is scored as a Non-Cost Evaluation Criteria factor later in **Section 6**.

## 4.2. The Boot and Bennett areas would transfer to Vallecitos, with the District incurring significant annexation, capacity, and infrastructure transfer fees.




The Boot and Bennett areas of the District service area are dependent on deliveries from the Flume, with backup service available from Vallecitos. Although in the District service area, these parcels are within the Local Area Formation Commission (LAFCO) designated sphere of influence of Vallecitos, meaning that LAFCO favors their eventual transfer to Vallecitos. In recent years, some parcels in the Boot area have annexed to Vallecitos at the behest of the parcel owners in order to obtain sewer service for planned development, and with all transfer costs paid by the property owner. The District anticipates this trend will continue, with most of the Boot area eventually transferring to Vallecitos service at no cost to the District.

If the Flume were retired, the presumption is that the Boot and Bennett area reorganization process with LAFCO and Vallecitos would be accelerated, and that the District might incur significant costs for annexation, capacity, and infrastructure transfer fees.

District staff has conducted a high-level assessment of the situation, and conferred with the study team on their findings. Based on that preliminary review, the study will utilize the following cost range for the transfer:

**Boot and Bennett De-annexation Costs to District**

| Scenario | Description | Cost | | |
|---|---|---|---|---|
| | | Boot | Bennett | Total |
| **Low (Optimistic)** | Vallecitos waives capacity and annexation fees, but District and Vallecitos split infrastructure transfer fees. | $2M | $4M | **$6M** |
| **Mid-Range** | Vallecitos and District split annexation, capacity, and infrastructure fees. | $5M | $12M | **$17M** |
| **High (Pessimistic)** | District pays full annexation, capacity, and infrastructure fees | $9M | $24M | **$33M** |

The District has also considered the following two options for maintaining service to the Boot and Bennett areas:

- **Extend District facilities:** The District has determined that extension of District facilities to serve the areas independent of the Flume would be impractical to due cost and other factors. LAFCO has placed the areas within the Sphere of Influence of Vallecitos.
- **Interagency Service Agreement with Vallecitos:** The District has determined that permanent service to these areas by Vallecitos, while keeping the areas within the District, is unlikely due to Vallecitos disfavoring such an arrangement. Notwithstanding Vallecitos's stated position, this option has successful precedent elsewhere in the County of San Diego and staff still believes the option is worth keeping alive.

## 4.3. The Not To Flume option would reduce the District's pumping costs.

The existing Flume feeds the District's central storage reservoir, Pechstein, at a high water elevation of 837 feet (above sea level). During normal operations with the Flume in service, the District pumps water out of Pechstein to its 976 / 984 zone, which in turn feeds the 900 zone. This constitutes the bulk of the District's pumping, both by volume and by cost.

If the Flume were retired from service, as under the Not To Flume option, the District would replace deliveries from the Flume with increased purchases at its VID3 connection to Water Authority pipelines 3 and 4 in the Second Aqueduct. Water delivered at the VID3 connection can feed the District's 976 / 984 zone by gravity, substantially reducing the District's pumping costs. Pumping cost savings are summarized in the table below.

**Summary of Avoided Pumping Costs (Not To Flume Option)**

| Component | Description | Unit Cost Savings |
|---|---|---|
| **Power** | Based on recent historical operations, the District estimates it would reduce its pumping power consumption by approximately 765,000 kWh per year, which at an average total cost of $0.17/kWh amounts to approximately $130,000/yr of cost savings. | $25/AF[1] |
| **O&M** | In addition to power costs, the District estimates it would realize other O&M cost savings of approximately $80,000/yr. | $15/AF[1] |
| **Capital** | The District estimates it would avoid approximately $5M in future capital costs for pump station rehabilitation and replacement. | $50/AF[2] |
| **Total** | | **$90/AF** |

1. Unit revenues are expressed on the basis of the District's 5,000 AF/yr of average annual yield
2. Capital costs are amortized at 2.5 percent over 30 years (A/P = .0478), and converted to unit cost using the District's 5,000 AF/yr average annual yield of the local water system.

# 5. Flume Replacement Options (Box 1)


**Summary:**

- Achieving a long-term Flume replacement will be an even larger and more expensive endeavor than previously thought. This is because:
  - Most of the bench sections cannot be economically rehabilitated or replaced in their existing easements.
  - The age of many of the siphon sections is such that they must be presumed to require structural rehabilitation or replacement over the 50-year planning horizon.
- An All-New option, entailing an entirely new pipeline in a new alignment, appears preferred both economically and operationally.
- Final decisions on the alignment of a Flume Replacement Project would be undertaken during a subsequent Alignment Study.


## 5.1. Rehabilitating/Replacing the Flume will require a substantial capital investment.

We wish we could report otherwise, but achieving a long-term Flume rehabilitation or replacement will be an expensive proposition for the District, perhaps representing its largest capital investment ever.

Previous cost estimates extrapolated from the MW Bench high-density polyethylene (HDPE) slip-lining project, the Baumgartner Bench replacement, and other data points to generate a construction cost range of 35 million to 75 million dollars. That analysis was predicated on two key assumptions: 1) that HDPE slip-lining would be found feasible for most of the bench sections, and 2) that the siphon sections would require new mortar lining but little additional work. Upon further review, and with consideration to the project objective of achieving a long-term Flume replacement, **we find that both assumptions need to be abandoned**. Further details are provided in the subsections that follow.

## 5.2. The existing concrete bench structures are unsuitable for reuse and will need to be demolished.

The concrete canals that make up the bench sections of the Flume were old and decaying the last time the District looked at them in 2012, and they are even older and more decayed now in 2020. Roof sections are structurally weak and separating from the sidewalls, floor sections are being

undercut by erosion, and whatever tiny amount of steel that was included in the original construction has corroded.

**Not suitable for reuse.** Left: Roof separation, Borden Bench; Right: Erosion under Daley Bench

The study team has consulted with structural engineers, condition assessment experts and District staff. Based on this review, our preliminary conclusion for coarse screening is that the bench structures have no reliable usable strength remaining, and are not suitable for reuse as part of a long-term Flume replacement project. The structures will need to be demolished.

## 5.3. Most of the bench section easements are so poorly suited for pipeline construction that it will be more economical to bypass them with pipelines in roads.

Even with the existing concrete bench structures unsuitable for reuse, the bench easements themselves provide a path for construction of a new pipeline. However, for many of the bench section easements, pipeline constructability is hampered by limited and difficult access, constrained working space, rock outcroppings, and other difficulties. For these sections, the study team has determined it will be more economical to vacate the existing easement and construct new pipeline in roads, bypassing the bench sections. For other bench sections the opposite holds, with pipeline construction within the existing easement preferred over available bypass routes.

**Challenging Construction Conditions.** Narrow access & tight bends on: Left: Tunnel Bench, and Right: Twin Oaks Bench

This mixing and matching of bench segments and bypasses gives rise to what we term the Hybrid alignment alternative. More on that in a minute.

Our preliminary constructability assessment of each bench section is summarized in the table below:

**Bench Section Constructability Assessment Summary**

| Bench* | Length (ft.) | Age (yrs.) | Constructability Notes | Use or Bypass? |
|---|---|---|---|---|
| **Jack Creek** | 490 | 94 | Assume aboveground pipeline due to rock conditions. Reach will be difficult to construct, but is short and achievable. Bypass route would add considerable distance. | **Use** |
| **Tunnel** | 3,765 | 94 | Difficult access and slope conditions with tight bends. A bypass spanning both Tunnel and Daley appears preferred. | **Bypass** |
| **Daley** | 3,340 | 94 | Difficult access and slope conditions with tight bends. A bypass spanning both Tunnel and Daley appears preferred. | **Bypass** |
| **Kornhauser** | 1,325 | 94 | Difficult access, from one side only. Bypass via future development preferred. | **Bypass** |
| **Finkbinder** | 3,895 | 94 | Tight bends. There is a preferred bypass route nearby. Use with above-grade piping could be an alternative. | **Bypass** |
| **MD** | 3,275 | 94 | Tight bends. There is a preferred bypass route nearby spanning both MD and Pearson benches. | **Bypass** |
| **Pearson** | 370 | 94 | Short reach. There is a preferred bypass route nearby spanning both MD and Pearson benches. | **Bypass** |
| **Beehive** | 470 | 94 | Easy access and short reach. Replace-in-place with buried pipe assumed. | **Use** |
| **Borden** | 6,250 | 94 | Use of the alignment may be possible, but would be constrained by habitat, easement width, and access issues. There is a feasible bypass route. | **Bypass** |
| **Twin Oaks** | 4,975 | 94 | Very difficult access and slope conditions with tight bends. Bypass is preferred. | **Bypass** |
| **MW** | 2,115 | 9 | No replacement or bypass needed. Bench was recently rehabbed with full structural solution. | **Use** |
| **TOTALS** | **30,270** | | | |
| **-- Use** | 3,075 | | 10 percent of total bench length | |
| **-- Bypass** | 27,195 | | 90 percent of total bench length | |

* See **Figure 1** for bench section locations

## 5.4. Over the long-term, most of the siphon sections may need to be structurally relined or replaced. Internal inspections may be needed to refine this analysis.

Concerning the siphons, we are faced with considerable unknowns. For the 90 percent of the siphon footage that is steel, we know the mortar lining needs to be replaced, and we know that cathodic protection reports have indicated favorable protection status. However, most of the lines

have never been subject to internal inspection, and we do not know the thickness of steel remaining, nor whether it has suffered corrosion pitting or other deterioration. Absent this level of thorough condition assessment, we are led to a conservative assumption that most of these sections will require replacement or structural relining over the 50-year planning horizon of the study. A thorough condition assessment, consisting of internal inspection using an electro-magnetic measuring tool or similar non-destructive testing device, might produce results that supported a less conservative assessment, and hence a less costly estimate of Flume replacement.

Our preliminary assessment of each of the siphon sections is summarized in the table below.

**Siphon Section Condition and Replacement Schedule Summary**

| Siphon | Length (ft.) | Age (yrs.) | Material | Condition Notes | Replace? |
|---|---|---|---|---|---|
| **Pleasant Valley** | 2,085 | 94 | Steel | Age indicates probable need for structural relining or replacement. Replacement could be accomplished as part of bypass of Tunnel and Daley benches. | **Yes** |
| **Baum-gartner** | 3,340 | 2 | HDPE | Section recently replaced in new alignment during development. No further improvements needed. | **No** |
| **Rincon** | 4,465 | 17 | Steel | Recently replaced section. Subject to condition assessment review, no further improvements needed. | **No** |
| | 900 | 94 | Steel | Age indicates probable need for structural relining or replacement. | **Yes** |
| **Caldwell** | 555 | 10 | PVC | PVC portion of this siphon recently replaced. No further improvements needed. | **No** |
| | 840 | 47 | Steel | Subject to condition assessment review, replacement or structural rehabilitation assumed to be needed in future, but not urgent. | **TBD** |
| **Pearson** | 600 | 94 | Concrete | Age indicates probable need for structural relining or replacement. Replacement could be accomplished in conjunction with bypass of MD and Pearson benches. | **Yes** |
| **Jones** | 2,370 | 64 and 94 | Steel | Age indicates probable need for structural relining or replacement. A 660-ft portion would be replaced as part of bypass of the MD and Pearson benches. | **Yes** |
| **Beehive** | 770 | 30 | Concrete | Previous studies indicate replacement would be needed to accommodate pressurization. | **Yes** |
| **Twin Oaks** | 5,745 | 27 and 94 | Steel | Age indicates probable need for structural relining or replacement for all but the newer sections. All but 1,720-ft of siphon, including the more recently replaced sections, would be replaced as part of the Twin Oaks bench bypass. | **Yes** |
| **Meyers** | 1,285 | 94 | Concrete | Age indicates probable need for structural relining or replacement. Replacement for an 880-ft portion would be accomplished as part of the bypass of the Twin Oaks bench. | **Yes** |
| **TOTALS** | **22,955** | | | | |
| **-- Replace** | 13,755 | | | 60 percent of total siphon length | |
| **-- Keep** | 8,360 | | | 36 percent of total siphon length | |
| **-- TBD** | 840 | | | 4 percent of total siphon length | |

* See **Figure 1** for siphon section locations

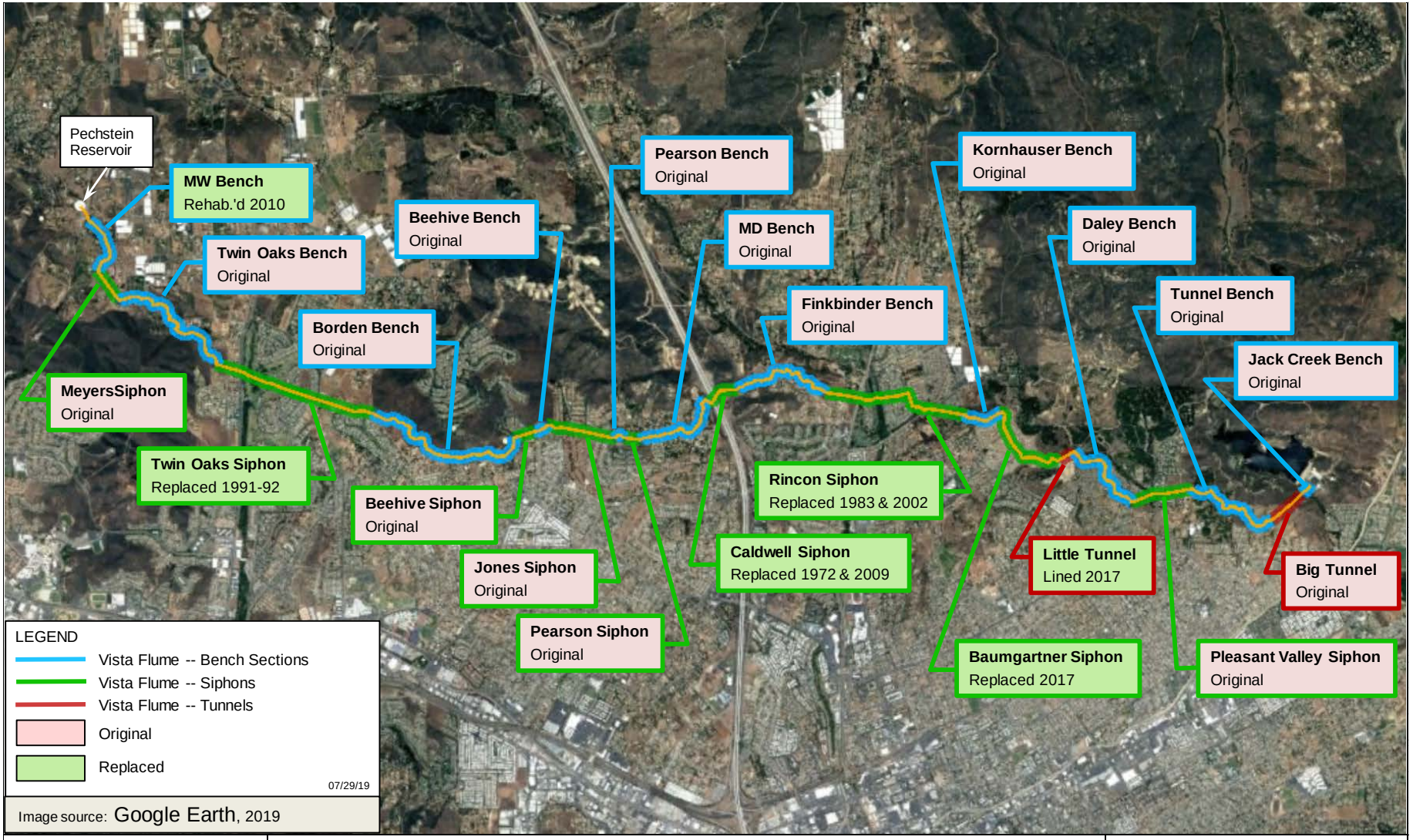



Figure 1

Water Supply Planning Study

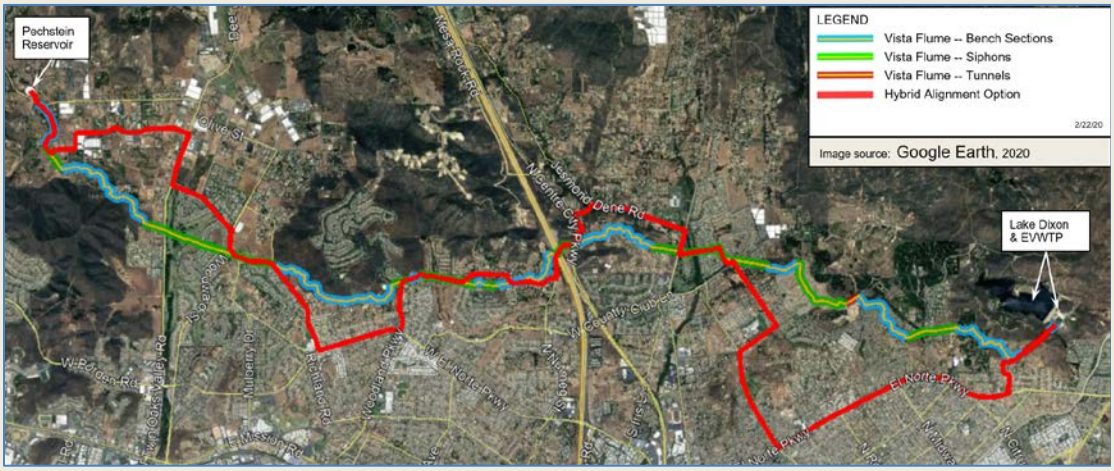
VISTA FLUME EXISTING BENCH, SIPHON, AND TUNNEL REACHES

VISTA IRRIGATION DISTRICT

GILLINGHAM WATER
Gillingham Water Planning and Engineering, Inc.

## 5.5. A Hybrid alignment is possible, but likely not preferred.

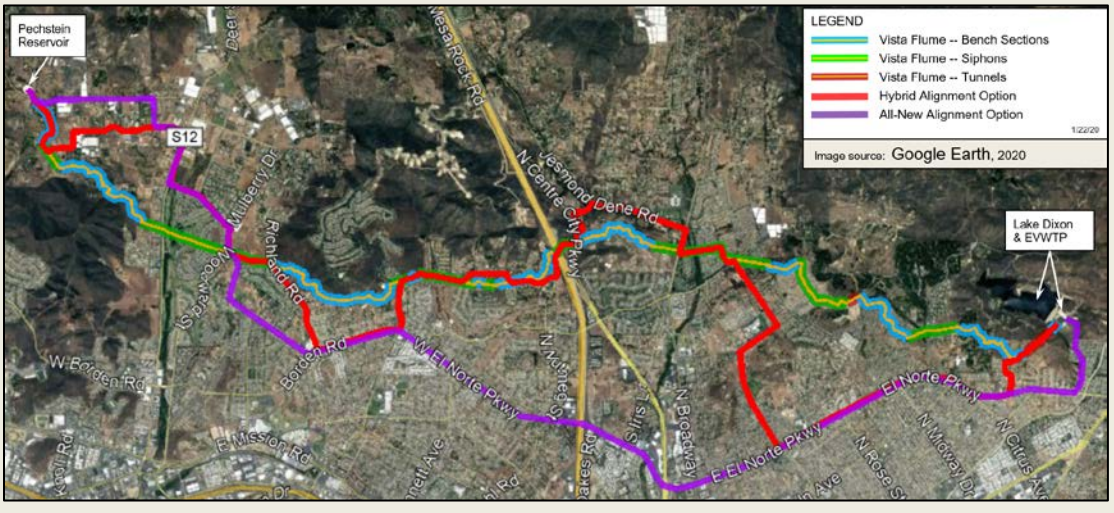
As reviewed above, project costs and other factors favor bypassing most reaches of the existing Flume alignment. Consequently, an alignment that sought to utilize as much of the existing Flume right-of-way and facilities as possible, which we dub a Hybrid alignment, would consist mostly of new bypass pipelines. A conceptual Hybrid alignment is illustrated in red in the figure below, and in **Figure 2** on the next page. All that zig-zagging around adds distance, and costs.



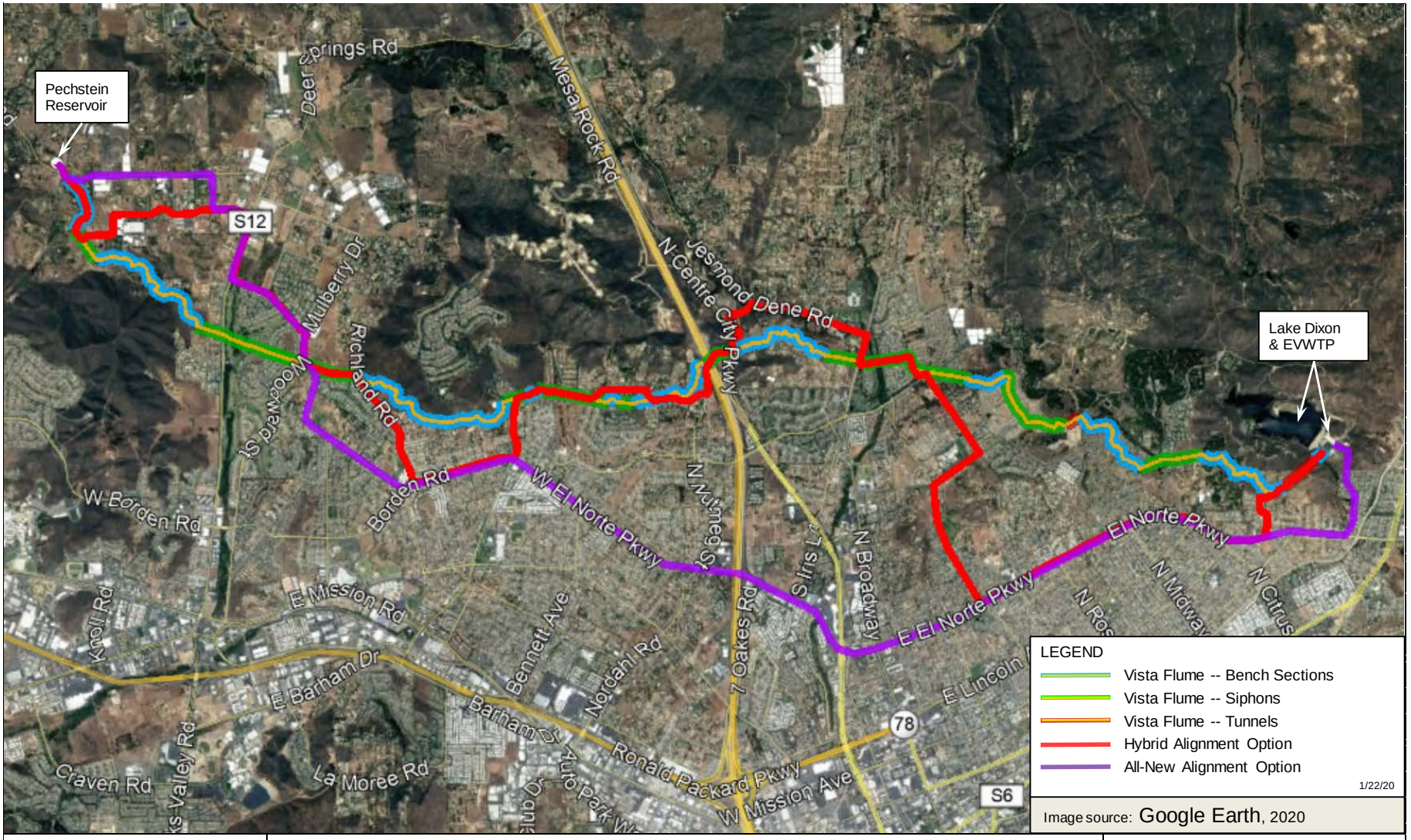

**Hybrid Alignment Option.** A conceptual Hybrid alignment (in red), mixing existing and new alignment reaches, appears the least-cost flume replacement alternative.

## 5.6. An All-New alignment appears economically preferred.

Although it may have seemed unlikely at the beginning of the Study, we now conclude that the most economical option for replacing the Flume will be an All-New alignment, consisting of pressurized pipeline in, or mostly in, public rights-of-way. A conceptual version of such an alignment is illustrated in purple in the figure below, and in **Figure 2** on the next page.




**All-New Alignment Option.** A conceptual All-New alignment (purple line) may be more expensive than a Hybrid alignment, but offers advantages that may warrant the additional cost.




| | | |
|---|---|---|
| Figure 2 | Water Supply Planning Study | VISTA IRRIGATION DISTRICT |
| | VISTA FLUME REPLACEMENT ALIGNMENT ALTERNATIVES | GILLINGHAM WATER<br>Gillingham Water Planning and Engineering, Inc. |

## 5.7. An All-New alignment also provides water quality and security advantages.

The operation of the existing bench sections of the Flume is unpressurized. Industry practice favors the use of pressurized facilities for conveyance of treated water, so as to minimize the potential for intrusion of contaminants. The study team believes pressurization is a preferred component of a Flume replacement project. This factor favors the All-New alignment with its capability to provide full pressurization. The Hybrid alignment allows for some improvement in pressurization relative to existing operations, but to a lesser degree than the All-New option.

The District mitigates for its current unpressurized operation through the use of on-line monitoring of disinfectant residual. Residual is monitored at the start, mid-point (VID1), and terminus of the Flume. In the event monitoring detected a loss of residual, system operators would halt flow in the Flume and if necessary isolate Pechstein reservoir. The District system was reviewed and approved for permit renewal by the California Division of Drinking Water (DDW) in 2017, with no additional conditions being applied to operation of the Flume.

In the event the District elects to proceed with the To Flume option, the Study team recommends it coordinate with DDW during the Alignment Study phase of work to address these issues and ease the way for ultimate DDW approval of the project.

## 5.8. Pipeline sizing will maintain existing capacity.

The District estimates the current capacity of the Flume to be 21.5 mgd. A Flume replacement pipeline sized at 36-inches internal diameter would maintain and slightly increase that capacity, providing for delivery of up to 25 mgd as indicated in the table below. A larger pipe would provide additional but seldom needed capacity, at additional costs that exceed the modest value of the additional capacity. A smaller pipe would reduce project costs, but would also constrain the ability of the District to deliver local water during wet years.

Flume capacities at alternative pipeline diameters are summarized in the table below. The All-New alignment is shorter in length than the Hybrid alignment and as a result provides for slightly greater capacity at the same pipe diameter.

**Pipeline Sizing and Delivery Capacity**

| Pipeline Internal Diameter | Capacity [1] | | Discussion |
|---|---|---|---|
| | **Hybrid** (71,100 ft.) | **All-New** (58,900 ft.) | |
| **Small – 30 in.** | 14 mgd | 15 mgd | Undersized relative to District demands and wet-year yield of local water system, but would reduce capital costs. |
| **Mid-Range – 36-in.** | 22 mgd | 24 mgd | Approximately matches existing Flume capacity of 21.5 mgd. Provides adequate capacity for serving all but peak District demands, and provides sufficient capacity to fully utilize wet-year yields of the local water system. |
| **Large – 42-in.** | 33 mgd | 36 mgd | Oversized capacity provides modest benefits of operational flexibility, but incurs additional capital costs. |

1. Calculations based on Hazen-Williams "C" factor (pipeline roughness coefficient) = 130, and available pipeline headloss = 130 ft. (978.5 ft. @ EVWTP filter effluent weir, less 837 ft. Pechstein HWL, less 9.5 ft. minor losses and flow control = 132 ft.) The resulting energy slope = 1.86 ft./1,000 ft. for the Hybrid alignment, and 2.24 ft./1,000 ft. for the All-New alignment.

## 5.9. Planning-level total project costs are approximately $120 million. We have assumed the use of welded steel pipe.

The study team has engaged a group of professional cost estimators to generate preliminary opinions of probable construction and total project costs for both the All-New and Hybrid alignment alternatives. Our work has included analysis of recent San Diego area construction bid data for similar pipeline projects built under similar conditions. The bid data reflects real-world conditions and are inclusive of all construction contingencies including miscellaneous appurtenances, utility relocations, traffic control, trenching, and other conditions that would be expected to be encountered on a Flume replacement project.

Our preliminary estimate of project costs for the All-New alignment alternative is summarized in the table below.

**Preliminary Concept-Level Capital Cost Estimates – All-New Alignment**

| Item | Unit | Quantity | Unit Cost | Cost[1] |
|---|---|---|---|---|
| **Pipeline** | | | | |
| Major Arterial | $/in./ft. | 36 in. 17,500 ft. | $36.00 | $22,680,000 |
| Minor Arterial | $/in./ft. | 36 in. 24,800 ft. | $25.00 | $22,320,000 |
| Collector | $/in./ft. | 36 in. 13,100 ft. | $22.00 | $10,380,000 |
| Open Space | $/in./ft. | 36 in. 3,500 ft. | $25.00 | $3,150,000 |
| | | *58,900 ft.* | *$27.60* | *$58,530,000* |
| EVWTP Connection | LS | 1 | $2,000,000 | $2,000,000 |
| I-15 Crossing Surcharge | $/ft. | 1000 | $1,500 | $1,500,000 |
| Jack and Bore Surcharge | $/ft. | 1000 | $1,000 | $1,000,000 |
| Boot & Bennett Connections | LS | 2 | $750,000 | $1,500,000 |
| Isolation Valves | LS | 2 | $250,000 | $500,000 |
| Flow Control Facility / Pechstein Connection | LS | 1 | $2,000,000 | $2,000,000 |
| Instrumentation | LS | 1 | $1,000,000 | $1,000,000 |
| Easements / Land Acquisition | $/acre | 0.0 | $500,000 | $0 |
| *Subtotal Pipeline* | | | | $68,000,000 |
| **Flume Demolition** | | | | |
| Bench Sections | $/ft. | 30,270 | $150 | $4,540,000 |
| Siphon Sections | $/ft. | 22,995 | $150 | $3,450,000 |
| Tunnel Sections | $/ft. | 2,010 | $150 | $300,000 |
| *Subtotal Flume Demolition* | | *55,275* | | *$8,300,000* |
| **Mark-ups and Other Costs** | | | | |
| *Subtotal* | | | | *$76,300,000* |
| Contingency | % | | 25% | $19,100,000 |
| *Subtotal Construction Cost* | | | | *$95,400,000* |
| Design / Administration / Environmental / Permitting | % | | 23% | $21,900,000 |
| **TOTAL PROJECT COST** | | | | **$117,300,000** |
| **TOTAL PROJECT COST (rounded)** | | | | **$120,000,000** |

1. Costs in 2020 dollars. (January 2020 ENR LA CCI = 12,144)

In comparison, we estimate the cost of the Hybrid alternative to be approximately $10 million higher, for a total cost of approximately $130 million. The higher cost of the Hybrid alternative, at the conceptual level of cost review, arises primarily due to its longer length. The cost includes approximately $2 million to account for the probability-weighted cost of lost local water deliveries and local treatment benefits during extended Flume shutdowns.

Our cost estimates are for welded steel pipe. The Study team has evaluated the possible use of alternative pipe materials, including PVC and Ductile Iron, and determined that at the assumed diameter of 36-inches, and for construction in urban arterial roads, these materials are unlikely to achieve significant cost savings, while lacking the long-term durability and resiliency of welded steel. Alternative pipe materials should be further considered during the preliminary and final design phases of the project, but for the current purposes of project planning we recommend the estimates of project costs assume the use of welded steel.

The estimates reflect the current San Diego area bidding climate, which is high in comparison to historical conditions. Assuming a Flume project were bid a few years in the future, the bidding climate in effect at that time will influence the project costs.

The estimates are preliminary, based not on detailed construction drawings but rather on professional judgement of the construction conditions and methods likely to be applicable to each reach of the alignment as depicted in **Figure 1**. The estimates are Class 5 planning level estimates; we estimate their accuracy range at approximately -35 to +50 percent.

## 5.10. A final determination of alignment, pipe material, pipeline diameter, and other factors would be made as part of Alignment and Preliminary Design studies.

The Study's review of Flume replacement options, including alignments, pipe materials, pipeline diameters, and other factors has advanced only to a degree sufficient to confirm overall feasibility and to generate a range of probable costs. Our alignment options in particular are conceptual only, and are not intended to imply preference for routing decisions. Those decisions are in the future. Should the District elect to proceed with the To Flume option, it would undertake Alignment Study and Environmental Documentation efforts that would evaluate multiple alternatives and identify, and document, preferred project solutions.

Those future studies would also give further consideration to the following issues relative to differences between Hybrid and All-New alignments:

- **Right-of-Way Issues:** The District's easement holdings for the existing Flume pre-date almost every other utility in the area, meaning any relocation of Flume facilities required by others is paid for by others. This factor advantages the Hybrid alignment over the All-New alternative. At the same time, the existing Flume easements require ongoing maintenance and inspection, adding operating costs. This factor advantages the All-New alignment.
- **Capital Outlay Programming:** The Hybrid alignment option allows for phased construction, spreading out capital outlay spending over a longer time. In particular, future condition assessment work on the siphon sections may support deferring structural relining of those reaches for additional decades. In comparison, the All-New alignment option could at most be broken into two reaches (in **Figure 1**, these are delineated by the point where the purple All-New line crosses the Flume), and these phased a few years apart, with only modest attenuation of capital outlay spending levels.

# 6. Conclusions and Next Steps

## 6.1. First-Year Cost Review: Modest favor the To Flume option.

First-year unit costs of the Not To Flume and To Flume options are summarized in the tables below. The comparison does not account for differences in cost escalation over time.

**First-Year Costs for Not To Flume Option**

| Cost Component | Description | Equivalent Unit Cost[1] |
|---|---|---|
| **Increased Water Authority Purchases** | Purchase an additional 5,000 AF/yr, on average, of treated Water Authority water at a first year "all-in" rate of $1,700, as presented in **Section 1.5.** | $1,700/AF |
| **Local System O&M** | Operate and maintain the local water system on a long-term, asset management driven basis as described in **Section 2.** | $720/AF |
| **Exchange Benefit** | Sale of local water to Escondido, per **Section 3.** The benefit is expressed on the basis of 5,000 AF/yr of local system yield. | ($420/AF) (benefit) |
| **Delivery Reliability Mitigation** | To compensate for reduction in delivery reliability absent the Flume, increase storage of planned Pechstein II reservoir by 10 MG, at a capital cost of $15M[2], as described in **Section 4.1.** | $140/AF |
| **Boot and Bennett Transfer** | Transfer Boot and Bennett areas to Vallecitos, incurring a mid-range capital cost of $17M[2] as presented in **Section 4.2.** | $160/AF |
| **Reduced Pumping Costs** | By taking water at its VID3 connection rather than from the Flume, the District achieves annual pumping cost savings of $210,000 and capital cost savings of $5M[2], as presented in **Section 4.3.** | ($90/AF) (benefit) |
| **TOTALS** | (Rounded) | **$2,200/AF** |

**First-Year Costs for To Flume Option**

| Cost Component | Description | Equivalent Unit Cost[1] |
|---|---|---|
| **Local Water System O&M** | Operate and maintain the local water system on a long-term, asset management driven basis as described in **Section 2.** | $720/AF |
| **Water Treatment** | Treatment of local water at the EVWTP, as described in **Section 2.** | $200/AF |
| **Flume Replacement** | Replace the Flume at a total capital cost of $120M[2] as described in **Section 5.** | $1,150/AF |
| **Flume O&M** | Operate and maintain the Flume, per **Section 5.** (Asset management costs do not begin until after the 30 year finance period.) | $20/AF |
| **Self-Treatment Benefit** | Operation of the Flume allows the District to use approximately 7,500 AF/yr of Water Authority raw water, which it treats at a cost approximately $75/AF less than the Water Authority treated water rate differential. The equivalent unit benefit is expressed on the basis of 5,000 AF/yr of local system yield. | ($110/AF) (benefit) |
| **TOTALS** | (Rounded) | **$2,000/AF** |

1) Equivalent unit costs in 2020 dollars, for 5,000 AF/yr average annual yield of the local water system.

2) Capital costs are amortized at 2.5 percent over 30 years (A/P = .0478), and converted to unit cost using the District's 5,000 AF/yr average annual yield of the local water system.

## 6.2. 30-Year Cost Review: Differences in cost escalation rates result in pronounced advantage to the To Flume option.

The first-year costs presented in **Section 6.1** do not account for differences in the rates of cost escalation between the options over time. We expect most of the cost components listed will inflate over time at the assumed mid-range rate of 3.0 percent per year, as described in **Section 1.7**. We expect however that the two largest cost line items, Water Authority treated water rates and Flume Replacement amortized costs, will escalate at rates different than inflation with significant consequences to the overall cost comparison.

Regarding Water Authority treated water rates, the best available forecast as described in **Section 1.5** indicates rates are likely to increase faster than inflation for approximately the next 10 years, and thereafter equal to inflation. In contrast, Flume Replacement amortized costs, assuming the use of conventional level 30-year financing, would remain steady over the period with no escalation. This combination of escalating Water Authority rates and steady Flume Replacement amortization costs weighs to the significant advantage of the To Flume option.

The resulting thirty-year costs are summarized in the tables below.

**Thirty-Year Present-Worth Costs[1] for Not To Flume Option**

| Cost Component | Annual Cost Escalation | 30-Year Costs[2] |
|---|---|---|
| **Increased Water Authority Purchases** | Years 1-10: Mid-Range Inflation + 1.5%<br>Years 11-30: Mid-Range Inflation | $287M |
| **Local System O&M** | Mid-Range Inflation | $108M |
| **Exchange Benefit** | Mid-Range Inflation | ($63M) |
| **Delivery Reliability Mitigation** | None | 15M |
| **Boot and Bennett Transfer** | None | 17M |
| **Reduced Pumping Costs** | O&M Portion: Mid-Range Inflation<br>Capital Portion: Zero (level financing) | ($11M) |
| **TOTALS** | (Rounded) | **$350M** |

**Thirty-Year Present-Worth Costs[1] for To Flume Option**

| Cost Component | Annual Cost Escalation | 30-Year Costs[2] |
|---|---|---|
| **Local Water System O&M** | Mid-Range Inflation | $108M |
| **Water Treatment** | Mid-Range Inflation | $30M |
| **Flume Replacement** | None | $113M[3] |
| **Flume O&M** | Mid-Range Inflation | $3M |
| **Self-Treatment Benefit** | Mid-Range Inflation | ($17M) |
| **TOTALS** | (Rounded) | **$240M** |

1. All annual cost items are inflated as noted over 30 years, then brought back to present worth at a discount rate of 3.0%/yr.
2. Costs in 2020 dollars
3. That's not a typo. The assumption that the project will receive low-interest financing results in an effective subsidy in its present-worth cost. The subsidy for $120M of capital financed at 2.5% interest over a 30- year period, and brought back to present worth at a discount rate of 3.0%, amounts to approximately $7M.

Beyond the 30-year finance period, all of the costs for the Not To Flume option continue to accrue, while costs for the To Flume option decrease with the retirement of the capital debt. At that time the District would begin accruing a sinking fund for long-term maintenance and repair of the new Flume, but the annual cost for this fund would be considerably less than the bond payment amount. **This suggests the long-term cost advantages of the To Flume option would likely continue beyond the 30-year finance period and into the future.**

## 6.3. Sensitivity Analysis: The cost comparison can be altered by changes to individual assumptions; however, getting the scale to tip the other way requires changes to multiple assumptions.

The cost comparisons presented in **Sections 6.1** and **6.2** utilize the Mid-Range estimates for all cost components and financing terms. The Mid-Range assumptions reflect the Study team's best estimates and professional judgements; we think those are the best numbers to use for the current planning purposes. Nevertheless, we recognize that our estimates and assumptions about future conditions are imperfect, and that actual costs and actual future conditions could vary. Having demonstrated that the cost balance scale tips in favor of the To Flume option using the Mid-Range estimates, it is prudent to consider the sensitivity of that outcome to changes in the assumptions.

The Sensitivity Analysis table on the next page summarizes the effects on the thirty-year cost comparison of making one-at-a-time changes to key individual assumptions. For example, what is the effect on the cost comparison of changing the project interest rate from the Mid-Range value to a higher rate, or what is the effect of assuming Water Authority rates will escalate at a pace lower than the Mid-Range assumption? For comparison, the first row of the table lists what we have labeled as the Baseline Condition, the costs that result from consistent application of the Mid-Range assumptions as detailed in the previous subsection.

Because the cost balance scale for the Baseline Condition tilts so prominently in favor of the To Flume option, the Sensitivity Analysis table presents only changes made in the direction of advantaging the Not To Flume option at the expense of the To Flume option (e.g., adjusting project interest rates to make financing of a Flume Replacement project more expensive than for the Mid-Range condition). It is important to keep in mind that for every changed assumption presented in the direction of advantaging the Not To Flume option, there is an equal and opposite change that would further advantage the To Flume option (e.g., we could change the interest rate assumption the other direction to make the financing of a Flume Replacement project less expensive than the Mid-Range condition).

## Sensitivity Analysis for Changes to Individual Cost Variables

(With all adjustments made in the direction of advantaging the Not To Flume option)

| Cost Variable | Assumption | Effect | 30-Yr. Costs[1] | |
|---|---|---|---|---|
| | | | Not To Flume | To Flume |
| **Baseline Condition** | Baseline costs using all Mid-Range assumptions, per **Section 6.2**. | | **$350M** | **$240M** |
| **1. Interest Rates** | Increase project interest rate from the Mid-Range value of 2.5% (melded) to Pessimistic range value of 4.0% | Increases present-worth cost of Flume replacement by ~$22M | $350M | ⇧ $260M (+$20M) |
| **2. Rate Escalation** | Reduce the pace of rate escalation from Mid-Range (inflation + 1.5% next 10 years, thereafter at inflation), to Optimistic (inflation + 1% for next 5 years, thereafter at inflation) | Reduces cost of Water Authority purchases for local yield replacement water by ~$20M | ⇩ $330M (-$20M) | $240M |
| **3. Exchange Opportunities** | Increase the exchange revenue from Mid-Range ($420/AF) to Optimistic ($530/AF) | Reduces net cost of Not To Flume option by ~$20M | ⇩ $330M (-$20M) | $240M |
| **4. System Improvements** | Change Boot and Bennet transfer cost from Mid-Range ($17M) to Optimistic ($6M) | Reduces cost of Not To Flume option by ~$10M (rounded) | ⇩ $340M (-$10M) | $240M |
| **5. Flume Replacement** | Assume replacement costs 25% above budget | Increases costs of Flume replacement by ~$30M | $350M | ⇧ $270M (+$30M) |
| **6. Average Local Yield** | Reduce the average yield of the local water system from Mid-Range (5,000 AF/yr) to Pessimistic (4,000 AF/yr)<br>(Note: Less yield would mean less replacement water would be required.) | Reduces cost of Water Authority purchases for local yield replacement water by ~$60M<br>Reduces costs for local water treatment by ~$10M | ⇩ $290M (-$60M) | ⇩ $230M (-$10M) |

1. Costs in 2020 dollars

It is apparent from the table that the long-term cost advantages of the To Flume option are robust, in that changes to individual assumptions alone are not sufficient to tip the balance scale the other way. Of the six variables presented, changes to the last, Average Local Yield, result in the largest swing in costs ($50M net) between the To Flume and Not To Flume options.

To further test sensitivity, the table on the next page presents the results of applying multiple changed assumptions simultaneously, all in the direction of advantaging the Not To Flume option.

### Sensitivity Analysis for Changes to Multiple Cost Variables, Case 1

(With all adjustments made in the direction of advantaging the Not To Flume option)

| Cost Variable | Assumption | 30-Yr. Costs[1] | |
|---|---|---|---|
| | | Not To Flume | To Flume |
| **Baseline Condition** | Baseline costs using all Mid-Range assumptions, per **Section 6.2**. | **$350M** | **$240M** |
| **First Five of Six**<br>(1. Interest Rates,<br>2. Rate Escalation,<br>3. Exchange Opportunities,<br>4. System Improvements,<br>5. Flume Replacement) | Assumes the first five of the assumptions change, in unison, from their Mid-Range values to those most favorable to the Not To Flume option. | ⇩ $300M<br>(-$50M) | ⇧ $290M<br>(+$50M) |
| **All Six**<br>(The first five above, plus:<br>6. Average Local Yield) | Assumes all six of the assumptions change in unison from their Mid-Range values to those most favorable to the Not To Flume option. | ⇩ $240M<br>(-$110M) | ⇧ $280M<br>(+$40M) |

The table demonstrates that with enough changes to the Mid-Range assumptions, all made in the direction of favoring the Not To Flume option, it is possible to bring the long-term costs of the two options to parity, and in the extreme to gain modest comparative cost advantage (on the order of $1.5 million per year over thirty years) for the Not To Flume option. **We consider this scenario unlikely, but do not deny it is possible.**

On the topic of what is possible, remember the above sensitivity analysis tables are intentionally biased in favor of lending advantage to the Not To Flume option. If we instead adjusted the sensitivity variables in the other direction, in favor of the To Flume alternative, the cumulative results would be as presented in the table below.

### Sensitivity Analysis for Changes to Multiple Cost Variables, Case 2

(With all adjustments made in the direction of advantaging the To Flume option)

| Cost Variable | Assumption | 30-Yr. Costs[1] | |
|---|---|---|---|
| | | Not To Flume | To Flume |
| **Baseline Condition** | Baseline costs using all Mid-Range assumptions, per **Section 6.2**. | **$350M** | **$240M** |
| **First Five of Six**<br>(1. Interest Rates,<br>2. Rate Escalation,<br>3. Exchange Opportunities,<br>4. System Improvements,<br>5. Flume Replacement | Assumes the first five of the assumptions change in unison from their Mid-Range values to those most favorable to the To Flume option. | ⇧ $400M<br>(+$50M) | ⇩ $205M<br>(-$35M) |
| **All Six**<br>(The first five above, plus:<br>6. Average Local Yield) | Assumes all six of the assumptions change in unison to those most favorable to the To Flume option. | ⇧ $485M<br>(+$135M) | ⇩ $215M<br>(-$25M) |

The table above and the one prior demonstrate the swing between wildly pessimistic and wildly optimistic assumptions. We think the actual numbers are most likely to be closer to the middle of this range.

## 6.4. Review of Non-Cost Factors: Both options have comparative advantages and disadvantages. We think To Flume comes out ahead, but the evaluations here are subjective. Your call.

Major non-cost attributes of the Not To Flume option are summarized in the table below. The evaluations presented here are preliminary and subject to Board refinement.

**Major Non-Cost Components for Not To Flume Option**

| Evaluation Factor | Discussion | Rating | |
|---|---|---|---|
| | | To Flume | Not To Flume |
| **Maximize Service Reliability and Operational Effectiveness** | Without the Flume, the District would incur loss of an increment of delivery reliability provided by the Flume. Delivery reliability in the Not To Flume option is mostly compensated for as described in **Section 4.1**, but not entirely. | ↑ | → |
| **Minimize Environmental Impacts / Protect Environmental Resources** | Potential adverse environmental effects of a Flume replacement project appear mitigable, with costs included in the estimate. Environmental management of the Warner Basin could continue under either option. | → | → |
| **Implementability – Capital Outlay Expenditures** | Even though equivalent unit costs are level between the options, the To Flume option requires large capital financing, while the Not To Flume option does not. | ↓ | ↑ |
| **Implementability – Other Risks and Opportunities** | Each option leads to its own set of risks and opportunities. The To Flume option incurs risk of hydrologic uncertainty as to future yield, but that uncertainty is as likely to be favorable and unfavorable. The To Flume option leaves open the potential opportunity of an expanded Warner Basin wellfield, but that opportunity has not yet been evaluated for economic merit. | ↑ | → |
| **Regional Cooperation** | The existing Flume provides valuable supply redundancy to the Rincon del Diablo, via an intertie utilized by Rincon del Diablo during Water Authority aqueduct shutdowns. Rincon del Diablo is hoping the District chooses To Flume. | ↑ | ↓ |
| **Intrinsic Values** | For board discussion | ? | ? |

## 6.5. Course Corrections and Offramps: For either option, the District will have a period of further planning and design prior to going all-in. You will have opportunities for course corrections and offramps along the way.

The Water Supply Planning Study is not the final word on To Flume or Not To Flume. Rather, the results of the Study will inform the District's decision as to whether to proceed with the next steps for preliminary design and environmental documentation for one option or the other. Either path provides ample time and opportunity for further review and refinement of the findings of the work presented here, and we recommend that periodic overview assessments be built into the scope of work for either path.

If for example you elect to proceed with planning for a Flume Replacement Project, and if in the course of that planning you determined that all six of the cost variables from the prior table had shifted in favor of the Not To Flume option, you could change course at that time. We hope that takes a bit of the pressure off the current To Flume or Not To Flume decision.

## 6.6. Next Steps: To Flume

If the District chooses To Flume, its next steps will include the major items summarized in the table below.

**Next Steps – To Flume Option**

| Action | Description | Schedule and Budget |
|---|---|---|
| **1. Alignment Study** | Conduct a thorough Alignment Study for a Flume Replacement Project. Evaluate alternative alignments, define key design parameters, refine project costs, and provide engineering support to the Environmental Documentation process | 18-24 months<br>$0.75M - $1.25M |
| **2. Environmental Documentation** | Conduct environmental documentation and preparation for project permitting | 18-24 months<br>$0.75M - $1.25M |
| **3. Financial Planning** | Develop project financing plans; prepare and apply for grants (depending on project eligibility) and low-interest loans | 12-18 months<br>$0.1M - $0.25M |
| **4. Miscellaneous** | • Average Local Yield: Refine estimates | 12-18 months<br>$0.1M - $0.25M |
| **Total** | | 24-36 months<br>$1.7M - $3M |

## 6.7. Next Steps: Not To Flume

If the District chooses Not To Flume, its next steps will include the major items summarized in the table below.

**Next Steps – Not To Flume Option**

| Action | Description | Schedule and Budget |
|---|---|---|
| **1. Flume Retirement Planning** | Define timing and process for Flume retirement and demolition, including environmental review | 12-24 months<br>$0.5M - $0.75M |
| **2. Boot and Bennett Transition** | Prepare necessary agreements and studies with Vallecitos and LAFCO for transition of the Boot and Bennett areas to the Vallecitos service area. | 12-24 months<br>$0.25M - $0.75M |
| **3. Delivery Reliability / Pechstein II** | • Prepare formal plan for delivery reliability upon retirement of the Flume<br>• Prepare preliminary design and environmental documentation for Pechstein II<br>• Coordinate with the Water Authority to monitor implementation of their Isolation Valves project | 12-24 months<br>$0.25M - $0.75M |
| **4. Escondido Water Purchase Agreement** | • Coordinate with Escondido to formalize terms<br>• Work with Escondido to explore opportunities for water quality and treatability improvements at Lake Wohlford and the EVWTP | 12-24 months<br>$0.25M - $0.5M |
| **Total** | | 12-24 months<br>$1.25M - $3M |

## 6.8. We'll see you at Workshop No. 3.

These are challenging and exciting issues for the District. We look forward to reviewing them with you at Workshop No. 3.

VISTA IRRIGATION DISTRICT

**Agenda Item: 9**

# STAFF REPORT

**Board Meeting Date:** **April 1, 2020**
**Prepared By:** **Brett Hodgkiss**

SUBJECT: MATTERS PERTAINING TO THE ACTIVITIES OF THE SAN DIEGO COUNTY WATER AUTHORITY

SUMMARY: Informational report by staff and directors concerning the San Diego County Water Authority. No action will be required.

VISTA IRRIGATION DISTRICT

# STAFF REPORT

**Agenda Item: 10.A**

| | |
|---|---|
| **Board Meeting Date:** | **April 1, 2020** |
| **Prepared By:** | **Ramae Ogilvie** |
| **Approved By:** | **Brett Hodgkiss** |

SUBJECT: REPORTS ON MEETINGS AND EVENTS ATTENDED BY DIRECTORS

SUMMARY: Directors will present brief reports on meetings and events attended since the last Board meeting.

VISTA IRRIGATION DISTRICT

# STAFF REPORT

**Agenda Item: 10.B**

**Board Meeting Date:** April 1, 2020
**Prepared By:** Lisa Soto
**Approved By:** Brett Hodgkiss

SUBJECT: SCHEDULE OF UPCOMING MEETINGS AND EVENTS

SUMMARY: The following is a listing of upcoming meetings and events. Requests to attend any of the following events should be made during this agenda item.

| | SCHEDULE OF UPCOMING MEETINGS AND EVENTS | ATTENDEES |
|---|---|---|
| 1 * | **Council of Water Utilities Meeting**<br>*April 21, 2020; The Butcher Shop Steakhouse, Kearny Mesa*<br>*Reservation deadline: 4/16/20* | |
| 2 * | **Vista Chamber of Commerce Business Mixer**<br>*May 13, 2020, 5:00 p.m. – 7:00 p.m.; Wildwood Crossing, 116 Civic Center Drive*<br>*No RSVP required to attend* | |
| 3 * | **Council of Water Utilities Meeting**<br>*May 19, 2020; The Butcher Shop Steakhouse, Kearny Mesa*<br>*Reservation deadline: 5/14/20* | |
| 4 | **Special Districts Legislative Days** (CSDA)<br>*May 19-20, 2020; Sheraton Grand Sacramento*<br>*Registration deadline: 4/20/20* | MacKenzie (R, H) |
| 5 * | **CSDA Quarterly Dinner Meeting**<br>*May 21, 2020, 6:00-9:00 p.m.; The Butcher Shop Steakhouse, Kearny Mesa*<br>*Reservation deadline: 5/14/20* | MacKenzie |
| 6 | **Bay Delta Tour Field Trip** (Water Education Foundation)<br>*June 3-5, 2020; Begins and ends at Sacramento International Airport*<br>*Reservation deadline: 4/21/20* | |
| 7 | **Third Annual Groundwater Sustainability Summit** (GRA)<br>*June 10-11, 2020; Hilton Sacramento Arden West*<br>*Registration deadline: 5/13/20* | |
| 8 * | **Council of Water Utilities Meeting**<br>*June 16, 2020; The Butcher Shop Steakhouse, Kearny Mesa*<br>*Reservation deadline: 6/11/20* | |
| 9 * | **Council of Water Utilities Meeting**<br>*July 21, 2020; The Butcher Shop Steakhouse, Kearny Mesa*<br>*Reservation deadline: 7/16/20* | |
| 10 | **ACWA Summer Conference**<br>*July 28-31, 2020; Monterey*<br>*Registration deadline: 7/10/2020* | MacKenzie (R, H)<br>Vásquez (R, H, A)<br>Dorey (R, H, A)<br>Sanchez (R, H) |
| 11 * | **Council of Water Utilities Meeting**<br>*DARK IN AUGUST* | |
| 12 | **Urban Water Institute Annual Water Conference**<br>*Aug. 19-21, 2020; Hilton San Diego*<br>*Registration deadline: TBD* | |
| 13 * | **CSDA Quarterly Dinner Meeting**<br>*Aug. 20, 2020, 6:00-9:00 p.m.; The Butcher Shop Steakhouse, Kearny Mesa*<br>*Reservation deadline: 8/13/20* | |

| | SCHEDULE OF UPCOMING MEETINGS AND EVENTS | ATTENDEES |
|---|---|---|
| 14 | **CSDA Annual Conference**<br>*Aug. 24-27, 2020; Palm Desert*<br>*Registration deadline: 7/24/20* | MacKenzie<br>Sanchez |
| 15 | **Headwaters Tour Field Trip** (Water Education Foundation)<br>*Sept. 10-11, 2020; Begins and ends in Sacramento area*<br>*Reservation deadline: 7/29/20* | |
| 16 | **Third Annual Western Groundwater Congress**<br>*Sept. 14-16, 2020; Burbank, CA*<br>*Reservation deadline: TBD* | Dorey |
| 17 * | **Council of Water Utilities Meeting**<br>*Sept. 15, 2020; The Butcher Shop Steakhouse, Kearny Mesa*<br>*Reservation deadline: 9/10/20* | |
| 18 | **2020 Water Summit** (Water Education Foundation)<br>*Sept. 24, 2020; Sacramento*<br>*Registration deadline: TBD* | |
| 19 | **Special District Leadership Academy** (CSDA)<br>(Advanced track available)<br>*Sept. 27-30, 2020; South Lake Tahoe*<br>*Registration deadline: 8/28/20* | |
| 20 | **San Joaquin River Restoration Tour Field Trip** (Water Education Foundation)<br>*Sept. 30-Oct. 1, 2020; Begins and ends in Fresno*<br>*Reservation deadline: 8/18/20* | |
| 21 | **Northern California Tour Field Trip** (Water Education Foundation)<br>*Oct. 14-16, 2020; Begins and ends at Sacramento International Airport*<br>*Reservation deadline: 9/1/20* | |
| 22 * | **Council of Water Utilities Meeting**<br>*Oct. 20, 2020; The Butcher Shop Steakhouse, Kearny Mesa*<br>*Reservation deadline: 10/15/20* | |
| 23 | **Special District Leadership Academy** (CSDA)<br>(Advanced track available)<br>*Nov. 15-18, 2020; San Diego*<br>*Registration deadline: 10/23/20* | |
| 24 * | **CSDA Quarterly Dinner Meeting**<br>*Nov. 19, 2020, 6:00-9:00 p.m.; The Butcher Shop Steakhouse, Kearny Mesa*<br>*Reservation deadline: 11/12/20* | |
| 25 * | **Council of Water Utilities Meeting**<br>*Nov. 17, 2020; The Butcher Shop Steakhouse, Kearny Mesa*<br>*Reservation deadline: 11/12/20* | |
| 26 * | **Council of Water Utilities Meeting**<br>*DARK IN DECEMBER* | |
| 27 | **ACWA Fall Conference**<br>*Dec. 1-4, 2020; Indian Wells; Registration deadline: TBD* | |
| 28 | **Colorado River Water Users Association Conference** (CRWUA)<br>*Dec. 14-16, 2020; Las Vegas; Registration deadline: TBD* | |

* Non-per diem meeting except when serving as an officer of the organization

The following abbreviations indicate arrangements that have been made by staff:

**R**=Registration; **H**=Hotel; **A**=Airline; **S**=Shuttle; **C**=Car; **T**=Tentative

VISTA IRRIGATION DISTRICT

**Agenda Item: 11**

# STAFF REPORT

**Board Meeting Date:** **April 1, 2020**
**Prepared By:** **Ramae Ogilvie**

SUBJECT: ITEMS FOR FUTURE AGENDAS AND/OR PRESS RELEASES

SUMMARY: This item is placed on the agenda to enable the Board to identify and schedule future items for discussion at upcoming Board meetings and/or identify press release opportunities.

*Staff-generated list of tentative items for future agendas*:

- San Luis Rey Watershed Council participation
- Warner Wellfield Assessment

VISTA IRRIGATION DISTRICT

**Agenda Item: 12**

# STAFF REPORT

**Board Meeting Date:** **April 1, 2020**
**Prepared By:** **Ramae Ogilvie**

SUBJECT: COMMENTS BY DIRECTORS

SUMMARY: This item is placed on the agenda to enable individual Board members to convey information to the Board and the public not requiring discussion or action.

VISTA IRRIGATION DISTRICT

**Agenda Item: 13**

# STAFF REPORT

**Board Meeting Date:** **April 1, 2020**
**Prepared By:** **Brett Hodgkiss**

SUBJECT: COMMENTS BY GENERAL COUNSEL

SUMMARY: Informational report by the General Counsel on items not requiring discussion or action.

VISTA IRRIGATION DISTRICT

**Agenda Item: 14**

# STAFF REPORT

**Board Meeting Date:** **April 1, 2020**
**Prepared By:** **Brett Hodgkiss**

SUBJECT: COMMENTS BY GENERAL MANAGER

SUMMARY: Informational report by the General Manager on items not requiring discussion or action.

NOTICE OF ADJOURNED MEETING
OF THE BOARD OF DIRECTORS OF THE
VISTA IRRIGATION DISTRICT

A REGULAR MEETING OF THE BOARD OF DIRECTORS OF VISTA IRRIGATION DISTRICT, HELD ON APRIL 1, 2020 WAS ADJOURNED UNTIL 9:00 AM, APRIL 15, 2020, AT THE OFFICE OF THE VISTA IRRIGATION DISTRICT, 1391 ENGINEER STREET, VISTA, CALIFORNIA.

* * * * * *

AFFIDAVIT OF POSTING ORDER OF ADJOURNMENT OF MEETING

STATE OF CALIFORNIA )
COUNTY OF SAN DIEGO )

I, Ramae Ogilvie, hereby certify that I am the duly appointed, qualified Assistant Secretary of the Board of Directors of Vista Irrigation District; that the foregoing is duly noted in the Minutes of said Regular Meeting of the Board of Directors of Vista Irrigation District; that said Regular Board Meeting was ordered adjourned to the time and place above specified; and that I posted a copy of this order of adjournment near the public entrance to the Board Room at the offices of the District.

Ramae Ogilvie

Ramae Ogilvie, Assistant Secretary
Board of Directors
Vista Irrigation District

POSTED: April 8, 2020