SPECIAL NOTICE REGARDING CORONAVIRUS DISEASE 2019 (COVID-19) AND PARTICIPATION IN PUBLIC MEETINGS

On March 4, 2020, Governor Newsom declared a State of Emergency resulting from the threat of COVID-19. Governor Newsom issued Executive Order N-25-20 (3-12-20) and Executive Order N-29-20 (3-17-20) which temporarily suspend portions of the Brown Act relative to conducting public meetings. Subsequent thereto, Governor Newsom issued Executive Order N-33-20 (3-19-20) ordering all individuals to stay at home or at their place of residence. Accordingly, it has been determined that all Board and Workshop meetings of the San Bernardino Valley Municipal Water District will be held pursuant to the Brown Act and will be conducted via teleconference. There will be no public access to the meeting venue.

BOARD OF DIRECTORS WORKSHOP - ENGINEERING
TUESDAY, APRIL 14, 2020 – 2:00 P.M.

PUBLIC PARTICIPATION
Public participation is welcome and encouraged. You may participate in the April 14, 2020, meeting of the San Bernardino Valley Municipal Water District online and by telephone as follows:

Dial-in Info: 888 788 0099 US Toll-free
Meeting ID: 753 841 573

https://us04web.zoom.us/j/753841573

If you are unable to participate online or by telephone, you may also submit your comments and questions in writing for the District’s consideration by sending them to comments@sbvmwd.com with the subject line “Public Comment Item #” (insert the agenda item number relevant to your comment) or “Public Comment Non-Agenda Item”. Submit your written comments by 6:00 p.m. on Monday, April 13, 2020. All public comments will be provided to the Chair and may be read into the record or compiled as part of the record.

IMPORTANT PRIVACY NOTE: Participation in the meeting via the Zoom app is strongly encouraged. Please keep in mind: (1) This is a public meeting; as such, the virtual meeting information is published on the World Wide Web and available to everyone. (2) Should you participate remotely via telephone, your telephone number will be your “identifier” during the meeting and available to all meeting participants. Participation in the meeting via the Zoom app is strongly encouraged; there is no way to protect your privacy if you elect to call in to the meeting. The Zoom app is a free download.
CALL TO ORDER -
Chairperson: Director Kielhold
Vice-Chair: Director Hayes

1. INTRODUCTIONS

2. PUBLIC COMMENT - Any person may address the Board on matters within its jurisdiction.

3. SUMMARY OF PREVIOUS MEETING
   3.1. March 10, 2020, Meeting (Page 3)
       Summary Notes BOD Workshop Engineering 031020

4. DISCUSSION ITEMS
   4.1. Update on State Water Project and Sites Reservoir Project (Page 7)
       Staff Memo - SWP and Sites Reservoir Update
       SWP and Sites Update Presentation
   4.2. Consider Scope Enhancement with NLine Energy for Engineering Design Services – Cactus Connector Pipeline (Page 31)
       Staff Memo - Consider Scope Enhancement with NLine Energy
       NLine Energy Amendment #4
       Alternative Alignment Technical Memo for Cactus Pipeline
       Cactus Pipeline Alignment
   4.3. Consider Procurements of Fixed Cone Valves for the Santa Ana Low Turnout Project (Page 50)
       Staff Memo to Consider Santa Ana Low Turnout Fixed Cone Valves Procurement

5. FUTURE BUSINESS
6. **ADJOURNMENT**

PLEASE NOTE:
Materials related to an item on this Agenda submitted to the Board after distribution of the agenda packet are available for public inspection in the District’s office located at 380 E. Vanderbilt Way, San Bernardino, during normal business hours. Also, such documents are available on the District’s website at [www.sbymwd.com](http://www.sbymwd.com) subject to staff’s ability to post the documents before the meeting. The District recognizes its obligation to provide equal access to those individuals with disabilities. Please contact Lillian Hernandez at (909) 387-9214 two working days prior to the meeting with any special requests for reasonable accommodation.
The Board of Directors held a Workshop on March 10, 2020. Director Kielhold chaired the meeting and Directors Harrison, Navarro, Longville, and Hayes participated in the Workshop supported by Heather Dyer, Bob Tincher, Wen Huang, Brent Adair, Kristeen Farlow, Chris Jones, Kai Palenscar, and Kirsten Adair of staff. The following agenda items were discussed:

3.1 Summary of Previous Meeting on January 14, 2020. The summary notes of the February 11, 2020, meeting were accepted.

4.1 Santa Ana Watershed Association Update on the 2019 Least Bell’s Vireo Population Surveys. Anthony Locatelli of the Santa Ana Watershed Association (SAWA) gave a presentation on the results of surveys for Least Bell’s Vireo and other bird species covered in the Upper Santa Ana River Habitat Conservation Plan. Anthony provided a concise description of results from 2019 monitoring, how 2019 results compared to previous years’ results, and preliminary results of a vireo site selection and productivity study he is conducting for Valley District. Anthony was supported by Melody Aimar, Brian Brady, and Allyson Beckman of SAWA.

Action Item: No action item as this was an update only.

5.1 Consider Equipment Procurements for Central Feeder – East Branch Extension Intertie Project. Staff discussed the need for procurement of two magnetic flow meters (one 24” and
one 42”), two flow control valves (one 24” and one 42”), five guard valves (two 24”, two 42”, and one 60”) and six bypass valves (two 8” and two 4” butterfly valves, and two 4” ball valves) for the Central Feeder – East Branch Extension (CF-EBX) Intertie Project (Project). The total estimated cost for the procurements is $296,643. Advanced procurement of long lead-time equipment for the Project will allow the District to shorten the construction schedule time, reduce overall Project costs and have greater control of the equipment being purchased. Through the Project, the Central Feeder will connect to the recently completed (2017) EBX-II pipeline to facilitate delivery to entities on the eastern end of our service area. This Project was awarded by the United States Bureau of Reclamation (USBR) for a grant of up to $750,000 in 2019. The estimated construction cost, including procurements, of the Project is approximately $2.2M. At the conclusion of the discussion, the Board of Directors present asked that this item be placed on a future Board of Directors’ meeting for consideration.

**Action Item:** Forward the item (estimated cost of $296,643) to the full Board for consideration.

5.2 **Review of 2017 Recycled Water Settlement Agreement between Valley District, San Bernardino Municipal Water Department and East Valley Water District.** Staff presented the Board of Directors with a recap of the 2017 Recycled Water Settlement Agreement (Settlement). This included discussion about the three agencies and the needs of each one, as well as the challenges that led to the Settlement. Additionally, Staff provided details of the water use efficiency component within the Settlement, the projects that the San Bernardino Municipal Water Department has completed, and the projects that expected to be completed.

**Action Item:** No action item as this was an update only.

5.3 **Update on the Water Use Efficiency and Education Program.** Staff provided the Board of Directors with an update on the Water Use Efficiency Program. The District has budgeted $750,000 for the Water Conservation Rebate, Turf Replacement Rebate, and Weather Based Irrigation Controller Programs. The total reimbursement requests to date for these programs are $603,232, including the San Bernardino Municipal Water Department Recycled Water Settlement water use efficiency projects. This leaves a balance of $146,768 for the Rebate Programs for this fiscal year.

The Inland Empire Resources Conservation District (IERCD) has made 82 classroom presentations throughout the District service area, leaving 38 programs to be presented.
through the end of this school year. There are two residential workshops being hosted at Valley District on March 7 and March 20, 2020, 9 a.m. – 12 p.m. on the topics of Landscape Design: The First Step in Your Efficient Landscape and Managing an Efficient Irrigation System.

**Action Item(s):** No action item as this was an update only.

5.3 **Overview of February 2020 Washington D.C. Advocacy Trip.** Heather Dyer gave an overview on recent participation in the 2020 Association of California Water Agencies (ACWA) Washington D.C. Conference and federal legislative visits that took place. Vice President Kielhold and Director Hayes, along with Ms. Dyer and Ms. Farlow met with federal legislators and staff of key committees to discuss topics of relevance to the District, including the Sites Reservoir Project, Delta Conveyance, the Upper Santa Ana River Habitat Conservation Plan, operations of Seven Oaks Dam, upcoming federal appropriations process, and the 2020 Water Resources Development Act. Ms. Dyer discussed meetings that took place with the legislative staff of Senators Harris and Feinstein and Representatives Napolitano, Aguilar, Cook, and Torres. Staff and Directors also attended ACWA conference presentations given by California Congressman Jared Huffman and Bureau of Reclamation Deputy Commissioner, Shelby Hagenauer highlighting initiatives currently being worked on by both legislators and agency leadership.

**Action Item:** No action item as this was an update only.

6. **Future Business:**

a) Director Hayes brought up two items for future discussion, both related to West Valley Water District. The first item was consideration of the District participating in West Valley’s upcoming Earth Day event on April 18, 2020; the second item was a request from West Valley to use our logo on the Inland Empire Landscape Guide (the “yellow books”) when West Valley distributes them to customers.

**Action Item:** Staff will add these items to a future workshop agenda for discussion by the Board of Directors.

b) Director Navarro requested a future agenda item be added to discuss ongoing meetings between the District’s lobbyists and the legislators throughout the year which could take place
at the District offices. Director Hayes followed up by requesting further discussion of the role, responsibility, and activity of the State and Federal lobbyists and how we can maximize the expertise of our advocacy team(s).

**Action Item:** Staff will add discussion of this subject to a future workshop agenda for discussion by the Board of Directors.

**Staff Recommendation**

Receive and File
DATE: April 14, 2020

TO: Board of Directors Workshop - Engineering

FROM: Bob Tincher, Deputy General Manager - Resources

SUBJECT: Update on State Water Project and Sites Reservoir Project

At this workshop, staff will provide an update on the State Water Project and the Sites Reservoir Project. Information will include the results of a Value Planning effort recently completed on the Sites Reservoir and the selection of a new Executive Director to lead the Sites Authority. Staff will also provide an update on negotiations related to the Delta Conveyance Facility that have recently taken place and made positive progress towards a participation agreement.

Fiscal Impact
None.

Staff Recommendation
Receive and file

Attachment
Update on State Water Project and Sites Reservoir Project Presentation
Update on State Water Project and Sites Reservoir
Overview

**Overview**

**SWP**
- Operations
- Delta Conveyance

**Sites**
- Current contract expires 6/30
- Revised Project
- Next Contract
State Water Project

Delta Conveyance

Operations
Operation of the State Water Project is constrained by:

- **Facilities**
  - Reduced flows (7%) in the East Branch due mostly to settlement
    - Truing up costs for previous East Branch Enlargement
    - Develop project to restore some, or all, of the flow reduction

- **Contract**
  - “Management Tools” (essentially eliminates the Monterey Amendment)

- **Regulations**
  - Water Quality (SWRCB)
    - SWRCB recommended “unimpaired flow” criteria
    - SWP and CVP requested Voluntary Agreement approach
  - Species
    - Recent Federal Biological Opinion (BiOP)
      - Based on science
      - Supported by SWC
      - Opposed by State of California (SWC intervened)
    - Recent California Incidental Take Permit (ITP)
      - Not justified by science
      - Opposed by SWC and members of the legislature
      - Is estimated to cost the SWCs about 200,000 AF per year
On March 31, the California Department of Fish and Wildlife (CDFW) issued an Incidental Take Permit (ITP) for the long-term operation of the State Water Project (SWP). The ITP is required under state law to protect endangered and threatened fish species like Longfin Smelt, Delta Smelt, Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon. The State Water Contractors (SWC) object to the California Endangered Species Act (CESA) permitting of the SWP because the Department of Water Resources (DWR) agreed to changes in the project description that were in excess of CESA requirements. In addition to the changes in the project description, CDFW imposed significant permit conditions that far exceed legal standards.

While the SWC continue to support adaptive management activities that help better understand and manage the Delta ecosystem and water supplies, including testing Delta outflow hypotheses, the ITP imposes requirements in excess of existing law and conditions unrelated to the magnitude and nature of the impacts associated with the SWP, such as:

- Requirement that the SWP mitigate for purported effects that are upstream of the SWP and that occur at the Central Valley Project’s diversion facilities. Mitigation for these non-SWP effects result in more than $20 million dollars of new actions, in addition to SWP export delivery reductions.

- Assertion that the ITP provides benefits to SWP water users and the environment in wet years. In fact, in wet years, the ITP allows for minor relaxation of SWP operational requirements, up to 150,000 acre feet, but requires the SWP pay back those supplies under certain water years thus negating any export benefits of wet hydrology and calls into question why the requirement even exists, since it is unclear what flow actions are contemplated and for the benefit of which species.

- Requirement that is unrelated to the “take” and unrelated to mitigation for an effect of the SWP. For example, the SWP and federal Central Valley Project (CVP) already supplement Delta flows through reservoir releases during the summer to meet in-Delta water quality requirements. The Project does not affect summer flows so there is no degradation, yet the SWP is required to provide an additional 100,000 acre feet in summer outflow.

- Imposition of further cuts to Delta exports even when multiple levels of operational controls have not been triggered, thereby giving CDFW full authority over real-time operational decision-making, resulting in even further export reductions than required to meet legal obligations.

- Requirement for an additional $18 million annually, above the $54 million annually to meet current obligations, some of which is outside the SWP impact area.

Although still assessing options, the SWC and its member agencies are disappointed DWR is moving forward with a project that fails to incorporate best available science, burdens ratepayers with obligations far exceeding the impacts of water operations and that will make compliance with the Sustainable Groundwater Management Act and climate change adaptation substantially more difficult.
Delta Conveyance

• Provides an intake north of the Delta
  • Reduces impacts on fish
  • Mitigates the effects of seawater intrusion and/or levee failure
  • Eliminates losses across the Delta

• Current Tasks
  • Engineering Design
  • Environmental
  • Contract
    • Agreement-in-Principle (AIP) or term sheet
    • Agreement
Sites Reservoir

Next Contract

New Project

Current Contract
Current Contract

- Permitting
  - Discussions with California Fish & Wildlife
  - Needed a project description

- Project refinement

- Grant Funding

- Staffing
  - Consulting
  - New Executive Director
# Schedule Targets (No Change)

**Joint Workshop, 2020 March 30**

**Draft, Subject to Change**

### Engineering
- **Home board package approved**
- **Preferred Project Facilities**
- **Engineering to support Project Description**
- **Engineering to support Prop 1 Feasibility**

### Confirm Operations and Temperature Benefits
- **Preferred Project Operations**

### Environmental Documentation
- **EIR/EIS Response to Comments and Revisions**
- **Final EIR/EIS**

### Ongoing Operations Modeling Support
- **Submit to State**
- **State Review**
- **State Validation of Eligibility**

### Prop 1 Feasibility Report (Env, Eng, Fin, Eco)
- **Submit Application**

### Advance Key Permits Needed for Project Certainty
- **Submit to USFWS & NMFS**
- **Submit to CDFW**
- **Final Section 106 PA**

### Notes:
- This graphic includes schedule drivers only and does not include all activities/deliverables.
- This work plan is based on current participation commitments.

---

**September 1, 2020**

**Sites**
Revised Project
Project: Range of Construction Costs

<table>
<thead>
<tr>
<th>Category</th>
<th>Range of Costs</th>
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<tbody>
<tr>
<td>Reservoirs and Dams</td>
<td>$1.0B - $1.5B</td>
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<tr>
<td>Pumping and Generating Plants</td>
<td>$1.0B - $1.4B</td>
</tr>
<tr>
<td>Pipelines</td>
<td>$1.0B - $1.5B</td>
</tr>
<tr>
<td>Total</td>
<td>$3.0B - $4.4B</td>
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- Unescalated
- w/o finance cost
- Includes contingency
OVERVIEW OF VALUE PLANNING PROCESS

MARCH, 2020
Ad Hoc Value Planning Work Group

• Representatives of the Reservoir Committee and Authority Board formed the Ad Hoc Value Planning Work Group in October 2019.

• Over several meetings, the Work Group directed the efforts of the Authority staff and consultant team to formulate and evaluate alternatives that would yield a more affordable project.

• On March 2, 2020, the Value Planning Work Group, through a sequential process of evaluating initial and refined alternatives, has identified a recommended project and two options that would provide the ability to complete the Project as circumstances evolve.
Key Components and Approach for Reducing Costs

**Diversion Facilities for Filling** – use the existing T-C and GCID and diversions rather than constructing new facilities.

**Conveyance for Releases** – use the existing T-C Canal to deliver water to the southern terminus of the canal. Releases could then be conveyed from the southern end of the T-C Canal to either the Colusa Basin Drain (CBD) or the Sacramento River.

**Storage** – smaller reservoir sizes, focusing on reservoir sizes of 1.5, 1.3, and 1.0 million acre-feet (MAF) to reduces the number and size of the dams and saddle dams along with related gates, towers, tunnels, and pumping facilities needed to fill Sites Reservoir.

**Roads and Bridges** – use shorter bridges with the use of constructed fill.

**Elimination of Unsupported Components** – Pump back hydropower has no apparent investors at this time.
<table>
<thead>
<tr>
<th></th>
<th>VP5</th>
<th>VP6</th>
<th>VP7</th>
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<tbody>
<tr>
<td><strong>Reservoir Size</strong></td>
<td>Option 1</td>
<td>Option 2</td>
<td><strong>Recommended</strong></td>
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<tr>
<td></td>
<td>1.3 MAF</td>
<td>1.3 MAF</td>
<td>1.5 MAF</td>
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<tr>
<td><strong>Release Capacity</strong></td>
<td>1,000 cfs</td>
<td>1,000 cfs</td>
<td>1,000 cfs</td>
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<tr>
<td><strong>Estimated Cost (2019 dollars)</strong></td>
<td>$2,779,000,000 to $2,814,000,000</td>
<td>$2,910,000,000 to $2,945,000,000</td>
<td>$2,961,000,000 to $2,996,000,000</td>
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<tr>
<td><strong>Estimated Cost per Acre-Foot with WIFIA(^a) (2020)</strong></td>
<td>$577</td>
<td>$607</td>
<td>$598</td>
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<tr>
<td><strong>Estimated Deliveries (Long-Term Average in TAF)</strong></td>
<td>234</td>
<td>234</td>
<td>243</td>
</tr>
<tr>
<td><strong>Key Options vs. VP7</strong></td>
<td>-Smaller reservoir</td>
<td>-Smaller reservoir</td>
<td>-Smaller reservoir</td>
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<tr>
<td></td>
<td></td>
<td>-Release pipeline to Sacramento River</td>
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</tbody>
</table>

Note: Inclusion of WIFIA loan reduces costs by ~$50/AF
Recommended Value Planning Alternative (VP7)
Next Contract

• In Development, will return to the Board for approval

• Will cover period 7/1/20 to 12/31/21

• General goal: provide the information necessary for agencies to decide whether they will participate in the project.

• Contract after 2021 will require greater financial participation
# Schedule Targets (No Change)

## Go/No-Go Decision Points

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<thead>
<tr>
<th>2020</th>
<th>2021</th>
<th>2022</th>
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<tbody>
<tr>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
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**AMENDMENT 1A and 1B**

- **Home board package approved**
- **Home board package approved**

**AMENDMENT 2**

## Value Planning

- **Preferred Project Facilities**

## Engineering

- **Project Description**
- **Engineering to support Prop 1 Feasibility**

## Confirm Operations and Temperature Benefits

- **Preferred Project Operations**

## Environmental Documentation

- **EIR/EIS Response to Comments and Revisions**
- **Final EIR/EIS**

## Ongoing Operations Modeling Support

## Prop 1 Feasibility Report (Env, Eng, Fin, Eco)

- **Submit to State**
- **State Review**
- **State Validation of Eligibility**

## Advance Key Permits Needed for Project Certainty

<table>
<thead>
<tr>
<th>2020</th>
<th>2021</th>
<th>2022</th>
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<tr>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
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- **Submit Application**

*NOTE: This graphic includes schedule drivers only and does not include all activities/deliverables.*

*This work plan is based on current participation commitments.*

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**September 1, 2020**

**Sites**

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25
Discussion: Scope and Deferred Work

**Now - April**
- Input on Home Board needs
- Direction on work plan
- Workshop (March 30)
- **Approve** (April 17):
  1. Value Planning
  2. Work Plan
  3. Amended Agreement

**May - July**
- Home Boards’ consideration
  - Staff support as requested
  - Responses to participation level due July 9

**July**
- **Approve Participation and first invoice**
  - Res. Comm (July 16)
  - Board (July 22)

- Distribute 1st invoice (payment due Sept 1)

**August**
- **Approve Consultant services contract amendments and initial task orders**
  - Res. Comm (Aug 21)
  - Board (Aug 26)
Preliminary Cash Flow – Reservoir Committee

Cash Flow - Reservoir Committee Amend 2
Revenue vs Expenses
(x000s)

Cash Call $60 AF
WSIP
Cash Call $40AF
WIIN
WSIP
WSIP

$ Monthly

$ Cumulative

Joint Workshop, 2020 March 30 - Draft, Subject to Change
Preliminary Cost Allocation by Subject (Reservoir Committee Funded)
Objective:
• Maintain cash positive position and avoid delays
• Leverage Prop 1 and WIIN Act funds

Participant Invoice Schedule:
$60/AF, Due September 1, 2020
$40/AF, Due February 1, 2021
Questions

**SWP**
- Operations
- Delta Conveyance

**Sites**
- Current contract expires 6/30
- Revised Project
- Next Contract
DATE: April 14, 2020
TO: Board of Directors’ Workshop – Engineering
FROM: Aaron Jones, Associate Engineer
       Wen Huang, Chief Engineer
SUBJECT: Consider Scope Enhancement with NLine Energy for Engineering Design Services – Cactus Connector Pipeline

This memorandum provides background information regarding the development of the Cactus Connector Pipeline, which will facilitate delivery of State Water Project (SWP) water from the Lytle Creek Turnout and West Valley Water District’s (WVWD) Roemer Hydroelectric Station to the Cactus Basins for recharge. A scope enhancement to the existing contract with NLine Energy for engineering and design services, pertaining to the Cactus Connector Pipeline, is being proposed for consideration.

Background
In November 2014, Valley District entered into a professional design services contract with NLine Energy for the Cactus Basin Turnout and Lytle Creek Turnout Modification Project (Project). The Project consisted of modifications to the Lytle Creek Turnout, construction of WVWD’s Roemer Hydroelectric Station, and installation of the Cactus Basins Connector Pipeline. The overall Project has been prioritized and constructed in different phases. The modifications to the Lytle Creek Turnout and the Roemer Hydroelectric Station have since been completed and are functional. The remaining Cactus Basin Connector Pipeline, which connects the tailrace of the Roemer Hydroelectric Station to a City of Rialto’s storm drain is in the final design stage and the construction is scheduled to begin in early 2021 pending completion of necessary California Environmental Quality Act (CEQA) documentation.

The purpose of the Cactus Connector Pipeline is to convey SWP water from the Devil Canyon-Azusa Pipeline via Lytle Creek Turnout to the Cactus Basins for recharge. When complete, the Cactus Connector will connect from the newly completed WVWD Roemer Hydroelectric Station...
to the City of Rialto’s storm drain at W Cheshire St and N Cedar Ave, which will then flow through a series of flow control and conveyance appurtenances to the Cactus Basins.

The original design called for a tie-in location of the Cactus Connector Pipeline at N Cedar Ave and W Bohnert Ave per the discussion with the City of Rialto staff. However, upon further utility investigations, it was revealed that the storm drain on N Cedar Ave. between W Bohnert Ave and W Cheshire Avenue was never constructed, which is contrary to the records obtained from the City. Valley District then asked NLine to evaluate alternative pipeline routes and their associated costs, specifically at an alignment utilizing Ayala Ave. Based on the Pipeline Alignment Feasibility Analysis the best overall alternative that NLine Energy recommends is keeping the same alignment as original on Cedar Ave but extending the alignment by approximately 1,200 linear feet further south to W Cheshire St. Valley District staff concurs as this is the most cost effective and risk adverse alignment selection when compared to the other alternative (i.e. Ayala Ave.). A copy of their work is attached for reference (see Attachment 2). Please see Attachment 3 for a drawing of the proposed Cactus Connector Pipeline alignment.

As this work has been unforeseen and out of scope, NLine Energy is asking for additional funds to complete the design work to extend the pipeline from Bohnert Ave to W Cheshire St. It is estimated that an additional $14,564 is needed to complete the required task. Staff reviewed the detailed cost breakdowns and found the requested fees reasonable for the anticipated work.

**Fiscal Impact**
The estimated cost of $14,564 for the additional engineering and design is included in the approved Fiscal Year 2019-2020 General Fund Budget, under line item 6360 Consultants.

**Staff Recommendation**
Direct Staff to forward the scope enhancement with NLine Energy to an upcoming Board meeting for consideration.

**Attachments**
1. NLine Energy Amendment #4 Request
2. SBVMWD Alternative Alignment Technical Memo for the Cactus Pipeline Project
3. Cactus Pipeline Alignment
April 2, 2020

Mr. Mike Esquer
San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
San Bernardino, CA 92408

Subject: Cactus Pipeline and Flow-Split Structure – Scope and Fee proposal for Cactus Pipeline Ayala Drive Alignment Feasibility Study (Job # 1786, Amendment #4)

Dear Mr. Esquer,

The following proposal is a request for an amendment to our current contract for design development services on the Cactus Pipeline Project. The proposal is to complete the design based on the selected alignment from the Pipeline Alignment Feasibility Assessment Analysis (Study). Valley District requested NLine provide a Study to determine whether a different alignment along Ayala would be more cost effective than the originally proposed Cedar Avenue alignment. The results of the Study yielded the Cedar Avenue alignment as the preferred option over Ayala.

A. General Description of Additional Services

NLine Energy provided a study to determine the feasibility of routing the alignment of the Cactus Pipeline through Ayala Dr. rather than North Cedar Ave. The following work was performed:

Task 1 – Engineering Design
Task 1.1 – Pipeline Alignment Feasibility Assessment Analysis

- **Review Utility Data** - This task included coordination between NLine, D&A and SBVMWD to obtain pertinent information on existing tie-in locations and major utility crossings. The NLine team reviewed the utility information as received.
- **Establish a Conceptual Alignment** – The utility information was gathered and reviewed. Known information was plotted in a CAD drawing with the proposed conceptual pipeline alignment for the new Cactus Pipeline.
- **Hydraulic & Pipe Size Analysis** - The conceptual design was checked to ensure it worked hydraulically and passed the required flow without spilling out onto the streets above the pipe. The appropriate pipe size was selected.
• **Cost Comparison of Alignments** - Preliminary construction cost estimates for the alignment on North Cedar and the alignment on Ayala Drive were prepared to compare the alternatives and aid in the choice of a final alignment.

• **Report of Findings** - All of the results from the above tasks were compiled and organized into a short technical memorandum (TM), with a final alignment recommendation for design.

**Task 1.2 – North Cedar Ave Bohnert to Cheshire Design Services**

• **Review Utility Data** - This task included coordination between NLine, D&A and SBVMWD to obtain pertinent information on existing tie-in locations and major utility crossings. SBVMWD gathered and provided the required utility and as-built information. The NLine team reviewed the information as received.

• **Additional Pipeline Design** – Complete design through final bid documents for adding 1,200 linear feet of pipeline.

**Task 1.3 – Credit from Amendment #2 Lytle Creek Crossing Design**

• Credit for Design work not completed for the connection to the Lytle Creek Powerhouse

**Task 2 - Project Management, Coordination, QA/QC**

NLine Energy provided cross-discipline coordination, QA/QC, and project management.

**B. Fee Estimate**

<table>
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<tr>
<th>Task</th>
<th>Title</th>
<th>Amt.</th>
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<tbody>
<tr>
<td>Task 1: Engineering Design</td>
<td></td>
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<tr>
<td>1.1</td>
<td>Feasibility Alternative Analysis</td>
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<td>1.2</td>
<td>North Cedar Ave – Bohnert to Cheshire Design</td>
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<td>Credit for Lytle Creek Crossing Design</td>
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<td>Task 2: Project Management, Coordination, QA/QC</td>
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<tr>
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<td>Task 2 Subtotal:</td>
<td>$1,324</td>
</tr>
<tr>
<td></td>
<td>Total:</td>
<td>$14,564</td>
</tr>
</tbody>
</table>

Thank you for the opportunity to support Valley District.

Best Regards,

Mathew Swindle  
CEO  
NLine Energy, Inc.
January 23, 2020

Andrew Benjamin
NLine Energy, Inc.
405 Portway Ave, Suite 300
Hood River, OR 97031

Subject: Amendment #3- Cactus Pipeline Project
        Ayala Drive Alternate Route Analysis and N. Cedar Ave Bohnert to Cheshire Design Services

Andrew,

The following proposal is a request for an amendment to our current contract for design development services for the SBVMWD Cactus Pipeline Project. Domenichelli & Associates (D&A) has completed a study of the feasibility of routing the alignment of the Cactus Pipeline through Ayala Drive rather than extending the pipeline further down North Cedar Ave. This study was an out of scope item. This analysis resulted in the recommended pipeline route to continue down N. Cedar from Bohnert Avenue to Cheshire Street. This amendment is for the alignment study and the added design to complete the project down to Cheshire Street.

Our scope and fee for this amendment are attached for your review.

Thank you for your consideration of this request.

Sincerely,

Joseph Domenichelli, P.E.
President, Domenichelli & Associates, Inc.
Scope of Services for:

San Bernardino Valley Municipal Water District
Cactus Pipeline Project, Ayala Drive Alternate Route Analysis and N. Cedar Ave Bohnert to Cheshire Design Services

Ayala Drive Route Feasibility Analysis

Task A1- Review Utility Data

This task includes coordination with NLine and SBVMWD to obtain pertinent information on existing tie-in locations and major utility crossings. It is assumed that SBVMWD will be gathering and providing the required utility and as-built information. D&A will review the information as received.

Task A2 – Establish a Conceptual Alignment

Once utility information is gathered and reviewed, we will plot the known information in a CAD drawing to determine a possible alignment for the new Cactus Pipeline.

Task A3 – Hydraulic & Pipe Size Analysis

The conceptual design will be checked to ensure it will work hydraulically and pass the required flow without spilling out onto the streets above the pipe. As part of this check, an appropriate pipe size will be chosen.

Task A4 – Cost Comparison of Alignments

Preliminary construction cost estimates for the alignment on North Cedar and the alignment on Ayala Drive will be prepared to compare the alternatives and aid in the choice of a final alignment.

Task A5 – Report of Findings

All of the results from the above tasks will be compiled and organized into a short technical memorandum (TM). The end goal of the TM will be to recommend a final alignment for design.

N Cedar Avenue Pipeline Extension (Bohnert to Cheshire)

Task B1- Research Utility Information Needs and Coordinate Surveying

This task includes:
Create a list of utility mapping needs including as-built drawings of storm drains at the tie-in location. SBVWD will obtain this information and provide it to D&A. D&A will review the utility data before finalizing topographic survey requirements.
Determine field survey needs for the final design of the new reach and coordinate with SBVWD who will contract with a local surveyor to obtain the design survey.

Task B2 – Additional Pipeline Design

This task includes complete design through final bid documents for adding 1200LF of pipeline:
- Pipeline sizing per the hydraulic calculations for the new reach
- Design new Plan and Profile sheets from information obtained in Task 1B.
# FEE ESTIMATE

The estimate of fees located below is based on the scope of work provided.

## Ayala Alignment Feasibility Analysis

<table>
<thead>
<tr>
<th>SBVMWD - Cactus Pipeline Project - Amendment Proposal</th>
<th>8/2/2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ayala Alignment Feasibility Study</td>
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<tr>
<td>Estimate of Fees</td>
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</table>

<table>
<thead>
<tr>
<th>TASK</th>
<th>D&amp;A HRS</th>
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</tr>
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<tbody>
<tr>
<td></td>
<td>Joe D</td>
<td>Daryl H</td>
</tr>
<tr>
<td></td>
<td>190</td>
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<tr>
<td>A1 Review Utility Data</td>
<td>4</td>
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<tr>
<td>A2 Establish a Conceptual Alignment</td>
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<tr>
<td>A3 Hydraulic &amp; Pipe Size Analysis</td>
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<td>A4 Cost Comparison of Alignments</td>
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<td>A5 Report of Findings</td>
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</table>

**Total Services:** 10 40 24

**Total:** $10,340

## Cedar Avenue Extension Design

<table>
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<th>SBVMWD - Cactus Pipeline Project - Amendment #3 Proposal</th>
<th>1/22/2020</th>
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<thead>
<tr>
<th>TASK</th>
<th>D&amp;A HRS</th>
<th>Total</th>
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<tbody>
<tr>
<td></td>
<td>Joe D</td>
<td>Daryl H</td>
</tr>
<tr>
<td></td>
<td>190</td>
<td>145</td>
</tr>
<tr>
<td>1B Research Utilities and Coord Surveys</td>
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</tr>
<tr>
<td>Create Utility Needs List</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Create surveying needs list &amp; Coord With District</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td><strong>Subtotals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2B Additional Pipeline Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydraulics Calcs for New Reach</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Design Plan &amp; Profile Sheets (3)</td>
<td>8</td>
<td>32</td>
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<tr>
<td><strong>Subtotals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16</td>
<td>36</td>
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</tbody>
</table>
In addition to the above out of scope added fees, there is a credit for design work not completed under Amendment #2 for the connection to Lytle Creek Power Plant. This includes Task 4.b and 4.c that amount to $14,400. The total Amendment #3 request below reflect all of these changes.

**Amendment #3 Request**

<table>
<thead>
<tr>
<th>Budget Revisions</th>
<th></th>
</tr>
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<tbody>
<tr>
<td>Fee for Ayala Route Feasibility:</td>
<td>$10,340</td>
</tr>
<tr>
<td>Fee for N Cedar Pipeline Extension Design:</td>
<td>$17,300</td>
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<tr>
<td>Credit from Amendment #2 Lytle Creek Crossing Design Task 4:</td>
<td>($14,400)</td>
</tr>
<tr>
<td><strong>Total Amendment #3 Request:</strong></td>
<td><strong>$13,240</strong></td>
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</table>
San Bernardino Valley Municipal Water District (SBVMWD)

SBVMWD Alternative Alignment Technical Memo for the Cactus Pipeline Project

December 02, 2019
Prepared by: Domenichelli and Associates, Inc.

Background and Purpose

This Technical Memorandum (TM) provides the San Bernardino Valley Municipal Water District (SBVMWD) an assessment of alternative alignments of the Cactus Pipeline Project. The project is located in the City of Rialto, in San Bernardino County, California. This project includes installing pipe to convey low pressure discharge from the West Valley Water District’s Hydroelectric Station, located at the Oliver P. Roemer Water Treatment Facility (Roemer Hydro), to the City of Rialto’s storm drain system. The storm drain discharges water into the Cactus Basins south of the 210 Foothill Freeway. Two alignments with tie-ins at two different locations are being considered for this “Cactus Recharge Pipeline”. The purpose of this memorandum is to summarize the characteristics of the two alignment choices and present a cost evaluation of each to facilitate discussion and ultimately support an alignment selection.

Description of Alternatives

Figure 1 is a map of the project area showing existing facilities as well as the alternative new pipeline alignments.

The Cactus Recharge Pipeline will originate at the Roemer Hydro (point A). The first section of pipeline would be constructed parallel to North Riverside Avenue and run approximately 420 ft. in a south east direction (point B). The pipeline would then turn south west along North Cedar Avenue for approximately 800 ft. (point C), then south east again along North Apple Avenue 1100 ft. to the intersection of N. Apple Ave. and Summit Ave. (point D)

From the intersection of N. Apple Ave. and Summit Ave (point D) there are two available pipeline alignments:

- The “Cedar Alternative” is approximately 4,500 ft in length, from point D, west along Summit Ave then south on North Cedar Ave. to W Cheshire St. (point F).
- The “Ayala Alternative” is approximately 3,190 ft in length, from point D continuing along North Apple Ave. to Ayala Drive, then south along Ayala to Bohnert Ave. (point G).

The Cedar Alternative will terminate at the existing 48-inch storm drain on West Cheshire Street and the Ayala Alternative will terminate at the existing 48-inch storm drain on Bohnert Avenue. Both storm drains are under City of Rialto jurisdiction.

The pipeline alignment section from the Roemer Hydroelectric Plant to the intersection of N. Apple Ave and Summit Ave (point A to point D) is common to both the N. Cedar Ave and Ayala Dr. alignments and has no bearing on the choice between the alternates presented. Therefore, it was not considered in this analysis. Only the portions of N. Cedar and the Ayala alternatives which are not common to both are considered.
Figure 1: Cactus Recharge Pipeline - Alternative Alignment
The following tables present a summary of the characteristics of each alignment option and Appendix A provides a cost estimate comparison for each alternative.

**Evaluation of Alternatives**

### Existing Utilities

The following utilities were contacted to determine the location of existing utilities:

1. City of Rialto
2. Kinder Morgan
3. The Metropolitan Water District of Southern California (MWD)
4. Pacific Bell (AT&T)
5. Southern California Gas Company (SoCal Gas)
6. Southern California Edison (SCE)
7. Time Warner Cable
8. West Valley Water District (WVWD)

Both alignments have similar utilities: water, gas, sewer, and communications. Kinder Morgan and MWD had existing utilities in the project area, but none in the path of either alignment.

Storm water is managed through surface runoff within curb gutters that parallel the roads and drain into existing storm drain inlets on each alignment.

The existing utilities in N. Cedar Ave. are configured such that a possible corridor for the proposed pipe alignment has been identified. However, on Ayala Ave., the information we have is very limited and the positions of existing utilities are not known to a degree sufficient to make a positive pathway determination. Based upon information we do have, it appears a pathway exists, but the uncertainty is far greater than for N. Cedar Ave.

<table>
<thead>
<tr>
<th>Cedar Ave Alignment</th>
<th>Ayala Drive Alignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility Conflicts (21 total):</td>
<td>Utility Conflicts (28 total):</td>
</tr>
<tr>
<td>• Water mains (8)</td>
<td>• Water mains (6)</td>
</tr>
<tr>
<td>• Water laterals (7)</td>
<td>• Water laterals (7)</td>
</tr>
<tr>
<td>• Sewer main (3)</td>
<td>• Sewer laterals (9)</td>
</tr>
<tr>
<td>• Sewer laterals (2)</td>
<td>• Sewer main (2)</td>
</tr>
<tr>
<td>• Communication lines (1)</td>
<td>• Gas lines (3)</td>
</tr>
</tbody>
</table>

There are fewer utility conflicts that may impact construction costs and schedule.

There are more utility conflicts that may impact construction costs and schedule. The potential for change orders is higher with this alternative with the added number of utility crossings. Potential deeper pipe construction with added shoring and utility conflicts. A contingency for the above cost impacts is included in the cost analysis.
Traffic Impacts

Both alignments traverse residential areas. Residential areas are accessible by multiple alternate arterial streets that would minimize direct impacts to the ingress/egress of individual homes, city services, and emergency response.

<table>
<thead>
<tr>
<th>Cedar Ave Alignment</th>
<th>Ayala Drive Alignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Impacts (36 total):</td>
<td>Traffic Impacts (30 total):</td>
</tr>
<tr>
<td>• Residential Driveways (23)</td>
<td>• Residential Driveways (18)</td>
</tr>
<tr>
<td>• Municipal facility driveways (1)</td>
<td>• Municipal facility driveways (1)</td>
</tr>
<tr>
<td>• Intersection crossings (12)</td>
<td>• Intersection crossings (9)</td>
</tr>
<tr>
<td>Cedar Ave. is a two-lane bi-directional road that is assumed to experience moderate to light traffic, it is not considered a commercial route.</td>
<td>Light controlled intersection crossings (1)</td>
</tr>
<tr>
<td>The logistics of detouring or closing roads to through traffic are expected to be simpler due to the minimal number of residents impacted and lighter traffic.</td>
<td>Currently a truck route (1)</td>
</tr>
</tbody>
</table>

Ayala Dr. is a four-lane, bi-directional, major collector road with a center turn lane and bike paths and is used by commercial traffic, as confirmed by the City of Rialto website. Traffic load is higher than N. Cedar Ave with anticipated spikes at rush hour. The logistics of detouring traffic or partial/full road closure are expected to be more difficult and may result in night work depending on City requirements to minimize traffic congestion.

Construction

Both alignments:
- Would be constructed within the paved right-of-way
- Would be installed using an open cut method that would utilize vertical shoring to minimize the construction footprint
- Would require a minimum construction footprint width of approximately 24-ft
- Contractor would be required to have all exposed trenches backfilled and plated by the end of each given day
- Have sufficient elevation change to allow for good pipe slope and velocities
- Are expected to have similar pipe diameters, with the exception that Ayala would likely have less 42” pipe due to a continuous downhill surface gradient.
Cedar Ave Alignment | Ayala Drive Alignment
---|---
This alignment is approximately 1,300 feet longer than the Ayala Drive Alignment, resulting in a longer construction phase. | This alignment should require only minimal pipe cover over the entire alignment, based upon the surface gradient. This could be negated by needing to cross an unknown utility and having to excavate deeper. Due to the nature of gravity piping, once a pipe is installed to a particular elevation, it must remain at or below this elevation.

Approx. 500-ft of alignment would have greater than 5-ft of pipe cover due to downstream increased surface elevation. This will result in additional excavation. | The rate of construction is expected to be slower due to the higher level of traffic control and potentially more and deeper utility crossings. The location and depth of existing utility crossings are unknown at this time.

The rate of construction is expected to be somewhat faster as a result of simpler logistics associated with road closures. | Road restoration costs are anticipated to be more per square foot because of the road type (e.g. major road), thicker AC section, impacts to multiple lanes, overlay requirements, re-striping requirements, and potential damage to existing curb and gutter.

Road restoration costs are expected to be less per square foot due to the road type (minor road), thinner AC sections, impact to only half the road (~13-ft), minimal striping restoration (e.g. road centerline). | This alignment requires only minimal pipe cover over the entire alignment, based upon the surface gradient. There is no need for additional excavation.

Cost
Costs are based on recent bids received for similar projects and discussions with vendors. The cost of pipe installation is combined with the material cost by multiplying the material cost by 2 for minor roads. To account for increased costs associated with major road work, the material cost of pipe on major roads is multiplied by 2.5.

For pavement restoration, several assumptions were made:

- Existing pavement in both Cedar Avenue and Ayala Drive is older than 5 years and will require trench repair only.
- Existing pavement for minor roads is 4 inches thick minimum and 6 inches thick for major road (Ayala Drive).
- Pavement restoration includes only a single lane for both minor and major roads.

Anticipated Non-construction Costs
Except for the southern-most portion (1,300 ft), the utilities along the N. Cedar alignment are fairly well documented. Ground Penetrating Radar (GPR) has been used to locate and mark utilities and estimate their depths. These marks have been surveyed and a background CAD file created. The utilities in the southern portion of the alignment are expected to be minimal. The cost for performing these services as well as initial engineering has already been spent and would become a sunk cost for the Ayala alignment if chosen. If the N. Cedar alignment is chosen, additional survey for the southern 1,300ft will be required. The costs for these services are estimated to be around $10,000.
The same investigations have not been performed on the Ayala alignment; therefore, many uncertainties exist along this path. The number of uncertainties can be reduced by performing similar surveys to the above for the Ayala alignment. This will incur added costs including traffic control, engineering coordination, GPR services, and surveying. The costs for these services are anticipated to be greater than $30,000.

The cost for design services for each alternative will vary. Ayala is anticipated to be the more costly design due to the number of unknowns, such as unmarked utilities, possible deep excavations to avoid unknown obstructions, as well as extra traffic control. To reduce the risks from unknowns, the District could proceed with the utility surveys ahead of the design process and supply this information to the designer.

For the Ayala alternative, as part of the encroachment permit requirements, the City of Rialto may wish to incorporate storm drainage into the pipe installed for this project. This would entail revised hydraulics, larger diameter piping, revising pipe materials from a relatively inexpensive corrugated HDPE pipe to a much more expensive concrete pipe, as well as drain inlets and lateral piping.

The table below presents a summary of the estimated construction costs. The costs were calculated to be similar, with a difference of only $112,000.

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Total Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cedar Avenue Alignment</td>
<td>$2,303,000</td>
</tr>
<tr>
<td>Ayala Drive Alignment</td>
<td>$2,415,000</td>
</tr>
</tbody>
</table>

The table below presents a summary of the estimated construction costs, including potential costs due to uncertainties. These costs increase the difference between the two options to $1,205,000. Attachment A presents the detailed probable cost estimates.

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Total Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cedar Avenue Alignment</td>
<td>$2,432,000</td>
</tr>
<tr>
<td>Ayala Drive Alignment</td>
<td>$3,637,000</td>
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</tbody>
</table>

**Conclusions and Recommendations**

The N. Cedar Ave. alignment is the preferred alignment for the following reasons:

- The N. Cedar Ave. alignment has fewer traffic control issues and fewer utility crossings.
- The Ayala Drive alignment has many more utility location and obstacle uncertainties.
- Construction costs are projected to be approximately $1,205,000 less than the Ayala. Alignment when uncertainties are included.
- The current lack of information for the Ayala Drive alignment results in its unit costs for some items being estimated higher than the comparative costs for N. Cedar. A 20% increase was added to the Ayala costs for piping.
- Other costs such as traffic control and engineering were estimated at a greater percentage as well.
ATTACHMENT A
# San Bernardino Valley Municipal Water District
## Project - Cactus Recharge Pipeline
### Engineers Estimate of Probable Costs - Cedar Avenue Alignment
#### December 2, 2019

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Quantity</th>
<th>Units</th>
<th>Unit Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mobilization/ Demobilization (3%)</td>
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<td>LS</td>
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<td>$51,000</td>
</tr>
<tr>
<td>2</td>
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<td>LS</td>
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<tr>
<td>3</td>
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<td>LS</td>
<td>$51,400</td>
<td>$51,000</td>
</tr>
<tr>
<td>4</td>
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<td>LF</td>
<td>$8.00</td>
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<td>5</td>
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<td>$21,400</td>
<td>$21,000</td>
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<tr>
<td>6</td>
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<td>7</td>
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<td>8</td>
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<td>LF</td>
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<td>$309,000</td>
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<tr>
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<tr>
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<tr>
<td>12</td>
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</table>

| Construction Cost | $1,919,000 |
| Contingency | 20% $384,000 |
| Grand Total | $2,303,000 |

<table>
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<tr>
<th>Other Estimated Cost Differences</th>
<th>Quantity</th>
<th>Units</th>
<th>Unit Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Traffic Control, GPR and Surveying</td>
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<td>$15,000</td>
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<tr>
<td>2 Engineering Design (4%)</td>
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<td>$92,000</td>
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</tbody>
</table>

| Construction Cost | $107,000 |
| Contingency | 20% $22,000 |
| Subtotal | $129,000 |
| Grand Total | $2,432,000 |
## San Bernardino Valley Municipal Water District
### Project - Cactus Recharge Pipeline
### Engineers Estimate of Probable Costs - Ayala Drive Alignment
### December 2, 2019

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Quantity</th>
<th>Units</th>
<th>Unit Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mobilization/ Demobilization (3%)</td>
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<td>$52,000</td>
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<tr>
<td>2</td>
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<td>$47,700</td>
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<td>LS</td>
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<tr>
<td>4</td>
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<td>$32,000</td>
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<tr>
<td>5</td>
<td>Water Pollution Control (1.25%)</td>
<td>1</td>
<td>LS</td>
<td>$21,700</td>
<td>$22,000</td>
</tr>
<tr>
<td>6</td>
<td>Pothole Existing Facilities</td>
<td>40</td>
<td>EA</td>
<td>$2,000</td>
<td>$80,000</td>
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<tr>
<td>7</td>
<td>36-Inch HDPE, Dbl. Wall, Corr., Smooth Interior (Minor Road)</td>
<td>590</td>
<td>LF</td>
<td>$216</td>
<td>$127,000</td>
</tr>
<tr>
<td>8</td>
<td>36-Inch HDPE, Dbl Wall, Corr., Smooth Interior (Ayala Drive)</td>
<td>2,100</td>
<td>LF</td>
<td>$270</td>
<td>$567,000</td>
</tr>
<tr>
<td>9</td>
<td>42-Inch HDPE, Dbl Wall, Corr., Smooth Interior (Ayala Drive)</td>
<td>500</td>
<td>LF</td>
<td>$330</td>
<td>$165,000</td>
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<tr>
<td>10</td>
<td>Manholes (Less than 10' Depth)</td>
<td>15</td>
<td>EA</td>
<td>$18,000</td>
<td>$270,000</td>
</tr>
<tr>
<td>11</td>
<td>4” Pavement Restoration (T-Grind Trench)</td>
<td>13,390</td>
<td>SF</td>
<td>$9.00</td>
<td>$121,000</td>
</tr>
<tr>
<td>12</td>
<td>6” Pavement Restoration</td>
<td>28,600</td>
<td>SF</td>
<td>$12.00</td>
<td>$343,000</td>
</tr>
<tr>
<td>13</td>
<td>Type II Slurry Seal (Full Road Width)</td>
<td>178,720</td>
<td>SF</td>
<td>$0.35</td>
<td>$63,000</td>
</tr>
</tbody>
</table>

**Construction Cost**

<table>
<thead>
<tr>
<th>Contingency</th>
<th>$203,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtotal</td>
<td>$2,415,000</td>
</tr>
</tbody>
</table>

**Other Estimated Cost Differences**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Quantity</th>
<th>Units</th>
<th>Unit Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Traffic Control, GPR and Surveying</td>
<td>1</td>
<td>LS</td>
<td>$30,000</td>
<td>$30,000</td>
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<tr>
<td>2</td>
<td>Change HDPE to Concrete (Additive difference)</td>
<td>1</td>
<td>LS</td>
<td>$740,000</td>
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<tr>
<td>3</td>
<td>Engineering Design (6%)</td>
<td>1</td>
<td>LS</td>
<td>$193,000</td>
<td>$193,000</td>
</tr>
<tr>
<td>4</td>
<td>Sunk Survey Costs on N. Cedar</td>
<td>1</td>
<td>LS</td>
<td>$15,000</td>
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<tr>
<td>5</td>
<td>Sunk Engineering Costs on N. Cedar</td>
<td>1</td>
<td>LS</td>
<td>$40,000</td>
<td>$40,000</td>
</tr>
</tbody>
</table>

**Construction Cost**

<table>
<thead>
<tr>
<th>Contingency</th>
<th>$204,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtotal</td>
<td>$1,222,000</td>
</tr>
</tbody>
</table>

**Grand Total**

|                     | $3,637,000 |
Approx. Length of Pipe: 6,975 ft.
Size: 30” (525’)
Size: 36”-42” (6,450’)
Material: HDPE Double Wall, Corrugated, Smooth Interior
DATE: April 14, 2020

TO: Board of Director’s Workshop - Engineering

FROM: Wen Huang, Chief Engineer
       Mike Esquer, Project Manager

SUBJECT: Consider Procurements of Fixed Cone Valves for the Santa Ana Low Turnout Project

This memorandum provides background information and proposed improvements for the Santa Ana Low Turnout Project (Project). This Project was discussed at the Board Workshop and Board Meetings in January 2018. Following the discussion with the Board, Staff was directed to execute a consulting contract for electrical engineering services and procurements of butterfly valves, flow meters, and a programmable logic control (PLC) panel for the Project. The electrical design is nearly complete and the requested procurements have been made. Upon further evaluation, Staff recommends that the Board consider procurement of fixed cone valves in the amount of $321,215 and direct Staff to forward the proposed procurement to the next Board of Directors’ Meeting for consideration.

Background:
The Santa Ana Low Turnout (SALTO) was constructed along with the Foothill Pipeline Phase 2 project between 1976 and 1979. The initial design of the Turnout was intended to accommodate a flow up to 288 cubic feet per second (cfs). Currently, the actual capacity of the facility is restricted to approximately 205 cfs due to the type of lining and guard valves used. In addition, this facility was designed to utilize a direct current (DC) power source, which is outdated and has made it problematic to replace the valves and instruments with the newer alternating current (AC) power requirements. The intent of this Project is to upgrade the entire electrical wiring, replace the guard valves, flow meters, and flow control valves, and service or replace the existing fixed cone valves. Along with the improvements, the electrical controls will be placed with a new
aboveground enclosure rather than in the underground vault for easier access. Upon completion of the improvements, the capacity of the facility will be increased to 250 cfs, which is closer to the original intended design flow rate and will be consistent with the intended future uses of the Turnout.

Staff has been evaluating options to either service or replace the two (2) 30 inch and one (1) 12-inch fixed cone valves. Staff first approached the Metropolitan Water District of Southern California (MWDSC) machine shop group and Industrial Valve & Equipment (IV&E) for serving/repair the three (3) valves. Upon completion of their independent assessment, MWDSC and IV&E recommended that the District consider purchasing new replacement valves because the cost for repair the existing valves would be extensive and likely cost as much as purchasing new valves.

Therefore, Staff requested proposals from Hartman Valve Corporation (District-approved Fixed Cone Valve alternative supplier) and Orbinox (recommended by MWDSC), respectively. The new fixed cone valves must be able to operate with the velocities greater than 70 feet per second (fps), provide positive shutoff capabilities, reduce the energy pressure head from approximately 100 pounds per square inch (psi) to atmospheric pressure, and meet the intended flow range of 5 cfs through 120 cfs per valve. Staff received two quotes for one 12” and two 30” fixed cone valves. Orbinox submitted a quote of $287,215 with an additional estimated $34,000 for tax, delivery & startup for a total procurement cost of approximately $321,215. Hartman Valve Corporation submitted a quote of $311,500 with an additional estimated $38,000 for tax, delivery & startup for a total procurement cost of approximately $349,500. Upon completion of the evaluation, Staff determined that both venders proposed acceptable valves that meet the operating criteria with Orbinox valves being the lower cost alternative. The estimated delivery time is approximately 36-40 weeks.

**Financial Impact**

The estimated cost for the procurement of approximately $321,215 is included in the approved Fiscal Year 2019-2020 General Fund Budget, Line Item 6280 Field Improvements.

**Staff Recommendations**

Staff recommends the Board of Directors forward the procurement of the fixed cone valves from Orbinox for the estimated cost of $321,215 to the next Board of Directors’ meeting for consideration.