

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

August 24, 2021

A Special Meeting of the Board of Directors of Vista Irrigation District was held on Tuesday, August 24, 2021 at the offices of the District, 1391 Engineer Street, Vista, California.

1. CALL TO ORDER

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

2. ROLL CALL

Directors present: Miller, Vásquez, Dorey, Sanchez, and MacKenzie.

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; Greg Keppler, Engineering Project Manager; Marlene Kelleher, Director of Administration; and Ramae Ogilvie, Administrative Assistant.

Other attendees: J.P. Semper and Paige Russell, Brown and Caldwell; John Bekmanis and Tony Hancock, Black and Veatch. Allison Ribachonek, Hoch Consulting was also present via teleconference.

3. PLEDGE OF ALLEGIANCE

Director MacKenzie led the pledge of allegiance.

4. APPROVAL OF AGENDA

21-08-98	<i>Upon motion by Director Vásquez, seconded by Director MacKenzie and unanimously carried (5 ayes: Miller, Vásquez, Dorey, MacKenzie, and Sanchez), the Board of Directors approved the agenda as presented.</i>
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5. ORAL COMMUNICATIONS

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

6. VISTA FLUME REPLACEMENT ALIGNMENT STUDY

See staff report attached hereto.

Director of Engineering Randy Whitmann welcomed the Board to the first of four workshops for the Vista Flume (Flume) Replacement Alignment Study (Study). He stated that this Study follows the Water Supply Planning Study (WSPS), and both are part of an overall project (Project) to address the District's roughly 95-year-old Flume, which has exceeded its usable service life. Mr. Whitmann recalled that in the WSPS the Board determined that replacement ("To Flume"), rather than decommissioning of the Flume ("Not to Flume"), would be the most cost effective option. He stated that this workshop will be focused on

a graphical risk versus cost approach; this ranking will reveal a short-list of the top two or three preferred alignments. Mr. Bekmanis said that the six proposed alignments will be evaluated in three main categories, 1) Project Delivery, which includes project affordability and implementation, schedule and risk, and constructability; 2) Stakeholder Coordination, which includes community impacts, land ownership, environmental and permitting; and 3) System Reliability, comprised of system hydraulics, operations and maintenance. He stated that the results of Course Screening analysis will be presented at the next workshop.

Mr. Semper reviewed the significant increase in construction costs since the start of the COVID-19 pandemic, stating that although the market appears to be stabilizing there are no signs of a decline on the horizon. Mr. Semper recalled that the WSPS estimated the costs of two alternatives for a “To Flume” project. The “All-New” alternative included an entirely new pipeline located within public right of way, while the “Hybrid” alternative mixed all-new pipe with rehabilitation of existing siphon sections of the Flume; at that time, the “All-New” alternative was estimated at \$120 million and the “Hybrid” at \$130 million. Applying current market pricing as of July 2021, the prices have gone up to \$140 million and \$165 million, respectively. Mr. Semper commented that as costs increase so does the likelihood the project will benefit from funding assistance. He stated that going forward this Study will continue to evaluate available funding opportunities and constraints to provide the District with a viable financial plan for replacing the Flume.

Mr. Semper continued with a cost and affordability check-in between the “To Flume” and “Not to Flume” options, noting that the 2020 WSPS analysis showed that the “To Flume” option had a 30-year present-worth cost advantage of approximately \$110 million. While costs have increased for the Flume replacement project, anticipated costs have also increased on the “Not to Flume” side of the scale due largely in part from recently updated treated water rate forecast estimates from the San Diego County Water Authority (Water Authority). Presently, the 30-year cost advantage of the “To Flume” option has actually increased to approximately \$130 million.

Mr. Semper noted that per the WSPS the mid-range estimate for long-term average yield of the local water system is 5,000-acre feet (AF) per year. In light of new HABS concerns, the sensitivity analysis was revisited to test the effect on the balance scale from a reduced local yield. If the average yield is conservatively reduced by 20% to 4,000 AF per year, the updated 30-year cost advantage of approximately \$130 million would decrease to \$70 million; “To Flume” would still remain the preferred course for the District and its ratepayers.

Mr. Semper stated that the next workshop will include updated Flume replacement costs with financing costs factored in as well as additional updated rate forecasts from the Water Authority. It will also take into consideration updated information regarding the effects of HABS on the District’s local water source and estimated costs for long-term solutions. Director MacKenzie stated that she believes it would be important to know where the break-even point is regarding cost and affordability. Mr. Semper said that he would make a note to include that information in the next workshop.

Ms. Russell provided an update on the condition assessment of the Flume stating that external inspections of the bench sections were performed by drone. She noted that the external visual inspection confirmed that the Flume is still usable but the frequency of repairs exceed industry standard for operating a transmission main. Ms. Russell commented that the useful life of the Flume nears zero when repairs become unmanageable and continually leave the asset out of service.

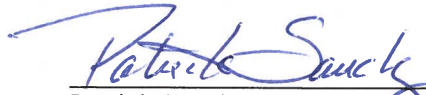
Ms. Russell reviewed the map of the bench sections showing replacement prioritizations, which will help to assess the phase-ability of the six proposed alignments. How each of the six alignments can be implemented in phases will be evaluated moving forward, and phase-ability will be built into the estimated costs and schedules for each respective alternative. Director MacKenzie requested that the Bench Section

8. COMMENTS BY GENERAL MANAGER

None were presented.


9. ADJOURNMENT

There being no further business to come before the Board, at 11:11 a.m. President Sanchez adjourned the meeting.



Patrick Sanchez, President

ATTEST:



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



STAFF REPORT

Agenda Item: 6

Board Meeting Date: August 24, 2021
Prepared By: Greg Keppler
Reviewed By: Randy Whitmann
Approved By: Brett Hodgkiss

SUBJECT: VISTA FLUME REPLACEMENT ALIGNMENT STUDY

RECOMMENDATION: Conduct Vista Flume Replacement Alignment Study workshop.

PRIOR BOARD ACTION: On April 1, 2020, the Board selected replacement of the Vista Flume (Flume) as the preferred alternative project from the Water Supply Planning Study (WSPS) and authorized staff to initiate planning efforts to replace the Flume. On October 7, 2020, the Board approved the Request for Proposal for the Flume Replacement Alignment Study (Study), and on February 17, 2021, authorized the General Manager to enter into Agreements for Professional Services with Brown and Caldwell, Helix Environmental Planning, Inc., and Gillingham Water for the Study in total amounts not-to-exceed \$2,018,213.

FISCAL IMPACT: The WSPS completed in March 2020 found that replacement of the Flume was the least costly water supply option for the District at an estimated cost of \$120,000,000 for an “All-New” alignment. Recent increases in material and construction costs have raised the overall project cost to approximately \$140,000,000 (present day) for the “All-New” alignment. The Study will further develop and evaluate capital costs based on alignment alternatives and implementation timelines and generate a cost-loaded replacement schedule to determine the timing of funding needs. Evaluation and availability of financial assistant programs, low interests loans, grants, and other capital financing opportunities that reduce the financial burden on the District and maximize ratepayer dollars will also be prioritized. In addition, the Study will periodically revisit the assumptions made in the WSPS to make sure that the “To Flume” water supply option remains the best fiscal decision for the District.

SUMMARY: At roughly 95 years old, the Flume has exceeded its usable service life, is unsuitable for reuse and should be retired. The Study is designed to support a decision by the District as to the preferred replacement alignment. Many factors weigh in the comparison of alternative alignments, and the selection of a preferred alignment will be guided by a risk versus cost evaluation. Alternatives will be ranked and screened based on a set of key criteria including project affordability and implementation, schedule, constructability, community impacts, land ownership, environmental, permitting, system hydraulics, and operations and maintenance.

DETAILED REPORT: The Study includes four workshops with the Board as follows:

Board Workshop No. 1 – Review the Long-list of Alternatives: Review a preliminary “long-list” of alternatives and the process for refining the alignments to the recommended final “long-list” of five or six alternatives. Reach preliminary consensus on the final “long-list” of alternatives and the alignment evaluation criteria that will be used to rank and screen the ‘long-list’ of alignment alternatives.

Board Workshop No. 2 – Coarse Screening Results (top five or six alternatives): Review preliminary results of the Coarse Screening analysis, refine, and confirm findings and identify a ‘short-list’ of two alternatives for advancement into the Fine Screening analysis. Review project affordability and reach consensus on advancing to Fine Screening. If needed, recommend proceeding with condition assessment work on existing Flume siphons.

Board Workshop No. 3 – Fine Screening Results and Proposed Project Selection (top two alternatives): Review the results of the Fine Screening analysis and sensitivity analysis. Confirm the selected “preferred” project alternative for implementation. Review the completed project affordability analysis.

Board Workshop No. 4 – Conceptual Design and Project Affordability Review: Review at an executive summary level the findings of the Conceptual Design Report. Review the scope of supply for the proposed Flume Replacement Project. Provide a summary of next steps, costs, funding, and schedule for design, environmental document preparation, and construction activities.

The Workshop No. 1 review package provides an initial draft of the project objectives the development of a “long-list” of alignment alternatives, evaluation criteria, an initial check-in on WSPS costs and “To Flume” affordability, and the prioritization of bench section replacement recommended if the project is phased. The workshop will afford the Board the opportunity to provide input on these elements prior to advancing to the formal Coarse Screening process.

ATTACHMENTS: Workshop Agenda and Reference Materials



451 A Street, Suite 1500
San Diego, CA 92123

Meeting Agenda

Prepared for: Vista Irrigation District
Project Title: Flume Replacement Alignment Study
Project No.: 156443

Meeting: Board Workshop #1 – Project Initiation **Date:** August 24, 2021
Meeting Location: Vista Irrigation District Board Room **Time:** 9:00 AM

Purpose: To a) Review the preliminary long-list of alternatives and the process for refining the alignments to the recommended final long-list of alternatives, b) reach preliminary consensus on the final long-list of alternatives and preliminary coarse screening evaluation criteria, and c) present an update on cost and affordability changes since the completion of the Water Supply Planning Study.

Agenda

1. INTRODUCTION & PLANNING OBJECTIVES
 - a. Background and Purpose
 - b. Planning Objectives
 - c. Alignment Study Phasing
 - d. Objectives for Board Workshop No. 1
2. LONG-LIST OF ALTERNATIVES DEVELOPMENT
 - a. Segment Level Analysis: Hundreds of possibilities
 - b. Alignment Alternatives: Six proposed to move forward to Coarse Screening
3. COARSE SCREENING CRITERIA DETAILS
 - a. Risk vs. Cost Evaluation Approach
 - b. Draft Evaluation Criteria
4. COST & AFFORDABILITY CHECK-IN
 - a. Project Costs have Increased
 - b. Current Market Price of the Flume Replacement Project
 - c. Affordability Check: To Flume or Not to Flume?
5. CONDITION ASSESSMENT UPDATE
 - a. Purpose of Inspecting the Bench Sections
 - b. Bench Section Inspection Results
6. CONCLUSIONS & NEXT STEPS

Flume Replacement Alignment Study Workshop No. 1 Alternatives Development Phase

Prepared for
Vista Irrigation District
Vista, California
August 24, 2021



John P. Semper, P.E.
Project Manager



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San Diego, CA 92101

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List of Abbreviations

BC	Brown and Caldwell
CEQA	California Environmental Quality Act
CIP	Capital Improvement Plan
DDW	Division of Drinking Water; CA Water Board
DFW	Department of Fish and Wildlife
District	Vista Irrigation District
ENR	Engineering News Record
EVWTP	Escondido-Vista Water Treatment Plant
Flume	Vista Flume
GIS	geographical information system
lf	linear feet
NEPA	National Environmental Policy Act
O&M	Operations and Maintenance
Project	Flume Replacement Project
ROW	Right-of-Way
SQMP	Stormwater Quality Management Plan
Study	Flume Replacement Alignment Study
UAS	Unmanned Aerial System
USACE	United States Army Corp of Engineers
VID	Vista Irrigation District
WSPS	Water Supply Planning Study



Section 1

Introduction and Planning Objectives

Vista Irrigation District (District) has contracted the Brown and Caldwell (BC) team to conduct the Flume Replacement Alignment Study (Alignment Study). This work follows the recommendations of the Water Supply Planning Study (WSPS) which evaluated options for either replacing or retiring the Vista Flume (Flume), known then as the *“To Flume or Not to Flume”* evaluation. In March 2020, the WSPS presented to the District’s Board found that the To Flume option was the more favorable long-term solution; it is the least costly option for the District, providing superior supply reliability and affords the opportunity for continued regional cooperation with neighboring agencies.

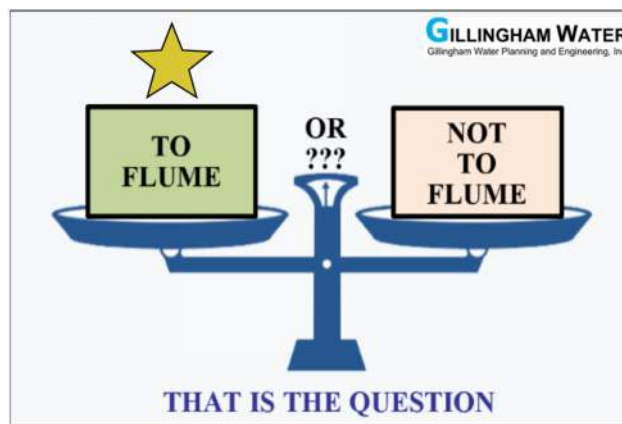


Figure 1-1 – To Flume or Not To Flume Scale; WSPS Workshop #3

The Alignment Study seeks to answer the question, *“How to Flume?”*. Presented herein is the work performed to date in the initial effort to answer this question. The Alignment Study team has thus far:

1. evaluated a reasonable range of corridors for the Flume replacement project,
2. found a total of six alignments recommended for coarse screening,
3. developed the preliminary evaluation criteria for coarse screening,
4. inspected the Flume by drone to confirm the timing and prioritization of retiring the Flume, and
5. completed an affordability check confirming the decision “To Flume” is still the correct decision.

1.1 Background and Purpose

The Flume, as shown in red in **Figure 1-2**, is an integral component of the District’s water supply system, conveying the District’s local (Lake Henshaw) and purchased (Water Authority) raw water treated at the Escondido-Vista Water Treatment Plant (EVWTP) to Pechstein Reservoir. The Flume consists of above-grade unpressurized gunite bench structures (benches), buried pressurized steel or concrete pipelines (siphons), and an unpressurized rock tunnel. The Flume has provided multiple generations of District customers with local water over its impressive, nearly 100 years of service; however, it has reached the end of its useful life.

The purpose of the Alignment Study is to identify, from among a broad range of alternatives, a preferred alignment and configuration for a project to replace the Flume and provide reliable service for the next 100-years.

This study will develop multiple alignment alternatives for replacing the existing Flume, select the preferred alignment, and prepare conceptual design documents describing the approach for executing the future Flume Replacement Project (Project). This work will focus on addressing:

- feasibility and cost-effective construction,
- reliability,
- environmental effects,
- long-term operations and maintenance (O&M), as well as
- affordability, impacts to rates, and funding options.



Figure 1-2 – Regional Water Supply Facilities; 2016 VID Master Plan

1.2 Planning Objectives

The Alignment Study's goal is to develop a plan to identify the future Project that will convey high quality water from the District's local water resources to its customers in an economically (highest reliability at the lowest cost) and environmentally responsible way. To meet this goal, the following success factors and planning objectives were created to guide the Alignment Study:

Success Factors

Critical factors for the success of this Alignment Study include:

- Consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation, per California Environmental Quality Act (CEQA) Guidelines, through a comprehensive alternatives evaluation process.
- Avoid surprises related to feasibility or cost that unexpectedly tips the scale on the "To Flume or Not to Flume" decision by regularly tracking pertinent cost data and preparing more detailed construction cost estimates.
- Support the District's decision to replace the Flume by presenting a clear project roadmap in a preliminary design report that includes a project funding plan for the preferred alignment.

Planning Objectives

The Alignment Study's planning objectives serve as the roadmap for delivering a successful plan, and are as follows:

1. **Alignment Criteria and Alternatives Evaluation:** Develop custom criteria to aid in alignment preference, including cost, reliability, water quality, environmental protection, constructability, accessibility, existing water supply obligations and assets, EWTP operations, phasing and funding opportunities, regulatory compliance, and hydraulic constraints. With the criteria established, develop and evaluate multiple project alignment alternatives for replacing the Flume.
2. **Funding Support:** Accurately estimate the cost of construction and identify funding opportunities available to the District. Linking costs and funding (i.e., low-interest loans, grants, and cash funding) to quantify the true cost that the Project will have on ratepayers.
3. **Project Affordability Checks:** Continue testing the affordability of the "To Flume" Project against the "Not To Flume" option. The intent is to check that the "To Flume or Not To Flume" balance scale has not tipped during the course of this Alignment Study in a manner that reverses the decision made during the WSPS. If the scale ever does tip, the Board may wish to consider an off-ramp.
4. **Assess Potential Environmental Effects:** Throughout the Alignment Study, evaluate potential environmental effects alignment alternatives may have and the necessary mitigation measures needed in order to recommend the appropriate CEQA/National Environmental Policy Act (NEPA) documentation for the Project.
5. **Convene Multiple Workshops with the Board:** Present clear and transparent information to the Board and the public for their consideration at significant milestones during the Alignment Study. Each workshop represents an important building block, which will form consensus for later workshops throughout the course of the Alignment Study.

1.3 Alignment Study Phasing

The Alignment Study's scope of services is structured into five phases with four Board workshops, as follows:

- Phase 1: Project Initiation
- Phase 2: Long-list of Alternatives and Evaluation Criteria Development (Board Workshop No. 1)
- Phase 3: Coarse Screening Results and Recommended Short-list (Board Workshop No. 2)
- Phase 4: Fine Screening Results and Proposed Project Selection (Board Workshop No. 3)
- Phase 5: Conceptual Design and Affordability Review (Board Workshop No. 4)

1.4 Purpose of Board Workshop No. 1

The purpose of Workshop No 1 is to review the preliminary long-list of alternatives and the process for refining the alignments to the recommended final long-list of alternatives; reach preliminary consensus on the final long-list of alternatives and preliminary coarse screening evaluation criteria; and present an update on cost and affordability changes since the completion of the WSPS.

Section 2

Long-list of Alternatives Development

Summary:

- To show replacement was feasible and a lower cost than retiring the Flume, two alignments were presented in the WSPS (All-New and Hybrid), but these aren't the only two options.
- A segment analysis using geographical information system (GIS) data evaluated 158 unique segments, which combined make up hundreds of possible alignment alternatives.
- The result was six unique alignments recommended for Coarse Screening which represent a broad, yet reasonable, range of project alternatives.

2.1 Purpose for Developing Alternative Alignments

Establishing a reasonable range of project alternatives for informed decision making and public participation.

The WSPS developed two alignment alternatives, "All-new" and "Hybrid." These alternatives needed to span a wide range of possible Flume replacement projects, which included an entirely new pipeline, All-new, versus a project that would rehabilitate portions of the existing Flume as well as install new pipeline, Hybrid. These two alternatives established a reasonable baseline for assessing the high-level feasibility and economic viability of a Flume replacement project, To Flume, versus a sole Flume retirement project, Not-To-Flume. However, when evaluating the implementation of a To Flume project, more than two project alternatives reasonably exist and should be explored.

2.2 Segment Level Analysis - Criteria and Results

Evaluating segments for constructing a new pipeline unlocked hundreds of possible alignment alternatives.

The segment analysis established the practical limits for an alignment of a future Project. Within the extents of the Alignment Study's boundaries, many "segments" were identified as feasible construction corridors for a new pipeline. These segments included corridors of available rights-of-way (ROW), easements, or land where easements could be established. A total of 158 unique segments were identified, whereby linking together these segments unlocked several hundred alignment alternatives. **Figure 2-1** shows all the segments that were identified and evaluated in the segment analysis based on applying the initial criteria to develop a long-list of six alignments for Coarse Screening.

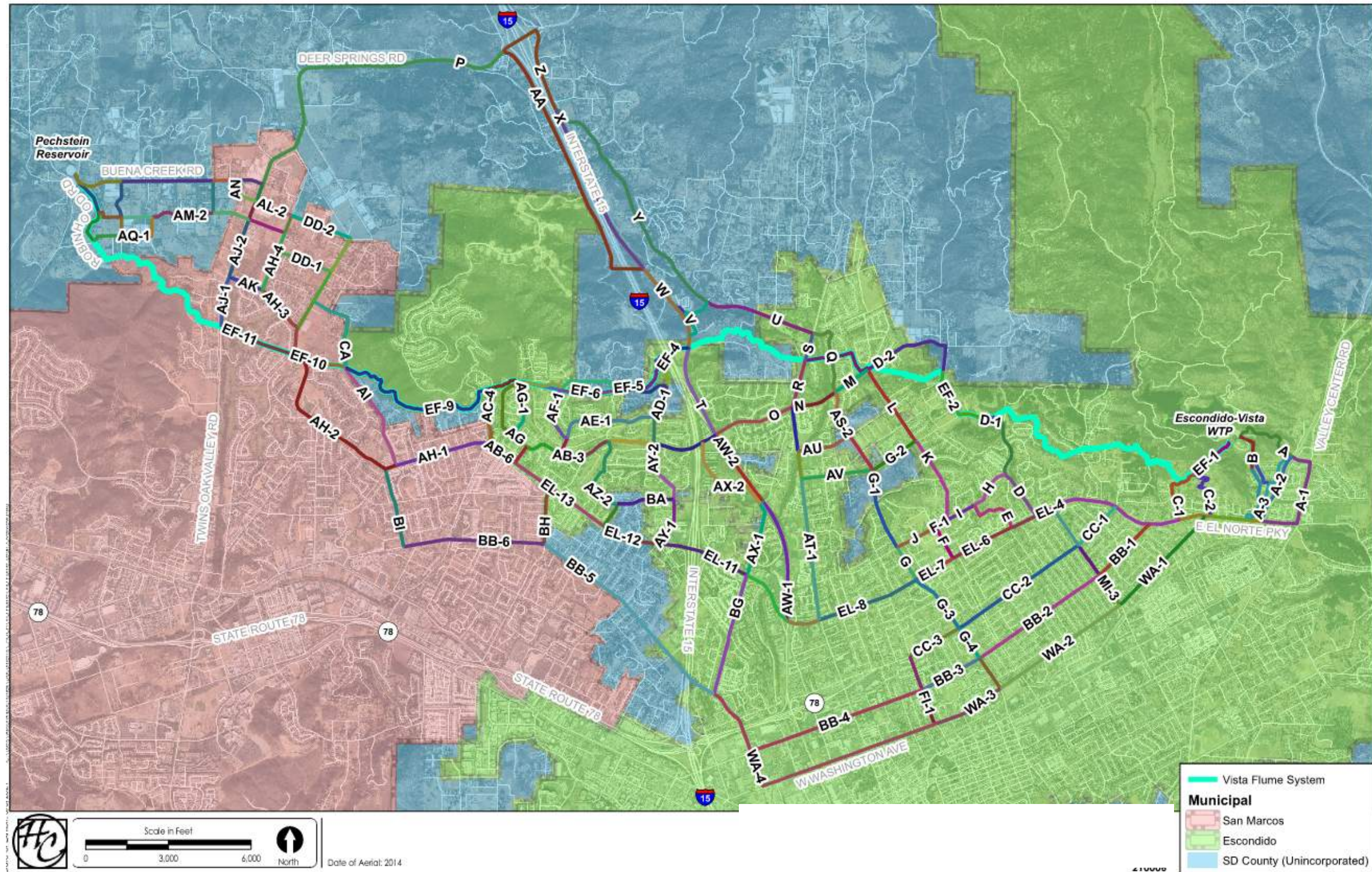


Figure 2-1 - Alternative Route Segments

Applying these initial criteria in GIS established a ranking of the more favorable segments.

Segment-level initial criteria were defined using a total of 26 Geographic Information System (GIS) data layers. For example, these data layers were used to assign a score to each segment by evaluating whether it intersected an area of special consideration, such as environmentally sensitive areas or areas containing hard rock. **Table 2-1** below identifies all the criteria, or special considerations, which were used in this analysis to establish segment scoring.

Table 2-1. Binary Segment Evaluation Criteria & Groupings (unweighted)		
Criteria Group	Criteria (Special Considerations)	Raw Score
Land Ownership	Easements/Right-of-Ways	1
Significant Community Impacts for Linear Projects	Traffic Impacts Impacts to Critical Facilities	5
Constructability	Use of Existing Assets Liquefaction High Groundwater Slope Stability Hard Rock/Rippability Trenchless Technologies/Tunneling Potential for Major Utility Conflicts/Crossings	9
Environmental	Drainages/Crossings Potential to Disturb Biological Resources Known Previous Soil Contamination	5
Permitting	Interagency Coordination Biological/Resource Agency Permitting Traffic Control	5
Operations and Maintenance	Accessibility	1
Total Available Score:	-	26

A total of 158 segments were evaluated using the above criteria, binary scores were defined such that a score of 1 indicated more favorable conditions along the segment, whereas a score of 0 indicated less favorable conditions. The total scores for each segment helped rank and prioritize the segments relative to each other. The results, as depicted in **Figure 2-2** below, show the more favorable segments in blue and green versus the less favorable segments in orange and red.



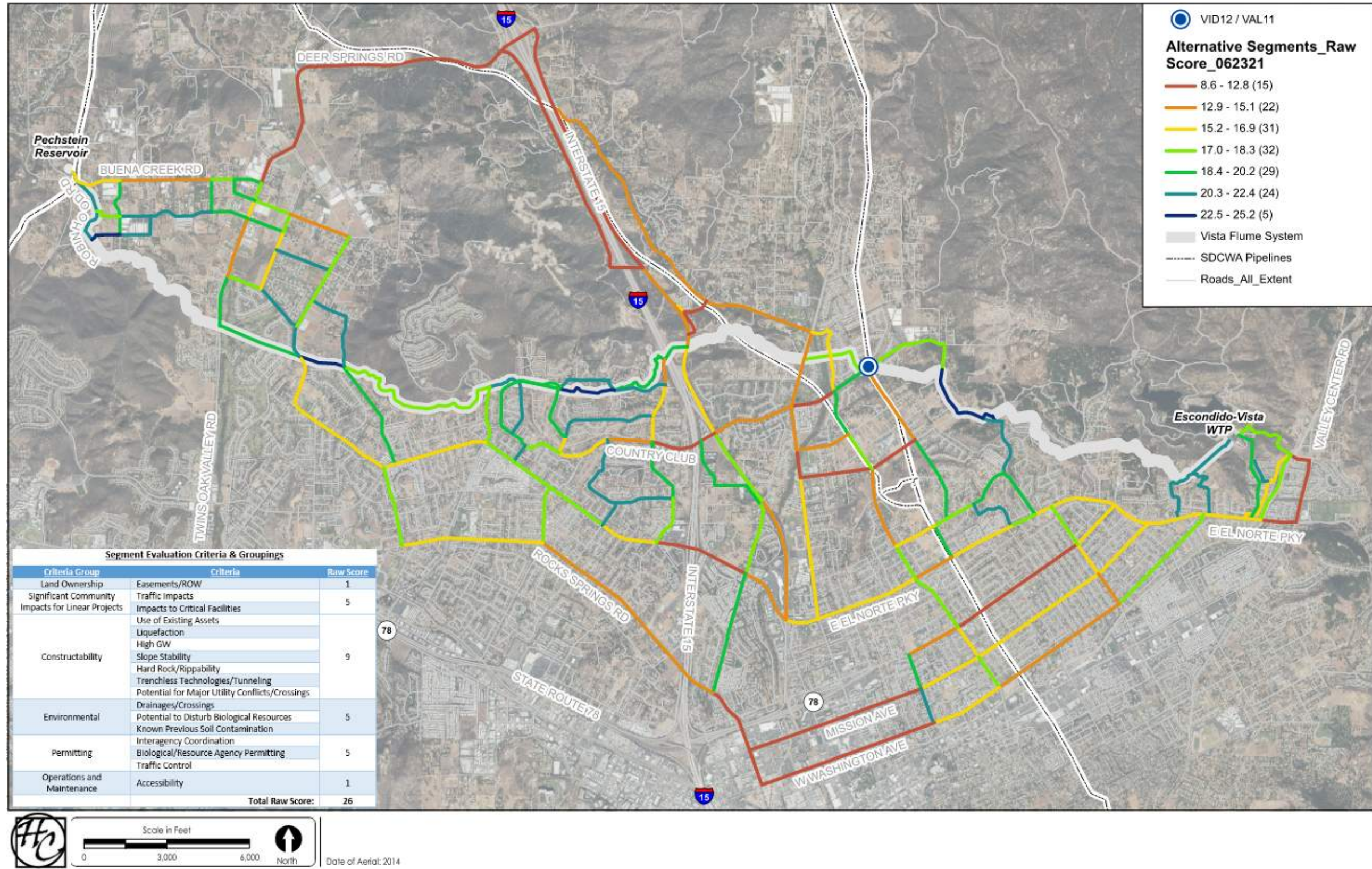


Figure 2-2 – Alternative Segments Raw Scores

2.3 Proposed Alignments – Recommended for Coarse Screening

Linking together the more favorable segments helped reduce hundreds of alignment options down to six core alignment alternatives.

The six alignments developed for this Alignment Study are shown in **Figure 2-3** and compared side-by-side below in **Table 2-2**. The figure also includes boundaries delineating Eastern, Middle, and Western corridors. Portions of the full alignments within the Eastern and Western Corridors are considered interchangeable as they intersect common convergence points indicated by the white circles. Therefore, although six individual alignments are depicted on **Figure 2-3**, alignment sections within a corridor may be interchanged later in the study as more data becomes available.

Table 2-2. Alternative Alignments Summary						
	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
	South Central	Hybrid A	Central	Hybrid B	Northern	Southern
Length (mi)	11.7	13.0	12.0	11.9	11.6	11.7
Pumping or Tunneling Required	No	Tunneling	Tunneling	Tunneling	Pumping	No
Direct Connection to VAL11/VID12	No	Yes	Yes	Yes	Yes	No
Phasing Potential	Low	High	Medium	High	Low	Low
Takeaway	A direct route in ROW that pressurizes the Flume and avoids risky & difficult hillsides; avoids Big Tunnel but uses more trafficked corridors	Keeps easements in low-risk areas and entirely avoids easements in risky & difficult hillsides; provides more phasing opportunities	Option entirely in ROW using less congested streets with better options for phasing	Maximizes use of existing easements wherever feasible; provides the most phasing opportunities	Option that minimizes traffic & utility conflicts inherent in other alternatives; requires a new pumping station and construction through adverse geology	A direct route in ROW that pressurizes the Flume and avoids risky & difficult hillsides; uses Big Tunnel and less-trafficked corridors

Section 3

Coarse Screening Criteria Details

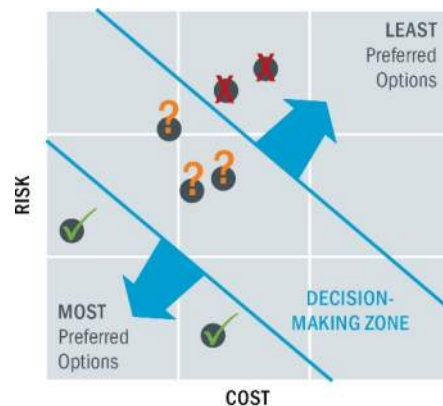
Summary:

- The Study's next step is Phase 3 - Coarse Screening; all alternative alignments will be evaluated, and a recommended "short-list" will be developed.
- Coarse Screening will use a "Risk vs. Cost" approach for grouping and assessing the evaluation criteria.
- Board Workshop No. 2 will present the results of Coarse Screening and seek the Board's consensus to advance the recommended "short-list" to Phase 4 - Fine Screening.

3.1 Risk vs. Cost Evaluation Approach

Using a graphical Risk vs. Costs approach will lead to a short-list of the most preferred alignments during Coarse Screening.

Whereas the segment level analysis used a binary approach to apply the initial criteria to a given segment, the Coarse Screening (Phase 3) analysis will apply weighting factors to the customized criteria depending on importance to rank each coarse alignment alternative. Utilizing both geospatial data and engineering experience, the Study will quantitatively rank the alignment alternatives against the set of cost and risk-based criteria developed for the Study. The resulting scores will facilitate and support the decision process to determine which alignment alternatives should proceed to Phase 4 - Fine Screening. A sensitivity analysis will be conducted to verify that the weighting factors and criteria are being applied appropriately across the alignment alternatives. The intent of Coarse Screening is not to automate the decision-making process, but rather to reflect objective criteria of costs and risks while leveraging the institutional knowledge of District staff. The draft criteria prepared for Coarse Screening are presented below in **Section 3.2**.



3.2 Draft Evaluation Criteria

Custom evaluation criteria are currently being developed for the Alignment Study; below is a draft criterion for use in Phase 3 - Coarse Screening.

A set of key criteria has been developed, and is currently undergoing refinement, to evaluate the costs and risks of various alignment alternatives. **Table 3-1** below outlines the key criteria groupings and lists all criteria subcomponents recommended for the Alignment Study. Each criteria category will be assigned a weighting factor that aligns with the top priorities of the District.

Table 3-1. Criteria Groups for Coarse Screening Evaluation		
Categories	Criteria Groups	Criteria
Project Delivery	Project Affordability and Implementation	Capital Cost Factors O&M Cost Factors Boot and Bennet Mitigating Revenue Reduction (purchase from other agency) Rate Impacts/District-Funded Portion Grant/Funding Opportunities
	Schedule and Risk	Schedule Factors Phasing/Sequencing
	Constructability	Geology Crossing/ Construction Methods Alignment Length Additional Piping Upgrades for Boot and Bennett Service Areas Tunneling for Topographic Peaks
Stakeholder Coordination	Community Impacts	Traffic Impacts Impacts to Critical Facilities
	Land Ownership	Easements/ ROWs Land Acquisition
	Environmental	Biological Resources Areas of potential soil contamination Cultural Resources CEQA
	Permitting	Interagency Coordination Cal DFW/USACE Coordination DDW Coordination Stormwater/SQMP
System Reliability	System Hydraulics	Pressurization vs Low-Head Impacts to Transient Flow Impacts to EVWTP Operations Pumping Stations Flow Control
	Operations and Maintenance	Accessibility Long-Term Vulnerability Agency Service Connections VID Service Connections Operational (Hydraulics) Operational (Water Quality) Future Adaptability/Redundancy



Section 4

Cost and Affordability Check-in

Summary:

- Both the costs of materials and labor have escalated significantly since the pandemic. Although the market is showing signs of leveling-off, there are no signs of a decline.
- Market pricing as of July 2021 shows the cost to construct Flume Replacement projects presented in the WSPS has increased by up to 30 percent since March 2020.
- Costs for the Not to Flume option have increased by at least as much as the To Flume option, meaning the Flume balance scale continues to favor the To Flume option.

4.1 Project Costs have Increased

Both construction materials and labor prices have been highly variable and have increased significantly since the start of the COVID-19 pandemic. Below is an excerpt from the Engineering News Record's (ENR's) April 2021 publication on Construction Economics reporting monthly variabilities in costs with observed annual escalation rates ranging from 3.8 percent to 14 percent.

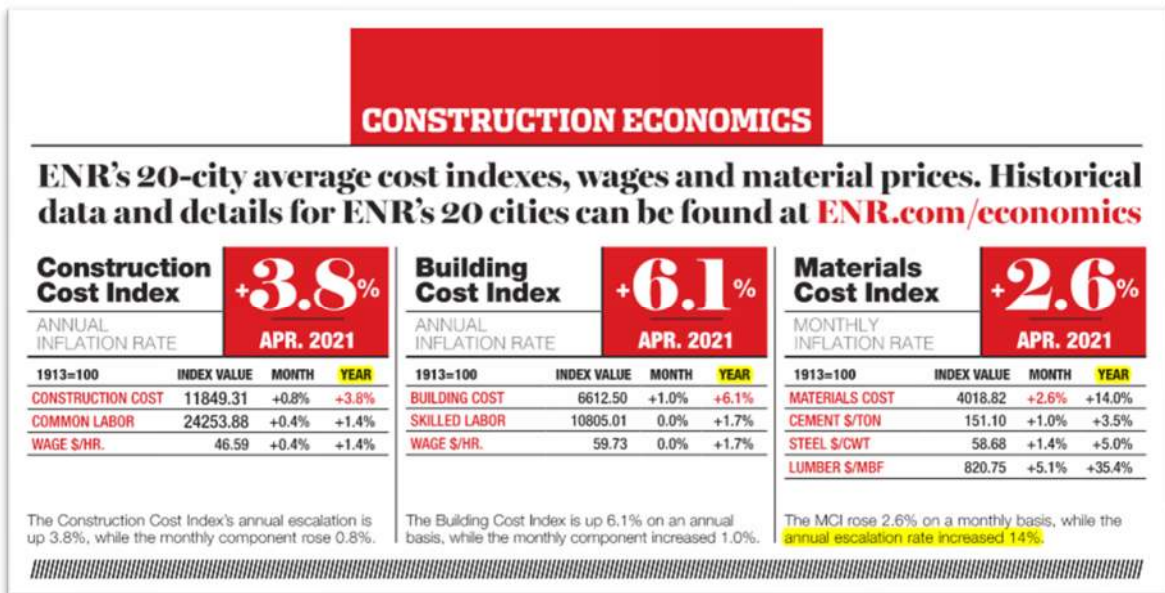


Figure 4-1 – Engineering News Record's Construction Economics, April 2021

4.2 Current Market Price of the Flume Replacement Project

During July 2021, the Alignment Study team updated the cost estimates prepared during the WSPS using current market unit pricing. We found the total Project cost have increased significantly since the final WSPS Board Meeting held in March 2020, by approximately:

- 18 percent over the \$120M estimate for the All-new Pipeline option, and
- 28 percent over the \$130M estimate for Hybrid option, rehabilitate existing siphons and all-new pipeline for bench sections.

Considering the above, we are currently anticipating a net increase ranging between 15-30 percent and will continue to monitor the escalation of costs closely for the duration of this planning study. Planning level cost estimates will be developed for each of the six alignment alternatives presented herein during Phase 3 – Coarse Screening; the cost estimates for the six alignments will be presented to the Board at Workshop No. 2.

4.3 Affordability Check-In: To Flume or Not to Flume?

With the increase in project costs described above, it becomes prudent to return once again to the WSPS's balance scale, weighing the merits of the To Flume option with those of the Not To Flume option. Briefly, our preliminary review indicates the costs for the Not to Flume option have increased by at least as much as the To Flume option, with the result being that for now, the Flume balance scale continues to favor the To Flume option.

Increased costs on the Not to Flume side of the balance scale include the following:

- Water Authority Purchases: Costs have increased for purchasing additional water from the Water Authority to replace the District's local water supply.
- Boot and Bennett Transfer: District staff now believes the transfer of the Boot and Bennett service areas to the Vallecitos Water District will incur higher annexation, capacity, and infrastructure transfer fees than assumed in the WSPS.
- Delivery Reliability Mitigation: The WSPS assumed delivery reliability to the District absent the Flume would be mitigated in part by the Water Authority's planned installation of an isolation valve in Pipeline 4, sufficient to allow the Twin Oaks Valley Water Treatment Plant to operate during treated water shutdowns from Metropolitan Water District. The Water Authority has now deferred the isolation valve project to Fiscal Year (FY) 2032. As a result, additional mitigation will be required in the form of supplemental storage reserve in the District's planned Pechstein II treated water reservoir project.

On the To Flume side of the balance scale, in addition to the increased construction costs for the Project, costs have increased for treatment of local water due to increased chemical costs as well as for allowances for additional costs arising from the management and treatment of cyanobacteria, or Harmful Algal Blooms (HABs).

The above preliminary findings were made by revisiting the 30-year present-worth cost analysis performed for the WSPS, which showed that the To Flume option had a \$110 million dollar cost advantage. In factoring in the above changes, including a cost allowance of \$375,000/year (District's portion, other half paid by the City of Escondido) for HABs testing and treatment, the To Flume cost advantage increases to \$120 million. A second analysis assuming a 20 percent reduction in local yield, whether caused by HABs or other issues, still shows a To Flume cost advantage of \$70 million.

The project team will report on these preliminary findings in more detail during Workshop No. 1. It is important to note that work to understand and mitigate HABs is ongoing and the long-term impacts on the availability and cost of local water is not yet understood. A more in-depth evaluation of the issue will be performed during Coarse Screening as additional information and data becomes available.

Section 5

Condition Assessment Update

At roughly 95 years old, the Flume has exceeded its usable service life

The typical design life for this type of asset is 50-75 years, while the actual age of this asset is over 95 years; the Flume is well beyond its anticipated useful service life. The bench section inspection along the Flume and discussions with District staff reaffirms this; there are numerous repaired sections, holes, staining, possible leaks (exfiltration), repeated roof/wall separation repairs, roof/floor structural concerns, required increased maintenance and no longer functioning as new. The asset will continue to deliver water, but will be more costly to operate, less efficient, and has a higher risk of failure. The risk of failure will continue to increase as the asset degrades until replacement is performed.

5.1 Purpose for Inspecting the Bench Sections

A qualitative condition assessment of the bench sections established a recent baseline for assessing the priority for replacement and helped identify project phasing opportunities.

In April 2021, an external visual inspection of the Flume bench sections was performed using an Unmanned Aerial System (UAS), or drone. The inspection provided data necessary for establishing a more recent baseline condition of the bench sections. The significant defects, which were documented in an inspection defect and repair recommendations log, were developed based on the type, severity, and quantity of defects observed for each bench section. These recommendations were based solely on the exterior defects of the Flume visually observed from the drone footage; interior conditions of the benches are unknown and may vary greatly.

The purpose of this work was to enhance the alignment alternatives development by providing a better understanding of the necessary timing requirements for replacement when phasing is considered for each reach of the future Project.

5.2 Bench Section Inspection Results

Prioritization levels, alternatives development and identifying project-phasing opportunities based on qualitative condition assessments.

The drone inspections, along with input from District staff on repair and maintenance needs for each bench section, helped establish bench replacement prioritization for a potential phased, hybrid alignment option. Prioritization levels were assigned to each bench section as shown on **Table 5-1** and **Figure 5-1** below. The prioritization levels assigned include: 1 (very poor), 2 (poor), 3 (fair to poor), and 4 (fair) conditions. Prioritization level 1 bench sections should be the first to be replaced, followed by prioritization level 2, 3, and lastly prioritization level 4.

Table 5-1. Replacement Prioritization		
Flume Bench Section	Approximate Length (LF)	Prioritization Level*
Jack Creek Bench	394	3
Tunnel Bench	3,750	3
Daley Bench	3,241	2
Kornhauser Bench	1,321	3
Finkbinder Bench	3,888	2
MD Bench	3,290	2
Pearson Bench	371	3
Beehive Bench	477	1
Borden Bench	6,265	1
Twin Oaks Bench	5,135	1
MW Bench	2,173	4

**Prioritization Level*

1 = Very Poor

2 = Poor

3 = Fair to Poor

4 = Fair

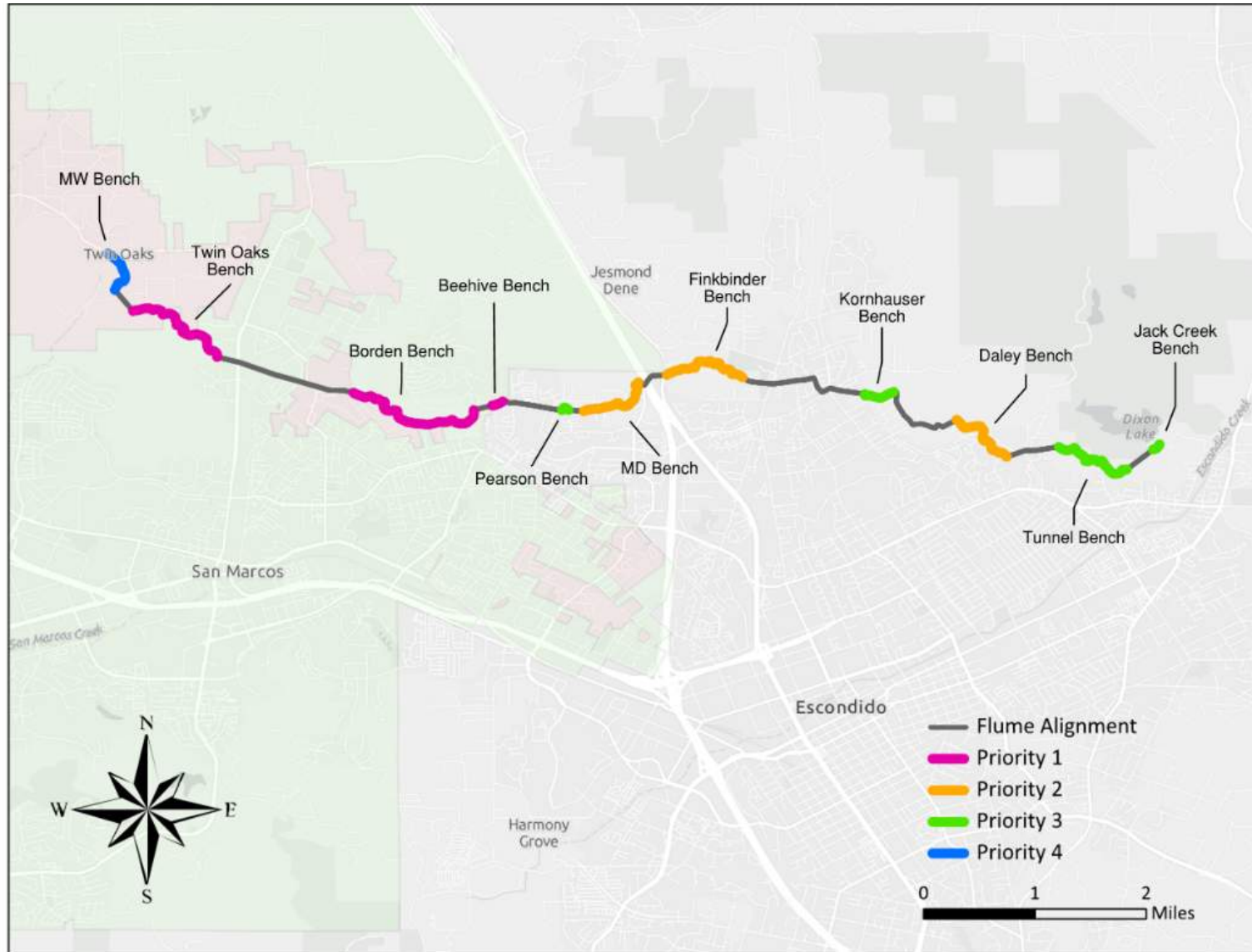


Figure 5-1 - Bench Section Replacement Prioritization



Section 6

Conclusions

The work performed in Phase 2 – Long-list of Alternatives and Evaluation Criteria Development, as presented herein, constitutes the first major step in this Alignment Study. The key findings of this work will shape the next phase of the Alignment Study, Phase 3 – Coarse Screening Results, Project Affordability, and Recommended Short-list. Below is a summary of the four major conclusions resulting from Phase 2:

1. Six (6) alignments have been developed which define a reasonable range of project alternatives and are recommended for Coarse Screening.

The WSPS presented two alignment alternatives to show replacement was feasible and at a lower cost than retiring the Flume. However, when evaluating the implementation of a “To Flume” project more than two project alternatives reasonably exist. This Alignment Study has developed six alignment alternatives that have been recommended for Coarse Screening, see **Figure 2-3**. These alignments represent a broad, yet reasonable, range of project alternatives needed to select a preferred alignment while supporting the subsequent environmental documentation phases of the Project.

We will proceed to evaluate the six alignment alternatives presented in **Figure 2-3** using the criteria listed in **Table 3-1**. We will return to the Board during Workshop No. 2 (Phase 3) with a shortlisting of alignments recommended for advancement to Phase 4 – Fine Screening Results and Proposed Project Selection.

2. Costs have risen since the WSPS and there is no sign of decline; however, the decision “To Flume” continues to be the economically preferred alternative than “Not To Flume.”

Market pricing as of July 2021 shows the cost to construct the Flume Replacement projects presented in the WSPS has increased by up to 30 percent since March 2020. Costs for the Not to Flume option have increased by at least as much as the To Flume option, meaning the Flume balance scale continues to favor the To Flume option.

We will develop estimated construction costs for each of the six alignment alternatives presented herein and return to the Board during Workshop No. 2 with another “To Flume or Not to Flume?” affordability check-in using the newly developed estimates.

3. More condition assessment confirms retiring the Flume remains a high priority and establishes a recommended order of priority for its replacement.

The exterior drone inspection of the Flume’s bench sections concluded that although the asset will continue to deliver water, it will become more costly to operate, less efficient, and will increasingly have a higher risk of failure, particularly in the locations noted on **Figure 5-1**. While the Flume has served the District remarkably well for over 95 years, the time has come to prioritize its replacement.

We will continue to use the drone inspection data to inform potential phasing opportunities for replacing the Flume and return to the Board during Workshop No. 2 with recommendations as to whether phasing a Project remains viable.

4. As costs continue to increase, and the priority of replacing the Flume heightens, so does the likelihood of requiring financing; advancing financial planning efforts for this project would be prudent.

It appears increasingly likely the Project will require some amount of capital financing. At the conclusion of the WSPS, several next steps were recommended. One of those recommendations included developing financial plans for funding a project. We recommend the District consider finance planning sooner rather than later in order to be prepared for the likelihood that capital financing will be required. We also recommend that the financial planning be conducted in tandem with the ongoing Alignment Study and subsequent project design and environmental documentation phases so that real time project details can be incorporated into the financial plan as the project becomes better defined. This approach should lead to more accurate financial planning and allow the District to be better positioned for a variety of potential funding options.

For Workshop No. 2, we will prepare a discussion related to project affordability, funding opportunities, prioritization within the District's Capital Improvement Plan (CIP), and next steps for preparing the District in securing financial assistance may it be through grants or loans.

Flume Replacement Alignment Study

Board Workshop #1 – Alternatives Development
August 24, 2021

Defining the **next**
legacy

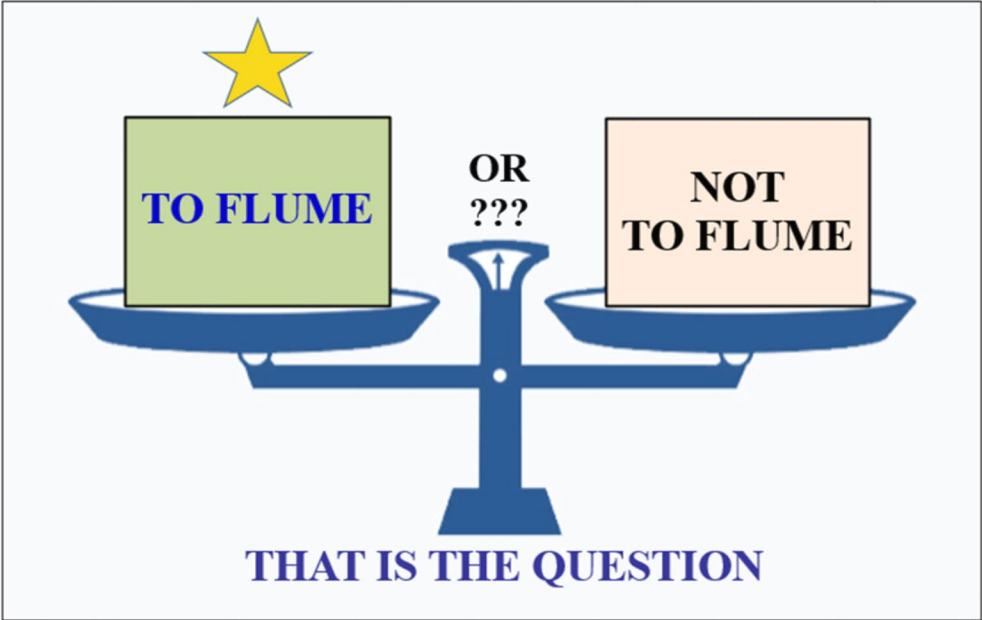


Exhibit A



Where we came from: To Flume or Not to Flume?

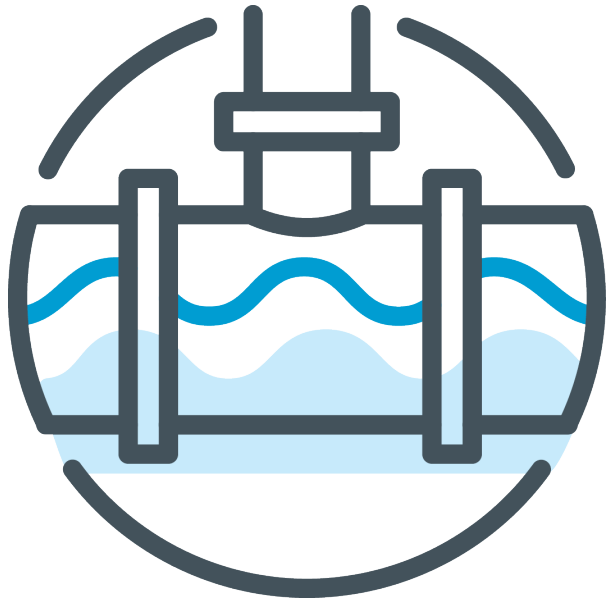
At the fine-screening level of review, the balance scale favors **To Flume**



Next Steps: To Flume

Action	Schedule / Budget
1. Alignment Study	18-24 months \$0.75M - \$1.25M
2. Environmental Documentation	18-24 months \$0.75M - \$1.25M
3. Financial Planning	12-18 months \$0.1M - \$0.25M
4. Miscellaneous • <u>Average Local Yield</u> : Refine estimates	12-18 months \$0.1M - \$0.25M
TOTAL	24-36 months \$1.7M - \$3M

Defining the **next** legacy



RELIABLE

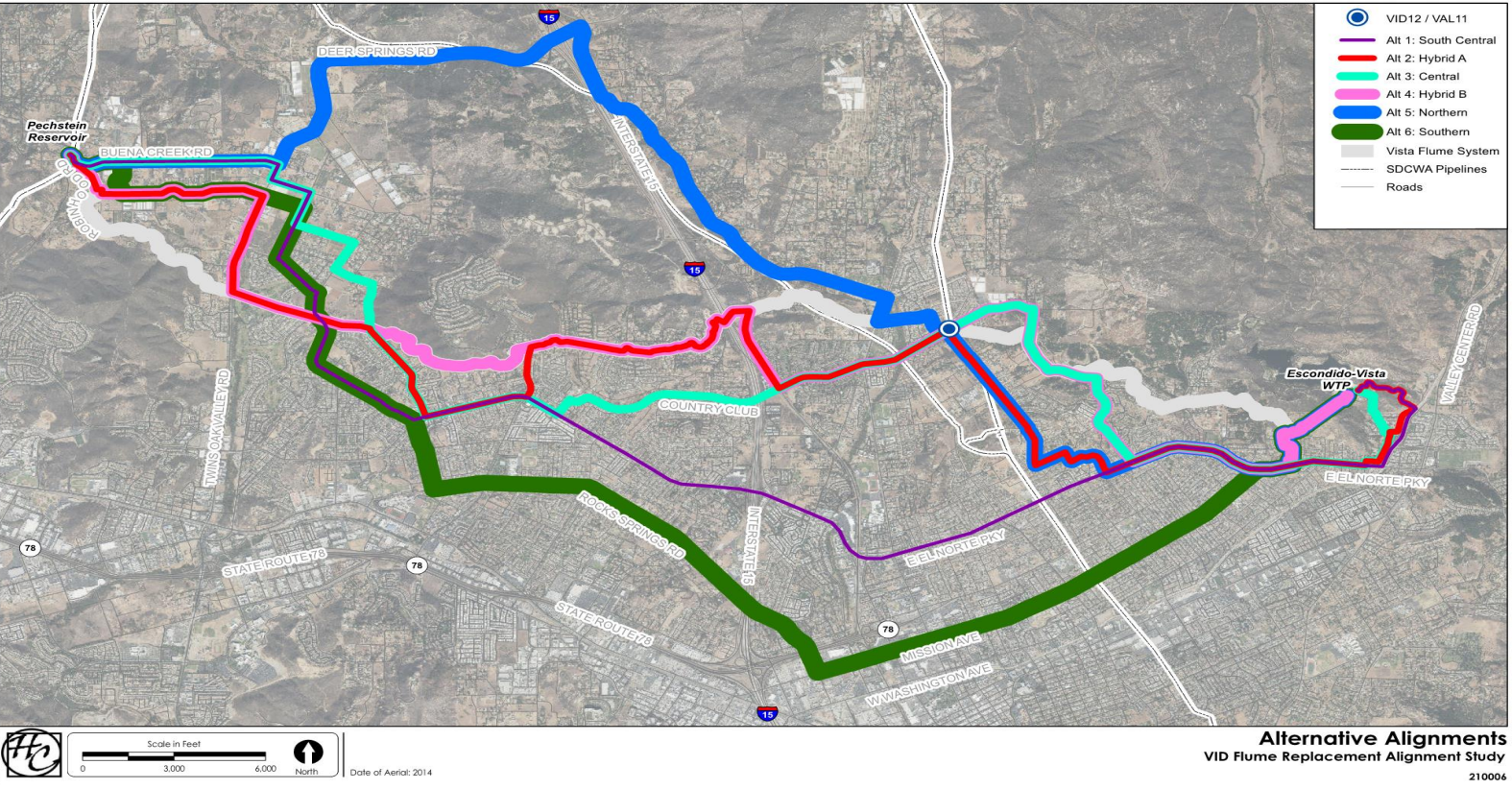


AFFORDABLE



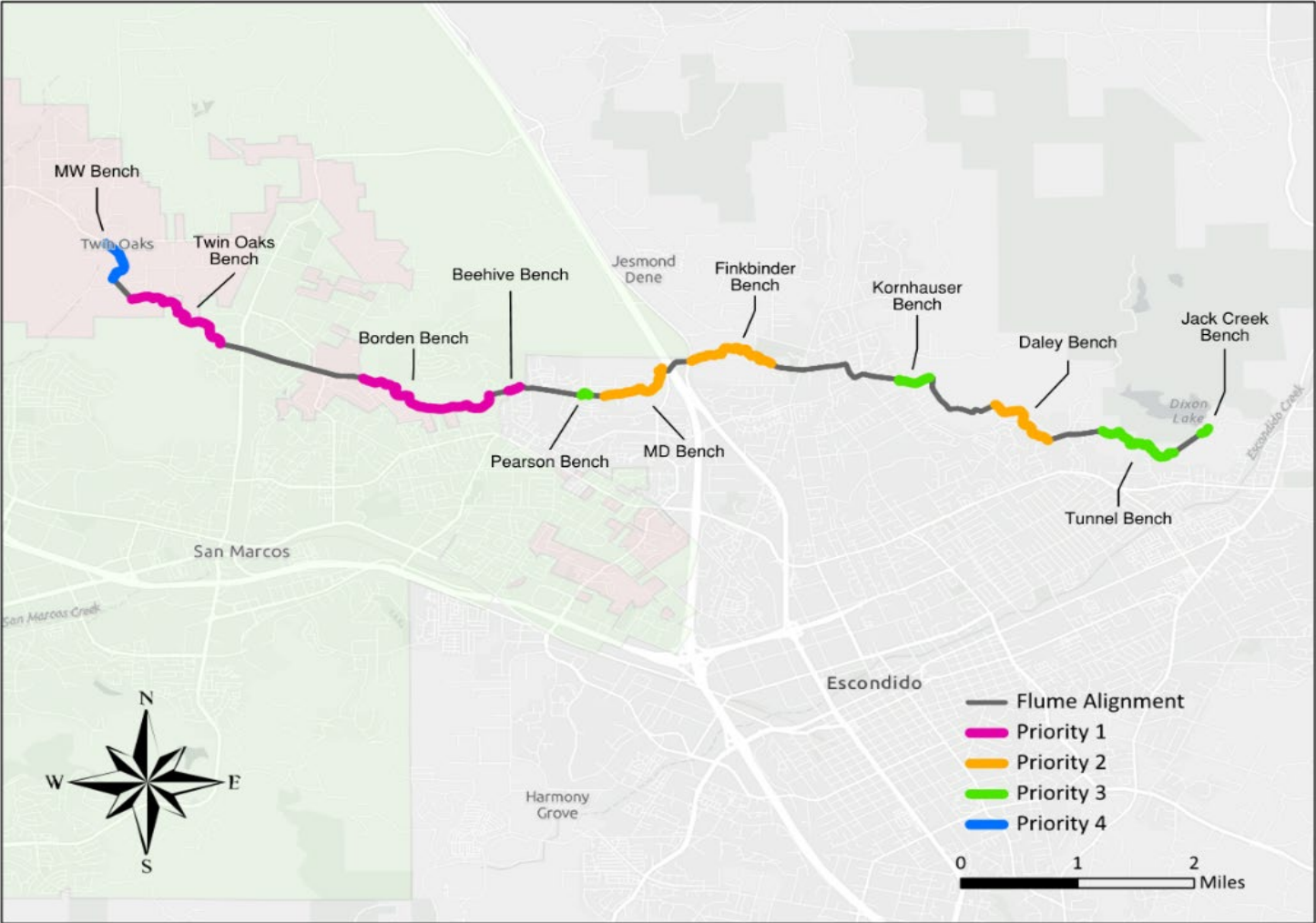
RESPONSIBLE

There are six alignment alternatives and Coarse Screening Criteria have been prepared.

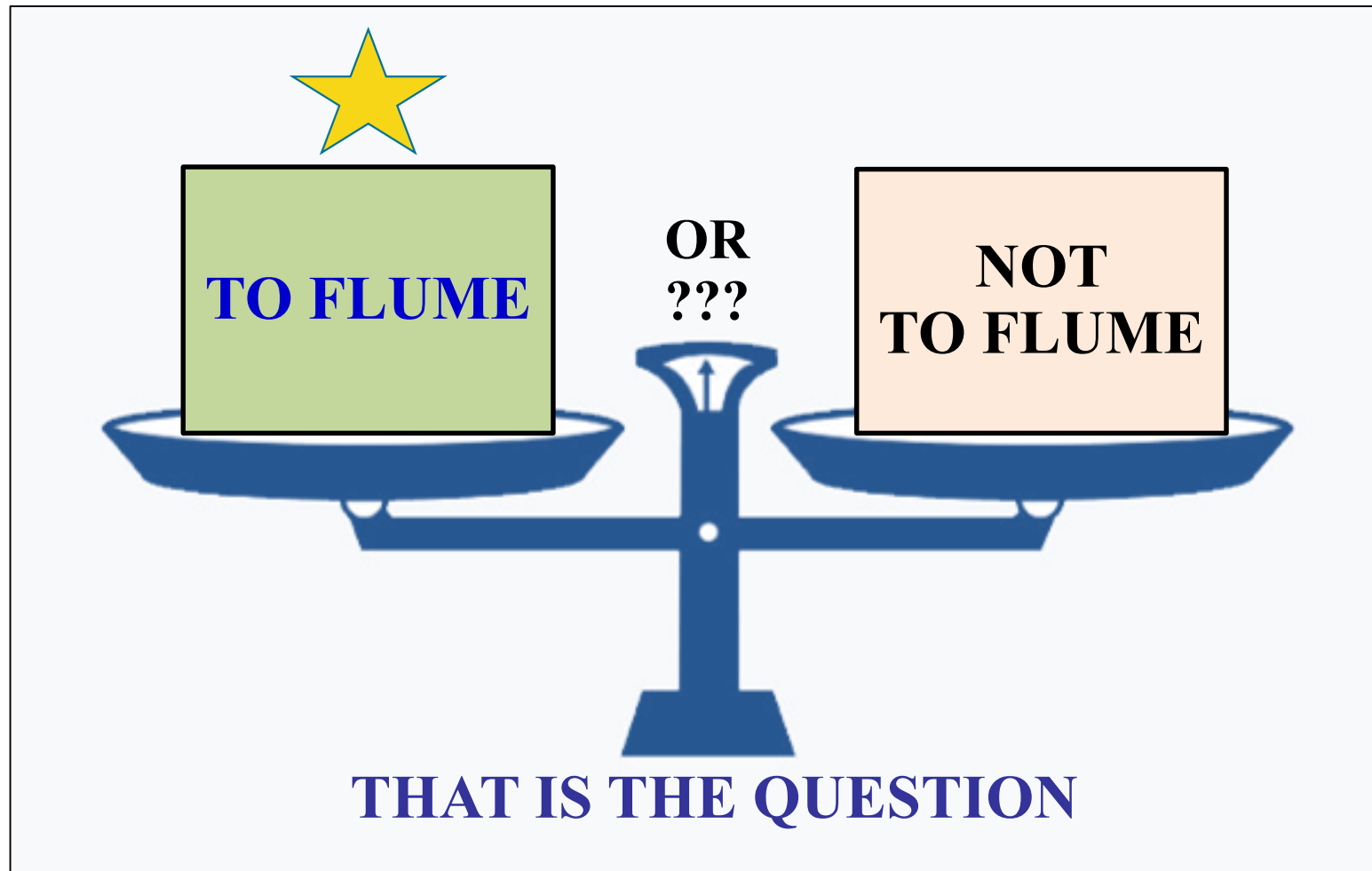


Categories	Criteria Groups
Project Delivery	Project Affordability and Implementation
	Schedule and Risk
	Constructability
Stakeholder Coordination	Community Impacts
	Land Ownership
	Environmental
	Permitting
System Reliability	System Hydraulics
	Operations and Maintenance

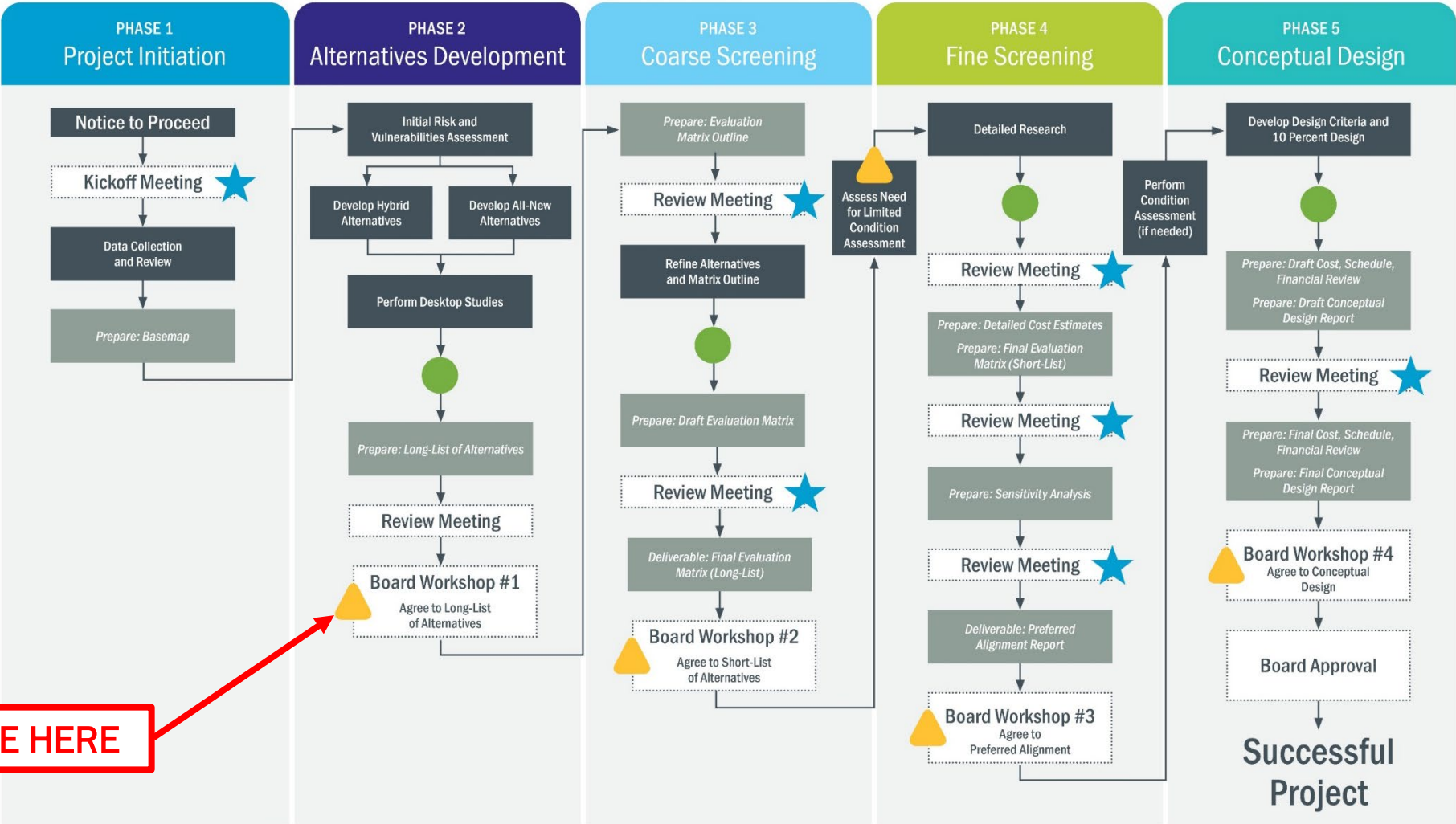
Bench inspections confirmed flume replacement remains a high priority and informs phase-ability.



Costs are going up; affordability check shows
To Flume is still favorable.



Study Process: Preparing to move into Phase 3.



YOU ARE HERE

LEGEND ● Environmental Only Touch Point ★ Independent Advisors Touch Point ▲ Decision Point

Workshop Objectives

- **Report** on work completed to-date
 - alignment alternatives developed
 - coarse screening criteria
 - cost & affordability check
 - bench section inspection results
- **Obtain Board's feedback** on work performed and next steps
- **Reach consensus** on advancing study to Phase 3 - Coarse Screening

Agenda

1. Introduction and Planning Objectives
2. Long-list of Alternatives Development
3. Coarse Screening Criteria Details
4. Cost and Affordability Check-in
5. Conditions Assessment Update
6. Conclusions

Defining the **next**



legacy

1. Introduction and Planning Objectives

Speaker: J.P. Semper, P.E.

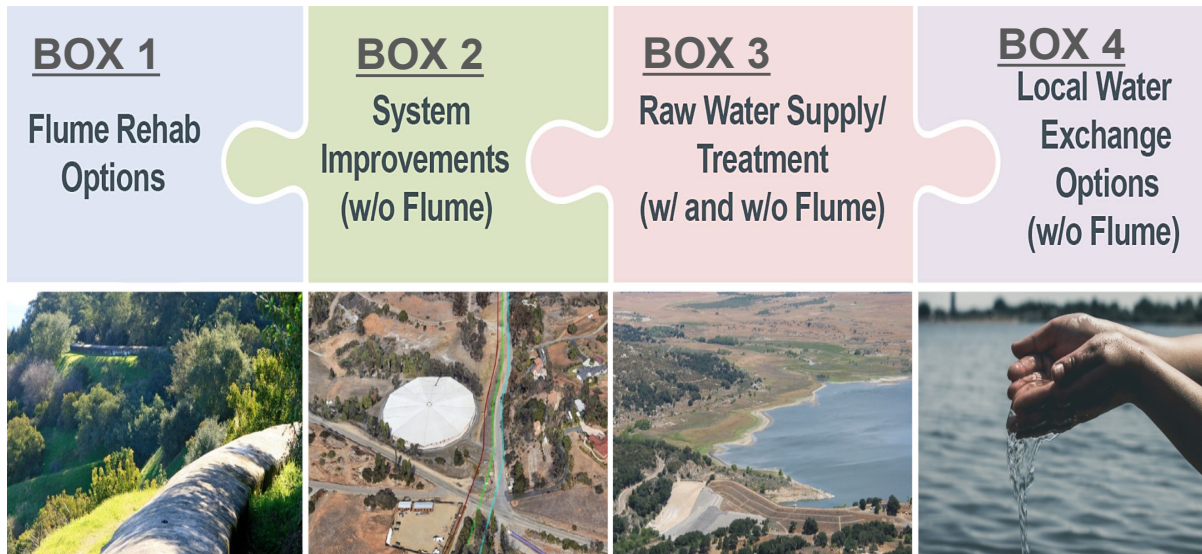
Defining the **next**



legacy

Where we came from: To Flume or Not To Flume?

- Four Boxes evaluated
- 2 alignment alternatives defined the range of the “To Flume” project
- Determined “To Flume” was most favorable option



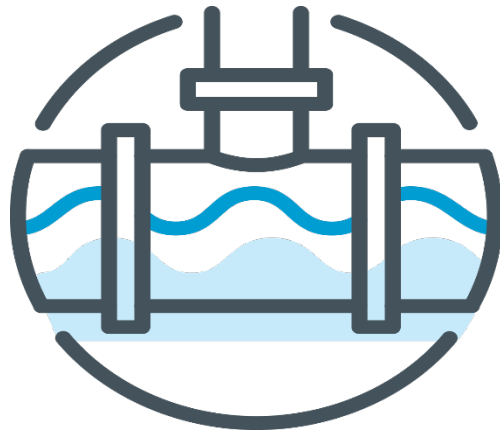
Next Steps: To Flume

Action	Schedule / Budget
1. Alignment Study	18-24 months \$0.75M - \$1.25M
2. Environmental Documentation	18-24 months \$0.75M - \$1.25M
3. Financial Planning	12-18 months \$0.1M - \$0.25M
4. Miscellaneous • <u>Average Local Yield:</u> Refine estimates	12-18 months \$0.1M - \$0.25M
TOTAL	24-36 months \$1.7M - \$3M

Where are we headed: How to Flume?

PLANNING OBJECTIVES

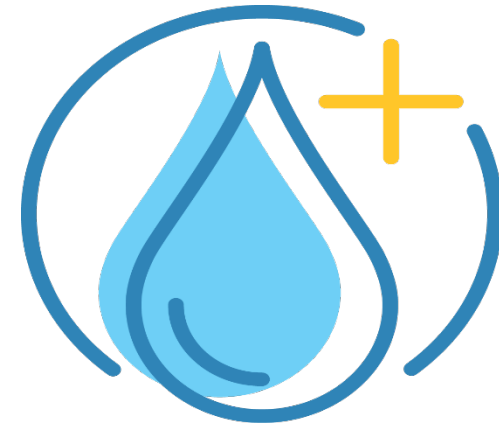
- feasibility and cost-effective construction,
- reliability,
- environmental effects,
- long-term operations and maintenance (O&M), as well as
- affordability, impacts to rates, and funding options.



RELIABLE



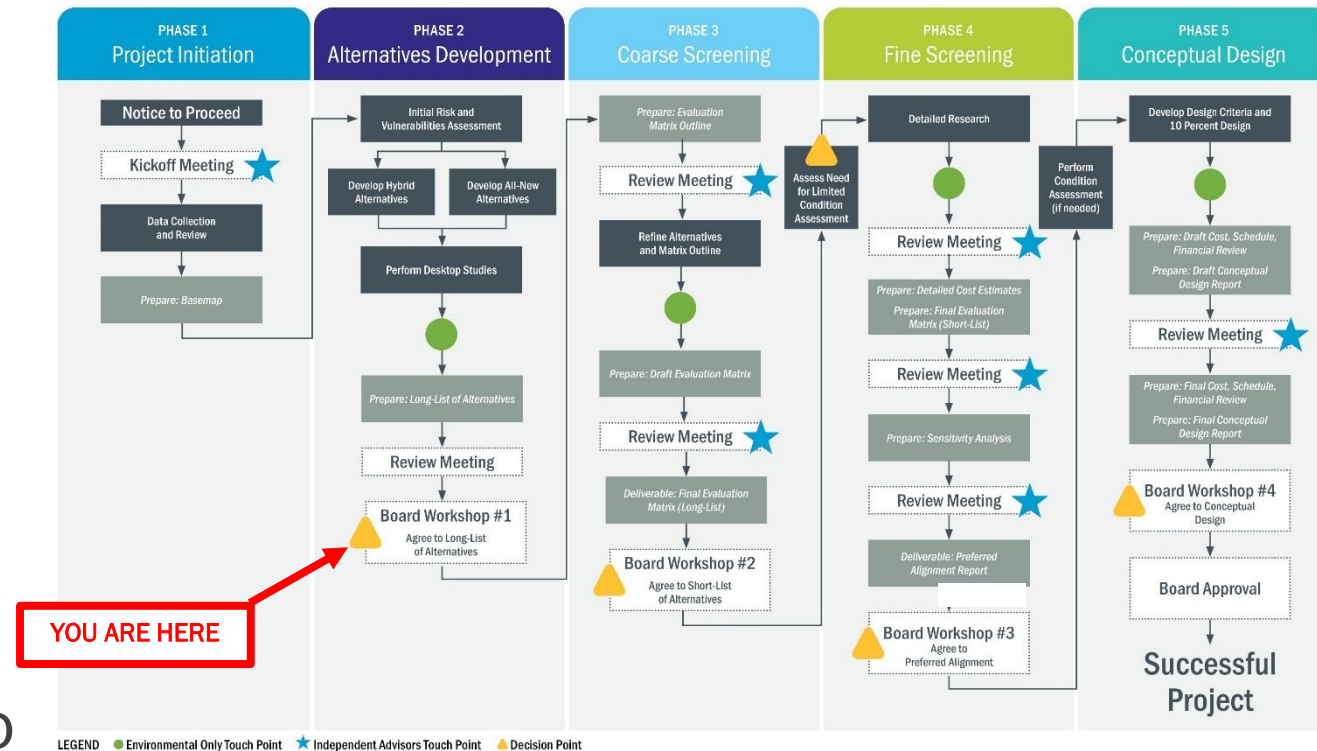
AFFORDABLE



RESPONSIBLE

Where are we today: Phase 2 – Alternatives Development

1. evaluated a reasonable range of corridors,
2. found six alignments for coarse screening,
3. developed the preliminary evaluation criteria for coarse screening,
4. inspected the Flume to confirm prioritization of retiring the Flume, and
5. completed an affordability check to confirm the “To Flume” decision.



2. Long-list of Alternatives Development

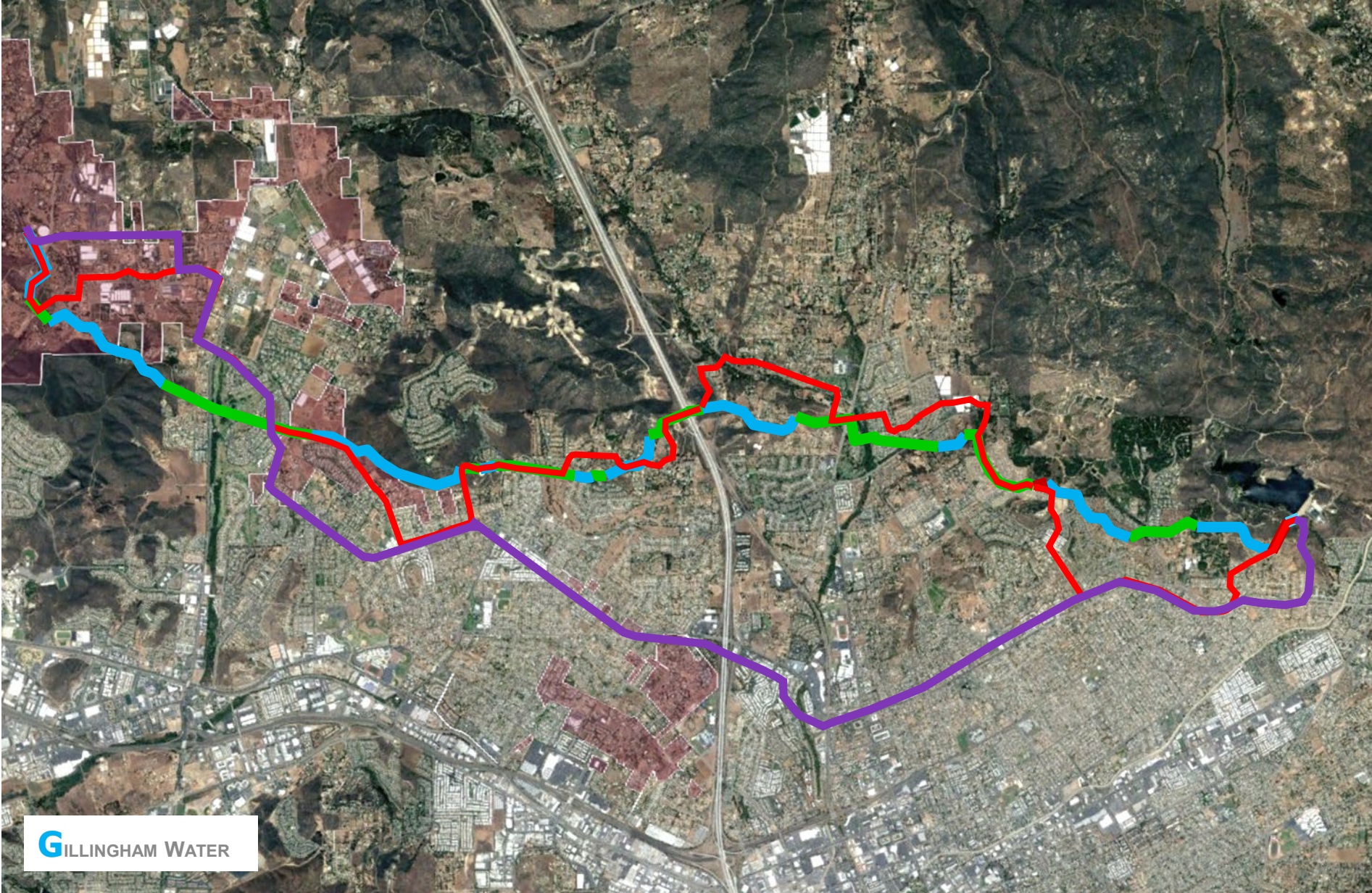
Speaker: Paige Russell, P.E.



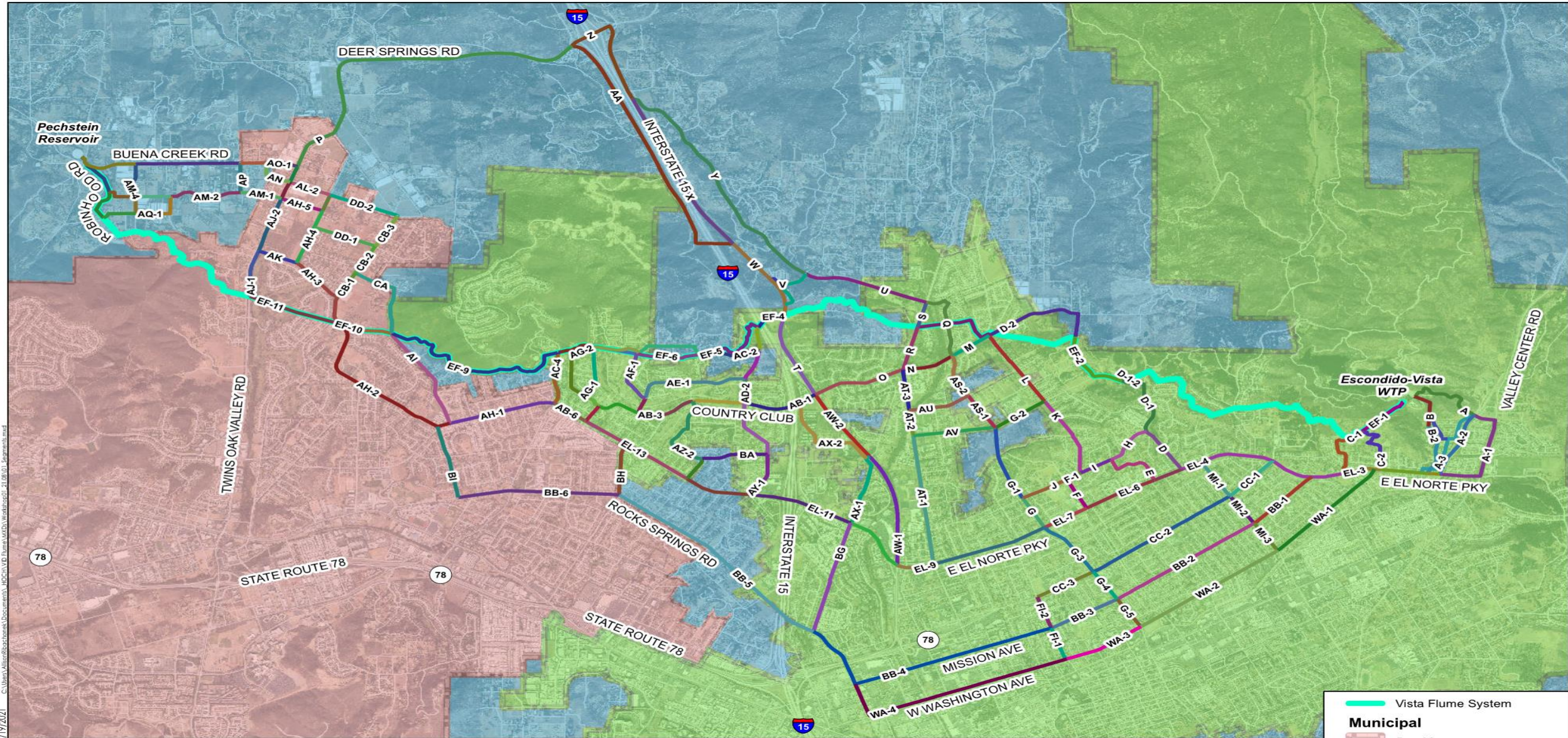
Defining the **next**

legacy

WSPS Alternatives: captured a wide-range of “replacement” costs





Constructible Corridors: total of 158 segments evaluated

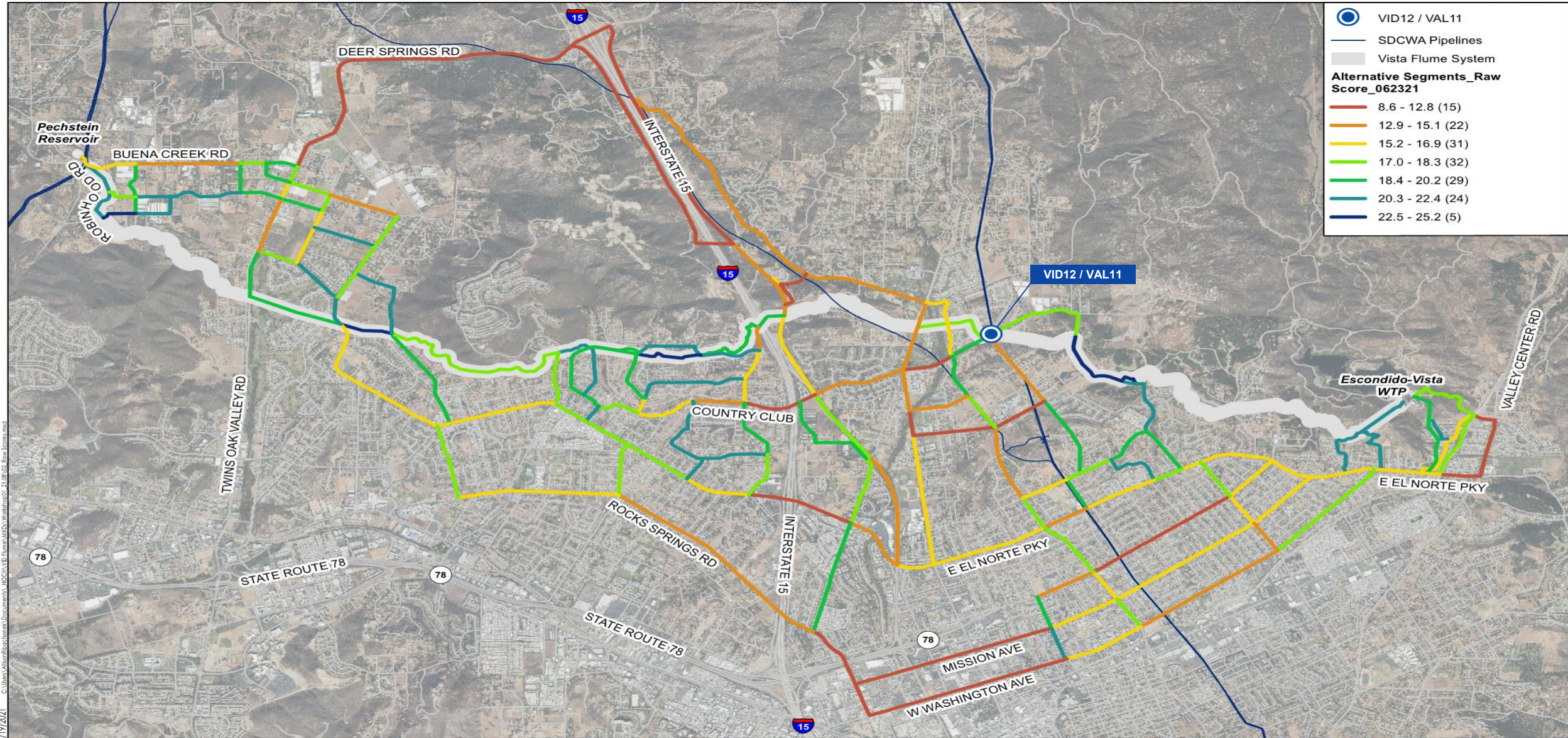


— Vista Flume System
Municipal
 San Marcos
 Escondido
 SD County (Unincorporated)




Alternative Route Segments
 VID Flume Replacement Alignment Study
 210006

Date of Exhibit: 8/19/2021

 Scale in Feet: 0, 3,000, 6,000

 Date of Aerial: 2014

Constructible Corridors: preferred segments identified



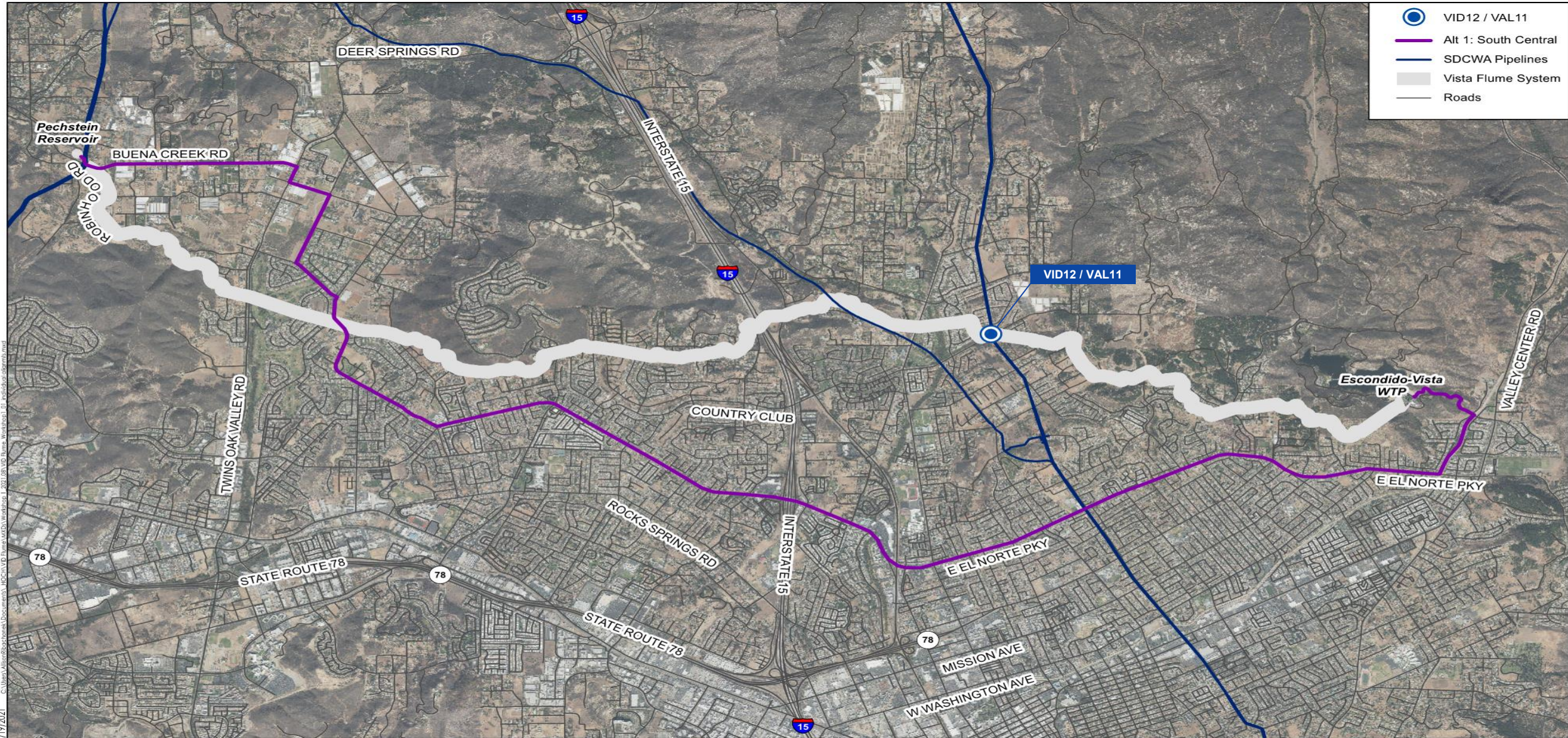
Date of Exhibit: 8/19/2021 C:\Users\jillm\Documents\MapDocs\VID Flume\VID Flume\MapDocs\MapDocs\062321_062321_062321.mxd

Date of Aerial: 2014

Alternative Segments: Raw Scores
VID Flume Replacement Alignment Study

Six alignments developed: Alternative #1 – South Central



- VID12 / VAL11
- Alt 1: South Central
- SDCWA Pipelines
- Vista Flume System
- Roads

Date of Exhibit: 8/19/2021

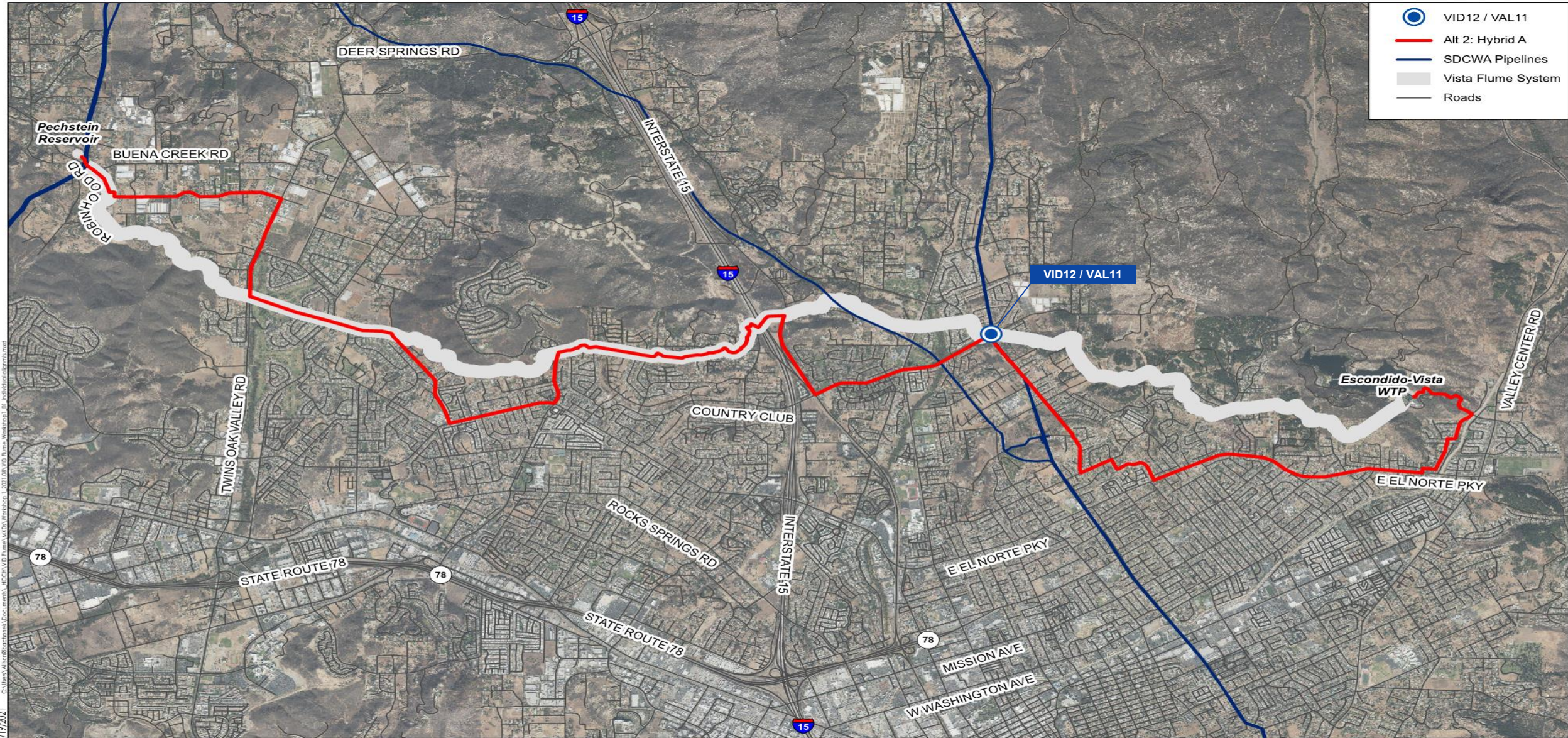
Scale in Feet
0 3,000 6,000

North

Date of Aerial: 2014


Alternative Alignments
VID Flume Replacement Alignment Study

Six alignments developed: Alternative #2 – Hybrid A




-  VID12 / VAL11
-  Alt 2: Hybrid A
-  SDCWA Pipelines
-  Vista Flume System
-  Roads

Date of Exhibit: 8/19/2021



Scale in Feet
0 3,000 6,000



North

Date of Aerial: 2014

Alternative Alignments
VID Flume Replacement Alignment Study

Six alignments developed: Alternative #3 - Central

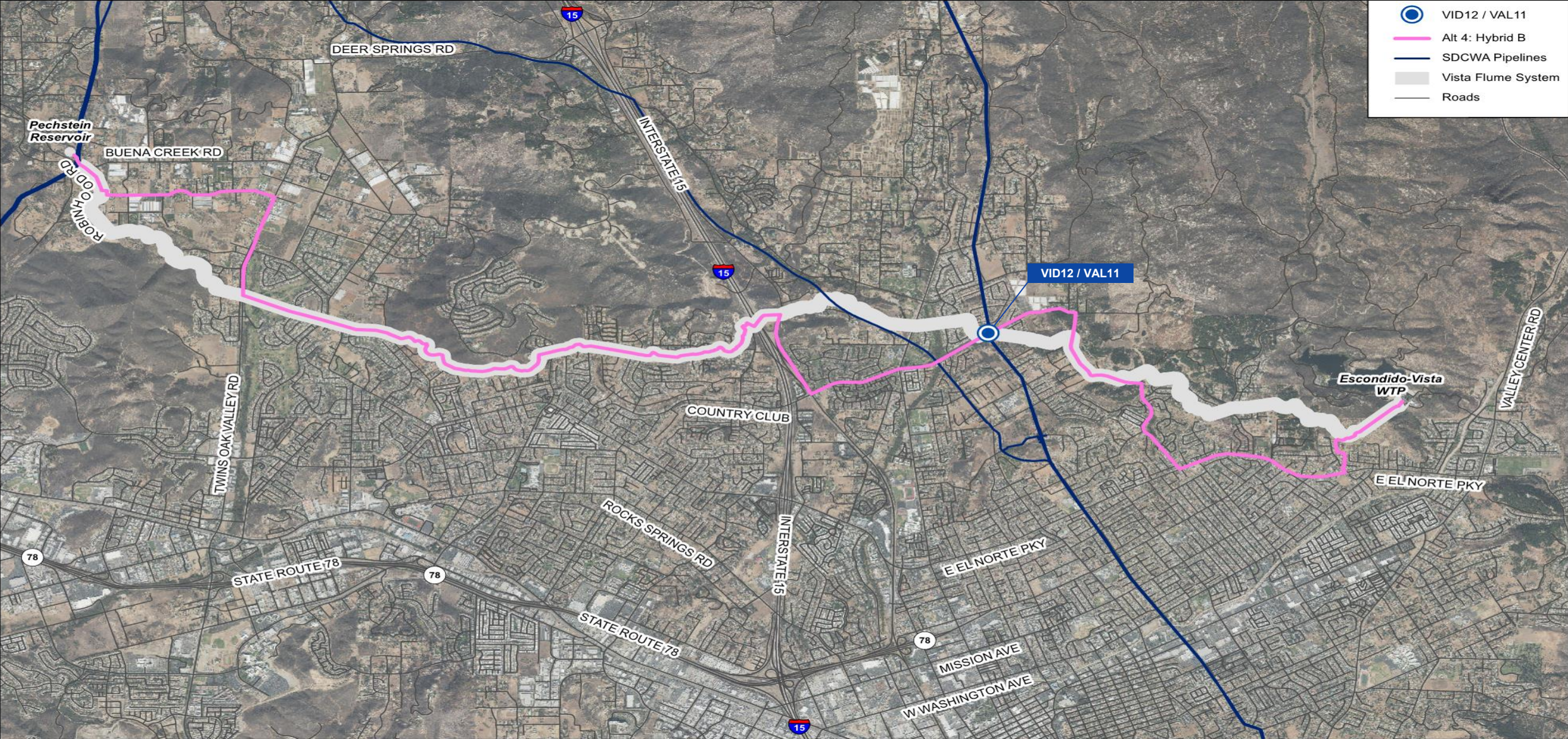


- VID12 / VAL11
- Alt 3: Central
- SDCWA Pipelines
- Vista Flume System
- Roads

Date of Aerial: 2014


Alternative Alignments
 VID Flume Replacement Alignment Study

Six alignments developed: Alternative #4 – Hybrid B




-  VID12 / VAL11
-  Alt 4: Hybrid B
-  SDCWA Pipelines
-  Vista Flume System
-  Roads

Date of Exhibit: 8/19/2021



Scale in Feet

0 3,000 6,000

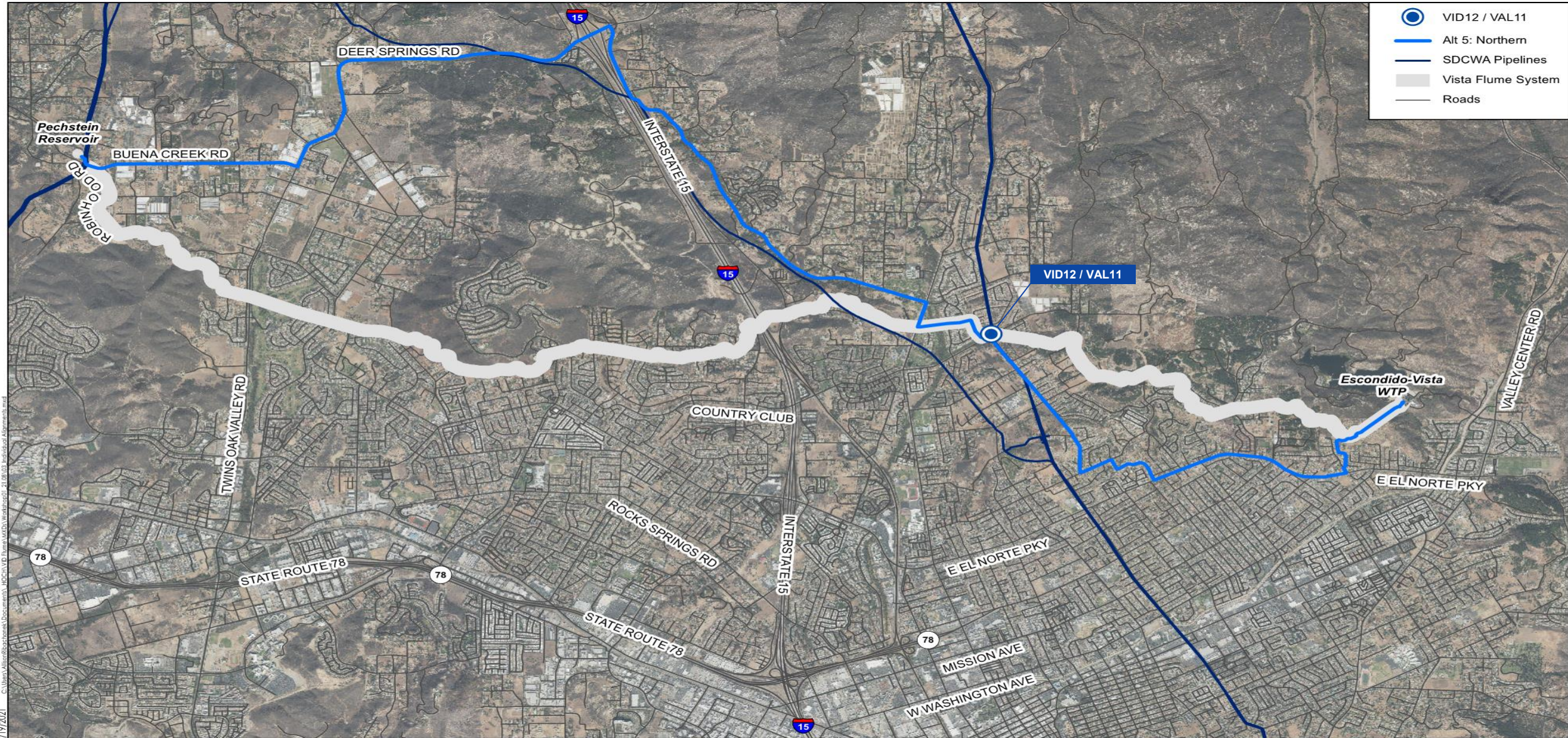





North

Date of Aerial: 2014

Alternative Alignments
 VID Flume Replacement Alignment Study

Six alignments developed: Alternative #5 – Northern

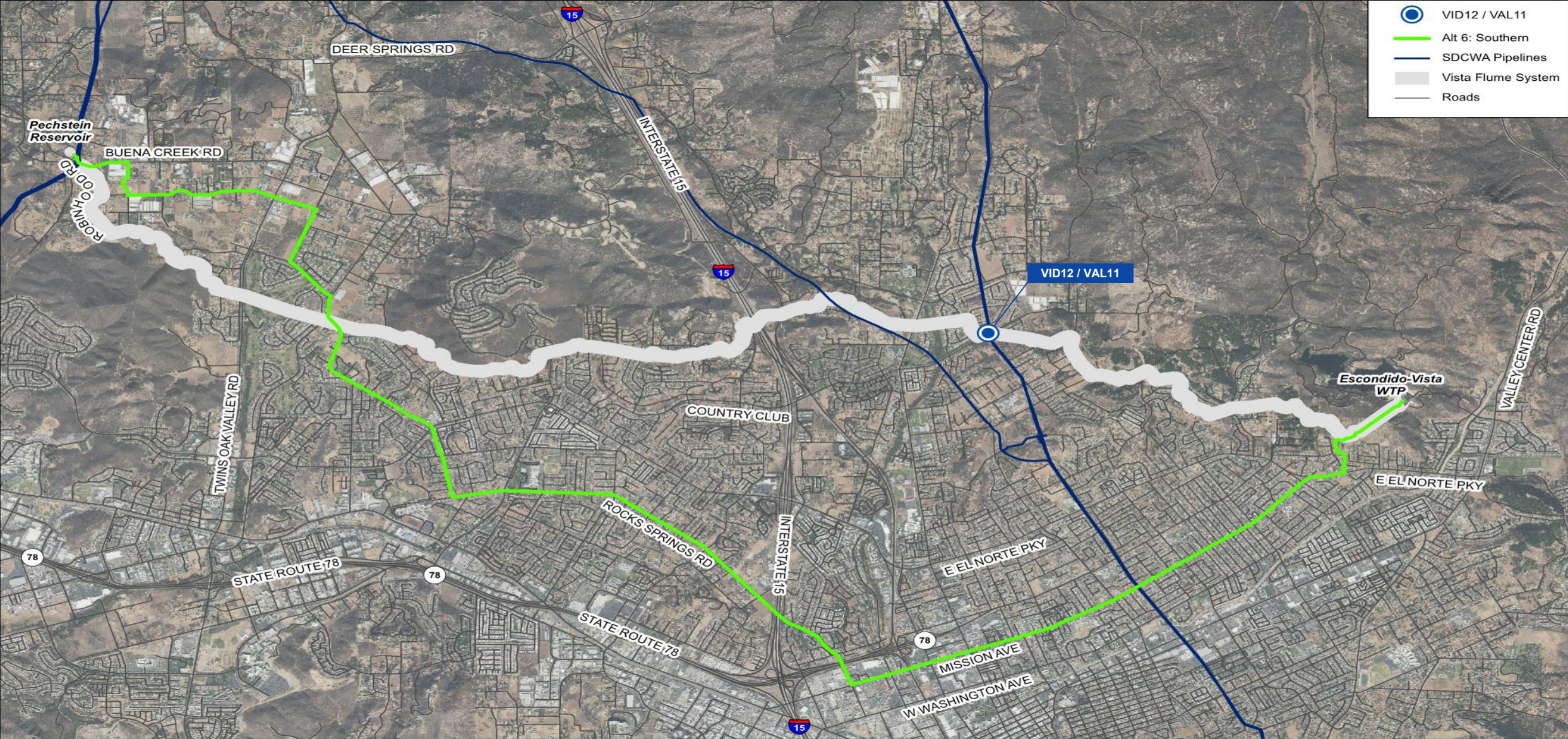



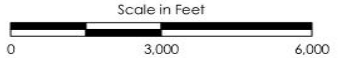

Date of Aerial: 2014

Alternative Alignments
VID Flume Replacement Alignment Study

Six alignments developed: Alternative #6 – Southern



-  VID12 / VAL11
-  Alt 6: Southern
-  SDCWA Pipelines
-  Vista Flume System
-  Roads

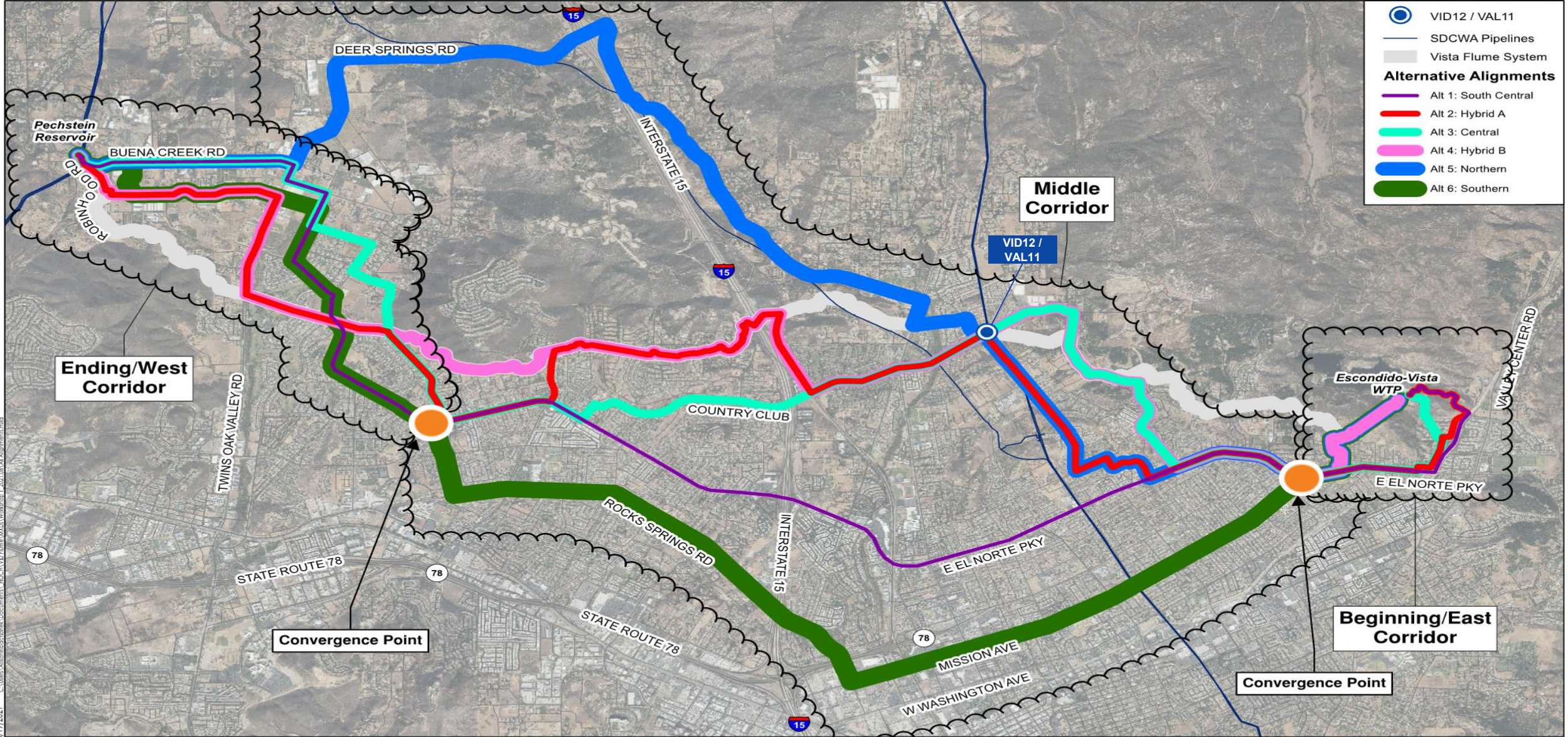
Date of Aerial: 2014

Alternative Alignments
 VID Flume Replacement Alignment Study

Date of Exhibit: 8/19/2021

C:\Users\jillm\Documents\Projects\VID Flume\VID Flume\MapDocs\MapDocs\210006_03_Alt6_Southern.mxd

Keeping our options open with a Beginning, Middle, and End



- VID12 / VAL11
- SDCWA Pipelines
- Vista Flume System
- Alternative Alignments**
- Alt 1: South Central
- Alt 2: Hybrid A
- Alt 3: Central
- Alt 4: Hybrid B
- Alt 5: Northern
- Alt 6: Southern

Date of Exhibit: 8/19/2021 C:\Users\jess@brownandcaldwell.com\Documents\HDC\VALUED\Plan\VALUED\WorkArea_1_2021\8A_AltAlignments.mxd

Scale in Feet

0 3,000 6,000

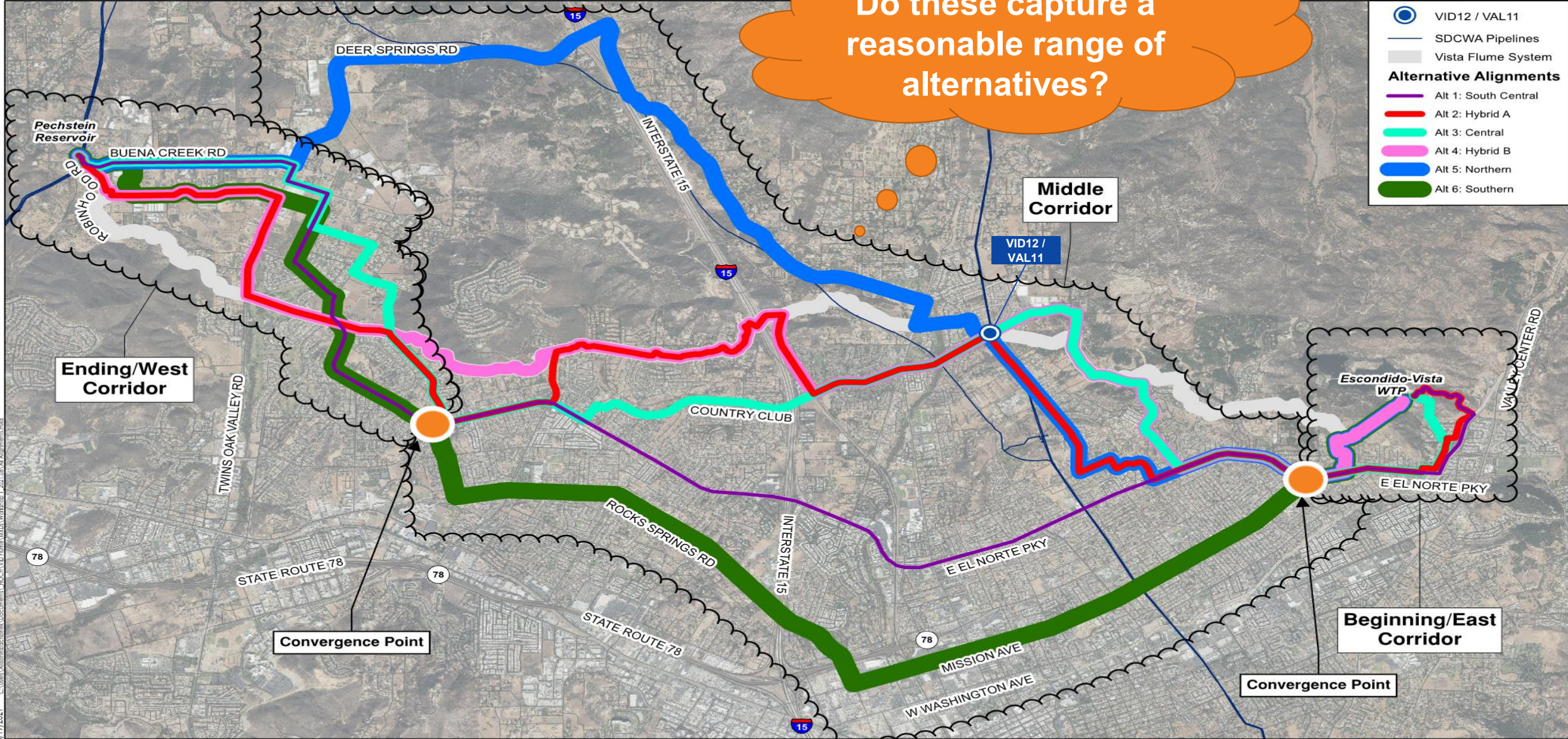
North

Date of Aerial: 2014

Alternative Alignments
VID Flume Replacement Alignment Study

Reaction Prompt!

Do these capture a reasonable range of alternatives?



- VID12 / VAL11
- SDCWA Pipelines
- Vista Flume System
- Alternative Alignments**
- Alt 1: South Central
- Alt 2: Hybrid A
- Alt 3: Central
- Alt 4: Hybrid B
- Alt 5: Northern
- Alt 6: Southern

Date of Exhibit: 8/19/2021 C:\Users\jessie\Documents\HDC\VALUED\Plan\VALUED\WorkArea_1_2021\8A_AltAlignments.mxd

Scale in Feet: 0, 3,000, 6,000. North arrow. Date of Aerial: 2014.

Alternative Alignments
VID Flume Replacement Alignment Study

3. Coarse Screening Criteria Details

Speaker: John Bekmanis, P.E.

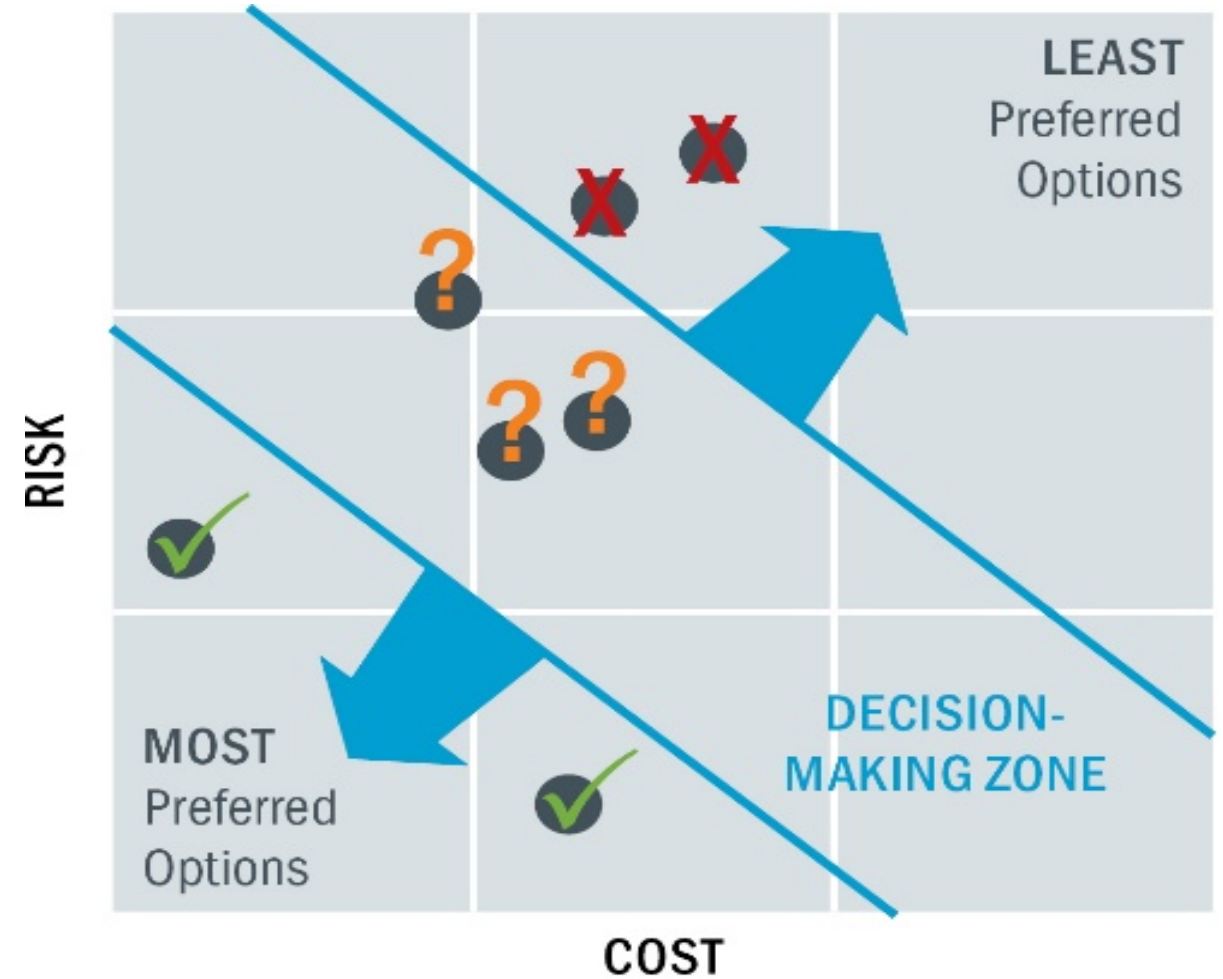


Defining the **next**

legacy

Coarse Screening: Process and Objectives

- Goal: rank & shortlist 2-3 alignments
- Normalize evaluation over lifecycle:
 - Risks – constructability, O&M, etc.
 - Costs – capital, financing, etc.
- Conduct sensitivity analysis
- Risk/Cost boundaries will change in Phase 4 – Fine Screening



Coarse Screening: Draft Evaluation Criteria (Part 1/3)

CATEGORIES	CRITERIA GROUPS	CRITERIA
Project Delivery	Project Affordability and Implementation	<ul style="list-style-type: none"> • Capital Cost Factors • O&M Cost Factors • Boot and Bennet • Mitigating Revenue Reduction (purchase from other agency) • Rate Impacts/District-Funded Portion • Grant/Funding Opportunities
	Schedule and Risk	<ul style="list-style-type: none"> • Schedule Factors • Phasing/Sequencing
	Constructability	<ul style="list-style-type: none"> • Geology • Crossing/Construction Methods • Alignment Length • Additional Piping Upgrades for Boot and Bennett Service Areas • Tunneling for Topographic Peaks

Coarse Screening: Draft Evaluation Criteria (Part 2/3)

CATEGORIES	CRITERIA GROUPS	CRITERIA
Stakeholder Coordination	Community Impacts	<ul style="list-style-type: none">• Traffic Impacts• Impacts to Critical Facilities
	Land Ownership	<ul style="list-style-type: none">• Easements/ROWs• Land Acquisition
	Environmental	<ul style="list-style-type: none">• Biological Resources• Areas of potential soil contamination• Cultural Resources• CEQA
	Permitting	<ul style="list-style-type: none">• Interagency Coordination• Cal DFW/USACE Coordination• DDW Coordination• Stormwater/SQMP

Coarse Screening: Draft Evaluation Criteria (Part 3/3)

CATEGORIES	CRITERIA GROUPS	CRITERIA
System Reliability	System Hydraulics	<ul style="list-style-type: none">• Pressurization vs Low-Head• Impacts to Transient Flow• Impacts to EVWTP Operations• Pumping Stations• Flow Control
	Operations and Maintenance	<ul style="list-style-type: none">• Accessibility• Long-Term Vulnerability• Agency Service Connections• VID Service Connections• Operational (Hydraulics)• Operational (Water Quality)• Future Adaptability/Redundancy

Reaction Prompt!



CAT.	CRITERIA GROUPS	CRITERIA
Project Delivery	Project Affordability and Implementation	<ul style="list-style-type: none"> • Capital Cost Factors • O&M Cost Factors • Boot and Bennet • Mitigating Revenue Reduction (purchase from other agency) • Rate Impacts/District-Funded Portion • Grant/Funding Opportunities
	Schedule and Risk	<ul style="list-style-type: none"> • Schedule Factors • Phasing/Sequencing
	Constructability	<ul style="list-style-type: none"> • Geology • Crossing/Construction Methods • Alignment Length • Additional Piping Upgrades for Boot and Bennett Service Areas • Tunneling for Topographic Peaks

CAT.	CRITERIA GROUPS	CRITERIA
Stakeholder Coordination	Community Impacts	<ul style="list-style-type: none"> • Traffic Impacts • Impacts to Critical Facilities
	Land Ownership	<ul style="list-style-type: none"> • Easements/ROWs • Land Acquisition
	Environmental	<ul style="list-style-type: none"> • Biological Resources • Areas of potential soil contamination • Cultural Resources • CEQA
System Reliability	Permitting	<ul style="list-style-type: none"> • Interagency Coordination • Cal DFW/USACE Coordination • DDW Coordination • Stormwater/SQMP
	System Hydraulics	<ul style="list-style-type: none"> • Pressurization vs Low-Head • Impacts to Transient Flow • Impacts to EVWTP Operations • Pumping Stations • Flow Control
	Operations and Maintenance	<ul style="list-style-type: none"> • Accessibility • Long-Term Vulnerability • Agency Service Connections • VID Service Connections • Operational (Hydraulics) • Operational (Water Quality) • Future Adaptability/Redundancy

4. Cost and Affordability Check-in

Speaker: Adam Hoch, P.E. &
J.P. Semper (for Doug Gillingham, P.E.)

Defining the **next**



Project costs are increasing with no sign of decline.

CONSTRUCTION ECONOMICS

ENR's 20-city average cost indexes, wages and material prices. Historical data and details for ENR's 20 cities can be found at [ENR.com/economics](https://enr.com/economics)

Construction Cost Index **+3.8%**
ANNUAL INFLATION RATE **APR. 2021**

1913=100	INDEX VALUE	MONTH	YEAR
CONSTRUCTION COST	11849.31	+0.8%	+3.8%
COMMON LABOR	24253.88	+0.4%	+1.4%
WAGE \$/HR.	46.59	+0.4%	+1.4%

The Construction Cost Index's annual escalation is up 3.8%, while the monthly component rose 0.8%.

Building Cost Index **+6.1%**
ANNUAL INFLATION RATE **APR. 2021**

1913=100	INDEX VALUE	MONTH	YEAR
BUILDING COST	6612.50	+1.0%	+6.1%
SKILLED LABOR	10805.01	0.0%	+1.7%
WAGE \$/HR.	59.73	0.0%	+1.7%

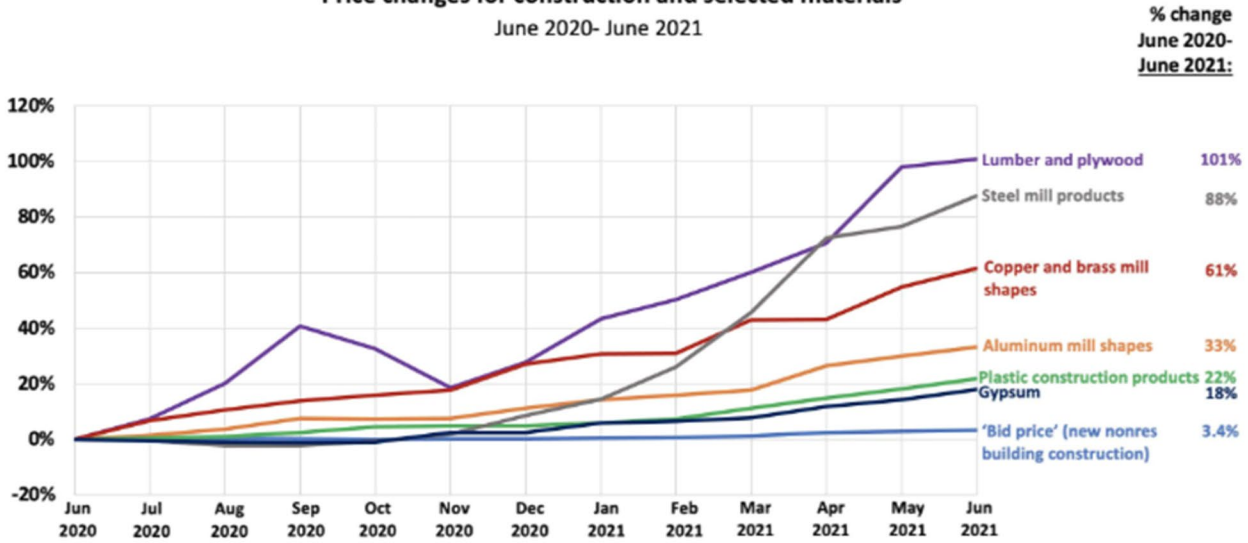
The Building Cost Index is up 6.1% on an annual basis, while the monthly component increased 1.0%.

Materials Cost Index **+2.6%**
MONTHLY INFLATION RATE **APR. 2021**

1913=100	INDEX VALUE	MONTH	YEAR
MATERIALS COST	4018.82	+2.6%	+14.0%
CEMENT \$/TON	151.10	+1.0%	+3.5%
STEEL \$/CWT	58.68	+1.4%	+5.0%
LUMBER \$/MBF	820.75	+5.1%	+35.4%

The MCI rose 2.6% on a monthly basis, while the annual escalation rate increased 1.4%.

Price changes for construction and selected materials
June 2020- June 2021



Source: Bureau of Labor Statistics, producer price indexes (PPIs) for new nonresidential building construction (bid prices), gypsum products, wood, metal products, and plastic products, not seasonally adjusted

Forecasting Costs: Accounting for Current Market Prices

	All-new*	Hybrid*
\$ in WSPS	\$120M	\$130M
Forecasted Escalation as of Aug. 2021	18%	28%
Adjusted Totals	\$140M	\$165M

*Rounded to nearest \$5M

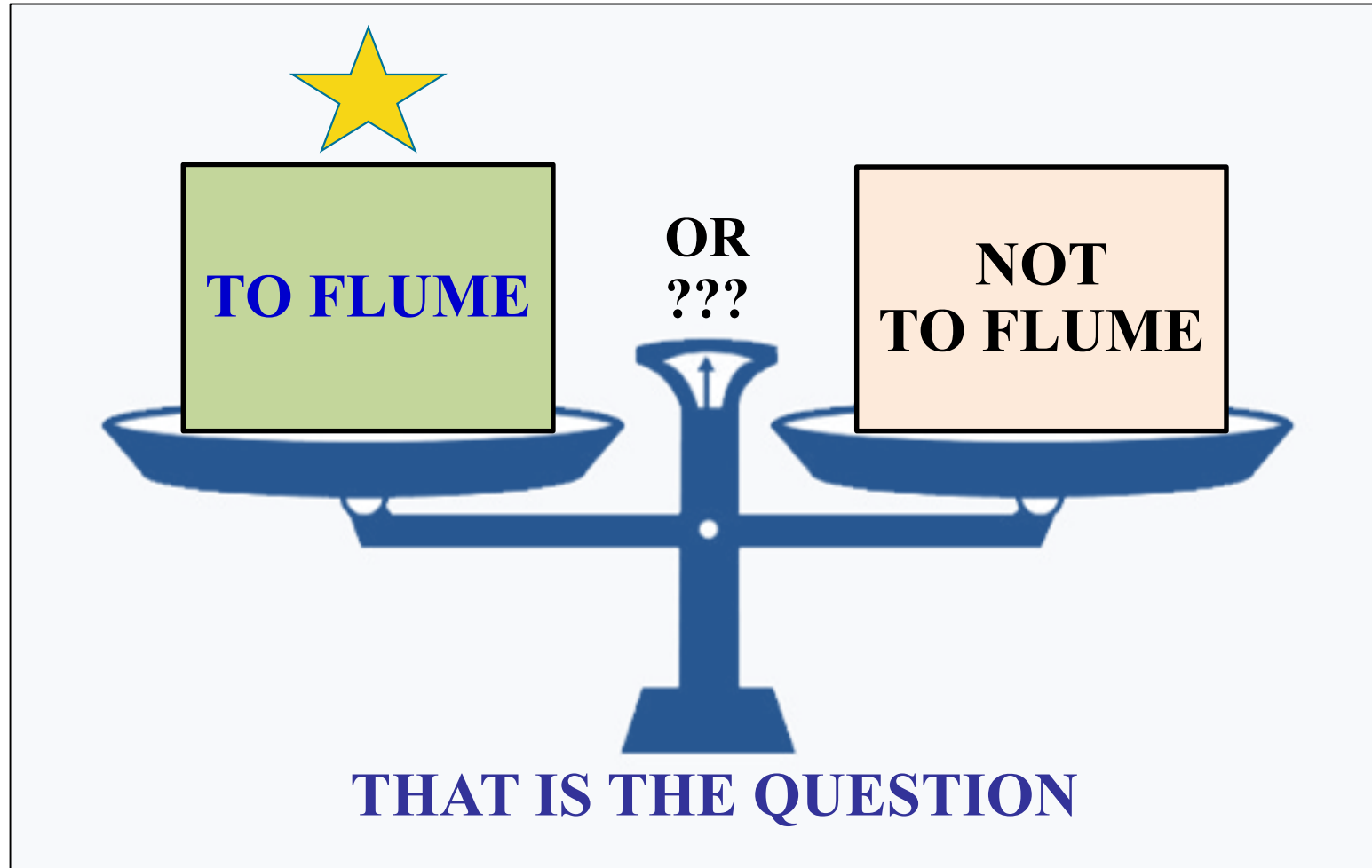
Basis of capital costs in WSPS:

- Construction costs
- Taxes plus overhead, and profit
- Soft costs (i.e. design, easements, etc.)
- Insurances and bonds
- Contingencies

Funding opportunities and constraints:

- Cash
- Municipal Bond
- Low-Interest Loans
- Grants

INTERIM BALANCE SCALE CHECK-IN



30-Year Cost Comparison (NPV)

Costs in \$2020, millions

NOT TO FLUME	
• Increased Water Authority Purchases (Replacement Supplies)	
• Local System Cost	
• Exchange Benefit	
• Delivery Reliability	
• Boot and Bennett Transfer to Vallecitos	
• Reduced Pumping	
TOTAL (Rounded)	\$350

★ TO FLUME ★	
• Local System Cost	
• Water Treatment	
• Flume Replacement	
• Flume O&M	
• Self-Treatment Benefit	
TOTAL (Rounded)	\$240

Cost Advantage:
\$110M To Flume



UPDATED 30-Year Cost Comparison (NPV)

Costs in \$2021, millions

NOT TO FLUME	
PREVIOUS TOTAL	\$350
<ul style="list-style-type: none"> • Increased Water Authority Purchases (Replacement Supplies) • Delivery Reliability • Boot and Bennett Transfer to Vallecitos 	
NET CHANGE (Rounded)	+\$70
TOTAL (Rounded)	\$420

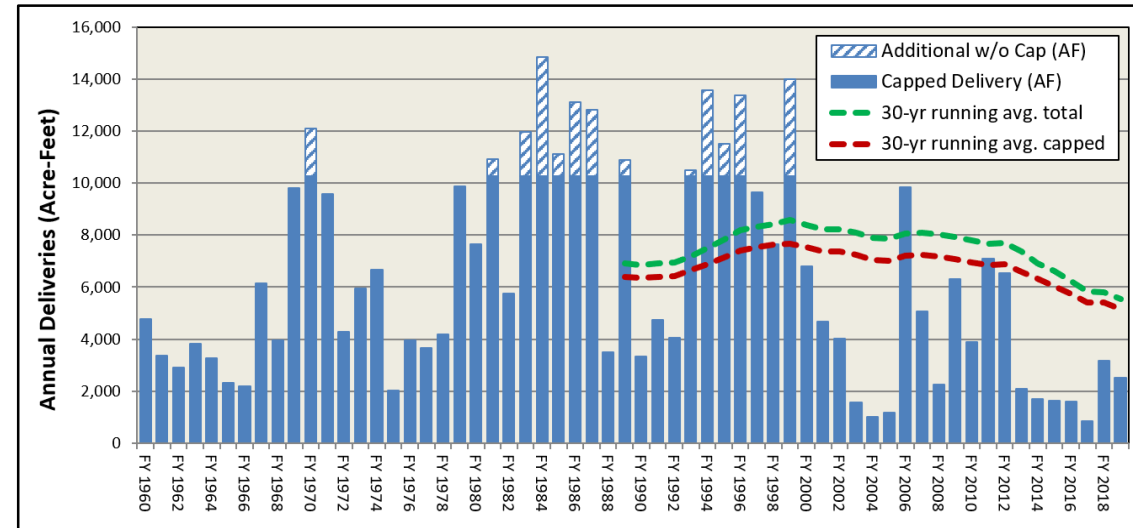
★ TO FLUME ★	
PREVIOUS TOTAL	\$240
<ul style="list-style-type: none"> • Flume Replacement • Water Treatment • Self-Treatment Benefit 	
NET CHANGE (Rounded)	+\$50
TOTAL (Rounded)	★ \$290

Cost Advantage:
\$130M To Flume



Local Yield and HABs: What happens if long-term average local yield is reduced?

Local Water Deliveries to District 1960-2018
 (Adjusted Long-Term Avg. = **5,000 AF/yr**)



Sensitivity Analysis: Reduced Local Yield

Cost Variable	30-Yr. Cost Advantage (NPV)	
	Not To Flume	★ ★ To Flume
UPDATED Cost Advantage		★ +\$130M
Reduced Local Yield + Treatment Average yield reduced 20%, to 4,000 AF/yr		★ (-\$60M) ★ +\$70M

Cost Advantage:
Still To Flume



Balance Scale Testing Next Steps:

NEXT STEPS:

- 1) Continue with Alignment Study
- 2) Report back with a more thorough assessment of the balance scale at Workshop No. 2, including:
 - Updated Flume replacement costs
 - Factor in financing costs, as needed
 - Updated Water Authority rate forecasts (from new 10-year Financial Plan)
 - Consider additional, but not final, information on effects of HABs

5. Conditions Assessment Update

Speaker: Paige Russell, P.E.



Defining the **next**

legacy

Performed external inspections of bench sections.



- External visual inspection by drone
- Three passes; left, right, & overhead
- All benches completed in 5-days
- Red flag notices elevated to District



Acknowledgement! – Thank you VID Staff for your support!

- Clearing ahead of inspection
- Providing safe access to flume
- Responding to red flags right away

Inspection confirms the time is now.

SERVICE LIFE



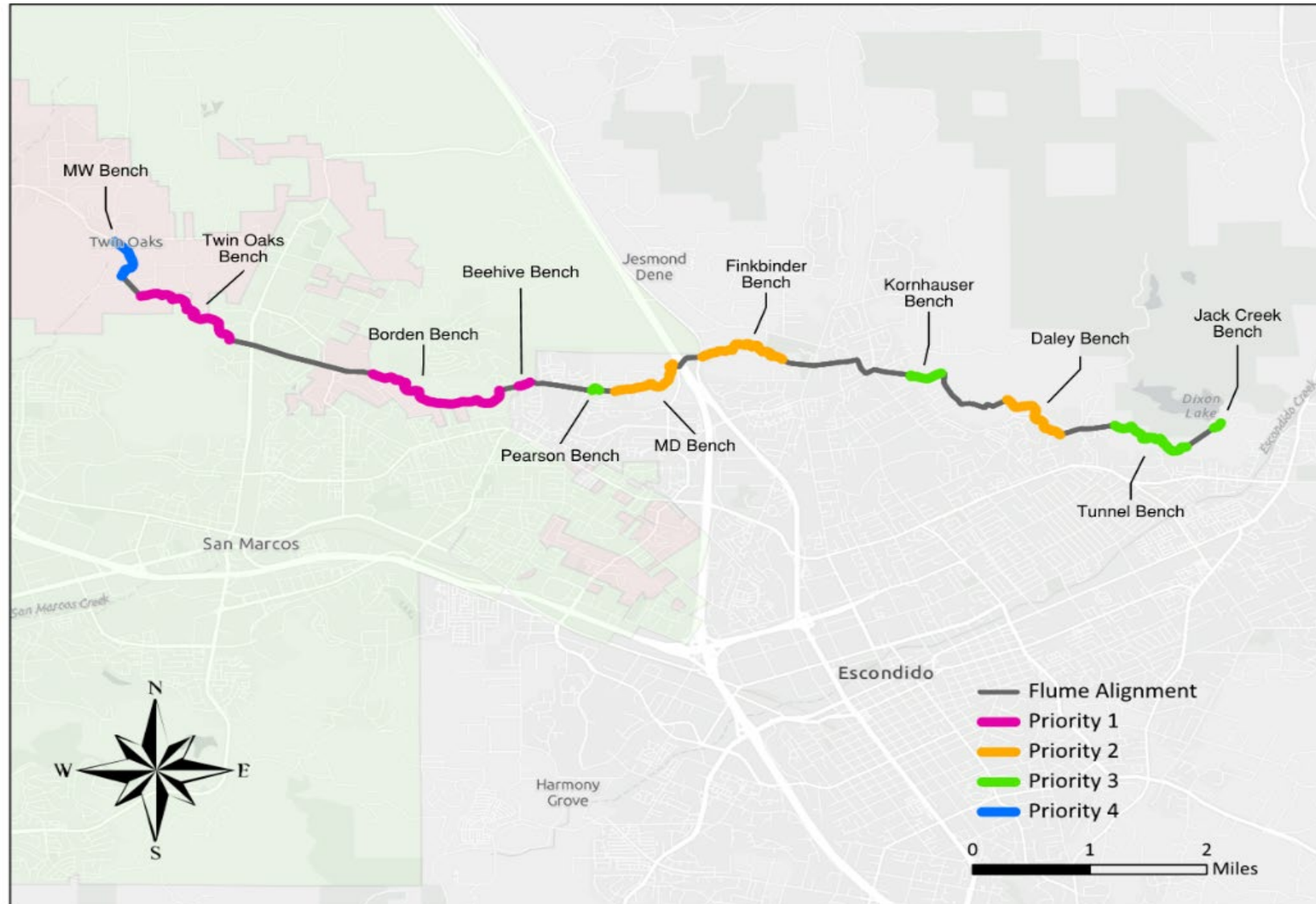
Asset is “usable”, but frequency of repairs exceeds normal operations for transmission main.

USEFUL LIFE



Asset is nearing end of “usable life” when repairs fail at a rate which keeps the asset out of service.

Bench section replacement prioritizations establishes a baseline for phasing.



6. Conclusions

Speaker: J.P. Semper, P.E.



Defining the **next**

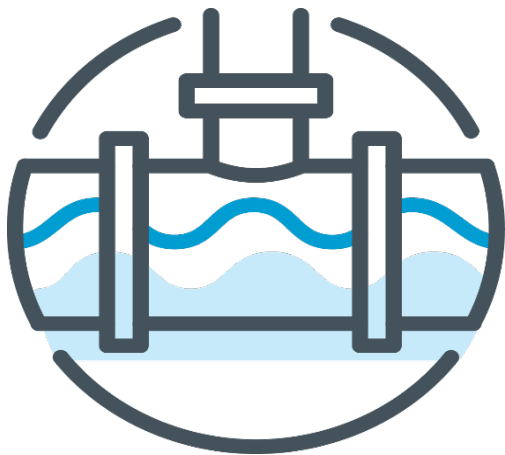
legacy

Summary of Conclusions: Phase 2 – Alternatives Development

1. **Six alignments have been developed** which define a reasonable range of project alternatives and are recommended for Coarse Screening.
2. Costs have risen since the WSPS and there is no sign of decline; however, the decision **“To Flume” continues to be the economically preferred** alternative than “Not To Flume.”
3. More condition assessment confirms **retiring the Flume remains a high priority** and establishes a recommended order of priority for its replacement.
4. As costs continue to increase, and the priority of replacing the Flume heightens, so does the likelihood of requiring financing; **advancing financial planning efforts for this project would be prudent.**

Next Steps

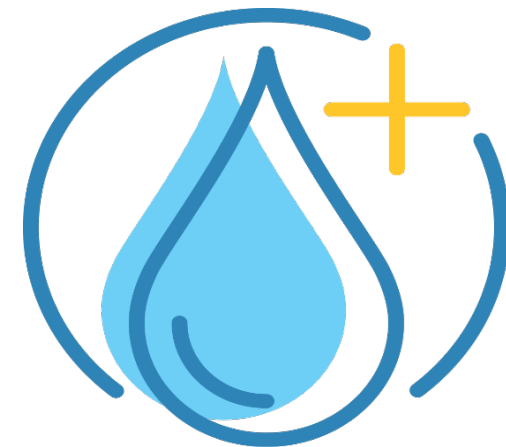
1. Collect detailed data for the six alignments
2. Develop estimated capital costs for all six alignments
3. Conduct coarse screening and shortlist the top 2-3 alignments
3. Begin preliminary financial planning to understand the cost of funding.
4. Repeat the affordability check with refined information.
5. Report back to the Board after Phase 3 is complete.



RELIABLE



AFFORDABLE



RESPONSIBLE

Thank you.
Questions?