Santa Clara Valley Water District
Independent Board Auditor

Valley Water

Performance Audit of Valley Water's Capital Improvement Program

August 2023

SJOBERG EVASHENK CONSULTING, INC

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REPORT HIGHLIGHTS

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RESULTS

The Santa Clara Valley Water District (Valley Water) has, since 2019, been focused on enhancing its Capital Improvement Program (CIP). During this time, it has implemented many practices that are in-line with both industry and leading practices, including establishing cross-department training, increasing the consistency with which Change Management Memos document changes in project scope and cost, implementing a new project management system (ProjectMates), and requiring the use of an independent cost estimates on all capital projects. These will have a continued positive impact on the success of future capital project delivery. This audit also found that revenue forecasts were reasonable and reliable, and debt financing and revenue forecasting practices aligned with peer and leading industry practices. However, opportunities for continued improvement exist throughout the CIP planning and delivery process. Doing so will better ensure planned milestones and targets related to total project costs and schedules are realistic and information reported is accurate and transparent.

BACKGROUND AND PURPOSE

Valley Water is Santa Clara County's water resource management agency responsible for providing safe, clean water, flood protection, and stewardship of streams through its management of water treatment and distribution systems, construction and maintenance of flood control channels, and oversight of rate setting and conservation efforts. Valley Water uses a 5-year rolling CIP plan to plan, manage, and deliver capital improvements in compliance with various statutes, regulations, and Board policies and goals. The result of Valley Water's CIP planning process is the Board's annual adoption of the updated CIP 5-Year Plan.

In May 2022, the Board of Directors requested Sjoberg Evashenk Consulting to conduct an audit of Valley Water's CIP planning process. The objective of this audit was to determine the extent to which Valley Water activities associated with planning, developing, executing, and monitoring its CIP 5-Year Plan are consistent with relevant requirements, policies, and best practices.

KEY FINDINGS

- Valley Water implemented many leading practices in developing its CIP 5-Year Plan, including practices recommended by the California Society of Municipal Finance Officers, Government Finance Officers Association, and California's largest public works agencies.
- Over the past five years, capital projects have not progressed in a manner envisioned by the CIP 5-Year Plan, resulting in cost increases and schedule delays. Actual capital spending was consistently and significantly less than planned despite having adequate financial resources to deliver the projects.
- While Change Management Memos reveal external factors that impacted project schedules (such as multi-government permitting processes), this audit revealed that outdated cost estimates and increased project costs affect Valley Water's ability to hit CIP targets, and that internal and external staffing resources may not be sufficient to meet project demands. Ensuring the CIP 5-Year Plan is achievable is important because an overly-ambitious plan may lead to program expenditures that are substantially lower than planned, and rate increases or bond issuances being implemented sooner than necessary.
- To better align the CIP planning process with industry leading practices, Valley Water should implement additional process improvements. This includes establishing more robust project prioritization processes, performance metrics to evaluate program success, and comprehensive capital planning policies and procedures, among others.
- Opportunities exist to strengthen the reliability of data used in developing the CIP 5-Year Plan. Annual capital budget amounts were not always consistently reported and did not always align with Valley Water's Financial System, and Change Management Memos did not always reflect sufficient information regarding the reasoning for cost increases and schedule delays.

KEY RECOMMENDATIONS

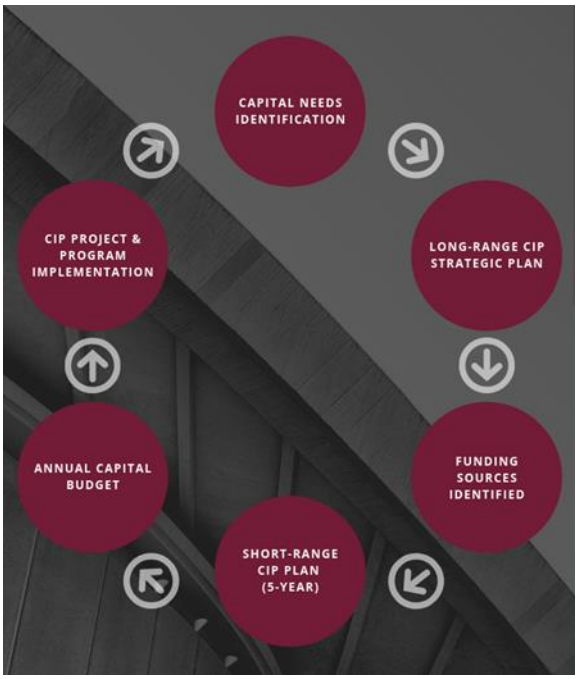
1. Improve CIP planning processes by ensuring key goals and milestones in the CIP plan are achievable. This should include:
   a. Ensuring cost estimates are up-to-date and reflect reasonable rates of inflation.
   b. Identifying specific staff and contract resources required to complete projects, including the type of resource, quantity of resource, and timing of the need for the resource.
2. Enhance the CIP 5-Year Plan by continuing ongoing efforts to implement leading practices as identified in this report.
3. Improve transparency and consistency of information reported in the CIP by implementing enhanced quality assurance procedures and ensuring compliance with Change Management Procedures.

Introduction and Background

The Santa Clara Valley Water District (Valley Water) is Santa Clara County's water resource management agency responsible for providing safe, clean water, flood protection, and stewardship of streams through its management of water treatment and distribution systems, construction and maintaining flood control channels, and overseeing water rate setting and conservation efforts. Valley Water is led by a seven-member Board of Directors (Board), with each Board director representing one of seven equally-divided districts in the Silicon Valley. The mission of Valley Water is to provide safe, clean water for a healthy life, environment, and economy.

In pursuit of this mission, Valley Water has established an annual Capital Improvement Program (CIP) planning process to plan, manage, and carry out capital improvements in compliance with laws and regulations, Board policies, and objectives and goals established by the Board. The result of this planning process is the updating and adoption of the rolling CIP 5-Year Plan, and includes updating the status of existing projects, identifying new projects to be added to the plan, and projecting capital expenditures, funding, and schedules associated with each project. The most recent iteration is the CIP 5-Year Plan for Fiscal Years (FY) 2022-23 through 2026-27. The CIP 5-Year Plan serves as a budget and project guide that implements the Valley Water Board's policies and directives, identifies funding sources for planned capital projects, and aligns with local land use jurisdiction's General Plans.

A leading practice in the capital planning lifecycle is to conduct an entity-wide capital needs assessment and call for projects, which includes determining the current state of capital assets and identifying both current and future capital needs. After a universe of potential projects is identified, an organization can develop a long-range CIP strategic plan that aligns the agency's capital plan with its long-term goals and objectives. Generally, the long-range CIP plan includes a combination of funded and unfunded projects. Once the long-range CIP plan is developed, an agency begins to identify funding sources to meet its capital needs and develops a short-range CIP plan.



In developing the short-range CIP, a leading practice is to develop an organization-wide prioritization process that ties quantitative and qualitative metrics to agency goals and objectives and helps to ensure the right mix of projects is programmed to best meet an agency's short- and long-term objectives. This plan includes projects that are planned to begin over the next five to six years and includes detailed project information, such as project scope of work, anticipated project costs by year and phase, funding sources, and project schedules and key milestones.

The short-range CIP provides a foundation to develop the annual capital budget, which generally includes planned capital expenses over the next one- to two-year period. After the annual capital budget is adopted, programmed projects are implemented and the capital planning life-cycle starts over again.

Valley Water maintains a CIP 5-Year Plan, updating it annually.

CIP Policies & Governance

Valley Water develops its CIP 5-Year Plan in accordance with California Government Code Section 65403, California Public Contract Code, and guidelines established by the Government Finance Officers Association (GFOA). To guide capital planning efforts and manage its assets Valley Water has a variety of program plans, master plans and asset management plans based on business areas, that define three primary goals:

1) To achieve a reliable water supply,
2) Improved flood protection, and
3) Healthy and resilient ecosystems.

In line with these plans, Valley Water's capital improvements are intended to comply with the Board established Ends Policies that describe the outcomes or results to be achieved by Valley Water staff and Executive Limitations that were established to balance the Ends Policies and set limits on staff activities in fulfilling them. Additionally, Valley Water follows Executive Limitations 4.3.1 and 4.4.1 that require an annual rolling CIP 5-Year Plan with the first year serving as the adopted capital budget and the remaining years in place as a projected capital funding plan and requires Valley Water to demonstrate to the Board how projects included in the CIP 5-Year Plan align with the Board's capital priorities.

Valley Water's CIP 5-Year Plan is developed with projects selected based on their alignment with the following Ends Policies established by its Board:

- ✓ **Ends Policy E-2**: Valley Water provides a reliable, safe, and affordable water supply for current and future generations in all communities served.
- ✓ **Ends Policy E-3**: Natural flood protection is provided to reduce risk and improve health and safety for residents, businesses, and visitors, now and into the future.
- ✓ **Ends Policy E-3.1**: Maintain flood protection facilities to design levels of protection.
- ✓ **Ends Policy E-3.2**: Assist people, businesses, schools, and communities to prepare for, respond to, and recover from flooding through equitable and effective engage.
- ✓ **Ends Policy E-4:** Water resources stewardship protects and enhances ecosystem health.

According to Valley Water, program plans, master plans and asset management plans are developed to achieve the results established by the Ends Policies and to further define the goals and objectives of each Ends Policy. In Exhibit 1 is an illustration of how Valley Water's CIP process aligns with Ends Policies and the various plans used by Valley Water to program capital projects.

EXHIBIT 1. VALLEY WATER CIP PROCESS ALIGNMENT WITH ENDS POLICIES

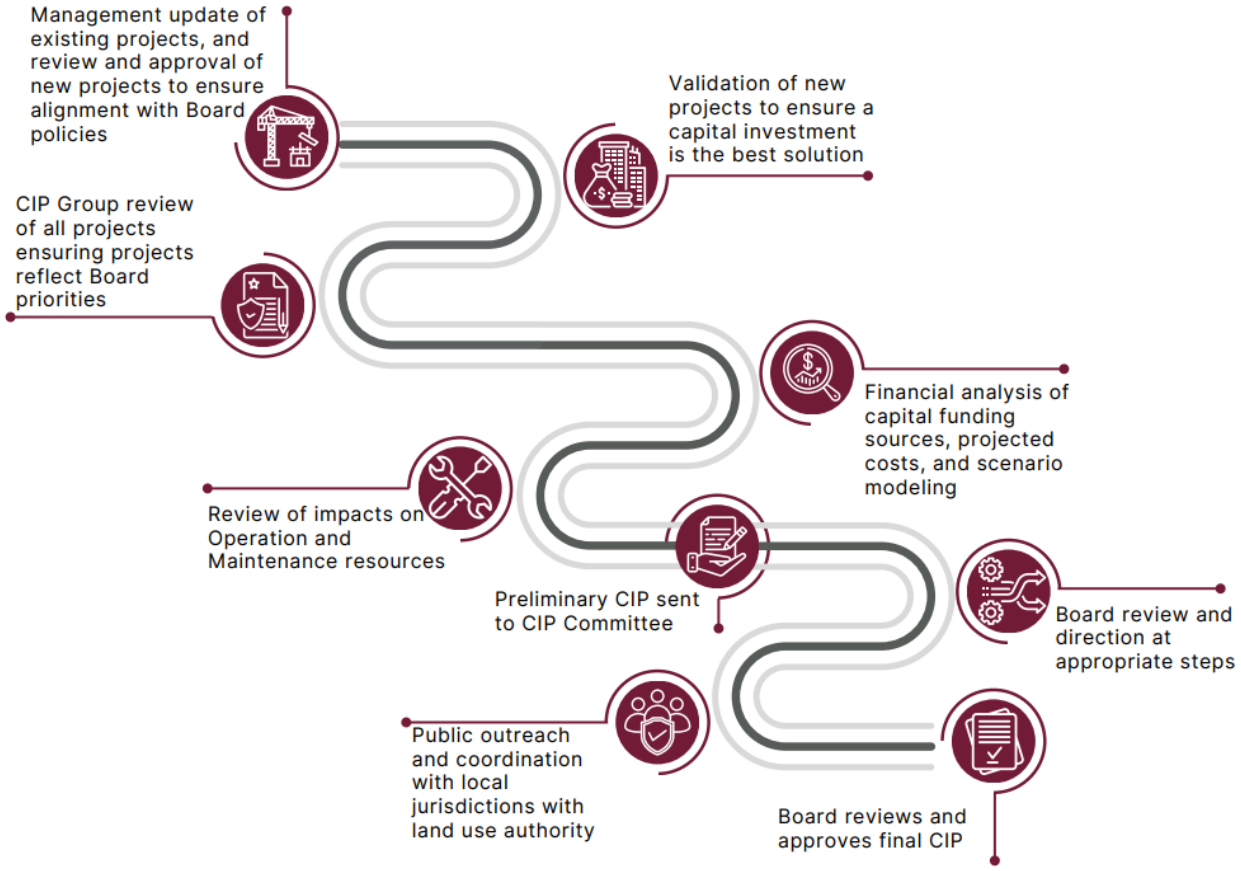
Source: Valley Water CIP 5-Year Plan FY 2022-26
Note: The Ends Policies were updated after the CIP 5-Year Plan was published and therefore do not reflect the updated Ends Policies presented above.

Consistent with these policies, Valley Water has established various formal and informal procedures to guide both capital planning and capital project delivery activities. For instance, Valley Water established procedures detailing the roles of its internal capital planning committee, project change management memo process, and capital project delivery process. These and other organizational procedures are stored in a repository referred to as Quality and Environmental Management System (QEMS). This includes, standard forms, such as project proposal templates, project calculation cover sheets, and individual project plan guideline templates—all of which promotes consistency and standardization in CIP planning processes.

Valley Water Annual CIP 5-Year Plan Update Process

As shown in Exhibit 2, Valley Water established an annual process to update its CIP 5-Year Plan. This process begins in April each year and is completed in the last quarter of the fiscal year with the Board's approval of the final CIP 5-Year Plan.

EXHIBIT 2. ANNUAL CIP 5-YEAR PLAN UPDATE PROCESS



Source: Auditor Generated from Valley Water CIP 5-Year Plan FY 2022-26 and Valley Water CIP training materials.

Specifically, beginning in April of each year, the CIP Coordinator, initiates a call for potential capital projects for the coming fiscal year cycle. As part of the call for projects, Valley Water staff develop project proposals, referred to as business cases, for new projects that they would like to be considered for inclusion in the CIP. The project proposals provide analyses that compare the business case for alternative solutions for a

given problem or failure using life-cycle cost analysis. These business cases were designed with the intent to reduce long-term costs, provide justification for project expenditures, better define the proposed project scope of work, and provide greater fiscal responsibility and public transparency. As part of the validation process, the CIP Group (also referred to as the CIP Evaluation Team), which is comprised of Valley Water capital division deputies, chiefs, Assistant Chief Executive Officer (ACEO), and Chief Executive Officer (CEO), is responsible for initiating and implementing capital projects, reviews and approves or rejects proposed projects, and ensures proposed projects align with Board policies and approved program plans.

In addition, Valley Water staff in the Business Planning and Analysis Unit's Capital Improvement Program meets with individual project managers and program management in August and September each year to review existing projects and discuss updates to the project scope of work, schedule, and budget. Project budgets, schedules, and/or scope of work may be modified for a variety of reasons, such as changes in market conditions, inflation, unforeseen conditions, additions and deletions to the project scope of work, and project delays. If changes are needed to the scope, schedule, or budget, then the Business Planning and Analysis Unit staff work with the project manager to develop a Change Management Memo (CMM) that formally documents the requested change and provides justification for the change. The CMM must be reviewed and approved by the associated project deputy.

Once all new project requests have been reviewed and existing projects updated, the CIP Group reviews all projects for alignment with Board priorities and conducts financial analysis to assess Valley Water's ability to fund projects based on known funding sources. Between November and December of each year, the CIP Group reviews financial modeling prepared by the Financial Planning and Revenue Collection Unit with assistance from the Treasury-Debt Management Unit and, in doing so, assesses the impact completed projects will have on Operations and Maintenance resources. The Board's CIP Committee also reviews management's project recommendations and Preliminary CIP 5-Year Plan and, in the following January, management presents the Preliminary CIP 5-Year Plan to the Board.

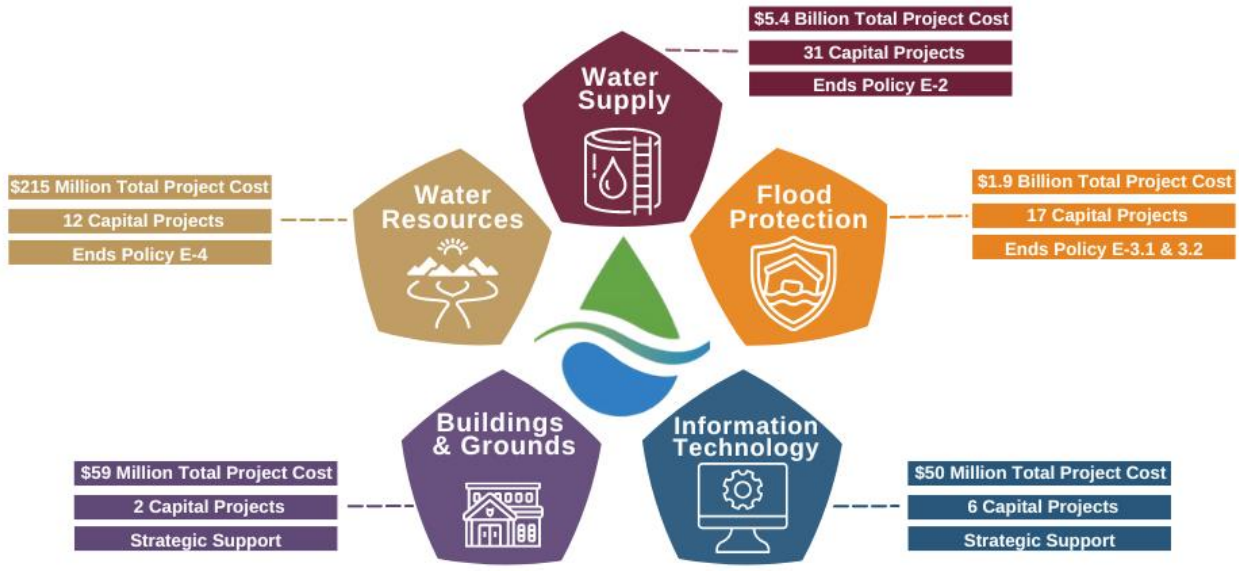
Feedback and direction provided by the CIP Committee and Board is incorporated into a draft CIP 5-Year Plan that is presented to the Board in February and used for public outreach and coordination with other land-use jurisdictions in March. A public hearing is held in April for community feedback and comments. The final CIP 5-Year Plan is submitted to the Board in May and reviewed and approved by the Board in June.

CIP Programs

The CIP is divided into five programs based on types of improvements: Water Supply Improvements, Flood Protection, Water Resources Stewardship, Building and Grounds, and Information Technology, as shown in Exhibit 3. The first three program improvement areas are directly aligned with the three primary goals set forth in Valley Water's various program plans, master plans and asset management plans—specifically Valley Water's goals to achieve a reliable water supply, improved flood protection, and healthy and resilient ecosystems. These programs further support the Boards Ends Policies, which describe the outcomes or results to be achieved by Valley Water staff. The final two types of improvement program areas—Building and Grounds and Information Technology—support the overall infrastructure of management for Valley

Water. Valley Water's CIP 5-Year Plan FY 2022-26 includes 68 projects within these five programs totaling nearly $8.0 billion, of which $2.6 billion is planned for the next five years.

EXHIBIT 3. CAPITAL IMPROVEMENT PROGRAM MAJOR PROGRAMS



Source: Valley Water CIP 5-Year Plan FY 2022-26

These capital improvement programs are described below.

- ✓ **Water Supply Program.** Providing clean and safe drinking water to the community is a foundational purpose of Valley Water and is a top priority in its CIP. The Water Supply Program is responsible for the planning, design, and construction of capital infrastructure related to water storage, treatment, and transmission. A large focus for the Water Supply Program moving forward will be maintaining and upgrading the infrastructure that is currently in place, including: storage facilities, including 10 surface reservoirs, 393 acres of recharge ponds, 76 miles of in-stream recharge, and Ground water basins; transmission facilities, including 142 miles of pipelines and three pump stations; three treatment facilities; and two recycled water facilities. Much of this infrastructure is approaching 50-60 years in age.

- ✓ **Flood Protection Program**. Safeguarding the local area against flooding through management of watersheds is also a top priority in the CIP, as Flood Protection is critical for community safety. Valley Water has jurisdiction over and manages approximately 275 miles of creeks in Santa Clara County which span across five separate watersheds: Lower Peninsula, West Valley, Guadalupe, Coyote, San Francisco Bay Shoreline, and Uvas/Llagas. Another key component of this program is maintaining and rehabilitating flood protection infrastructure.

- ✓ **Water Resource Stewardship Program**. Striving towards environmental enhancement has been a priority since 1999 and has served to bolster other program areas with its focus on healthy eco systems, clean and safe drinking water, and improved open space quality of life. Valley Water's environmental stewardship has yielded key results for the community including 92 projects that

resulted in 71 miles of public access, removing 15,000 lbs. of mercury from the creeks, and the removal of 20 fish passage impediments.

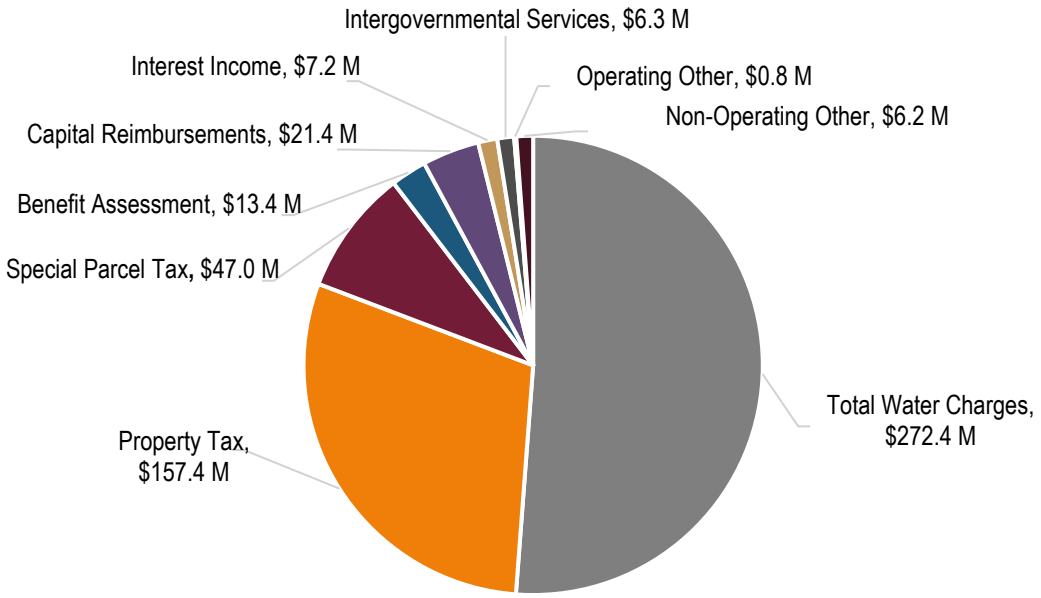
- ✓ **Building and Grounds Program**. This program is focused on the maintenance and upkeep of Valley Water's campus in San Jose, including facility management, small capital improvements, and updates to the Headquarters Operations Building.

- ✓ **Information Technology Program**. The Information Technology Program serves the technical support and management needs of Valley Water, with projects focused on data consolidation, information technology disaster recovery, and software upgrades. These technology improvements serve to achieve Valley Water's goals of managing their core responsibilities which are Water Supply, Flood Protection, and Water Resources Stewardship.

Funding Sources

In FY 2021-22, Valley Water received $532 million in revenue for its CIP—90 percent of the revenue received was from three revenue sources, as show in Exhibit 4. The largest revenue source consists of water rates charged to customers, which accounted for half of the total CIP revenue, and is dependent on both annual water rates set by the Valley Water Board and water consumption. The second largest revenue source is the ad valorem property tax which was nearly a third of the total CIP funding. This is a 1 percent property tax that is dependent on annual property values. The third largest revenue source, accounting for 9 percent of total CIP revenue, is a special parcel tax, referred to as Measure S, that is based on fixed parcels of land. These revenues can only be used for the Safe, Clean Water and Natural Flood Protection Program. The remaining 10 percent of CIP funding comes from a mix of benefit assessments, interest income, capital reimbursements, such as grants, and other revenue sources.

EXHIBIT 4. VALLEY WATER REVENUE SOURCES, FY 2021-22 ACTUALS



Source: Auditor generated based on data provided by the Chief Financial Officer for revenue actuals from FY 2021-22
Note: Total Water Charges reflect combined amounts for groundwater production, treated water, and surface recycled water charges.

Valley Water utilizes a combination of government funds and proprietary funds for its CIP.[1] Within these two fund types Valley Water has established a total of eight funds, as shown in Exhibit 5 below. Each fund has specific revenue sources according to their intended purposes, and each fund is an independent accounting entity with a self-balancing set of accounts comprised of its assets, liabilities, fund equity, revenue, and expenditures or expenses, as appropriate. Further, each of these funds can only finance specific types of projects.

EXHIBIT 5. VALLEY WATER FUND STRUCTURE

Source: Valley Water CIP 5-Year Plan FY 2022-26

Of these eight funds, four funds are primarily used to track and manage the six primary revenue sources that fund capital projects, including water charges, property tax, special parcel tax, benefit assessments, capital reimbursements, and interest.[2] Exhibit 6 shows which fund each revenue source is organized into, and what type of improvements can be pursued by those funds for the three largest programs in the CIP.

[1] A governmental fund is generally used to account for tax-supported government activities. A proprietary fund is used to account for business-type activities often supported by fees or charges.
[2] Grant revenue receipts are categorized as capital reimbursements.

EXHIBIT 6. KEY CAPITAL PROGRAMS AND FUNDING SOURCES

			Capital Program		
	Key Revenue Sources	Fund	Water Supply	Flood Protection	Water Resources Stewardship
1	**Water Charges**	Water Utility Enterprise Fund	✓		✓
2	**Property Tax** (Ad Valorem)	Watershed and Stream Stewardship Fund	✓	✓	✓
3	**Special Parcel Tax** (Measure S)	Safe, Clean Water and Natural Flood Protection Fund	✓	✓	✓
4	**Benefits Assessments**	Benefit Assessment Fund[A]		✓	
5	**Capital Reimbursements**	Multiple Funds[B]	✓	✓	✓
6	**Interest**	Multiple Funds[B]	✓	✓	✓

Source: Auditor generated based on Valley Water CIP 5-Year Plan FY 2022-26

Notes:

A: According to the Chief Financial Officer, this pays for debt service associated with past debt issuances for flood protection projects.

B: Capital reimbursements do not have a separate stand-alone fund. Individual projects from different improvement type areas can receive capital reimbursements and monies would return to the specific funds that the project is funded by. Similarly, earnings from interest are reallocated proportionally back into the funds driving the interest earned.

Results of 2021 Risk Assessment

In 2021, the independent Board auditor issued an agency-wide risk assessment that identified several factors that, in the view of the auditor, presented challenges to the CIP planning process. This included three primary concerns:

- The CIP is not right-sized given Valley Water's resources and the availability of key personnel, including sufficient project staff and outsourced service providers as well as various support units (e.g., General Services and Real Estate Services), leading to the potential overcommitment of staff and predictable project delays.
- Potential projects are sometimes included in the CIP even when it is expected that the projects would not start within the established schedule, consuming limited staff resources for financial analysis and project planning.
- CIP projects lack performance indicators that effectively measure program or project success, or enable management and the Board to evaluate whether intended goals have been met.

Based on these concerns, the CIP planning process was included in the 2022-2024 Annual Audit Work Plan with the intent that it would identify opportunities to improve the CIP planning process (project initiation to CIP plan approval), evaluate potential steps that can be taken to right-size the CIP in a manner that considers the Agency's staffing resources, identify potential performance measures to measure success and monitor financial management, and identify best practices and lessons learned that can be adopted in future CIP 5-Year Plans.

Scope and Methodology

On January 11, 2022, the proposed 2022-2024 Annual Audit Work Plan was approved by the Valley Water Board. Based on this work plan, the Board Audit Committee recommended that the Board initiate a performance audit of Valley Water's CIP Process, which was the top-ranked audit topic in the 2022-2024 Annual Audit Work Plan. On May 24, 2022, the Board approved the initiation of this audit and selected Sjoberg Evashenk Consulting as the auditor to conduct the audit. The objective of this audit was to determine the extent to which Valley Water activities associated with planning, developing, executing, and monitoring its CIP 5-Year Plan are consistent with relevant requirements, policies, and best practices. To meet the audit's objectives, SEC performed the following audit steps:

- Interviewed key CIP, project management, and Finance staff, as well as representatives of Valley Water management and the Board; reviewed all relevant policies, procedures, and staff guidance; and selected a sample of project files for review.
- Evaluated the processes employed by Valley Water to identify and prioritize projects for inclusion on the CIP 5-Year Plan; identify and secure funding sources to implement the CIP, including grant funding and administration, rate setting, debt financing; develop, monitor, and update the plan; and assess project outcomes and overall performance.
- Mapped out the CIP cycle, identifying key parties involved and business processes; identified potential gaps, inefficiencies, or opportunities for improvement.
- Determined whether CIP practices were in-line with the Board's policies and goals for the CIP.
- Evaluated historic trends relating to the CIP, including target start and completion dates, project budgets, and project goals, and compared to actual results; evaluated metrics established to define and evaluate project success or measure program performance.
- Conducted benchmarking research to identify leading practices in CIP planning and monitoring, and compared results with practices observed at Valley Water and, based on the results, identified potential opportunities for improvement.

Audit fieldwork was performed between August 2022 and March 2023. On April 28, 2023, a draft of this report was provided to management for review and discussion, and an exit conference was held with management on May 2, 2023. Valley Water management generally agreed with the conclusions presented in this report, and responses and feedback provided by management were considered and incorporated where applicable in the final report. Management's response to the audit recommendations is presented in **Appendix B** of this report.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Audit Findings

An effective CIP facilitates the planning, prioritization, and reporting related to long-term investments in capital infrastructure and technology. This requires reliable methods for identifying current and future needs, assessing costs and funding sources, prioritizing projects based on need and resource availability, developing timelines for project completion, evaluating performance based on the CIP plan, identifying lessons learned, and incorporating improvements based on lessons learned in CIP plan updates. By prioritizing investments and providing a roadmap for future expenditures, a CIP helps ensure that resources are used in the most effective and efficient manner to meet the needs of the community and organization.

This audit assessed Valley Water's processes for identifying needs, assessing costs and funding sources, prioritizing projects, developing project timelines, and evaluating project performance against the CIP 5-Year Plan. We found that Valley Water's CIP planning process incorporated many sound business practices, as detailed in the first finding of this report.

However, we also found that, for each of these critical steps in the CIP planning and delivery process, opportunities for improvement exist. For example, despite continuous improvement in CIP planning processes, opportunities continue to exist to better ensure Valley Water delivers capital projects as programmed. Achieving planned milestones or targets in the CIP 5-Year Plan proved challenging primarily because cost estimates were outdated; actual staffing resources required to hit CIP targets and milestones were not fully identified and available; established schedules did not always sufficiently account for external factors, such as permitting and California Environmental Quality Act (CEQA) requirements, and coordination with external agencies; and management's overall performance in meeting CIP goals and capital project delivery was not sufficiently monitored. Beyond, this however, this audit notes that while Valley Water had implemented numerous best and leading practices, opportunities for improvement include implementing protocols to more formally prioritize capital project investments, quantifying and measuring performance, incorporating additional information regarding ongoing operations and maintenance costs associated with capital improvements, and implementing quality control measures to ensure accuracy and consistency in data reported throughout the CIP 5-Year Plan. These findings are addressed in the remainder of this report.

Valley Water Implemented Many Leading CIP Planning Practices and Continuous Improvement Efforts Remain Ongoing

Valley Water implemented many leading practices related to the development and reporting of its CIP 5-Year Plan. Our review found that many of the practices and policies established by Valley Water align with leading practices identified by the California Society of Municipal Finance Officers (CSMFO),[3] GFOA,[4]

[3] CSMFO criteria to achieve the Meritorious and Excellence Award for Capital Budgets as cited in The CSMFO Budget Awards Program Overview & Explanation of Criteria

[4] GFOA Capital Planning Policy

California Multi-Agency Statewide CIP Benchmarking Study,[5] and practices implemented by peer agencies reviewed. Valley Water's capital planning practices generally aligned with leading practices and peers.

For example, Valley Water's CIP 5-Year Plan FY 2022-26 met most of the applicable criteria established by CSMFO. In some cases, the criteria set forth by CSMFO are relatively basic and focused on aesthetics—such as including a summary schedule of capital revenues by source, the identification of specific projects, the use of graphics and maps to clearly present relevant information, and ensuring readability and accessibility. Valley Water generally followed these recommended practices. More importantly, however, the CSMFO also sets forth criteria designed to establish a sound basis for planning capital projects in a transparent manner. This includes tying planned projects to specific revenue sources, reflecting estimated expenditures for the budget year and future years, including total project costs for multi-year projects, ensuring budget numbers are accurate and consistent throughout the document, connecting capital projects to agency-wide goals, reasonable estimates of future annual operating and maintenance costs of the infrastructure once delivered, and reliable revenue forecasts, among others. In most cases, we found Valley Water's CIP 5-Year Plan to be consistent with the criteria set forth by the CSMFO. We provide a table summarizing Valley Water's implementation of key components for capital budgets as identified by CSMFO in Appendix A of this report.

Valley Water Implementation of CSMFO Leading Practices:

- ✓ Clear summary schedules of capital revenue and expenditures by both project type and major type of improvement.
- ✓ Project details include clear narratives discussing the project status, details and timeline for project completion.
- ✓ For multi-year projects a total cost for the project is identifiable.
- ✓ The document demonstrates good use of graphics, artwork, maps, and charts and is readable and clear.

In addition to the leading practices set forth by the CSMFO, Valley Water reports in its CIP 5-Year Plan FY 2022-26 that it follows GFOA standards in the development and reporting of its plan. The GFOA generally requires agencies to establish CIP governance policies that address how the organization will approach CIP planning, address stakeholder input, define roles and responsibilities, and monitor the CIP program. Our review found that processes and practices implemented generally aligned with the leading practices identified in the GFOA Capital Planning Policy, as shown in Exhibit 7. For instance, in the CIP 5-Year Plan FY 2022-26, Valley Water provided a clear definition of what constituted as a capital improvement project and included an overview of its capital planning process.

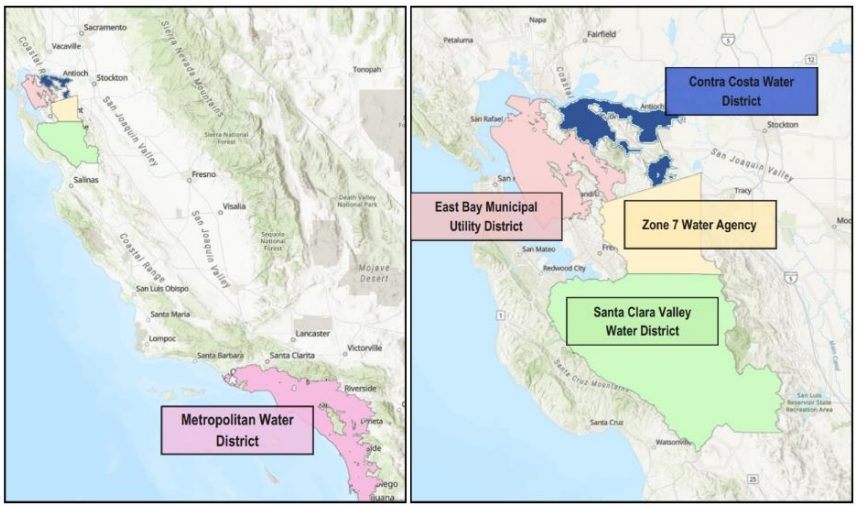
[5] California Multi-Agency Statewide CIP Benchmarking Study Annual Report – Update 2022

EXHIBIT 7. VALLEY WATER'S IMPLEMENTATION OF GFOA CAPITAL PLANNING LEADING PRACTICES

Source: Auditor Generated from GFOA Capital Planning Policies and Valley Water CIP 5-Year Plan FY 2022-26
Key: ✓ = Criterion Met and P = Criterion Partially Met

In addition to evaluating the extent to which Valley Water's CIP planning process aligns with CSMFO and GFOA, we interviewed and researched the CIP practices of four similarly situated peer water agencies: Contra Costa Water District, East Bay Municipal Utilities District (EBMUD), Zone 7 Water Agency, and Metropolitan Water District.

Our review of these four agencies revealed Valley Water's capital planning practices to be generally consistent with its peers. For example, peer agencies' CIP plans ranged in duration from two years to 10 years—the Valley Water CIP plan covers a 5-year period. In addition, as discussed later in this report, Valley Water's approach to debt financing and revenue forecasting, funding sources and methods, as well as challenges obtaining permits resulting in delays generally aligned with peers. In addition, although Valley Water's CIP budget was the largest amongst peers, Valley Water utilized similar staffing resources to develop its CIP 5-Year Plan although it updated its CIP annually; whereas, peers updated their short-range CIP biennially.



Recent Process Improvements Have Been Implemented, But Time is Needed to Measure Benefits

According to staff, the overall CIP planning process had generally remained consistent between FY 2006-07, when the Capital Program Planning and Analysis Unit developed Valley Water's first CIP, and about FY 2018-19. Over the last four years, a number of changes have been implemented to the CIP planning process as a result of direction from the Board of Directors, executive team, and initiatives led by new units established from organization restructuring prior audit recommendations. Specifically, starting in 2019, Valley Water's new Business Planning and Analysis Unit took on the CIP planning process duties. Exhibit 8 shows a summary of recent process improvements impacting the CIP planning process that have been adopted since 2019.

EXHIBIT 8. RECENT CHANGES IMPACTING THE CIP PROCESS

Source: Auditor generated based on interviews with Valley Water staff, review of presentations and reports to the Board, and example documents provided by staff.

These changes are consistent with leading practices and are fully expected to strengthen various aspects of the CIP planning process. For instance, establishing a Grants Management Team dedicates efforts to secure external funding to bolster available CIP funding. Holding Annual CIP Trainings and Individual Project Team Meetings should improve coordination across project teams and divisions in preparation for the annual CIP, reduce miscommunication, and clarify roles and expectations of involved parties. Implementing new tools like ProjectMates and Vemo could advance Valley Water's ability to manage underlying CIP project data and needs related to budgeting, change management, and staffing.

Yet, at the time of this audit, the changes shown in Exhibit 8 had only recently been implemented in the last four years. With capital projects often spanning several years from initial planning to design to construction, it will take many years before the effects of these efforts will become fully evident in CIP and project documentation. While it is too early to determine their full impact, it is evident that Valley Water has demonstrated positive effort toward improving the annual CIP process. As Valley Water continues to roll out these new initiatives, it should determine a timeline and plan for how it will assess whether these efforts produced intended results and improved the existing process.

Opportunities Exist to Better Ensure Valley Water Delivers Capital Projects as Programmed

As noted previously, an effective CIP facilitates the planning, prioritization, and reporting related to long-term investments in capital infrastructure and technology. The CIP 5-Year Plan is a plan for such investments, and an organization's measurable progress in meeting established targets and milestones is an indicator of, in the case of a CIP, the organization's performance in delivering programmed capital projects or of the achievability of the plan itself. This audit found, as noted above, that Valley Water's CIP planning process employs many of the policies and practices recommended by professional associations and observed in leading practices. Yet, our review of capital expenditures and project schedules over the past five fiscal years found that projects have not progressed in a manner envisioned by the CIP 5-Year Plan, and that actual capital spending was consistently and significantly less than planned despite having adequate financial resources to deliver the projects. This could suggest that:

a) Projects are not progressing as planned for reasons within and outside of Valley Water's control,

b) Budget data developed and provided for the annual capital budget is imprecise,

c) Annual capital budget requests are inflated, or

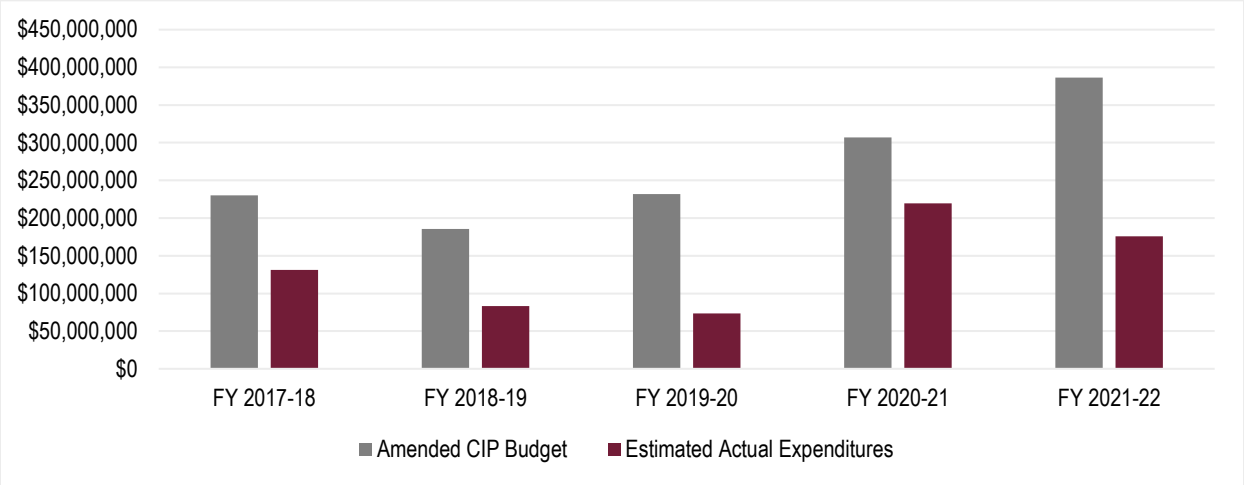
d) Internal and external staffing resources may be insufficient to meet project demands.

In this finding, we provide some detail demonstrating that projects are not progressing as planned. We also describe several factors that appear to contribute to this trend.

Annual Capital Expenditures Were Consistently and Significantly Less Than Planned

Best practices suggest that budget data should be carefully developed and tied to project phasing and timing, with on-going tracking and monitoring by an independent division of agency-wide capital project delivery. Over the past five fiscal years, FY 2017-18 through FY 2021-22, Valley Water consistently spent less in capital expenditures than budgeted, as shown in Exhibit 9. For example, although $386.3 million was budgeted for capital expenditures in FY 2021-22, only $175.8 million was expended—$210.5 million or nearly 54.5 percent less than budgeted.

EXHIBIT 9. ANNUAL CAPITAL BUDGET VERSUS ACTUAL EXPENDITURES, FY 2017-18 – FY 2021-22



Source: Valley Water CIP 5-Year Plans FY 2018-22 through FY2023-27 and Estimated Actuals provided by the Chief Financial Officer

Between FY 2017-18 and FY 2021-22, two programs, Water Supply Program and Flood Protection Capital Improvement Program, accounted for approximately 95 percent of the total capital budget—averaging $253.7 million of the average total capital budget of $268.1 million. Actual capital expenditures for both programs each year have been significantly less than planned, with an average of 43 percent of the budget spent by the Water Supply Program and 59 percent of the budget spent by the Flood Protection Capital Improvement Program over this five-year period. These two programs accounted for more than 90 percent of the unspent capital budget each fiscal year.

Within these two programs, several projects significantly contributed to the annual variances noted, as shown in Exhibit 10. For example, although the FY 2021-22 adjusted budget for the Anderson Dam project was $127.4 million in the CIP, actual expenditures during the fiscal year were only $42.7 million, a difference of $84.7 million, or 66 percent. In another example, although the FY 2019-20 and FY 2020-21 adjusted project budgets for the San Francisco Bay Project were reported as $33.4 million and $48.3 million respectively in the CIPs, there were no project expenditures during either fiscal year. According to Valley Water, although actual expenditures were less than planned, if actual expenditures are combined with amounts encumbered for contracts issued during the fiscal year, total amounts are closer to the annual budget amount. However, despite awarding contracts and encumbering funds for the fiscal year, little was actually spent against the encumbrances during the fiscal year, resulting in significant budget and encumbrance carry forwards to the next fiscal year.

EXHIBIT 10. ANNUAL ADJUSTED CIP PROJECT BUDGET COMPARED TO ANNUAL ESTIMATED ACTUAL EXPENDITURES, FY 2017-18 THROUGH FY 2021-22 ($ IN MILLIONS)

	FY 2017-18		FY 2018-19		FY 2019-20		FY 2020-21		FY 2021-22	
Program/ Project	**CIP Adjusted Budget**	**Est. Actual Expend.**	**CIP Adjusted Budget**	**Est. Actual Expend.**	**CIP Adjusted Budget**	**Est. Actual Expend.**	**CIP Adjusted Budget**	**Est. Actual Expend.**	**CIP Adjusted Budget**	**Est. Actual Expend.**
Water Supply Program	**$140.2**	**$66.7**	**$103.8**	**$37.2**	**$121.3**	**$11.5**	**$155.5**	**$122.1**	**$217.4**	**$96.5**
Anderson Dam (91864005)	$7.9	$4.3	$10.6	$5.8	$12.9	$6.4	$36.1	$44.4	$127.4	$42.7
Pacheco (91954002)	-	-	$17.3	$4.3	$35.1	0	$27.9	$3.6	($8.5)	$5.7
South County Recycled Water Pipeline (91094009)	$0	$0.7	$0	$0.3	$0	$0.1	$0.2	$0.7	$15.3	$7.2
Flood Protection	**$75.3**	**$58.0**	**$69.0**	**$41.3**	**$101.7**	**$53.2**	**$142.2**	**$82.0**	**$141.9**	**$68.2**
San Francisquito Creek (26284002)	$7.3	$2.2	$5.1	$5	$2.8	$1.0	$0.4	$1.0	$12.8	$1.2
Berryessa Creek (40174005)	$0	$2.8	$17.5	$2.9	$0	$1.9	$10.7	$2.8	$12.8	$15.5
Llagas Creek (26174052)	$0	$1.1	$0	$2.1	$10.2	$23.0	$47.5	$45.7	$58.3	$29.5
San Francisco Bay Shoreline (00044026)	$2.7	$0	$0	$0	$33.4	$0	$48.3	$0	$0	$0
Watersheds Assets Rehab Program (62084001)	$11.0	$4.2	$9.9	$7.3	$11.5	$2.6	$3.5	$5.2	$10.9	$3.2

Source: Valley Water CIP 5-Year Plans FY 2019-23 through FY 2023-27 and expenditure reports provided by the Chief Financial Officer.

While the Capital Budget Division is responsible for gathering information from its project managers to develop the annual capital budget, it historically has not been tasked with capturing related expenditure data to compare or track amounts to related budget items or project delivery milestones. Valley Water recognized a need for actual annual capital expenditures to closely align with planned capital expenditures and in FY 2022-23 implemented a target to spend and encumber 80 percent of budgeted capital dollars each year. To help ensure this target is met, Valley Water included the reporting of this target as part of its Quarterly Capital Project Monitoring Reports, which are reviewed by the capital deputies and executive

leadership, on a quarterly basis, which includes review of actual project expenditures to assess progress towards meeting this goal. This newly established target is generally in-line with industry leading practices and practices implemented by peers; however, peers did not include encumbrances when measuring progress towards spending goals. Specifically, a leading practice is to establish goals or targets for annual capital expenditures to closely align with planned amounts. For instance, EBMUD established a formal target to spend between 90 to 110 percent of the capital budget each year. Similarly, although a formal policy has not been established, Metropolitan Water District targets for actual annual capital expenditures to closely align with budgeted amounts and reported that actual capital expenses are generally 90 percent or more of budgeted amounts.

While the benefits from this new process cannot yet be assessed, establishing budgets and schedules that closely align with available resources and actual project progression and closely monitoring progress at both the project and program level, will help to better ensure projects are delivered as programmed, enable management to assess the effectiveness of both individual project delivery and overall CIP delivery, help build a culture where it is the expectation that projects are delivered on schedule and within budget, and better ensure capital expenditures align with cash flow as well as cash projections for short- and long-term needs.

Capital Projects Consistently Experienced Total Project Cost Increases and Schedule Delays

Although total planned capital spending is overstated year to year, our review of 48 projects included in both the CIP 5-Year Plans FY 2018-22 and FY 2023-27, found that the total project costs (TPC) were often underestimated, requiring either additional funding or modifications to planned scope of work to complete projects, and most projects experienced schedule delays.

Specifically, TPC was increased for 36 of the 48 projects reviewed, or 75 percent, with TPC increases ranging from $23,000 up to nearly $791.6 million. However, Valley Water did not track project baseline budget-to-actuals and did not provide documentation necessary to assess the frequency and magnitude of capital project budget increases in total over the full life of the projects. There are a number of valid reasons why project costs could increase, such as changes to the scope of work and unforeseen conditions. However, routine and persistent project budget increases could be indicative of poor project planning and cost estimating.

Valley Water recognized the need for better project cost estimates and recently procured independent cost estimate services to validate project cost estimates. This change is in line with a leading practice identified in the 2022 California Multi-Agency Statewide CIP Benchmarking Study, which recommends agencies establish criteria for obtaining independent cost estimates which take in consideration both project characteristics and volatility of the market. Having to re-design and re-bid a project on which bids come in over budget can significantly impact project delivery cost. Accurate estimates at the end of each design phase, performed by unbiased, independent, qualified professionals with an understanding of local market conditions will reduce the potential for receiving unexpected bids.

Additionally, while it is common for jurisdictions to make changes to programmed projects and adjust project timelines as priorities and resources change, our review of 48 projects found that Valley Water experienced a significant backlog in delivering projects within the schedules programmed. Specifically, we

found that of the 42 projects[6] with schedules, 40 projects, or 95 percent, experienced delays in project delivery and only two projects, or 5 percent, of the projects were expected to be delivered on-time or early according to the CIP 5-Year Plan 2023-27. Again, this could be indicative of inaccurate and poor project planning, where established project timelines are not aligned with available resources and scheduling assumptions do not align with the current environment, whether it be permitting timelines, required regulatory reviews, procurement and contracting timelines, etc.

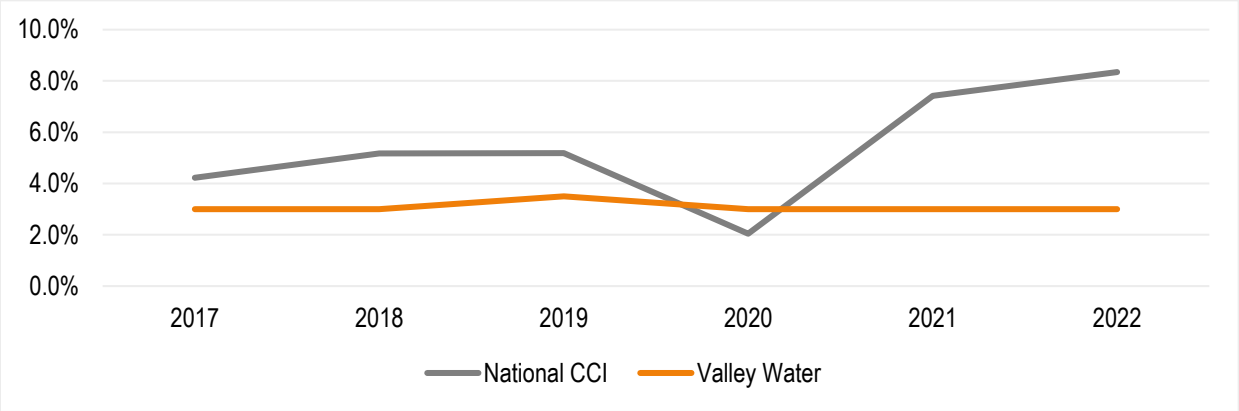
As discussed later in this report, during our review of CMMs for eight projects, we identified schedule delays that were the result of both factors within and outside of Valley Water's control. For instance, some project delays were due to Valley Water contracting and procurement activities taken longer than anticipated and internal staffing attrition, whereas others were related to delays in permitting, coordination with external agencies, and unanticipated CEQA requirements. While it is impossible to mitigate all risks with a project, a leading practice for agencies to help mitigate some risks is to document lessons learned and use this information to help make future project management and delivery more efficient and cost effective. For example, if a project experiences delays obtaining permits, as was a common factor for delays cited in the CMMs reviewed, this should be noted in a lessons learned document, and additional time for permitting factored into timelines when developing project schedules for future similar projects. In the past, Valley Water's Technical Review Committee has been responsible for collecting lessons learned and conducting workshops/presentations to address them. More recently, Valley Water recognized the need for a more consistent approach to documenting and tracking lessons learned and, as discussed previously, implemented a new project management system (ProjectMates) that incorporates a more robust method for tracking factors impacting project changes, process improvements, and lessons learned.

Outdated Cost Estimates and Increased Project Costs Affect Valley Water's Ability to Hit CIP Targets

The estimates used to initially project TPC may become stale and outdated as market conditions change. In FY 2021-22, an analysis conducted by Valley Water found that construction costs were significantly increasing and recommended escalating construction costs by 12 percent in FY 2024-25, then returning to an annual escalation factor of 3 percent for future years beginning in FY 2025-26 through FY 2033-34. Historically since 2010, Valley Water has recommended annual escalation factors ranging from 2 percent to 3.5 percent. In Exhibit 11, we compared the construction cost index recommend by Valley Water to the National Construction Cost Index reported in the Rider Levett Buckhall: North America Quarterly Construction Cost Report. This revealed that the escalation rates recommended by Valley Water each year were generally lower than the national average. This could imply that costs escalations applied by Valley Water were not keeping pace with the market and would result in project cost estimates that were lower than they should be, which may explain some of the project cost increases noted earlier.

[6] Six of the 48 projects did not include project delivery schedules.

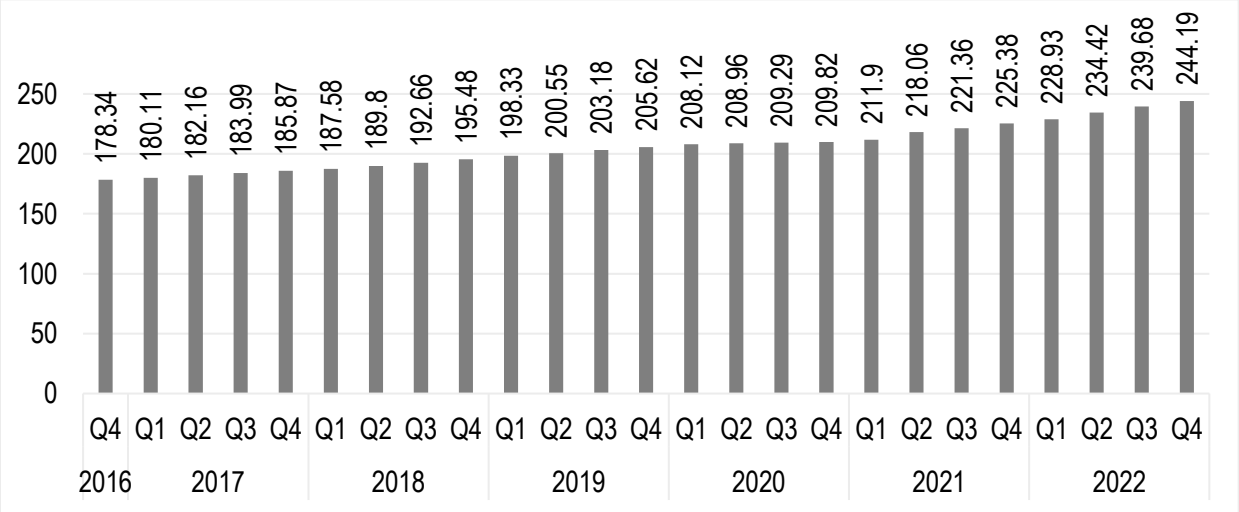
EXHIBIT 11. VALLEY WATER RECOMMENDED COST VS NATIONAL CONSTRUCTION COST ESCALATION RATE



Source: Rider Levett Buckhall: Fourth Quarter North America Quarterly Construction Cost Report 2021 and 2022 and Valley Water CIP 5-Year Plan FY 2024-33 Recommendation for Construction Cost Escalation Factors.

Between the fourth quarter of 2016 and the fourth quarter of 2022, the national construction cost index increased from 178.34 to 244.19, an increase of nearly 37 percent, with annual increases between 2 and 8.3 percent.

EXHIBIT 12. NATIONAL CONSTRUCTION COST INDEX



Source: Rider Levett Buckhall: Fourth Quarter North America Quarterly Construction Cost Report.
Key: Q = Quarter

As a result, allocated funds may not be sufficient to cover the scope of work initially envisioned in the CIP 5-Year Plan. In addition to cost escalations, delays in project delivery could impact the applicability of studies conducted in earlier stages of projects, such as environmental impact and air quality studies; such studies may become outdated over time and may need to be re-evaluated, further increasing project cost and ultimately impacting Valley Water's ability to deliver all programmed projects as promised.

In FY 2021-22, Valley Water utilized an on-call contract with an Independent Cost Estimator (ICE) to validate its construction cost escalation factor analysis. It further made the business decision that, moving forward, it will employ a consultant to determine construction cost escalation factors to ensure that Valley

Water is keeping pace with the market and to better ensure accuracy and reliability in future TPC estimates.

Internal and External Staffing Resources Do Not Appear Sufficient to Meet Project Demands

According to the 2022 California Multi-Agency CIP Benchmarking Survey, a leading practice in CIP planning is to "resource load" all CIP projects for design and construction. This allows the agency to identify the resources required to deliver projects according to the CIP schedule, including staffing resources within the project teams and support units, and it helps ensure a common understanding among all parties with a role to play in the delivery of a project of resources required to deliver the CIP on schedule. As noted previously, the 2021 Risk Assessment raised concerns regarding whether the CIP was right-sized given Valley Water's resources and the availability of key personnel, including sufficient project staff and outsourced service providers as well as various support units (e.g., General Services and Real Estate Services), and that overcommitting limited resources was resulting in project delays. We found this concern to be valid. This audit revealed, however, that while staff indicated that the underlying support for budgets developed in the CIP include staff hours, project managers have historically needed to coordinate with supporting units to verify the availability of resources, and often experienced delays due to the lack of resources.

The trends described above related to actual expenditures on programmed capital projects suggest at least in part that while Valley Water has the fiscal capacity to deliver planned capital projects, it lacks other required resources—specifically, project staff and outsourced service providers. During interviews with the CIP Team and project personnel, staff and management described being spread thin among too many projects, and that this indicates the CIP is over-committing existing Valley Water staff on projects in the hopes that, if additional staff or contractors are needed, Valley Water would have the funding to hire them. While the scope of this audit did not include a staffing analysis, nor did it evaluate staffing resources or project delivery methods on capital project teams, anecdotal evidence lends credibility to the concerns raised by staff during this audit. Not only has Valley Water struggled to deliver projects as programmed, we have observed similar challenges among public works agencies within California—a shortage of professional engineers and project staff both in-house and through professional service firms. This shortage has been persistent since before the pandemic and has reportedly only gotten worse since. As discussed earlier, Valley Water recognized the need for enhanced internal staffing resource management, and in FY 2022-23 implemented a new tool, Vemo, to improve its resource planning.

Impacts of Delayed Project Delivery Could Be Substantial

The CIP 5-Year Plan, including the funding needs identified in the plan, impacts Board decisions relating to water rates. An overly-ambitious plan that contributes to program expenditures that are substantially lower than planned, year after year, could result in rate increases or bond issuances being implemented sooner than necessary. Commitments to deliver, persistent delays in project progress, increasing project costs, and the implementation of rate increases, could lead to the public perception that public investment in necessary infrastructure is not producing the promised outcomes. This could impact ratepayer and stakeholder confidence in Valley Water's ability to deliver projects as promised. This could impact public support for rate increases and future voter-approved measures.

Beyond this, there are a number of organizational implications when management information for capital projects is not shared and assessed across the organization.

- ✓ **Opportunity Cost:** Valley Water exposes itself to opportunity cost and runs the risk of programming and funding projects that cannot be delivered as planned over projects that may better meet Valley Water's goals and objectives and are ready to begin.

- ✓ **Risk of Loss of Funding:** Some funding sources may be tied to project timelines. If projects experience significant delays, Valley Water may be at risk of losing funding. This risk becomes increasingly important as Valley Water expands its efforts to obtain additional grant funding for its capital projects. Some grants may be tied to project delivery timelines. As a result, Valley Water would need to identify alternative funding sources. Further, if capital oversight is deemed inadequate, Valley Water could be at risk of losing current and future funding.

- ✓ **Stale Projects:** Depending on how long projects have been delayed, previously programmed projects may not be in line with Valley Water's current goals and priorities, or may require re-evaluation to ensure project information and potential impacts remain current.

Additional Performance Metrics Would Enhance Ongoing Reporting and Evaluation of Program Outcomes

In addition to establishing objective criteria for prioritizing projects, establishing a performance measurement system facilitates program monitoring, oversight, and reporting—and therefore improves the effectiveness of both capital project delivery and the CIP. As noted previously, the GFOA recommends establishing protocols for monitoring and oversight of the CIP program, including substantive reporting processes. Building on this recommended leading practice, the GFOA notes that sound monitoring, oversight, and reporting protocols provides a basis for accountability and credibility in decision-making. According to the Federal Highway Administration, performance measurement systems offer four key benefits:

- Provide transparency to public and accountability to public officials
- Understand where problems are
- Direct the best mix of investments
- Evaluate how well past investments worked

While Valley Water has established robust reporting of project status to both management and its Board, including certain performance measures and reporting for the "Safe, Clean Water Program," Valley Water has not developed a comprehensive system to report both project delivery and overall CIP performance. Our review of information provided to Valley Water management and its Board related to the CIP, found that while detailed information was reported on the status of each project, reports and presentations lacked a comprehensive discussion of how each projects status impacted the delivery of the program and did not answer questions on the effectiveness of Valley Water's capital planning. For instance, based on reports provided and information presented, management and the Board could not easily assess the effectiveness

of capital project delivery and the overall CIP. Particularly, the following two key performance questions are left unanswered:

- Do capital planning and budgeting practices result in realistic project delivery schedules and cost projections?
- Are capital projects delivered on-time and within budget?

While the newly implemented 80 percent target for annual capital spending is a step in the right direction, there are other metrics that Valley Water should consider tracking to assess project and program performance. In Exhibit 13, we provide additional leading industry metrics that Valley Water should consider tracking and reporting at the project level, program level (e.g., Water Supply Program, Flood Protection Program, etc.), and in-total for all capital projects.

EXHIBIT 13. EXAMPLES OF OTHER INDUSTRY PERFORMANCE INDICATORS FOR CAPITAL CONSTRUCTION PROJECTS

KPI Category	Indicator
Cost	Percent that a project is over or under budget
	Estimated design cost vs. actual design cost
	Initial Budget estimate vs. actual project cost
	Revised estimate vs. actual project cost
	Engineer's estimated contract amount vs. contract award
	Construction cost: revised estimate vs. actual cost
	For a program, percent of all projects that are "on-budget" upon substantial completion
	Number and/or value of change orders compared to initial and revised contract totals
Schedule	Number of weeks from planned substantial completion to actual substantial completion
	Number of adjustments made to the schedule
	Numbers of RFIs and the average duration to review and respond to RFIs
	Planned design time vs. actual design time
	Planned bid opening date vs. actual bid opening date
	Planned notice to proceed date vs. actual notice to proceed date
	Revised estimated construction completion vs. actual construction (Consider incentive/disincentive bidding)
	Planned project start date vs actual start date
	Planned project completion date vs. actual completion date
Safety	Incident rate [(A)]
	Lost hours
Quality Control	Rework cost
	Number and percent of non-compliance records compared to inspections conducted
	Hours spent to fix defects
Stakeholder Satisfaction	Number of non-emergencies and/or construction-related complaints

Source: Vancouver Regional Construction Association; Project Management Institute (PMI) - Construction Extension, 29th World Congress International Project Management Association; Project Management Software; and Journal of Construction Engineering and Management

These metrics should be tracked at the project level and then aggregated to provide performance of Valley Water's execution of the overall capital improvement program. Such information can be a valuable tool for management and the Board to assess the overall effectiveness of capital planning practices and the performance of the CIP from one year to the next. It can also help to identify trends and help identify areas where practices can be enhanced to produce more accurate budgets and schedules. In Exhibit 14 we provide some examples of information that could help management measure and track the execution of the CIP.

EXHIBIT 14. EXAMPLES OF CIP PERFORMANCE MONITORING AND REPORTING

Cost Performance

• Number of Projects Completed Within Initial Budgeted Amounts
  ○ Total Baseline Budget
  ○ Total Actual Cost
  ○ Variance between Baseline Budget and Actual
  ○ Percent of Projects Completed Within Initial Budgeted Amounts

• Number of Projects Completed Within Revised Budgeted Amounts
  ○ Total Baseline Budget
  ○ Total Actual Cost
  ○ Variance between Baseline Budget and Actual
  ○ Percent of Projects Completed Within Initial Budgeted Amounts

• Number of Projects with Design Costs Completed Within Baseline Budgeted Amounts
  ○ Total Baseline Budgeted for Design
  ○ Total Actual Design Cost
  ○ Variance Between Budgeted and Actual
  ○ Percent of Projects with Design Costs Under Budget

• Number of Projects Where Independent Cost Estimate was within X% of Contract Award
  ○ Total Cost Estimate
  ○ Total Contract Award
  ○ Variance between Cost Estimates and Award
  ○ Percent of Projects Where Independent Cost Estimate was within X% of Contract Award

Schedule Performance

• Overall Schedule Adherence
  ○ Number of Projects Completed Within Baseline Schedule
  ▪ Percent of Projects Completed Within Baseline Schedule
  ○ Average # of Days Ahead
  ○ Number of Projects Ahead or On Schedule
  ○ Number of Projects Behind Schedule
  ○ Average # of Days Behind
  ○ Percentage of Projects Ahead of or On Schedule
  ○ Number of Projects Started Within Baseline Schedule
  ▪ Percent of Projects Started Within Baseline Schedule

• Design Schedule Performance:
  ○ Average # of Days Ahead
  ○ Number of Projects Ahead or On Schedule
  ○ Number of Projects Behind Schedule
  ○ Average # of Days Behind
  ○ Percentage of Projects Ahead of or On Schedule

• Construction Schedule Performance:
  ○ Number of Projects Ahead or On Schedule
  ○ Number of Projects Behind Schedule
  ○ Average # of Days Ahead
  ○ Average # of Days Behind
  ○ Percentage of Projects Ahead of or On Schedule

• Bid Opening Date Performance:
  ○ Number of Projects Ahead or On Schedule
  ○ Number of Projects Behind Schedule
  ○ Average # of Days Ahead
  ○ Average # of Days Behind
  ○ Percentage of Projects Ahead of or On Schedule

Source: Auditor generated from industry experience and resources from the PMI and City of San Luis Obispo Capital Improvement Program Process Assessment

In addition to metrics described above, other agencies, such as EBMUD, establish key performance indicators to track progress towards specific agency goals, including goals related to its capital planning and delivery. For example, EBMUD set a goal for the number of water system pipeline breaks per 100 miles of pipe to be less than or equal to 20. Its actual performance over three fiscal years was reported in its Biennial Budget. As discussed later in this report, Valley Water should consider setting tangible targets to measure how well its capital improvement program is helping the agency progress towards its established goals. Lastly, performance measures serve to not only provide a report that can be reviewed for oversight purposes, but also serves as a communication tool to the public of the goals Valley Water is meeting and the challenges that occur.

While Valley Water's CIP Planning Process Adheres to Many Leading Practices, Additional Opportunities for Improvement Exist

In addition to ensuring key CIP targets are reasonable and aligned with available staffing resources, this audit found that opportunities exist to better align the CIP planning process with industry leading and peer practices. This includes establishing more robust project prioritization processes, performance metrics to evaluate program success, and comprehensive capital planning policies and procedures, among others. In the following sections we provide a discussion of several ways Valley Water's CIP planning process could be more closely aligned with leading practices or its peer water agencies.

Leading Practices Provide a Guide for Enhanced Project Prioritization Processes

Establishing a process to prioritize capital projects based on agency goals and capital needs, regulatory requirements, and ensure the best use of limited resources is a leading practice that is recognized by the CSMFO, GFOA, California Multi-Agency Statewide CIP Benchmarking Study, and peers. For instance, GFOA recommends the use of an objective and quantifiable rating system to facilitate decision-making and recommends that, when evaluating capital requests, governments should first prioritize based on:

- Health and Safety – Priority should be given to high-risk safety issues that require a capital project to correct;
- Asset Preservation – Capital assets that require renewal or replacement based on capital asset life cycle; and
- Service/Asset Expansion/Addition – Infrastructure improvements needed to support government's policies, plans, and studies.

Although Valley Water conducts annual calls for projects and requires project proposers to provide a detailed project justification form, Valley Water does not establish formal criteria for selecting and prioritizing projects and does not tie project prioritization to measurable targets and outcomes. Instead, Valley Water indicated that its internal CIP Group, which is comprised of management and representatives from different program areas, meet to discuss proposed projects, review the project justification forms submitted for alignment with Board priorities, and to assess Valley Water's ability to fund projects based on known funding sources. From these discussions, Valley Water develops a proposed CIP 5-Year Plan for the Board's review and approval. However, Valley Water did not provide documentation detailing the discussions held, factors considered, and justification for decisions made to prioritize one project over another. In the fall of 2022, Valley Water incorporated an additional process to provide "funding filters for prioritization" to its Board. While Valley Water provided its Board with a matrix of projects that detailed whether the projects met the following criteria, it did not provide a justification for the selection or advancement of one project over another. These filters included:

- Replace/Repair Existing Infrastructure
- Public Health and Safety
- Shovel Ready (Permits and Lands Rights Secured)
- Multi-benefit Project
- Multi-benefit Project: Environmental Justice Project
- Partially Externally Funded (Grants and Partnerships)
- Description of the project

According to Valley Water management, it had a process to prioritize and rank projects in the past, but the process was found to be unclear and the preference of both management and the Board was to shift away from this approach. Valley Water's current process ensures consensus building—a critical component of the planning process; however, objective criteria for prioritization is also relevant. While eliminating a

process that provided a confusing output is reasonable, it in itself does not eliminate the need for a project prioritization process that provides comprehensible justification for project selection and decisions made. A leading practice identified by the GFOA includes the use of a rating system to facilitate decision-making.

Other government entities have developed and incorporated robust project prioritization processes that help to provide linkage between projects selected and agency goals and priorities. For instance, the Contra Costa Water District assigns each CIP project a priority level according to its prioritization methodology. Their methodology ranks or rates the importance of a project based on various criteria such as protection of health and safety, legal requirements, and rate of return on their investment. The priority levels provide a basis for determining which projects should be done in any given year and how projects should be scheduled over their 10-year CIP span. Contra Costa Water District only includes projects with a priority level 1 or 2 ranking in its Ten-Year Financial Plan and Rate Model. Additionally, Contra Costa Water District conducts studies within its sub-programs, such as Treated Water Facilities Program, to identify and prioritize projects. For instance, in 2018 a study was conducted to identify and prioritize pipelines renewal and replacement projects for the treated water system.

In another example, the City of San Diego adopted a formal CIP prioritization policy "to establish an objective process for ranking CIP projects to allow decision-makers to have a basis for choosing the most compelling projects for funding." The policy includes the following four criteria for ranking and comparing projects:

- Projects within restricted funding categories will compete only with projects within the same funding category.
- Projects will compete only with projects within the same asset type (project type).
- Projects will compete only with projects within the same level of completion or project development phase (planning, design and construction).
- Projects scores will be updated as the condition of the project changes or other information becomes available.

Further, similar to the categories in Valley Water's "Funding Filter for Prioritization", the policy established weights for specific factors, such as health and safety effects, for both non-transportation and transportation projects that it considers and uses to prioritize projects, as shown in Exhibit 15.

EXHIBIT 15. PROJECT PRIORITIZATION FACTORS CONSIDERED BY CITY OF SAN DIEGO

Non-Transportation Projects	Weight	Transportation Projects	Weight
Health and Safety Effects	25%	Health and Safety Effects	25%
Regulatory or Mandated Requirements	25%	Capacity and Service (Mobility)	20%
Implication of Deferring the Project	15%	Project Cost and Grant Funding Opportunity	20%
Annual Recurring Cost or Increased Longevity of the Capital Asset	10%	Revitalization, Community Support and Community Plan Compliance	15%
Community Investment	10%	Multiple Category Benefit	10%
Implementation	5%	Annual Recurring Cost or Increased Longevity of the Capital Asset	5%
Project Cost and Grant Funding Opportunity	5%	Project Readiness	5%
Project Readiness	5%		
Total	100%	Total	100%

Source: City of San Diego Capital Improvements Program Project Prioritization Policy

Valley Water Should Consider Whether a Performance-Based Prioritizing Process Would Be Feasible and Appropriate

If Valley Water chooses to implement a performance-based prioritization process, it would first need to identify qualitative measures for Valley Water's overarching goals, such as the goals identified by its Board. Then it would need to establish targets and quantifiable performance metrics to measure progress towards meeting established goals. Once the goals and performance metrics are identified, Valley Water can establish a prioritization process that links resource allocation and project funding based on projects that will have the greatest impact, or highest performance outcome, to achieve established goals and targets. Factors to be considered when planning projects should also include sources of funding, availability of staff resources, such as project teams and procurement and contracting staff, and time required to achieve necessary permits—all of which impact a projects ability to meet project delivery and spending schedules. As projects are completed, Valley Water would assess actual outcomes against expected results.

We also recommend that Valley Water consider additional financial techniques for evaluating potential projects including comparing estimated total project life cycle costs versus the benefits of the project, calculating payback period on debt to be incurred, and determining projected availability of cash flow over the project period, as appropriate. Funding source also impacts the ability to prioritize projects.

Leading Practices Suggest the Need for More Formal CIP Planning Policies and Procedures

While Valley Water's capital planning processes and practices generally aligned with the leading practices stated in the GFOA Capital Planning Policy, Valley Water has not established a formal capital planning

policy that is comprehensive of the entire capital planning process and inclusive of the key policy elements identified by the GFOA. Instead, as shown in Exhibit 16, our review found that information was disjointed and located in multiple documents, such as the Board policies and directives, staff presentations to the Board, the CIP 5-Year Plan, and internal policies and procedures. The lack of a comprehensive capital planning policy increases the risk of inconsistence processes being applied from one year to the next, and could result in incongruencies between documents when one document is updated without reviewing other related documents.

EXHIBIT 16. KEY PLANNING POLICIES ARE LOCATED IN MULTIPLE LOCATIONS

GFOA Planning Policies	Valley Water Policy Source
• A description of how an organization will approach capital planning, including how stakeholder departments will collaborate. • A clear definition of what constitutes a capital improvement project.	FY 2022-26 CIP
• Establishment of a capital improvement program review committee and identification of members as well as responsibilities of the committee and its members. • Provisions for monitoring and oversight of the CIP program, including reporting requirements and how to handle changes and amendments to the plan.	QEMS Policy
• A description of the role of the public and other external stakeholders in the process. • A requirement that the planning process includes an assessment of the government's fiscal capacity.	Executive Limitations/ FY 2022-26 CIP
• Identification of how decisions will be made in the capital planning process including a structured process for prioritizing need and allocating limited resources	Asset Management Plan / FY 2022-26 CIP / Funding Filter
• A procedure for accumulating necessary capital reserves for both new and replacement purchases. • A requirement that a multi-year capital improvement plan be developed and that it includes long term financing considerations and strategies. • A process for funding to ensure that capital project funding is consistent with legal requirements regarding full funding, multi-year funding, or phased approaches to funding.	Executive Limitations
• A policy for linking funding strategies with useful life of the asset including identifying when debt can be issued and any restrictions on the length of debt.	Debt Management Policy
• A requirement that the plan include significant capital maintenance projects.	Ends Policies

Source: Auditor generated from GFOA Capital Planning Policy and review of Valley Water documents.

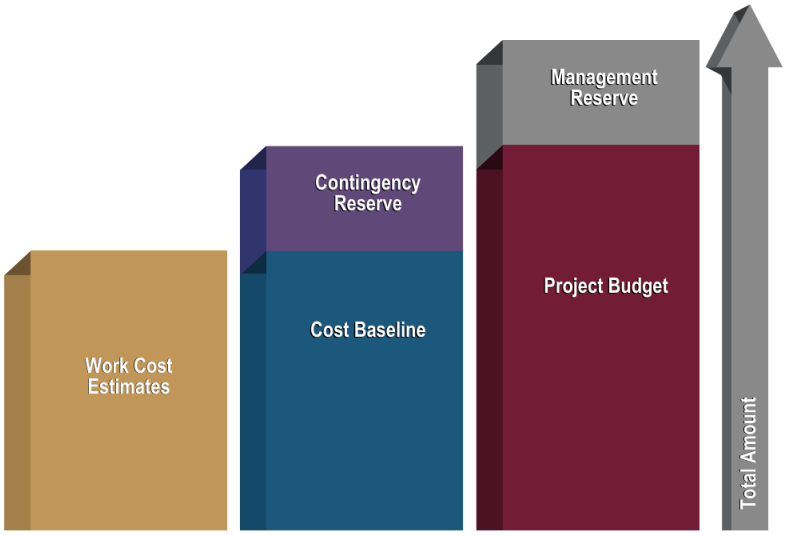
According to the GFOA Capital Planning Policy, government agencies should develop and adopt capital planning policies that take into account their unique organizational characteristics including the services they provide, how they are structured, and their external environment. The GFOA notes that capital planning policies not only provide an essential framework for managing these tasks and for assuring that capital plans are consistent with overall organizational goals, but also help to assure the sustainability of its infrastructure by establishing a process for addressing maintenance, replacement, and proper fixed asset

accounting over the full life of capital assets. In addition, capital planning policies can strengthen a government's borrowing position by demonstrating sound fiscal management and showing the jurisdiction's commitment to maximizing benefit to the public within its resource constraints. To better ensure the consistency of its capital planning, Valley Water should consider establishing a formal, written Capital Planning Policy that incorporates the key elements identified by the GFOA Capital Planning Policy.

Formal CIP Planning Policies and Procedures Should Include Guidance Regarding Contingencies and Reserves

There are generally two types of contingency reserves, a project level contingency and management contingency. According to the Project Management Body of Knowledge (PMBOK) 7th Edition, the "project budget should include contingency reserve funds to allow for uncertainty." In addition, "Management reserves are set aside for unexpected activities related to in-scope work. Depending on the organization's policies and organization structure, management reserves may be managed by the project, the sponsor, product owner, or the PMO [Project Management Office] at the program or portfolio level." At Valley Water, construction contingency reserves are included in the project budget and management reserves are tracked separately from project budgets at the fund level.

EXHIBIT 17. CONTINGENCY / RESERVE BEST PRACTICE



Source: Project Management Institute PMBOK 7th Edition

The 2018 Construction Management Association of America (CMAA) Cost Management Guidelines states that in absence of a formally established risk management program, a 10 percent contingency fund is typically used. However, organizations ideally should perform risk analyses of projects to calculate the probability of the risk occurring with consideration of the costs and rough order of magnitude as the basis for establishing contingency. In short, there should be a defendable procedure for how project and program contingency is established. This can include having an organization-wide baseline contingency with allowability for variation from this baseline if certain conditions are met and approvals are obtained by decision-makers. Factors such as unique risk or project delivery method should be considered for why a

specified contingency amount is decided upon. Moreover, after contingencies are developed, rules for authorized use should be clearly defined.

Valley Water has a Cost Estimating Manual and Construction Manual that provides some guidance regarding the application of contingencies on capital projects, and this provides guidance for developing, recommending, and using risk-based contingency reserve amounts. However, contingencies are not sufficiently addressed in the various formal CIP policies established by Valley Water, including those noted in Exhibit 16, which require Board input and approval.

In developing a CIP policy, as described above, Valley Water should incorporate a policy that identifies the types of contingency reserves utilized by Valley Water, the purpose of reserves, and how contingency amounts should be determined, including a process to formally memorialize the assumptions and rationale behind project contingency amounts.

Review of the existing contingency guidelines and rules for authorized use have been added to the 2023 CIP Committee Work Plan for discussion, and management noted that the CIP Committee will consider whether any policy level recommendations should be brought to the Board for consideration.

Most Peer Entities Reviewed Update Their CIP Plan Biennially

One of the more distinguishable differences between Valley Water and the peers sampled is that Valley Water updates its CIP 5-Year Plan annually, whereas all four peers reviewed update their short-range CIP biennially. Both peers and Valley Water staff interviewed indicated that the process to update the CIP was labor intensive and required significant coordination amongst multiple program areas within the organization, public and stakeholder outreach, and time to prepare for and present changes to executive management and oversight bodies. The level of primary staffing dedicated to CIP development appeared to be similar across the peers sampled, with most peers reporting three to four fully dedicated staff and assistance from programs responsible for delivering capital projects as well as fiscal staff. Yet, Valley Water had the largest short-term CIP budget, although the number of capital projects included in Valley Water's CIP 5-Year Plan was similar to peers, and updated its plan more frequently. For example, the Metropolitan Water District reported that three full-time staff were primarily responsible for updating their short-range CIP.

While there is no formal industry standard on how frequently an agency should update its short-range CIP, implementing a biennial renewal process would provide additional time for staff to compile the necessary information to update the CIP, could reduce the risks of reporting errors resulting from compressed timelines, allow more time to analyze project changes and prioritize projects, and provide additional time for project teams to focus on project delivery. Switching to a biennial update, would not negate the need for regular capital project updates to be presented to both executive management and the board. In fact, similar to Valley Water, peer agencies also provided periodic capital project updates, such as quarterly and annual updates, to both board Capital Planning Committees and the full Board throughout the fiscal year.

Valley Water indicated that in developing its CIP 5-Year Plan it follows Government Code § 65403, which requires government agencies following the provision to develop a 5-year plan that is updated annually. However, the implementation of this provision is at the discretion of Valley Water's Board and our review of

the Ends Policy and Executive Limitations Policies did not find any reference requiring Valley Water follow Government Code § 65403. Rather, Executive Limitation Policy 4 sections 4.4.1 stated that Valley Water must "Produce an annual Rolling Five-Year Capital Improvement Plan with the first year serving as the adopted capital budget and the remaining years in place as a projected capital funding plan." If Valley Water's Board determines that Valley Water should move from annual to biennial updates, Executive Limitation Policy 4 would need to be revised.

Enhanced Detail in Anticipated Operations and Maintenance Costs Is Warranted

According to leading practices described by the CSMFO, CIPs should include operating budget impacts and/or contain future estimates of annual operating and maintenance costs. Valley Water does include an operational costs impact section for each project in the same fashion as its peers. However, the extent to which Valley Water provides context for their projections is lacking, specifically on projects where Valley Water has determined that there will be an estimated operational impact, but does not provide context or projected details for the consideration of the Board or public. For example, the Calero and Guadalupe Dam Seismic Retrofit explains that there are anticipated to be impacts on future operating costs, but no further details are described in terms of why there will be increased operations costs nor any estimates for what that impact will be, and further states that it will be determined during the design phase. Future operational cost impacts are an integral part of the Board's decision-making process and without context the Board cannot make an informed decision on the long-term impacts of undertaking these projects.

Opportunities Exist to Implement Agency Wide Lessons Learned to Enhance Future Development of Project Schedules and Budgets

Several CMMs attributed permitting delays, scope increases, issues with design, and time required to work with external government agencies as reasons for increases to TPC and schedule delays for capital projects. These stated reasons echo what Valley Water staff attested to be delivery challenges for CIP projects to auditors during interviews and align with some risks flagged in the 2021 Risk Assessment conducted by the Board appointed independent auditor.

For instance, at least three reviewed projects mentioned permitting challenges that led to scope changes, cost increases, and/or schedule delays. A change memo from February 27, 2020, for Lower Penitencia Creek Improvements, Berryessa to Coyote Creeks noted that there was a two-month delay in the environmental phase due to delays in obtaining resource agency permits, as well as a three-month delay in design due to a need to acquire an encroachment permit and right-of-way from the City of Milpitas. The subsequent change memo dated September 25, 2020, cited further delays—nearly one year for the start of construction, attributed to negotiations with the same government bodies. The Almaden Lake project also had delays attributed to permit negotiations—indicating in a September 25, 2020, memo that the start of construction would be delayed a year as a result. Finally, the Almaden Dam project cited a one-year delay in design in its March 5, 2015, change memo due to CA Fish & Wildlife permits that were predicted to be difficult to obtain.

Anecdotally, Valley Water staff stated that on a project or division basis staff are conducting analyses to track historical data of delays and cost increases to estimate future planning and apply lessons learned against some of these known causes to delivery challenges. Additionally, staff stated that the technical

review committee also has presented lessons learned. Yet, there is no evidence that this occurs comprehensively and consistently organization-wide with knowledge shared across project teams and divisions. The 2022 California Multi-Agency Statewide Benchmarking Survey states that as a best practice, agencies should develop formal post project reviews and identify lessons learned. These documents should be made available to staff on projects of a similar scope and nature to make future project management and delivery more efficient and cost effective.

Management noted that it is developing a lessons-learned database as part of ProjectMates in response to a recommendation from the 2019 Contract Change Order Audit. This database could be used as a tool to comprehensively memorialize, share, and track planning and delivery lessons learned rather than rely on ad hoc lessons learned, shared and presented by staff or knowledge siloed within certain teams. Valley Water should begin formally memorializing underlying causal trends for CIP cost increases and schedule delays and share the results of those analyses agency-wide in this new database to strengthen future CIP planning to avoid delivery obstacles where historical data may exist to forecast patterns.

Opportunities Exist to Improve Transparency and Consistency of Information Reported

As a public agency, Valley Water has the inherent obligation to maintain and report clear and accurate information both internally for operational use among staff and externally to the public. This includes ensuring the CIP reports information in a clear and consistent manner, and that data reported is supported by underlying systems, project files, and financial systems. Our review of information detailed in annual CIPs, CMMs, and underlying financial and project planning data showed that there were variances in reported data, differing levels of sufficient justification for cost increases and delays, and inconsistencies between corresponding documents. Overall, we found that opportunities exist to strengthen the reliability and consistency of data used in and by the CIP 5-Year Plan to ensure that Valley Water is more transparent and accountable to the public.

Annual Capital Budget Amounts Were Not Always Consistently Reported in the CIP and Did Not Always Align with Valley Water's Financial System

The first two years of each of Valley Water's annual CIP becomes the capital budget for the current year and plan for the following year. For instance, in the adopted CIP 5-Year Plan FY 2023-27, the capital budgets reported for FY 2022-23 will become the adopted capital budget for that year and the amounts reported for FY 2023-24 will become the plan for that year in Valley Water's rolling biennial budget. To assess the accuracy of annual capital budget information reported in the CIP 5-Year Plan, we assessed the mathematical accuracy and consistency of amounts reported in the plan and compared initial and amended capital budgets reported in the CIP 5-Year Plan to annual capital budgets and expenditures recorded in Valley Water's financial system over a five-year period—FY 2017-18 through FY 2021-22. During our review, we found:

- Information was not always consistently reported in the CIP 5-Year Plan;
- Inconsistencies in the presentation of budget amounts and other minor discrepancies in the CIP 5-Year Plan; and

- Inconsistencies between approved annual budget amounts in the CIP 5-Year Plan and Valley Water's financial system.

While it does not appear that the discrepancies identified were intentional and a variety of factors contributed to the variances noted, these inconsistencies make it challenging to determine the accurate annual project budget and TPC, hindered transparency of information reported, and may cause stakeholders to question the reliability of information reported in the CIP 5-Year Plan.

- ✓ **Information Is Not Always Consistently Reported in the CIP:** Our review of annual capital budget information reported for five fiscal years in six CIP 5-Year Plans,[7] identified inconsistencies with TPC and annual budget information reported on individual capital project summary pages and/or program summary pages for most of the years reviewed. These inconstancies included variances in information reported from one plan to another and inconsistent TPC and annual budget amounts reflected in different tables and graphs. For example, for one project, the Hale Creek Enhancement Pilot Study, the baseline project start date was reported as May 2015 in the CIP 5-Year Plan FY 2018-22, but was changed to July 2014, approximately a year earlier, in the CIP 5-Year Plan FY 2023-27.

  In another example, in the CIP 5-Year Plan FY 2018-22, for a different project (Berryessa Creek, Calaveras Boulevard to Interstate 680), different amounts were reported for the TPC in the schedule and status graph ($57.3 million), expenditure schedule ($57.6 million), and funding schedule ($60.2 million), as shown in Exhibit 18. For other projects, we generally found that the total amount reflected in the schedule and status graph aligned with the total uninflated project costs reflected in the expenditure schedule. This was consistent with how information was reflected for the same project in the CIP 5-Year Plan FY 2023-27. However, we noted some cases where the total in the funding schedule aligned with the total inflated costs in the expenditure schedule and other cases it did not when the allocated funding exceeds planned expenditures—as was the case for the Berryessa Creek, Lower Penitencia Creek to Calaveras Boulevard project $209.4 million versus $212.6 million. Valley Water appropriately included a note to explain the variance for this project. Nevertheless, it is recommended practice to consistently report information from one project to the next and throughout related graphs and tables.

[7] CIP 5-Year Plans FY 2018-22 through FY 2023-27

EXHIBIT 18. BERRYESSA CREEK, CALAVERAS BOULEVARD TO INTERSTATE 680 PROJECT PAGE INCONSISTENCIES

CIP 5-Year Plan, FY 2018-22

SCHEDULE & STATUS
January 2000 to June 2020

Phase	Cost
Plan	8,232
Design	560
Design	10,438
Construct	38,063
Closeout	50
	57,343

EXPENDITURE SCHEDULE
(in thousands $)

	Actuals Thru	Planned Expenditures							Total
Project	FY16	FY17	FY18	FY19	FY20	FY21	FY22	Future	
26174041-Berryessa Creek, Corps Coordination	22,016	12,997	2,832	200	200	0	0	0	38,245
with inflation	22,016	12,997	2,832	215	225	0	0	0	38,285
26174042-Berryessa Creek, LERRDs	19,325	0	0	0	0	0	0	0	19,325
with inflation	19,325	0	0	0	0	0	0	0	19,325
TOTAL	41,341	12,997	2,832	200	200	0	0	0	57,570
with inflation	41,341	12,997	2,832	215	225	0	0	0	57,610

Actuals include project expenditures, and encumbrances.

FUNDING SCHEDULE
(in thousands $)

	Budget Thru	Adj. Budget	Est. Unspent	Planned Funding Requests						Total
Project	FY16	FY17		FY18	FY19	FY20	FY21	FY22	Future	
26174041-Berryessa Creek, Corps Coordination	24,729	14,747	4,463	0	0	0	0	0	0	39,476
26174042-Berryessa Creek, LERRDs	20,674	0	1,349	0	0	0	0	0	0	20,674
TOTAL	45,403	14,747	5,812	0	0	0	0	0	0	60,150

Adjusted Budget includes adopted budget plus approved budget adjustments. Allocated funding exceeds planned expenditures by approximately $2,540,000. Excess funds will be returned to Fund Reserves at the end of the project.

CIP 5-Year Plan, FY 2023-27

SCHEDULE & STATUS
January 2000 to June 2024

Phase	Cost
Plan	8,323
Permits	1,831
Design	11,961
Construct	27,022
Closeout	253
	53,274

Total project cost may include expenditures not yet allocated to a specific phase.

EXPENDITURE SCHEDULE
(in thousands $)

	Actuals Thru	Planned Expenditures							Total
Project	FY21	FY22	FY23	FY24	FY25	FY26	FY27	Future	
26174041-Berryessa Creek, USACE Coordination	23,393	531	398	11,286	0	0	0	0	35,608
with inflation	23,393	531	398	12,041	0	0	0	0	36,363
26174042-Berryessa Creek, LERRDs	17,666	0	0	0	0	0	0	0	17,666
with inflation	17,666	0	0	0	0	0	0	0	17,666
TOTAL	41,059	531	398	11,286	0	0	0	0	53,274
with inflation	41,059	531	398	12,041	0	0	0	0	54,029

Actuals include project expenditures, and encumbrances.

FUNDING SCHEDULE
(in thousands $)

	Budget Thru	Adj. Budget	Est. Unspent	Planned Funding Requests						Total
Project	FY21	FY22		FY23	FY24	FY25	FY26	FY27	Future	
26174041-Berryessa Creek, USACE Coordination	35,594	0	11,670	0	769	0	0	0	0	36,363
26174042-Berryessa Creek, LERRDs	17,666	0	0	0	0	0	0	0	0	17,666
TOTAL	53,260	0	11,670	0	769	0	0	0	0	54,029

Adjusted Budget includes adopted budget plus approved budget adjustments.

Source: Valley Water CIP 5-Year Plans FY 2018-22 and FY 2023-27

Lastly, we identified instances where the total project budget in individual project pages did not align with the budget reported for the same project in the program summary. While some of the inconsistencies noted were immaterial and likely due to rounding, others were not. For example, we found that the FY 2020-21 adjusted budget for the Llagas Creek–Upper, Buena Vista Avenue to Llagas Road project was inconsistently reported between the project page and program summary page in the FY 2022-26 CIP, as shown in Exhibit 19. Specifically, in the Flood Protection summary page, the budget was reflected as $47.5 million; however, the project page reflected a budget of $53.7 million—$6.2 million more than the project budget in the summary page. Additionally, the "Budget Thru" FY 2019-20 reported on the project page was $142.8 million; whereas the summary page indicated it was $125.3, a difference of $17.5 million. The variances noted appear to be related to one sub-project, 50C40335, that is included in the project page, but excluded in the summary page.

In another example, although the FY 2020-21 adjusted budget for the Calero and Guadalupe Dams Seismic Retrofits was reported as $2.9 million in the Water Supply summary page, the project page reflected a budget of $2.0 million—$900,000 less than the summary page. According to Valley Water, some of the differences noted were the result of fund transfers that were included in the amounts shown on project page, but were not included in the program summary page. To ensure information reported throughout the CIP aligns, Valley Water should ensure a consistent approach is used when reporting budget transfers.

EXHIBIT 19. EXAMPLE OF BUDGET INCONSISTENCIES BETWEEN PROGRAM SUMMARY PAGE AND PROJECT PAGE

Flood Protection Capital Improvements Summary Page

Project Number	PROJECT NAME	Through FY20	FY21	FY21 Unspent
	LOWER PENINSULA WATERSHED			
10394001	Palo Alto Flood Basin Tide Gate Structure Improvements	4,392	83	552
10244001s	Permanente Creek, SF Bay to Foothill Expressway	108,572	7,645	178
10284007s	San Francisquito Creek, SF Bay thru Searsville Dam (E5)	62,751	370	1
	WEST VALEY WATERSHED			
26074002	Sunnyvale East and West Channels (E2)	35,438	2,033	17,302
	GUADALUPE WATERSHED			
30154019	Guadalupe River Tasman Dr - I-880	1,080	1,838	(1)
26154001s	Guadalupe River–Upper, I-280 to Blossom Hill Road (E8)	134,642	-	23,964
26154001	Guadalupe Rv–Upper, Fish Passage Mods	2,651	-	-
	COYOTE WATERSHED			
26174041	Berryessa Ck, Calaveras-I-680 - Corps	35,566	29	-
40174004	Berryessa Ck, Lower Penitencia Ck to Calaveras Blvd Phs 1	50,191	-	3,339
26174043	Coyote Creek, Montague Expressway to Tully Road (E1)	15,036	2,199	2,528
40264011	Cunningham Flood Detention Certification	11,806	4	3
40334005	Lower Penitencia Ck Improvements, Berryessa to Coyote Cks.	11,287	7,745	7,503
40264007s	Lower Silver Creek, I-680 to Cunningham (Reach 4-6)	102,288	167	784
40324003s	Upper Penitencia Creek, Coyote Creek to Dorel Drive	19,016	3,898	5,038
	UVAS LLAGAS WATERSHED			
50284010	Llagas Creek–Lower, Capacity Restoration, Buena Vista Road to Pajaro River	6,947	-	2,763
26174051s	Llagas Creek–Upper, Buena Vista Avenue to Llagas Road (E6)	125,315	47,476	4,555
	MULTIPLE WATERSHEDS			
00044026s	San Francisco Bay Shoreline (E7)	71,469	48,316	1
62084001	Watersheds Asset Rehabilitation Program	35,831	3,531	7,809
	TOTAL	912,689	136,052	76,319

Llagas Creek–Upper, Buena Vista Avenue to Llagas Road (26174051s) Project Page

FUNDING SCHEDULE

(in thousands $)

	Budget Thru	Adj. Budget	Est. Unspent
Project	FY20	FY21	
26174051-Llagas Ck—Upper, LERRDs	45,040	0	82
26174052-Llagas Ck—Upper, USACE Coordination	50,636	47,476	0
26174053-Llagas Ck—Upper, Technical Studies	1,446	0	0
26174054-Llagas Ck—Upper, Design	28,193	0	4,473
50C40335-Llagas Ck—Upper, Construction Rch 5, 6, & 7b	17,510	6,180	0
TOTAL	142,825	53,656	4,555

Adjusted Budget includes adopted budget plus approved budget adjustments.

Source: Valley Water CIP 5-Year Plan FY 2022-26

- ✓ **Inconsistencies Existed Between Summary and Detailed Capital Project Budget Pages:** Our review of summary pages for the five capital programs, identified nine instances where the total annual project budgets for all projects was inconsistently reported. For example, in the CIP 5-Year Plan FY 2021-25, the total FY 2019-20 adjusted budget for the Flood Protection Program was reported as $84.2 million; however, the sum of all the individual project budgets listed in the summary page totaled $101.7 million, a difference of $17.5 million. In another example, in the CIP 5-Year Plan FY 2020-24 the Water Supply program total adjusted budget for FY 2018-19 was reported as $104.7 million; however, the sum of individual project budgets was $103.8 million, a difference of $900,000. In some cases, such discrepancies may have been intentional (e.g., when future budget adjustments were planned but not yet incorporated into the CIP), but the CIP plan document lacked explanatory footnotes or other information clearing up the discrepancies.

- ✓ **Inconsistencies Between Annual Capital Project Budget Amounts Reported in the CIP and Valley Water's Financial System:** Our comparison of the annual adjusted capital project budgets reported in the CIP to the annual capital project budgets recorded in Valley Water's financial system identified between 19 and 57 variances between the two each year for the five fiscal years reviewed, FY 2017-18 through FY 2021-22. In some cases, the budget reflected in the financial system aligned with the initial project budget and in other instances it did not align with either the initial or adjusted annual project budget. For example, the FY 2020-21 adjusted project budget for one project, Permanente Ck, Bay to Foothill Expwy – Clean, Safe Creeks Fund, was reported as $7.6 million in the CIP 5-Year Plan FY 2021-25 and $3.9 million in the financial system, a difference of $3.7 million. According to Valley Water, the difference is due to a planned budget adjustment that was included in the CIP 5-Year Plan; however, the plan indicated that the amount reported was the approved budget and approved budget adjustments. In another example, for the Calero Dam Seismic Retrofit-Design and Construct project, the FY 2020-21 initial and adjusted project budget was $0 in both the CIP 5-year Plans FY 2021-25 and FY 2022-26; however, the financial system reflected a budget $865,000. According to Valley Water, the difference is due to a combination of carry forward project reserves and a mid-year budget adjustment that is reflected in the financial system, but not in the CIP 5-Year Plan. In a third example, for another project, Coyote Warehouse, the CIP 5-Year Plan FY 2022-26 reflected a FY 2020-21 adjusted budget of $284,000; however, the budget recorded in the financial system for this project was $285,000. According to Valley Water, the $1,000 difference was due to rounding.

  Based on analysis conducted by Valley Water, the following factors caused the variances identified, including:

  - Timing differences, such as budget adjustments from mid-year CMMs that are reflected in the financial system, but were not reflected in the CIP 5-Year Plan;
  - Rounding differences between systems;
  - Prior year budget carry forwards and project reserves reflected in the budget posted in the financial system;
  - Planned budget adjustments reflected in some adjusted budgets in the CIP 5-year plan; and
  - Budgets for small capital improvement projects "do not have capital offset applied to correct the over-request being updated" and indicated these differences are corrected in the following CIP cycle.

  The explanations provided by Valley Water appear reasonable. However, to ensure information reflected in the CIP is clear and transparent, when Valley Water includes planned budget adjustments in the adjusted budget, it should include a footnote to the table describing that the amount reported includes the approved budget, approved budget adjustments, and the amount of the planned budget adjustment.

Not All CMMs Had Sufficient and Consistent Justification for Cost Increases and Schedule Delays

Consistent with leading practices, Valley Water created procedures requiring CMMs to ensure that all project changes are fully vetted by deputies and serve as one depository record for all substantive changes, such as schedule changes or budget increases. As is described in Exhibit 8 of this report, CMMs had been in use within the agency prior to 2019. However, in November 2019, management implemented an agency-wide CMM process to formally document and approve all capital project changes related to scope of work, cost, and schedule—effectively requiring CMMs to be used for all capital projects undertaken by Valley Water. This process was memorialized in a formal, written procedure in September 2020. Generally, this policy required project managers to complete a CMM form that details the proposed change(s) and provides justification for the change(s); such changes require management approval. In June 2022, management indicated that it updated its procedure and related forms to expand the amount and type of information required to be included in CMMs, including memorializing budget adjustments to projects that do not require management approval.

To identify the reasons for project cost increases and delays identified, we selected a sample of eight projects from the 48 projects discussed earlier to review documentation maintained by Valley Water to determine the causes for the schedule and budget changes identified. Because the CMM process, more than most within the CIP, has evolved substantially since 2019, this analysis provides a snapshot illustrating how CMMs were used during the five-year period included in the scope of this audit and recognizes that the results of changes made to the CMM process in June 2022 will not be evident in this analysis. Nevertheless, past practice illustrates opportunities for improvement and the need to reinforce consistent recordkeeping on projects.

This analysis revealed that each of the eight projects reviewed had at least one CMM and all experienced delays and cost increases over the five-year period reviewed, with schedule delays ranging from 11 months to eight years and cost increases ranging from $593,000 to $52.9 million. In Exhibit 20, we show the changes to the schedule and total project budget from the CIP 5-Year Plans FY 2018-22 to FY 2023-27.

EXHIBIT 20. CHANGES TO PROJECT SCHEDULE AND BUDGET FOR SAMPLED PROJECTS ($ IN THOUSANDS)

			CIP 5-Year Plan FY 2018-22		CIP 5-Year Plan FY 2023-27		Schedule Change	Budget Change
	Project Name & Number	Program Area	Project Start & End Date	Budget	Project Start & End Date	Budget		
1	Almaden Dam Improvements - 91854001	Water Supply	Start: Jul. 1995 End: Jun. 2024	$53,021	Start: Jul. 1995 End: Jun. 2031	$53,615	+7 years	+$594
2	Coyote Pumping Plant ASD Replacement - 91234002	Water Supply	Start: Jul. 2017 End: Jun. 2021	$14,730	Start: Jul. 2017 End: Nov.2025	$26,432	+4 years	+$11,702
3	Permanente Creek, SF Bay to Foothill Expressway - 10244001s	Flood Protection	Start: Jul. 2001 End: Jun. 2019	$92,352	Start: Jul. 2001 End: Jun. 2024	$113,084	+5 years	+20,732

			CIP 5-Year Plan FY 2018-22		CIP 5-Year Plan FY 2023-27		Schedule Change	Budget Change
	Project Name & Number	Program Area	Project Start & End Date	Budget	Project Start & End Date	Budget		
4	Lower Penitencia Ck Improvements, Berryessa to Coyote Creeks - 40334005	Flood Protection	Start: Oct. 2010 End: Jan.2025	$27,081	Start: Oct. 2010 End: Dec. 2025	$35,093	+11 months	+$8,012
5	Cunningham Flood Detention Certification - 40264011	Flood Protection	Start: Aug. 1999 End: Jun. 2020	$10,654	Start: Aug. 1999 End: Jun. 2022	$11,840	+2 years	+$1,186
6	Hale Creek Enhancement Pilot Study (D6) - 26164001	Water Resources	Start: May 2015 End: Jun. 2019	$4,753	Start: Jul. 2014 End: Jun. 2026	$8,959	+7 years	+$4,206
7	Almaden Lake Improvements (D4.1a) - 26044001	Water Resources	Start: Jul. 2011 End: Jun. 2019	$4,636	Start: Jul. 2011 End: Dec. 2027	$57,528	+8 years	+$52,892
8	ERP System Implementation - 73274002	IT	Start: Jul. 2013 End: Jun. 2019	$18,227	Start: Jul. 2013 End: Mar. 2023	$18,820	+4 years	+$593

Source: Valley Water CIP 5-Year Plans FY 2018-22 and FY 2023-27

Our review of CMMs for eight projects identified three areas where additional oversight and improvement are necessary. Specifically, we found that changes in memos did not always have sufficient detail to determine why the change occurred; were not always completed for all project changes to budget, scope of work, and schedule, as required; and we noted some common trends across projects where Valley Water could benefit from lessons learned and use information to better develop schedules and costs for future projects.

- ✓ **CMMs Did Not Always Include Sufficient Detail**: While some of the CMMs reviewed included sufficient detail to determine why the change had occurred, our review found that for four of the eight projects, one or more of the CMMs did not have adequate explanations of why cost or schedule increases occurred as shown in Exhibit 21.

EXHIBIT 21. SAMPLE PROJECTS WITH CMMS LACKING SUFFICIENT EXPLANATIONS

Project (Project Number)	CMM Date	Change	Explanation Provided
Hale Creek Enhancement Pilot Study (26164001)	September 29, 2022	Cost increase of $3.4 million	Contract award amount being higher than the Engineer's Estimate
Lower Penitencia Creek Improvements, Berryessa to Coyote Creeks (40334005)	October 7, 2021	Cost increase of $7 million	Increase in design and construction cost
Cunningham Flood Detention Certification (40264011)	December 23, 2019	Cost increase of $320,000	Increase in construction phase
Almaden Dam Improvements (91854001)	October 18, 2021	Schedule delay of 2 years	To progress environmental review

Source: Project CMMs provided by Valley Water.

While these sample memos flagged a cost increase or schedule delay, they did not sufficiently explain why such changes occurred. In some other change memos, staff did provide fuller explanations. For instance, change memo dated July 9, 2020, for Permanente Creek, San Francisco to Foothill Expressway, noted that there was a cost increase of $3.2 million and a two-year schedule delay for that project. This memo attributed the changes to an unexpected discovery of archaeological resources during excavation of the detention basin at Rancho San Antonio which required more resources and time. The following change memo for that project dated October 30, 2020 increased the project an additional $6.2 million because of challenges with soil acceptance at the quarry related to this excavation. The details provided in these memos allows for anyone reviewing the memo to understand why changes occurred, whereas the examples in Exhibit 21 lack adequate detail to justify delays and budget changes.

The Change Management Procedure W-751-125 provides examples of the level of detail that staff should include when completing a memo, as shown in Exhibit 22. While the examples are good, staff have not consistently followed that level of sufficient detail for all memos.

EXHIBIT 22. INSTRUCTIONS FOR SAMPLE LANGUAGE TO DOCUMENT CHANGES

For Project Cost: Changes to the planned expenditure were made per the CMM signed on March 14, 2020 (Attachment #), to increase the total project cost by $375,000, due to refined cost estimates for design.

For Project Cost and Schedule: Changes to the planned expenditure and schedule were made per the CMM signed on March 14, 2020 (Attachment #), to 1) increase the total project cost by $150,000; and 2) extend the project completion date by 3 months, due to unexpected delays in obtaining right of way. Delays were caused by additional review time required by property owners and request by owner for additional time.

For Project Cost, Schedule and Cost: Changes to planned expenditure, schedule, and scope were made per the CMM signed on March 14, 2020 (Attachment #), to add the stairwell upgrade to project scope, resulting in 1) increase to the total project cost by $75,000; and 2) extension of the schedule by 4 months.

Source: CMM Procedure W-751-125

To ensure that reasons for changes are justified and transparently communicated, Valley Water should provide specificity to each CMM detailing the underlying cause for any such change as

whether the reason was unforeseen or what the basis for the specific dollar amount increase or schedule delay time length was.

- ✓ **Staff Did Not Document All Changes in CMMs, Including Administrative Adjustments**: Through CMM procedure W-751-125, Valley Water recognized the importance of documenting and securing formal approval for changes to the scope of work, cost, and schedule for capital projects, as it helps to memorialize the rationale and justification behind key project decisions and provides evidentiary support of management approvals. According to the CMM procedure, CMMs help to "ensure that project staff analyze and clearly communicate project changes and implications of the changes, as such changes become public record in the CIP." A key purpose of the CMM is to document changes to scope, budget, or schedule, and for securing management approval for such changes.

  This analysis revealed that not all changes were recorded in CMMs. Some were substantive modifications to the projects' scope, cost, or schedule, and some were the result of administrative adjustments, such as budget reconciliations and the application of inflation factors. For six of the eight sample projects reviewed, cost and schedule data did not align in sequential CMMs, as shown in Exhibit 23. In part, this is because administrative adjustments to project costs have historically not been reflected or noted in CMMs.

  The CMM procedure requires changes to be reflected in CMMs but is silent on administrative updates (such as the application of global inflationary rates and the budget reconciliation and rollover processes). This led to cost and schedule data not aligning in sequential CMMs because changes occurred outside the CMM process that were not reflected. According to Valley Water staff, administrative updates to project costs occur independent of the project management team, and therefore are not reflected in the CMMs. Specifically, inflationary rates are prepared by an independent cost estimator and approved by the ACEO and the budget is approved by the Board. Administrative updates are not documented in CMMs, but according to management are reflected in the capital project pages included in Vena.

EXHIBIT 23. CMMS WITH UNDOCUMENTED VARIANCES

Project Name (Project Number)	Number of CMMs Reviewed	Number of Instances Where Change Occurred without a CMM
Almaden Dam Improvements (91854001)	12	5 cost 2 schedule **7 total**
Almaden Lake Improvements (26044001)	3	1 cost 1 schedule **2 total**
Coyote Pumping Plant ASD Replacement (91234002)	3	**1 cost**

Lower Penitencia Creek Improvements, Berryessa to Coyote Creeks (40334005)	3	1 cost 1 schedule **2 total**
Hale Creek Enhancement Pilot Study (26164001)	3	**2 cost**
Enterprise Resource Planning System Implementation (73274002)	3	2 cost 1 schedule **3 total**

Source: Auditor generated from project CMMs provided by Valley Water.
Note: Project changes that occurred to non-Water Utility projects before Fall 2019 did not require a CMM, but were instead documented in project plans Change History in Vena (as of 2016) and preceding Vena in the Capital Dashboard system. Following Fall 2019, CMMs were required for all capital project changes to scope, schedule and cost.

In one example, the CMM from December 21, 2020 for Almaden Lake Improvements had a TPC of $56.2 million. The next subsequent CMM provided by Valley Water was dated September 27, 2022—which reported that the last approved TPC was $57.5 million, which leaves an unexplained discrepancy of $1.3 million between the two memos. Valley Water noted that the delta was due to inflation adjustments, an administrative update to the project cost that was not documented or explained in the September 27, 2022, CMM.

Similarly, the Hale Creek Enhancement Pilot Study Project had a CMM from December 20, 2019, with a proposed TPC of $8.6 million. The subsequent change memo was on October 12, 2021, and reported that the last approved TPC was $8.8 million—an unexplained variance of approximately $200,000. Like the Almaden Lake example, no notation was included to justify why there was a cost difference though staff noted that this project underwent inflation changes, budget reconciliation, and budget rollover during this time that could have impacted the difference.

However, review of underlying project data provided by staff from Vena and the CIP 5-Year Plan back up supporting documents showed that non-inflated costs were not listed such that reviewers could tie the values in the change memos to underlying support readily. Moreover, inflated project costs that corresponded to those memos still did not agree with inflated costs in corresponding CIP 5-Year Plans for the same period, as shown in Exhibit 24.

EXHIBIT 24. SAMPLE INCONSISTENT COST DATA ($ IN THOUSANDS)

		Total Project Costs		Expenditure Schedule		Total Project Costs	
Project Name	CMM Date	CMM		CIP Expenditure Schedule		Vena Change History	CIP Page Back Up Change History
		Non-inflated	Inflated	Non-inflated	Inflated	Inflated	Inflated
Almaden Lake Improvements (26044001)	December 21, 2020	$56,157	-	$56,467 (CIP 5-Year Plan FY 2022-26)	$58,198 (CIP 5-Year Plan FY 2022-26)	$57,958	$57,958
Hale Creek Enhancement Pilot Study (26164001)	December 20, 2019	$8,617	-	$8,717 (CIP 5-Year Plan FY 2021-25)	$8,992 (CIP 5-Year Plan FY 2021-25)	$8,991	$8,991

Source: Auditor generated based on project, CMMs, CIP 5-Year Plans FY 2022-26 and FY 2021-25, and project files provided by staff
Note: Changes reflected on CMMs would be reflected on the CIP with the closest date following the CMM date. For instance, CMM dated December 21, 2020 should be reflected on the CIP 5-Year Plan FY 2022-26 because that plan has data through June 2021, and the prior CIP 5-Year Plan FY 2021-25 would only capture data through June 2020—before the CMM change took place.

The project level examples do not show significant variances, but small variances existing across many capital projects could be material and should be documented or noted.

Ultimately, this shows that while improvements were ongoing during the scope of this audit, gaps and inconsistencies persisted, and it highlights the importance of ensuring all project changes to scope, budget, and schedule comply with established process going forward. As the process, dating back to 2019, is silent on administrative updates, Valley Water needs to ensure that the CMM Procedure is updated to require that CMMs include notations regarding administrative updates, refer the reader to supporting documentation where warranted, and provide explanations where values in sequential CMMs may differ.

Revenue Forecasts Were Reasonably Close to Revenue Actuals

While Valley Water has several different revenue sources to fund its CIP, the majority of its CIP revenue is impacted by factors outside of Valley Water's full control. Forecasted estimates have not always aligned with actual revenues coming in, but variances were reasonable—approximately within a ten percent margin.

A comparison of Valley Water's revenue forecasting from FY 2017-18 through FY 2021-22 to actual revenue received showed that while revenue forecasts agency-wide (including both CIP and operational revenue) were generally between three to ten percent of actual amounts received, Valley Water generally underestimated revenue receipts in its forecasts—though in FY 2021-22 Valley Water modestly overestimated revenues by 1.4 percent.[8]

[8] Auditors used data from organization-wide budgets to do this revenue forecast analysis because forecasts and actuals for solely the CIP were not readily available. But given that the CIP encompasses so much of the overall organization budget, using the overall budget reasonably represents results for the CIP.

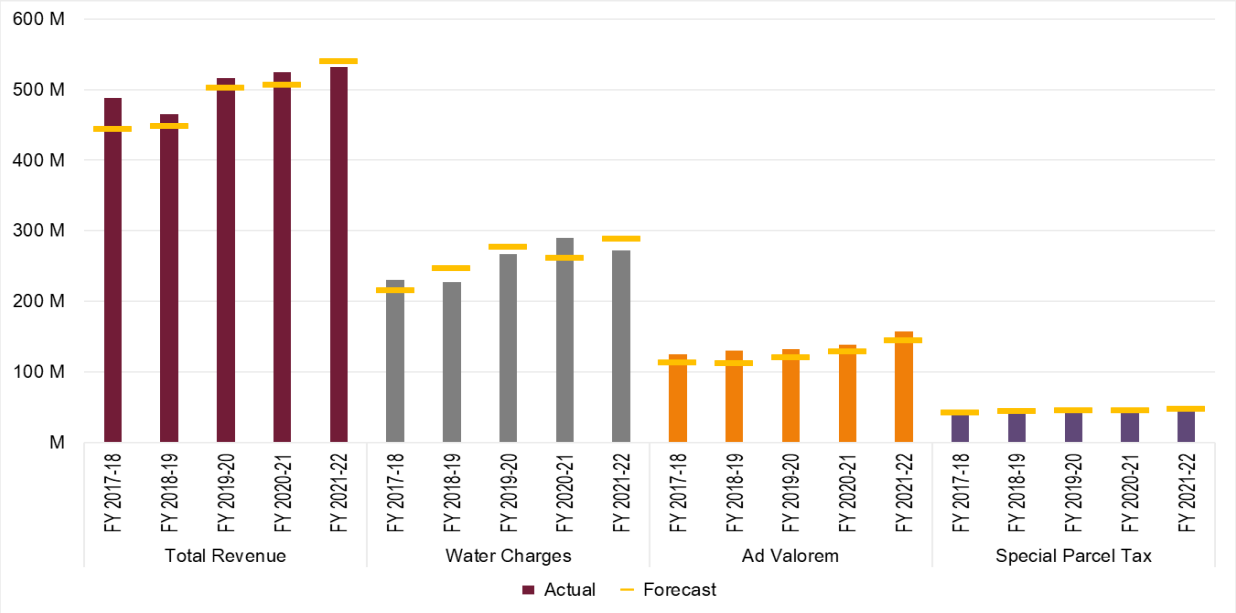
Two key revenue sources, water rate charges and ad valorem property taxes, which account for 80 percent of CIP funding, are impacted by factors outside of Valley Water's direct control and revenues received vary from one year to the next. Revenue from water charges can fluctuate greatly depending on a variety of factors such as the cost of the rate, usage by customers, and external events such as drought, state conservation orders, and emergencies. Water rate charges for this period were generally within that 10 percent variance range, though each year was not consistently under or overestimated.[9] Some of the reasons cited for these fluctuations included unexpected weather conditions such as drought, statewide water usage restrictions, and the Covid-19 pandemic—all of which were outside Valley Water's control. As the largest revenue source of the CIP, these fluctuations present delivery risks for the CIP if needed revenue does not actualize for planned work. Other comparable entities have similar funding sources, with heavy reliance on water rate charges. For example, EBMUD also depends primarily on water rate charges and bond funding to fund its CIP.

The second largest revenue source, ad valorem property taxes, can also vary depending on the changing values of properties assessed each year based on market conditions—though in recent years property values have generally gone up in value. However, values may decline in the event of a recession or other market changes, which is a consideration that Valley Water monitors. Between FY 2017-18 through FY 2020-21, Valley Water consistently underestimated revenues and received more monies than expected for the property tax, ranging from 8 percent to 16 percent.

Lastly, the third largest revenue source of CIP funding is the special parcel tax, which over the same period had a variance at 1 percent or less annually. Exhibit 25 shows the comparisons of forecasted revenues to actuals for these three key revenue sources as well as total revenue organization-wide each fiscal year from FY 2017-18 through FY 2020-21.

[9] These fluctuations mirrored water charge revenue results across a 20-year period that showed that from FY 2002-03 to FY 2021-22, there were eight years, or 40 percent of the 20 years, where actual revenue received was higher than expected and twelve years, or 60 percent, where actual revenue received was lower than expected.

EXHIBIT 25. CIP KEY REVENUE SOURCES, FORECASTED REVENUES VS. ACTUALS, FY 2017-18 TO FY 2021-22



Source: Auditor-generated based on adopted budgets for FY 2017-18 to FY 2021-22

While there is no industry standard of an acceptable variance threshold, any variance from the forecast presents some risk. If Valley Water overestimates its revenue, it will not have enough revenue to fund its planned CIP projects. If Valley Water underestimates how much revenue it will receive, there is a possible opportunity loss of additional capital improvements it could have planned for but otherwise did not.

But Valley Water endeavored to demonstrate its due diligence in trying to forecast using reliable methodologies, as will be described in the subsequent section, and have a plan in place for adverse circumstances. While Valley Water has not established a formal dedicated plan in the event that revenue forecasts significantly vary from actuals, it has reasonable protocols in place for how it would address significant variances between revenue forecasts and actual revenue receipts. If more revenue than anticipated arrives, Valley Water can park funds into its treasury to be invested per its investment policy or moved into reserves.[10] If there is a revenue shortfall or if CIP project expenditures are higher than anticipated, then Valley Water staff work together to transfer funds between projects or use special purpose funds or reserves. Valley Water also is able to borrow debt or make mid-year water charge adjustments when warranted. Finally, Valley Water has recently developed a new Grants Action team in early 2022 that will work to identify additional funds to help supplement regular revenue streams.

Forecasting Methodologies Align with Industry Leading Practices

Uncertainty and factors outside of Valley Water's control will always exist that may impact outcomes of revenue forecasting. Best practices emphasize that while no forecast will be perfect, entities should strive to have robust forecasting methodologies that evolve as new risks emerge.

[10] Valley Water requires that its reserve balances are maintained at 15 percent of its operating and capital outlays.

A high-level review of Valley Water's models and forecasting methodologies showed that many best practices were implemented—similar to what peer entities employed. Exhibit 26 shows a list of several best practices in revenue forecasting identified from the GFOA in 2014 and the University of North Carolina School of Government in 2015.

EXHIBIT 26. REVENUE FORECASTING BEST PRACTICES

	Best Practice	Valley Water
1	Forecast all major revenues and expenditures	✓
2	Extend several years into the future	✓
3	Forecast, assumptions, and methodology be made available to stakeholders	✓
4	Forecast should be monitored and periodically updated	✓
5	Use expertise inside and outside organization	✓
6	Use historical data and current economic conditions	✓
7	Use of range of possible scenarios	✓
8	Have a transparent process	✓
9	Revenue manual with key information on each revenue source	✓

Source: Best Practices: Financial Forecasting in the Budget Preparation Process, Government Finance Officers Association, 2014 and Revenue Forecasting in Local Government, University of North Carolina School of Government, 2015.

Employing these best practices in its revenue forecasting methodologies strengthen Valley Water's efforts in more accurately predicting its revenue streams. The impact of these efforts is evident given that forecasted revenues were reasonably close to actuals as discussed in the previous section.

However, current events and environmental conditions in the world in the last few years exemplify the risk of major unforeseen external events. Valley Water is demonstrating its due diligence by applying these forecasting best practices alongside best available historical data—but it needs to stay cognizant and alert to fast-changing conditions, threats, and be prepared to shift strategies in the event of unanticipated forces including but not limited to population change, market volatility, impacts of climate change, and socio-political events that may impact the agency.

As Valley Water moves forward, it should continue its existing practices to monitor on a regular basis outside factors that may impact its revenue forecasts, and stay current to new industry methodologies and practices to prepare against uncertain risks.

Debt Management Policy and Board-Vetted CIP Financing Approaches Are in Place to Ensure Funds are Available

To help ensure that there is a plan to pay for CIP expenditures when money is needed, Valley Water has established debt management policies that are vetted and approved by the Board—including reasonable financing mechanisms to smooth the ebb and flow of outlays. These practices generally align with how peer entities approach CIP financing.

Valley Water's debt management policy sets the objectives, parameters, and provides policy guidelines to staff for how it approaches debt management across the organization. It centers on minimizing debt service and issuance costs, achieving high credit ratings, maintaining access to cost-effective borrowing, and making full and timely repayment of debt. The policy allows for Valley Water to utilize designated debt instruments such as bonds, certificates, and more to finance organizational needs.

To finance the CIP, Valley Water's Board and policy-approved strategy has been to finance annual CIP expenditures on a "just-in-time" basis through the issuance of short-term debt, and subsequent sale of more permanent long-term debt to refund the short-term debt. The short-term debt capacity consists of a total of $320 million, a combination of commercial paper ($150 million) and a line of credit ($170 million).[11]

The just-in-time refinancing draws down on short-term debt only when expenses are in hand and are processed like reimbursements. In a January 2022 report to the Board, Valley Water staff explained that they aim to time long-term debt issuance for when capital expenditures reach at least $100 million for each issuance, which is considered the optimal amount to market bonds to achieve low financing costs and economies of scale for issuance.[12] By this way, interest expenses are not incurred until actual capital expenditures occur. This appears to align with what some other comparable entities do. For instance, Metropolitan Water stated that they also use pay-as-you-go financing and bond issuance for debt financing needs.

While there is no one way to approach capital debt financing, this strategy appears reasonable to ensure CIP expenditures can be paid for while balancing the costs of debt. This approach is vetted and approved by the Board, adding transparency to the process to ensure that leadership is informed of key debt management information.

[11] In October 2020, Valley Water obtained a revolving $170 million line of credit to finance capital projects. According to the Treasury Debt Officer, this decision was due to the Board wanting to diversify access to more liquid funds with the uncertainty of the Covid-19 pandemic.

[12] This report focused on Water Utility System and Safe, Clean Water, and Natural Flood Protection capital projects, which comprise the majority of where CIP funding is used.

Recommendations

This audit found that Valley Water has established a CIP planning process that was consistent with many leading practices found in the public sector, and that Valley Water management was and is engaged in a continuous improvement process that has led to the implementation of additional leading practices prior to and during the scope of this audit. Building upon this foundation, this audit identified further opportunities to improve the CIP planning process. Therefore, in order to improve the CIP planning process, and build upon already ongoing efforts to implement leading practices as identified in this report, we recommend that Valley Water management:

1) Improve CIP goal attainment, including the likelihood that expenditure and schedule targets are met, by:
    a. Ensuring cost estimates are up-to-date and reflect reasonable rates of inflation.
    b. Identifying specific staff and contract resources required to complete projects, including the type of resource, quantity of resource, and timing of the need for the resource.
    c. Conducting and formally memorializing analyses of common cost and schedule delays in the Lessons Learned database in ProjectMates and share results agency-wide.
2) Develop a performance measurement system that effectively demonstrates Valley Water's performance in achieving the goals of the CIP and the capital infrastructure goals of its master plans. This includes:
    a. Monitoring and reporting overall CIP performance and using this information to identify areas where improvements can be made to both capital project delivery and delivery of the capital improvement program.
    b. Establishing tangible targets to measure the effectiveness of the CIP in meeting established agency goals.
    c. Incorporating anticipated timelines within which the results of recent process improvements are expected to be evident and measurable in CIP outcomes.
3) Formalize objective project prioritization techniques and criteria, and consider whether a performance-based prioritizing process would be feasible and appropriate.
4) Formalize and consolidate CIP planning policies and procedures in a manner that reflects best practices recommended by the GFOA, including establishing a formal, written policy for establishing project contingencies.
5) Evaluate whether it would benefit Valley Water to modify CIP planning processes to require biennial CIP updates rather than annual updates.
6) Incorporate additional detail within the CIP related to anticipated operations and maintenance costs associated with programmed capital projects. Specifically, when operations and maintenance costs associated with programmed capital projects are unknown, include additional detail within the CIP

5-Year Plan regarding why the costs are unknown, what factors may impact the costs, and when they will be determined.

7) Implement quality control protocols to ensure data reported within the CIP are reported consistently throughout the document, include a note if planned budget adjustments are included in annual capital budgets, and are supported by underlying project and financial systems and other project documentation.

8) Improve compliance with Change Management Procedure W-751-125, and ensure cost and schedule data aligning throughout sequential CMMs, by consistently requiring:

    a. Descriptions of reasons for changes are sufficiently detailed to point to the exact cause.

    b. All data in CMMs to accurately reflect underlying project data and corresponding documents with clear notations of any variances including but not limited to inflation adjustments, timing issues, or other justification for why numbers may not tie.

    c. References or notations exist to specific underlying documents, change orders, or other support where rationale is too voluminous to describe in the memo itself.

    d. Update the CMM Procedure to require that CMMs include notations regarding administrative updates, refer the reader to supporting documentation where warranted, and provide explanations where values in sequential CMMs may differ.

Appendix A – Valley Water's Implementation of CSMFO Leading Practices

It is important to identify industry best practices for capital improvement projects and for Valley Water to decide whether implementation of certain leading practices identified by CSMFO would be appropriate, practical, and cost-effective at Valley Water and whether they would be in-line with their policies, mission, and goals.

EXHIBIT 27. CSMFO BUDGET AWARDS PROGRAM CRITERIA CHECKLIST

CRITERIA FOR MERITORIOUS AND EXCELLENCE AWARD FOR CAPITAL BUDGETS	INCLUDED IN VALLEY WATER'S FY 2022-26 CIP 5-YEAR PLAN
Is there a table of contents? Are the budget document's pages numbered?	✓
Does the transmittal letter and/or budget message highlight major capital project priorities and their funding sources?	✓
Is the basis for key capital revenue estimates described?	✓
Is the jurisdiction's capital budgeting process explained?	✓
Is there a summary schedule of capital revenue sources, by fund?	✓
Is there a summary schedule of capital expenditures, by fund?	✓
Is there a summary schedule of capital expenditures, by major type of improvement?	✓
Are specific projects identified in the budget document?	✓
Does each project have specific revenue sources identified?	✓
Are prior year appropriations or expenditures shown, where applicable, for each capital project?	✓
Does each capital project reflect appropriations or estimated expenditures for at least the budget year?	✓
Does each capital project reflect appropriations or estimated expenditures in the future through its proposed completion?	✓
For multi-year projects, is total cost for the project identified?	✓
Have overall operating cost impacts been discussed?	PARTIALLY
Does the execution of the document appear consistent with the audience and purpose to which it is directed?	✓
Is the budget clearly enough organized and presented as a document?	✓

Criteria for Meritorious and Excellence Award for Capital Budgets	Included in Valley Water's FY 2022-26 CIP 5-Year Plan
Do the budget numbers and format appear to be accurate and consistent throughout the document?	Partially
Is there an in-depth description of how capital project scheduling meets jurisdiction's goals and/or financial and budget policies?	✓
Does budget process include a rating or ranking process to prioritize projects?	Partially
Are individual capital projects appropriately described?	✓
Does each project include a location map, where applicable?	✓
Does each project include a narrative discussing project status and/or timeline for project completion?	✓
Does each project identify the person or department acting as project manager?	✓
Does each project identify, where applicable, operating budget impacts and/or contains estimates of future annual operating & maintenance costs?	Partially
Are individual project costs/appropriations broken down by major objects or types?	✓
Have alternative funding sources been explored for individual projects?	✓
Are project costs identified based on current year dollars and are future appropriations increased by inflationary index?	✓
Is there a summary of individual projects by funding source?	✓
Is there a summary of individual projects by major type of improvement?	✓
Is debt issuance supporting the capital program clearly identified by project or by summary?	✓
Have additional future years of forecasted revenues and project expenditures been included?	✓
Does the document include a glossary of terms?	✓
Is document generally readable and attractive in format and presentation?	✓
Is there good use of graphics, artwork, maps and charts?	✓
Does the document demonstrate the use of current computer technology in document development and/or production?	✓

Source: Auditor-generated comparing best practices identified by The CSMFO Budget Awards Program Overview & Explanation of Criteria and audit observations of Valley Water's CIP

Key: A check mark means that the Valley Water's 2022-26 CIP 5-Year Plan fully met the criterion. Partially means that the 2022-26 CIP 5-Year Plan partially meet this criterion. No check mark means that the information was not clearly present in the 2022-26 CIP 5-Year Plan. Not Applicable means that it is not a relevant criterion due to the 5-Year Plan being separate from the budget.

Appendix B – Summary of Recommendations and Corrective Action Plan

	Recommendation	Responsible Party	Priority	Management's Corrective Action Plan
1	**Problem:** Schedule and spending targets established in the CIP 5-Year Plan may not be achievable.	Business Planning and Analysis Unit	High	☒ Agree ☐ Disagree
	Recommendation: Improve CIP goal attainment, including the likelihood that expenditure and schedule targets are met, by: a. Ensuring cost estimates are up-to-date and reflect reasonable rates of inflation. b. Identifying specific staff and contract resources required to complete projects, including the type of resource, quantity of resource, and timing of the need for the resource. c. Conducting and formally memorializing analyses of common cost and schedule delays in the Lessons Learned database in ProjectMates and share results agency-wide.			**1.a.** Management agrees and believes this recommendation has been addressed. Project plans are updated annually to reflect the latest cost information. Placeholder projects and projects listed on the unfunded list will be "re-validated" as indicated in the Capital QEMS Processes and reassessed annually through the CIP Evaluation Team. As of FY23, inflation rates are updated by an Independent Cost Estimator on-call consultant, through development of the Construction Cost Escalation Factors and Market Rate Factors. This is acknowledged on p.23 of the Final Draft Report, "In FY 2021-22, Valley Water utilized an on-call contract with an Independent Cost Estimator (ICE) to validate its construction cost escalation factor analysis. It further made the business decision that, moving forward, it will employ a consultant to determine construction cost escalation factors to ensure that Valley Water is keeping pace with the market and to better ensure accuracy and reliable in future TPC estimates." **1.b.** Management agrees and believes this recommendation will be addressed through the implementation of our new resource planning/staff forecasting tool VEMO. **1.c.** Management agrees and will implement this recommendation through ProjectMates.
				Implementation Date: 1.a. – Complete as of Q4, FY23. 1.b. – Implementation underway. Estimated to be fully implemented by Q4, FY26. 1.c. – Implementation underway. Estimated to be fully implemented by Q4, FY26.

2	**Problem:** Valley Water's performance in delivering capital projects is obscured by the lack of a robust performance measurement system. **Recommendation:** Develop a performance measurement system that effectively demonstrates Valley Water's performance in achieving the goals of the CIP and the capital infrastructure goals of its master plans. This includes: a. Monitoring and reporting overall CIP performance and using this information to identify areas where improvements can be made to both capital project delivery and delivery of the capital improvement program. b. Establishing tangible targets to measure the effectiveness of the CIP in meeting established agency goals. c. Incorporating anticipated timelines within which the results of recent process improvements are expected to be evident and measurable in CIP outcomes.	Business Planning and Analysis Unit	Medium	☒ Agree ☐ Disagree **2.a-b.** Management agrees and is in the process of improving current reporting and developing new reporting methods at the project and program level. New PowerBI quarterly reporting tool under development to track project level and program level metrics, with data to be provided via Vena, Infor, ProjectMates, and using CIP historic data. **2.c.** Management agrees. Management is proposing a two-year implementation period for ProjectMates, with a follow-up audit to validate success (e.g. follow-up audit to be initiated in FY 26 to allow time for implementation of ProjectMates and Vemo). Implementation Date: 2.a. – Implementation underway. Estimated to be fully implemented by Q4, FY26. 2.b. – Implementation underway. Estimated to be fully implemented by Q4, FY26. 2.c. – Implementation underway. Estimated to be fully implemented by Q4, FY26.
3	**Problem:** While Valley Water does employ a deliberative project prioritization process in developing its CIP 5-Year Plan, the process lacks consistent and objective criteria. **Recommendation:** Formalize objective project prioritization techniques and criteria, and consider whether a performance-based prioritizing process would be feasible and appropriate.	Business Planning and Analysis Unit	High	☒ Agree ☐ Disagree **3.** Management agrees and believes that by implementing a Priority Level system, Valley Water can further enhance the Funding Filters for Prioritization, improving the consistency, objectivity, and transparency of the process. The Priority Level system was cited as an example of a successful prioritization system utilized by the Contra Costa Water District in the Draft Audit Report (see p. 30). After implementation of a Priority Level System, Management will explore whether a performance-based prioritizing process would be feasible and appropriate. The majority of VW projects repair and replace existing infrastructure, which is our obligation and prioritization is then only necessitated by the availability of resources (financial or staff resources). Based on this, a performance-based prioritization process may not make sense, as we are required to maintain our existing infrastructure, requiring the delivery of specific projects. Staff will analyze this approach further and report back. Implementation Date: Implementation underway. Estimated to be fully implemented by Q4, FY24.

4	**Problem:** Policies and procedures are generally consistent with leading practices, but are disbursed among a variety of authoritative sources and informal guidance. **Recommendation:** Formalize and consolidate CIP planning practices and procedures in a manner that reflects best practices recommended by the GFOA, including establishing a formal, written process for establishing project contingencies.	Business Planning and Analysis Unit	Medium	☒ Agree ☐ Disagree **4.** Management agrees and will create an over-arching CIP Development Manual to serve as an umbrella for capital QEMS procedures to document all existing CIP procedures and practices in compliance with GFOA. Management's approach to establishing project contingencies is currently documented in the Cost Engineering Guidelines. These guidelines will be included in the over-arching CIP Development Manual (referenced above). The existing procedure requires a Risk-Analysis-Based Process for Contingency Estimation. Staff believes this process is consistent with the Best Practices identified in the CIP Performance Audit Draft Report. The procedure will be updated to clarify the types of Contingency Reserves utilized, as Valley Water uses both Project Level Contingency, which is included at the Project Budget level, and a Management Contingency, which is at the Fund Reserve level. Additionally, management has identified a staff level process improvement, which will update the Capital Project Delivery Process to include reassessment of risk at time of Board's Acceptance of Work as Complete to determine whether remaining contingency funds could be released to project or fund reserves. Implementation Date: Implementation underway. Estimated to be fully implemented by Q4, FY24.
5	**Problem:** One of the more distinguishable differences between Valley Water and the peers sampled is that Valley Water updates its CIP 5-Year Plan annually, whereas all four peers reviewed update their short-range CIP biennially. **Recommendation:** Evaluate whether it would benefit Valley Water to modify CIP planning processes to require biennial CIP updates rather than annual updates.	Business Planning and Analysis Unit	High	☒ Agree ☐ Disagree **5.** Management agrees to evaluate whether updating the CIP 5-Year Plan on a biennial basis would be feasible and beneficial to Valley Water. Implementation Date: Evaluation is underway and estimated to be fully implemented by Q4, FY24.

6	**Problem:** While the CIP 5-Year Plan includes information regarding anticipated operations and maintenance (O&M) costs, additional information regarding the factors contributing to potential O&M costs, particularly when costs have not yet been fully determined, is essential. **Recommendation:** When operations and maintenance costs associated with programmed capital projects are unknown, include additional detail within the CIP 5-Year Plan regarding why the costs are unknown, what factors may impact the costs, and when they will be determined.	Business Planning and Analysis Unit	High	☒ Agree ☐ Disagree **6.** Management agrees and will incorporate additional detail for projects with unknown O&M costs, including why they are unknown, what factors may impact them, and when staff anticipates they will be determined. The O&M costs are reflected in the CIP 5-Year Plan when information is available and included both on the project pages and in the Financial Planning and Summary Chapter. The information is then utilized by O&M managers and forecasted in the related operating projects through the Long-Term Forecast**.** Implementation Date: Evaluation is in progress. Estimated to be fully completed by Q4, FY24.
7	**Problem:** Financial information contained in the CIP was not always consistent or aligned with Valley Water's financial system. **Recommendation:** Implement quality control protocols to ensure data reported within the CIP are reported consistently throughout the document, include a note if planned budget adjustments are included in annual capital budgets, and are supported by underlying project and financial systems and other project documentation.	Business Planning and Analysis Unit	Medium	☒ Agree ☐ Disagree **7.** Management agrees. This recommendation has been addressed with the finalization of the FY 2024-28 Five-Year Plan through inclusion of footnotes indicating planned budget adjustments that differ from the adopted budget. Also, QA/QC protocols have been enhanced to ensure consistency in reporting. Implementation Date: Implementation complete as of Q4, FY23.

8	**Problem:** Change Management Memos did not always include sufficient information describing cost increases and schedule delays.	Business Planning and Analysis Unit	Medium	☒ Agree ☐ Disagree
	Recommendation: Improve compliance with Change Management Procedure W-751-125, and ensure cost and schedule data aligning throughout sequential CMMs, by consistently requiring: a. Descriptions of reasons for changes are sufficiently detailed to point to the exact cause. b. All data in CMMs to accurately reflect underlying project data and corresponding documents with clear notations of any variances including but not limited to inflation adjustments, timing issues, or other justification for why numbers may not tie. c. References or notations exist to specific underlying documents, change orders, or other support where rationale is too voluminous to describe in the memo itself. d. Update the CMM Procedure to require that CMMs include notations regarding administrative updates, refer the reader to supporting documentation where warranted, and provide explanations where values in sequential CMMs may differ.			**8.a.** Management agrees and will assign CIP team to work with project managers to include sufficient details regarding the cause of the documented changes. **8.b-d.** Management agrees and believes this recommendation has been addressed. The CMM work instruction and template were updated on 05/23/23. In addition, staff is seeking to further enhance reporting on schedule and cost impacts (as referenced in Recommendation 1.c. and will be making further updates to align with the process improvements).
				Implementation Date: 8.a. Implementation underway. Estimated to be fully implemented by Q4, FY24. 8.b. Implementation complete as of Q4, FY23. 8.c. Implementation complete as of Q4, FY23. 8.d. Implementation complete as of Q4, FY23.

***Urgent**: The recommendation pertains to a high priority conclusion or finding. Due to the seriousness or significance of the matter, immediate management attention and appropriate corrective action is warranted.*

***High Priority**: The recommendation pertains to a high priority conclusion or finding. While the matter is not urgent and does not require immediate corrective action, the seriousness of the matter warrants timely management attention and appropriate corrective action is warranted within six months.*

***Medium Priority**: The recommendation pertains to a moderately significant conclusion or observation. Reasonably prompt corrective action should be taken by management to address the matter. Recommendation should be implemented no later than one year.*

***Low Priority**: The recommendation pertains to a conclusion or observation of relatively minor significance or concern. The timing of any corrective action is left to management's discretion.*