



# One Water

COYOTE CREEK WATERSHED PLAN

## EXECUTIVE SUMMARY

## INTRODUCTION

The One Water Countywide Framework is the foundation of the decision-making process that can strategically allocate limited resources to actions to achieve Valley Water’s mission. As Valley Water faces the challenges of providing reliable water supply, minimizing flood risk, and conserving and improving environmental stewardship a framework of this magnitude was needed.

The One Water Coyote Creek Watershed Plan applies this new framework to manage the challenges within the watershed. The plan analyzes the watershed’s water supply, flooding, and ecosystem management; identifies areas needing improvement; and prioritizes actions for the future. In the process, it brings together several divisions and jurisdictions, under One Water, and refines Valley Water’s planning focus on multibenefit projects.



### 1.1 WHERE IS THE COYOTE CREEK WATERSHED?

The Coyote Creek Watershed is the largest of the five major watershed in Santa Clara County’s covering 350 square miles. It is located at the eastern edge of the county, encompassing the entire city of Milpitas, portions of San José and Morgan Hill, and unincorporated lands of Santa Clara County.

The Coyote Creek, the longest creek in the county that extends from Morgan Hill to the San Francisco Bay. The watershed lands drain into Coyote Creek through 29 tributaries, and comprises multiple facilities such as Anderson Dam, percolation ponds and lakes. For the purposes of this report, the watershed has been divided into six subwatershed Anderson and Coyote Reservoirs, Lower Coyote Creek, Lower Silver/Thompson Creek, Middle Coyote Creek, Upper Coyote Creek, and Upper Penitencia Creek each with unique characteristics that are further discussed in Chapter 4.

The terrain of the watershed varies from flat valley floor portions in the north and west of the county to hilly, rural, and undeveloped areas in the east and south. Despite the fact that the watershed’s valley floor area is densely populated, with 850,000 people living and working there, it still provides riparian, aquatic, and baylands habitat for a diverse range of plants and animals, some of which are threatened or endangered.

## WHY ONE WATER?

### National Context

The US Water Alliance’s One Water Council, a diverse group of water leaders nationwide, completed a roadmap in 2016. The roadmap reflects many key ideas and approaches relevant to Valley Water’s One Water planning.

According to the roadmap, the hallmarks of One Water are:

1. The mindset that all water has value
2. A focus on achieving multiple benefits
3. Approaching decisions with a systems mindset
4. Utilizing watershed-scale thinking and action
5. Relying heavily on partnerships and inclusion

The One Water approach recognizes that water must be managed in ways that respect and respond to the natural flows of watersheds and the natural ecosystem, geology, and hydrology of an area. It is within the context of a watershed that communities either have too much water, too little water, or poor quality water. It is within the watershed context that communities must reconcile their water demands with the imperative to sustain the resource for future generations. Watershed-level management brings together regional partners from within and beyond the water sector in joint planning and collaborative action to protect the shared natural resource that is essential for health, agriculture, industry, aquatic species, forests, wildlife, recreation, and life itself.

Valley Water is committed to working with diverse communities to improve watershed health and water resources now and for future generations.



## 1.2 HOW IS THE PLAN ORGANIZED?

The One Water Coyote Creek Watershed Plan is designed around the concept of past, present and future conditions. Only by learning the past, measuring the present, and recognizing needs for the future we can manage water resources in a more resilient way. The diagram below illustrates the process for realizing the watershed vision.

**Chapter 1** of this plan introduces the Coyote Creek watershed and why a watershed plan is ideal for the watershed and its resources. It also outlines Valley Water's One Water planning framework including a vision, three integrated goals, and five objectives. Finally, it offers a brief overview of the stakeholder engagement process.

**Chapter 2** describes past & present conditions in the Coyote Creek Watershed. The description of past conditions focuses on historical hydrology, ecology and human influences on the watershed. The description of present conditions includes both general geology, hydrology and land use, as well as more specific district management of ecological resources, flooding, recreation and trails, water quality, and water supply. At the end of this discussion, the chapter explores challenges and describes analytical tools in moving from present to future conditions.

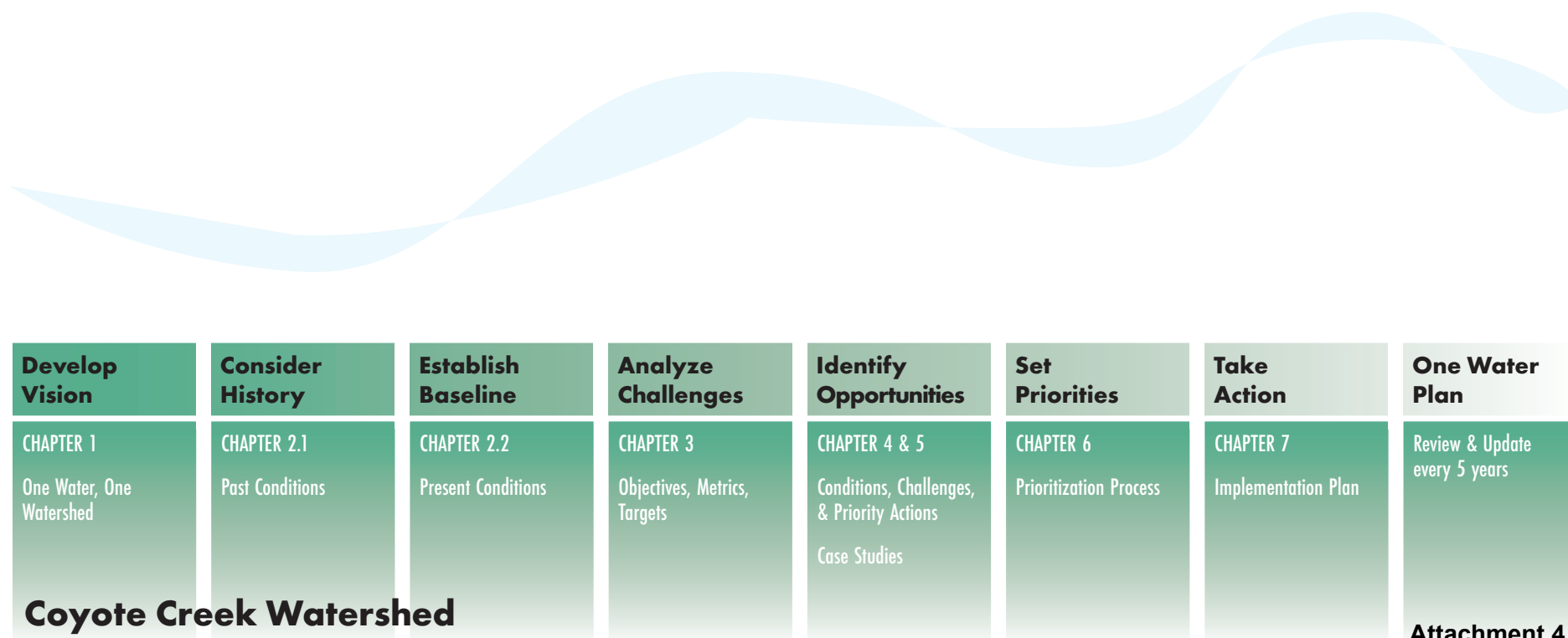
**Chapter 3** details Valley Water's framework of One Water objectives, metrics and targets for the watershed.

**Chapter 4** describes sub-watershed-scale opportunities with recommendations for water resources management.

**Chapter 5** offers several examples of more fine-grained One Water management in the watershed. Case studies focus on Upper Penitencia Creek, the Coyote Valley area and Coyote Creek Native Ecosystem Enhancement Tool (CCNEET)

**Chapter 6** details Valley Water's process for identifying, evaluating and prioritizing potential One Water actions and identifies priority actions in the short and long term.

**Chapter 7** describes the high priority actions for implementation within the Coyote Creek Watershed.



## Integrated Goals, Objectives & Metrics

The One Water Framework established direction for the five watershed plans that cover the majority of Santa Clara County, including the Coyote Creek Watershed, the subject of this plan. Framework guidance included a vision, three goals, and five objectives, all aligned with Valley Water's governance policies set by its Board of Directors.

**Vision:** *Manage water resources holistically and sustainably to benefit people and the environment in a way that is informed by community values.*

The resulting goals address and align with Valley Water's three mission areas.:






- 1) Reliable water supply
- 2) Improved flood protection.
- 3) Healthy and resilient ecosystem.

The five objectives (see table below) were developed to be science-based and transparent, or SMART (specific, measurable, achievable, relevant, time-based) wherever possible. For the Coyote Creek Watershed, Valley Water used the objectives, and the measurable attributes and metrics associated with them, to identify watershed resource needs, and then to highlight priorities for action. Additionally, to assess progress, each metric will be assigned a target, to maintain or strive for within each metric.

## Identifying Areas Needing Attention

Through the process of identifying needs and developing priority actions to address these needs, the following challenges (see table) arose as primary areas of concern for watershed health and water resources management in Coyote Creek Watershed.

Priority actions in this plan help to address these topics but also highlight the need for a collaborative approach to problem-solving with Valley Water and partner agencies and organizations contributing to develop sustainable solutions.

Challenge	Objective	Example Metric to Measure Success in Meeting the Challenge
Water supply storage	 A: Protect and Maintain Water Supplies	Operational capacity at Valley Water reservoirs (Metric A.1.1)
Surface water quality conditions	 B: Protect and Improve Surface and Ground Water Quality	Surface Water Physical integrity (e.g. temperature, turbidity, trash) (Metric B.2.3)
Flood risk reduction; Stream erosion and sediment deposition	 C: Reduce Flood Risk	Flood protection facilities are maintained to defined levels of protection (Metric C.1.2)
Aquatic habitat and riparian corridor protection and enhancement	 D: Protect, Enhance and Sustain Natural Ecosystems	Channel length with continuous riparian forest, measured by a) mainstream creek and b) tributaries (Metric D.2.1)
Climate change resilience / stormwater: green and grey infrastructure	 E: Mitigate and Adapt to Climate Change	Volume of water supply treated by green infrastructure projects (Metric E.2.2)

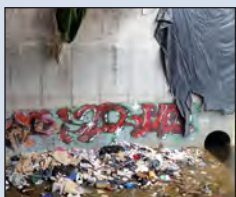
Note: See Chapter 3 for a complete Objectives and Metrics description.

## One Water Challenges for Coyote Creek



### FLOOD RISK REDUCTION

Areas of the Coyote Creek watershed are prone to flooding due to a number of interacting factors including the steep short drainages characteristic of the local topography (where rainfall flows very fast downstream with little time to percolate), high groundwater aquifers, tidal intrusion, and urbanization (with its impervious surfaces and infrastructure). Flooding mainly happens due to urbanization within the historical floodplain. Basically, the flood prone areas are part of the historical floodplain, which is why they flood to begin with. Problems begin when you build in the risk of flooding areas. The increased precipitation over shorter periods projected for the area's future, due to climate change, may exacerbate flooding and exceed current flood control capacity. The flooding that inundated the neighborhoods of Rock Springs and Williams Street along Coyote Creek in the very wet winter of 2017 offers an example of how rapidly water can move through the watershed. Addressing flood risk in a more holistic and natural way exemplifies One Water management.



### SURFACE WATER QUALITY CONDITIONS

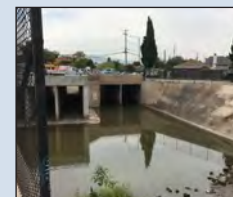
Coyote Creek's large and diverse watershed supports a variety of land uses with direct impacts on surface water quality. Grazing, farming, and landscaping add eroded sediment, manure, fertilizers, and pesticides to surface waters via runoff. Farther downstream in urban areas, trash,

litter and illegal dumping are a major problem. The creek is impaired by trash under the Clean Water Act's 303(d) list. Urban activities add a range of contaminants to the creek. In addition, homeless encampments along the mainstream and tributaries represent a major water quality management challenge for Valley Water and its municipal and regional partners. Finding ways to manage surface water quality both at the source, and along significant pathways through the watershed, is a one water priority.



### AQUATIC HABITAT AND RIPARIAN CORRIDOR PROTECTION AND ENHANCEMENT

While many reaches of Coyote Creek and its tributaries are urbanized or heavily developed, others flow through more natural settings or protected open space or contain remnant aquatic and riparian habitats for migrating steelhead trout, resident native fish, and associated bird, mammal and amphibian species. Maintaining, improving and restoring aquatic habitats — especially in the context of continued sedimentation, low dissolved oxygen, and urbanization impacts on creek quality — is a priority for Valley Water in certain reaches of the creek, as well as a continuing challenge in others. The upper reaches above the reservoirs, for example, contain some extraordinary intermittent pools of natural diversity, and the middle-to-upper reaches in Coyote Valley have significant open space, while the lower reaches must be defended from the daily disturbance and impacts of highly urbanized surroundings. One Water is something shared by humans and fish alike, and offers an opportunity for multi-benefit planning.



### STORMWATER: GREEN AND GREY INFRASTRUCTURE:

Urban development within the Coyote Creek Watershed and along highway corridors continues to increase the paved, non-porous area of the watershed. This kind of development increases pollution to the creek from urban runoff and flooding because runoff cannot percolate into the ground. Replacing grey surfaces with green, through the addition of pervious and planted surfaces and green infrastructure, is a priority for Valley Water and local partners and exemplifies One Water planning.



### STREAM EROSION AND SEDIMENT DEPOSITION

Many of the challenges and activities described above contribute to continued erosion of creek banks and surrounding watershed lands, and the resulting movement or deposition of sediment within Coyote Creek. The dynamic equilibrium of sediment and peak flows, which serve to move or scour out excess sediment under natural conditions, is disrupted by the variety of water storage, flood protection facilities, and channel alterations along the creek. As a result, there can be too much sediment in some parts of the creek and too little, or the wrong kind, in others. Sedimentation presents a considerable challenge for Valley Water in terms of maintaining both flood capacity and the quality of endangered fish habitat. The sediment imbalance can only be addressed through the kind of watershed wide planning and coordinated action that characterize a One Water approach.

## PRIORITIZATION PROCESS

### **Step 1: Identify watershed needs**

#### **based on the five One Water**

**objectives.** Water supply, water quality, flood protection, stewardship and climate change.

### **Step 2: Identify watershed actions**

#### **that meet the needs identified for**

**each objective.** Staff and stakeholders detail for each One Water objective.

### **Step 3: Evaluate actions identified**

**above.** Combine similar actions, look for multi-benefit actions, and condense action list.

### **Step 4: Prioritize actions identified**

**above.** Organize and prioritize the action list based on additional criteria like readiness, existing commitment and funding, as well on implementation timing. Implementation may be categorized as current, short term or long term.

### **Step 5: Recommend priority actions for implementation.**

## Priority Actions for the Coyote Creek Watershed

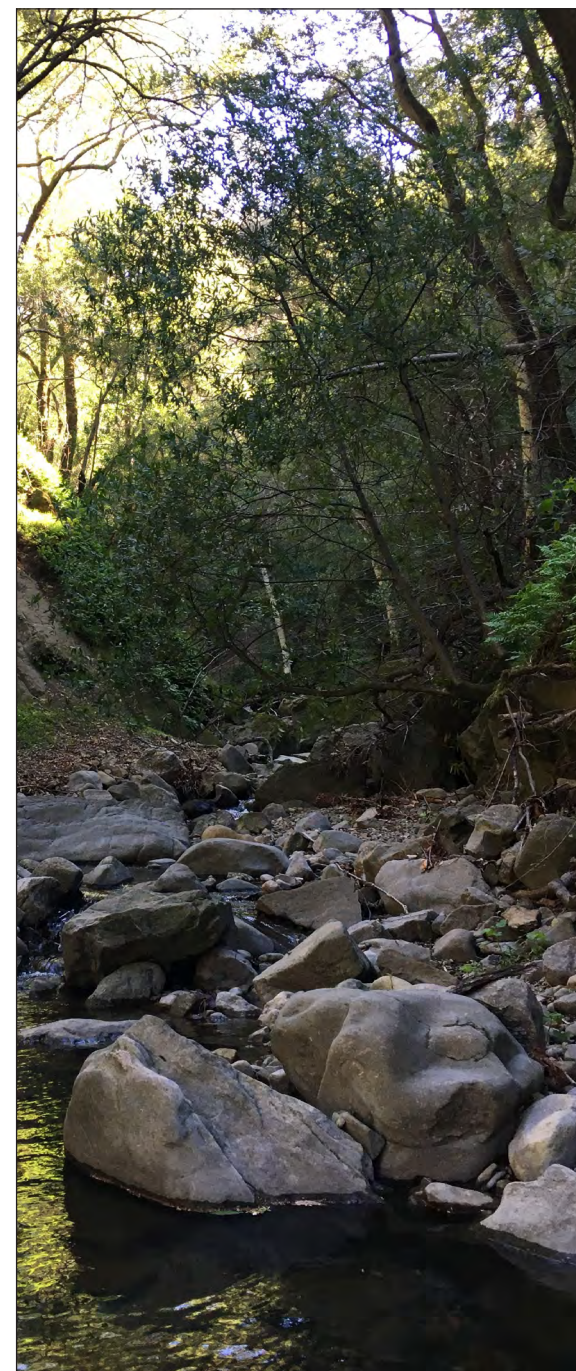
	Priority Action	Objective(s)	Implementation Timeframe*
A	Anderson Dam Seismic Retrofit Project	A, C, D	CURRENT
B	Coyote Creek Flood Protection Project	C	CURRENT
C	Singleton Road improvements for fish passage and trail connectivity	D	CURRENT
D	Lower Penitencia Flood Protection Project	C	CURRENT
E	Lower Calera Creek portion of the Lower Berryessa Creek Flood Protection Project Phase 2	C	CURRENT
F	Upper Penitencia Flood Protection Project – Coyote Confluence up to Hwy 680	C, D	CURRENT
G	Separate Ogier Ponds from Coyote Creek to improve fish passage and water quality	B, D	SHORT TERM
H	Metcalf Ponds Fish Passage Improvement Project	A, D	SHORT TERM
I	Invasive plant removal	C, D	SHORT TERM
J	Enhance Riparian and Aquatic Habitat along Middle Coyote Creek	B, D	SHORT TERM
K	Upper Penitencia Creek Flood Protection Project - Hwy 680 to Dorel Drive (+options for areas upstream of Alum Rock Park)	C, D	SHORT TERM
L	Reduce trash in riparian corridor	B, D	SHORT TERM
M	Enhance riparian and aquatic habitat along Upper Coyote Creek	B, D	SHORT TERM
N	Coyote Valley protection, enhancement and restoration	A, B, C, D, E	SHORT TERM
O	Coyote Watershed rangeland management	B,C,D	SHORT TERM
P	Manage Sediment at Lower Silver-Coyote Creek Confluence	B,D	SHORT TERM
Q	Thompson Creek creek stabilization	B,C	SHORT TERM
R	Rehabilitate flood reaches - Lower Silver/Thompson Creek subwatershed	C	SHORT TERM
S	Rehabilitate flood reaches: Lower Coyote Creek subwatershed	C	SHORT TERM
T	Rehabilitate flood reaches: Upper Silver Creek	C	SHORT TERM
U	Green stormwater infrastructure for communities	A, B, C, D, E	SHORT TERM
V	Serpentine and watershed protection and enhancement	D	LONG TERM
W	Wildlife corridor improvements	D	LONG TERM
X	Lower Berryessa Creek flood protection phase 3+ Tularcitos Creek and Upper Calera Creek	C	LONG TERM
Y	Coyote Meadows	B, D	LONG TERM
Z	Upper Berryessa Creek flood protection (680 to Old Piedmont)	C	LONG TERM
AA	Upper Coyote Flood Protection (u/s Fisher-Coyote Confluence)	C	LONG TERM
BB	Noble diversion removal	A,D	LONG TERM
CC	Coyote Reservoir sediment harvesting	B,C,D	LONG TERM
*Implementation Timeframe (Current -funded, in design or construction); Short term (ST) (0 to 10 yrs); Long term (LT) (10 to 50 years)			



## NEXT STEPS

As the first of five watershed plans supporting long-range watershed management for Valley Water, the One Water Coyote Creek Watershed Plan will now be considered for a variety of purposes. First, this list of priority actions will be consulted for future capital and operations and maintenance activities, including incorporation into Valley Water's existing Capital Improvement Program process as appropriate. Second, priorities will be considered for future grant funding opportunities from the state and federal government. Third, priorities will be considered for both enhancement and mitigation actions when working with regulatory agencies. And finally, priorities will be shared with grantees and partners seeking to work with Valley Water.

Though completed in 2021, the One Water Coyote Creek Watershed Plan is a living document. Valley Water anticipates updating the Plan approximately every five years. The timing of updates will be carefully planned to coincide with periodic updates of asset management plans, operations and maintenance plans, Safe, Clean Water implementation plans, water supply master plans, and capital improvement plans. Through collaboration with these various project teams, watershed plan updates will be able to incorporate the best available data and provide the latest recommendations to the Board and Valley Water's partner agencies. Once implemented, Valley Water will follow up on One Water actions to monitor and measure success.



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