Watersheds Overview

Presented by: **Rechelle Blank**, Chief Operating Officer, Watersheds

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Orchards to Concrete

A Natural Flood Plain

HISTORICAL FLOODING

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1955: GUADALUPE RIVER FLOODING

1955: GILROY FLOODED

1958: PALO ALTO AIRPORT

Making Way for Suburban Development

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Key Projects Show the Future of Flood Protection

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Stewardship Takes Center Stage

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Watersheds Organizational Structure

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Stewardship & Planning

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Operations & Maintenance

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Design & Construction

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Recent Major Capital Projects:

- Rancho San Antonio Park Flood Detention Basin
- San Francisco Bay Shoreline Phase I Flood Protection and Habitat Restoration
- Upper Llagas Creek Flood Protection Project - Phase 2A
- Calabazas Creek Bank Rehabilitation Project (from Miller Avenue to Bollinger Road)
- Upper Guadalupe River Reach 6 Gravel Augmentation Project

Projects in the Planning and Design Stage:

- Palo Alto Flood Basin Structure Replacement Project
- Guadalupe River Flood Protection, Tasman Drive to I-880
- Upper Penitencia Creek, Coyote Creek to Dorel Drive
- Sunnyvale East/West Channels Flood Protection Project
- San Francisco Bay Shoreline Study Phase II

Additional Watersheds work includes:

- Maintenance and operation of flood water conveyance channels to design specifications including sustainable sediment management
- Stream Maintenance Program sediment removal and bank protection projects
- Invasive plant removal and vegetation management
- Stream and Watershed Protection Program, including Hale Creek Enhancement Pilot Study, design of Almaden Lake Improvements and habitat enhancement studies for Ogier and Metcalf Ponds
- Levee inspection and maintenance

Common Project Challenges

- Lack of adequate funding
- Regulatory hurdles
- Rising construction costs
- Managing ongoing/increasing maintenance and mitigation requirements

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Future Projects: Resilient and Flexible

QUESTIONS

San Francisquito Creek Flood Protection

Presented by: **Eric Meyer,** Assistant Engineer II - Civil

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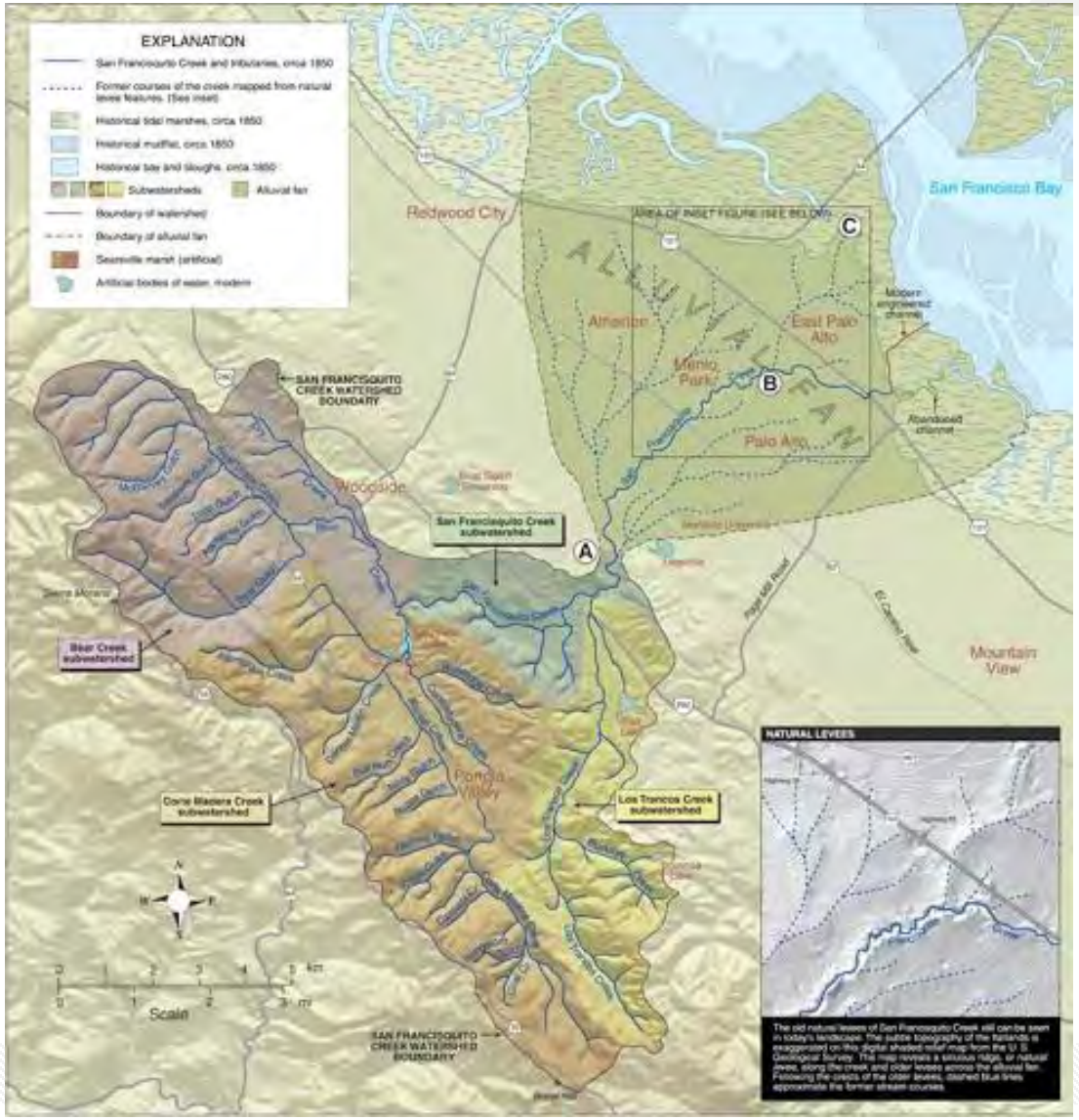
The San Francisquito Creek Watershed

- Lower part of hour-glass shaped area is the source of the majority of the water in SFC
- Urban development in the creek's floodplain no natural flood plain for the water during a flood event
- Limited flexibility in where and how we create flood protection solutions



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San Francisquito Creek Flooding History

- 1998 flood event was highest flow on record – considered a once in 70-year flood.
- The 7200 cfs was measured at the USGS gauge at Stanford. The flow at Pope-Chaucer bridge is estimated to have been 7500 cfs.
- Most recently, the high flows of February 2017 were the sixth highest on record.

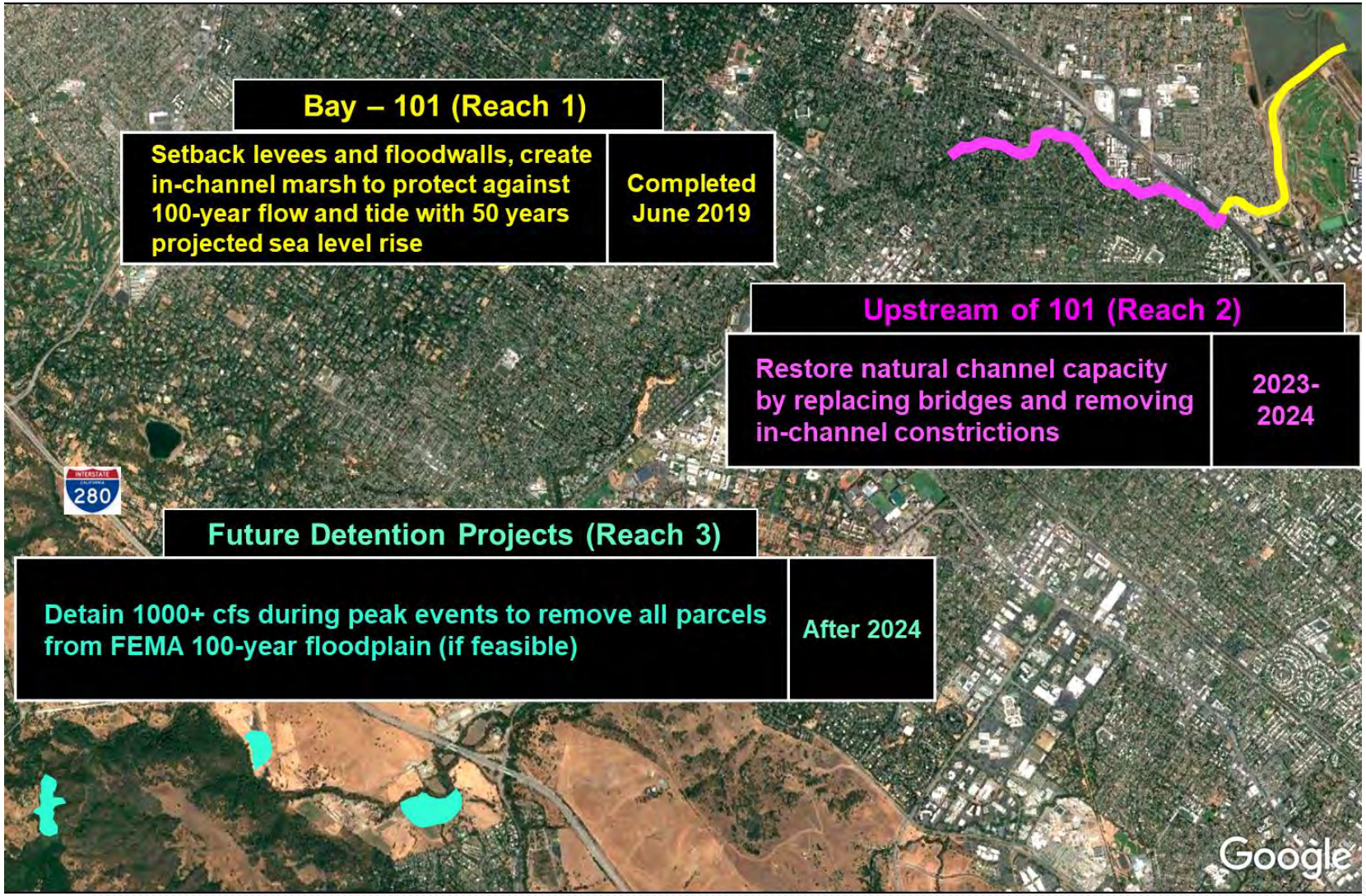
HISTORIC PEAK STREAMFLOW RATES

SAN FRANCISQUITO CREEK AT USGS GAGE (LOCATED NEAR JUNIPERO SERRA BLVD) 1930 - 1941; 1950 - 2018

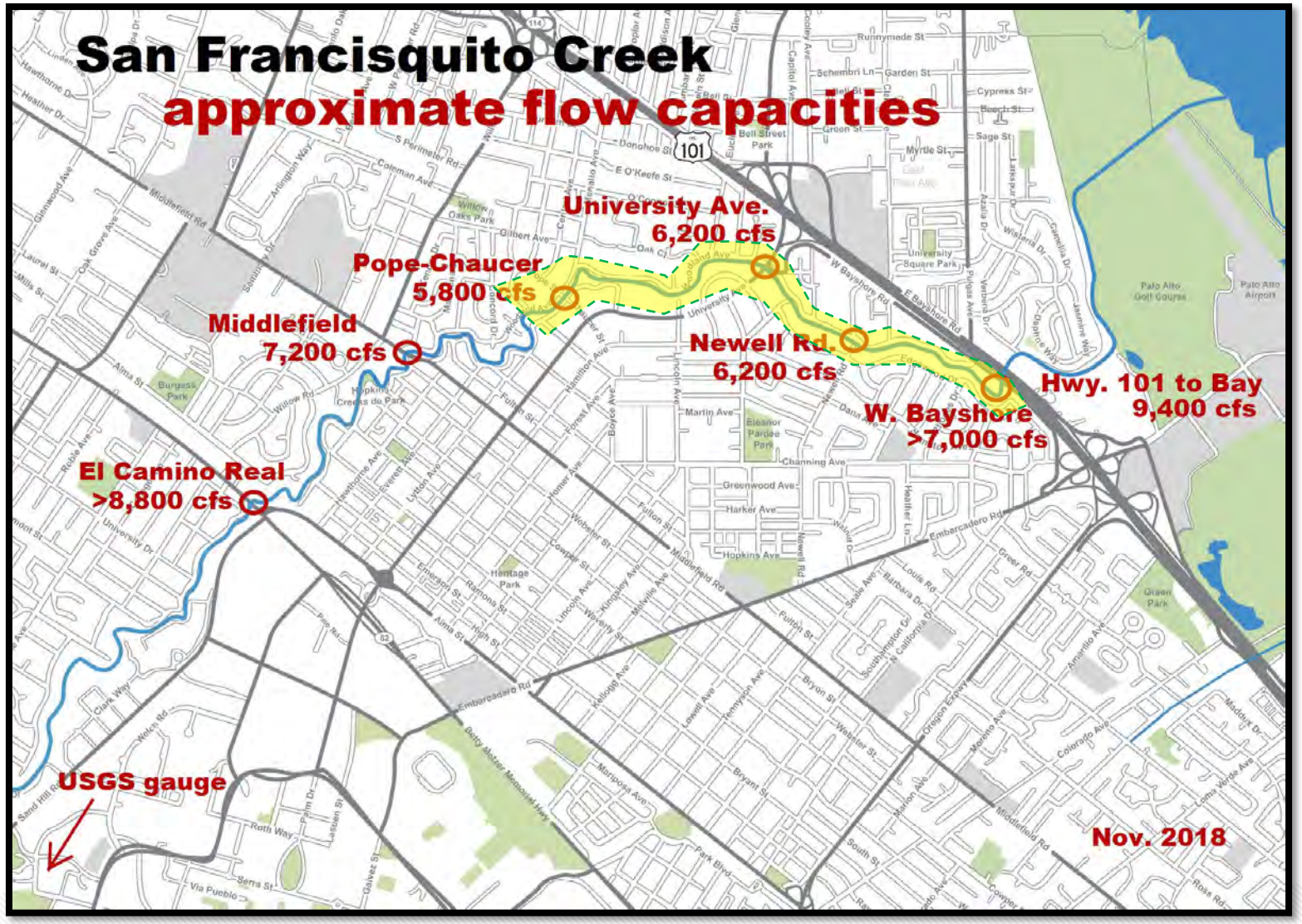
	DATE	PEAK FLOW RATE (CFS)
1.	FEBRUARY 3, 1998	7200
2.	DECEMBER 22, 1955	5560
3.	DECEMBER 23, 2012	5400
4.	JANUARY 4, 1982	5220
5.	JANUARY 1, 2005	4840
6.	FEBRUARY 7, 2017	4820
7.	APRIL 2, 1958	4460
8.	JANUARY 21, 1967	4000
9.	FEBRUARY 13, 2000	3930
10.	FEBRUARY 16, 1982	3760

1998 Flood Event

San Francisquito Creek Flood Protection Project



SFC Flood Protection Project (Reach 2)



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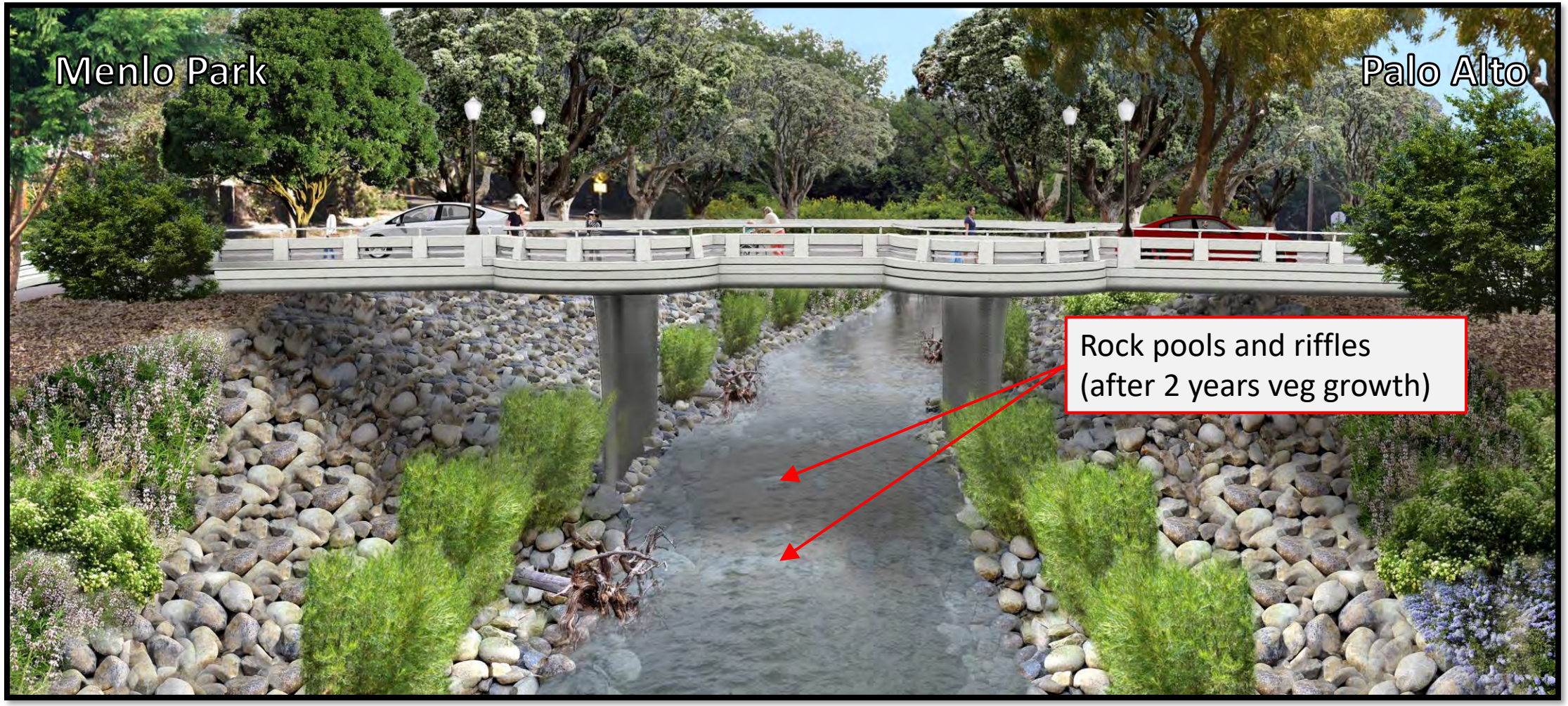
Pope-Chaucer Bridge Replacement

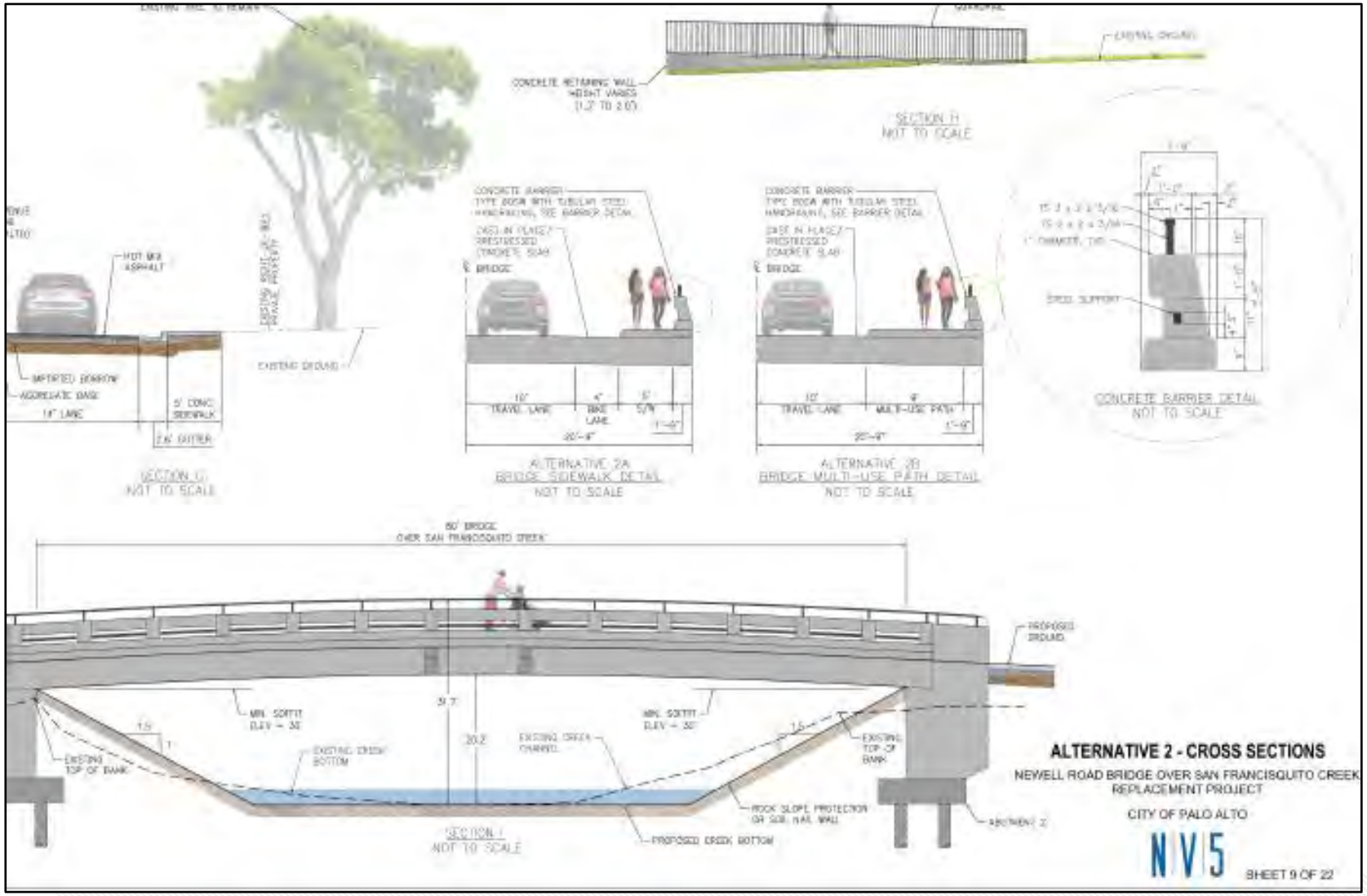
Pope-Chaucer Bridge Replacement (Before)

Pope-Chaucer Bridge Replacement (After)



Newell Rd Bridge Replacement (Before)

Newell Rd Bridge Replacement (After)



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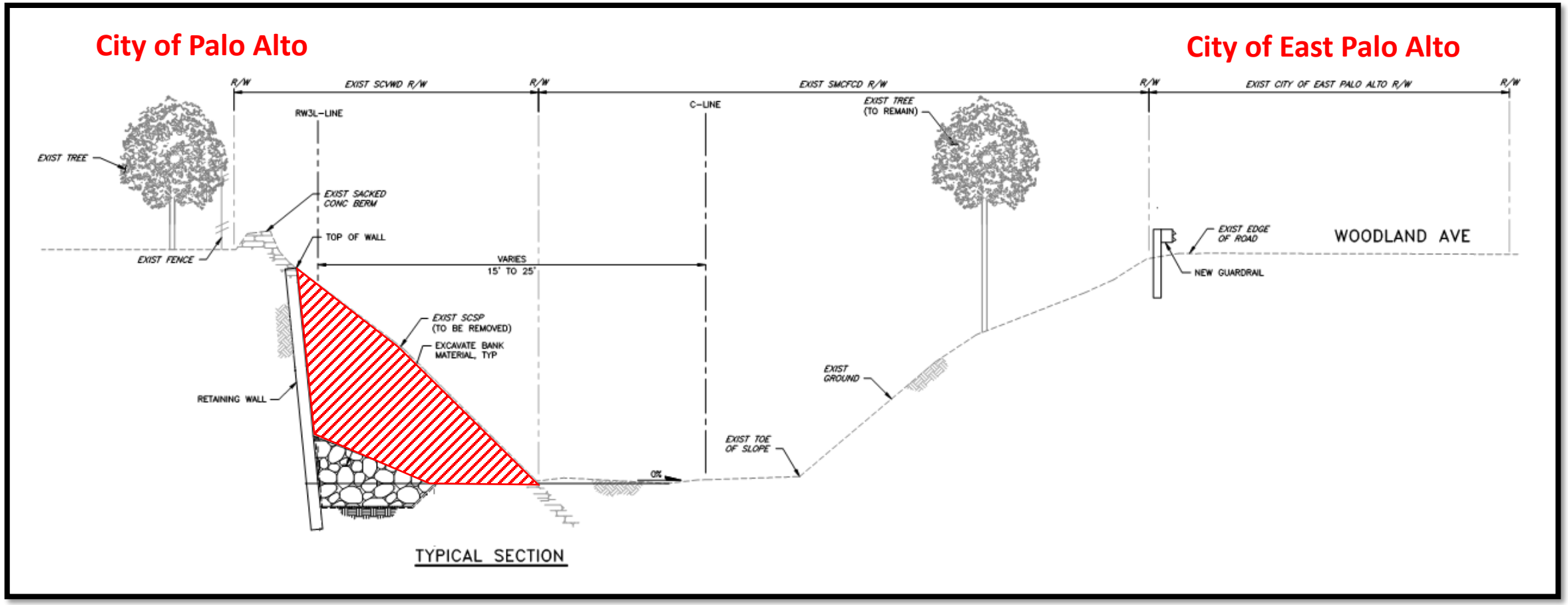
Creek Widening Sites

Creek Widening Sites, Cont'd.

- Palo Alto bank is better due to even greater increase in channel capacity & to sacked-concrete slopes
- East Palo Alto slope is "natural", no bank armoring
- However, not the only possible approach
- Continue to explore a range of channel widening options

Creek Widening Sites (In-channel Walls)



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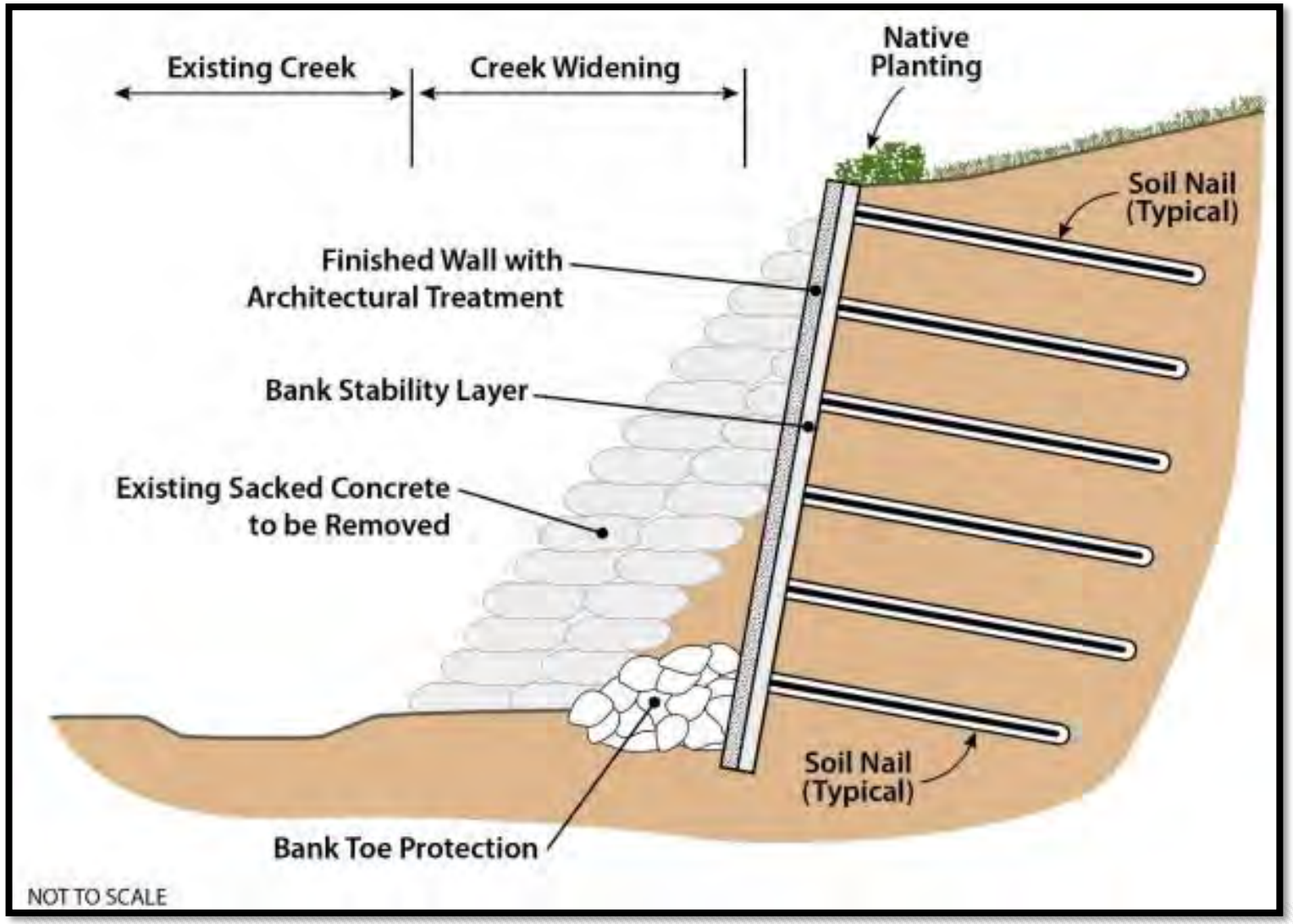
Creek Widening Sites (In-channel Walls), Cont'd.

City of East Palo Alto

City of Palo Alto



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Creek Widening Sites (In-channel Walls), Cont'd.

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Creek Widening Sites (Top of Bank Treatment)

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Project Timeline

1. Palo Alto's Newell Rd. Bridge Replacement – 2023
2. Channel Widenings – 2023 and/or 2024
3. Pope-Chaucer Bridge Replacement – 2024

Next Steps/Challenges

- Finalizing design of project elements
- SFCJPA working on permit applications for construction
- Finding additional funding sources for construction budget shortfall
- Continue coordination with Stanford for Reach 3, 100-yr flood protection

You can learn more about the Creek, the project, and the SFCJPA at www.sfcjpa.org

QUESTIONS

1998 Flood Event

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Clean Water • Healthy Environment • Flood Protection

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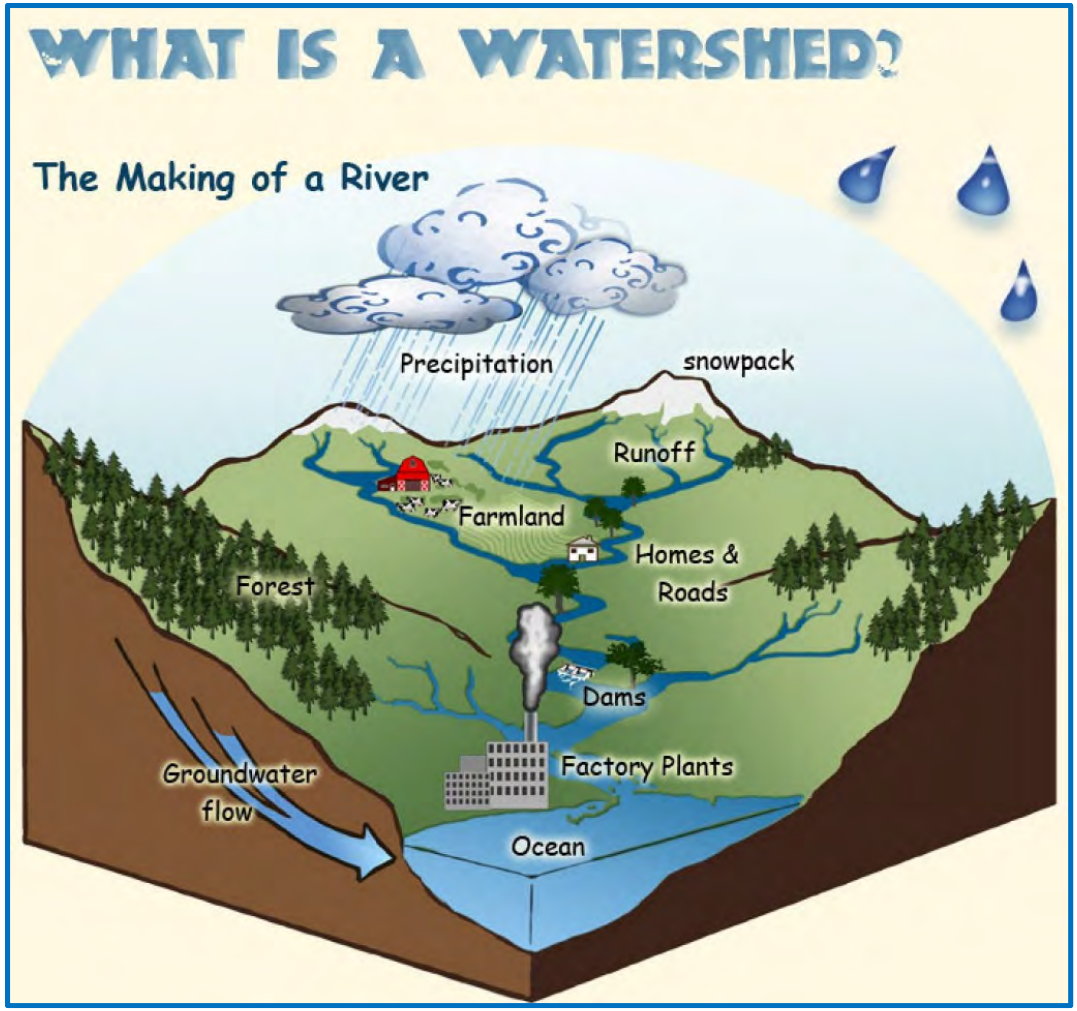
Watershed Maps

Presented by:
Education Outreach



Materials Required

1 piece of plain scrap paper (8.5 X 11)

Water-based markers
We suggest **blue**, **brown**, **green**, **red**, & **orange**
(If you do not have markers, pens and pencils will work well too)

A bowl or cup of water

A plate or tray to put your map on


Alamitos Creek

Downtown San Jose

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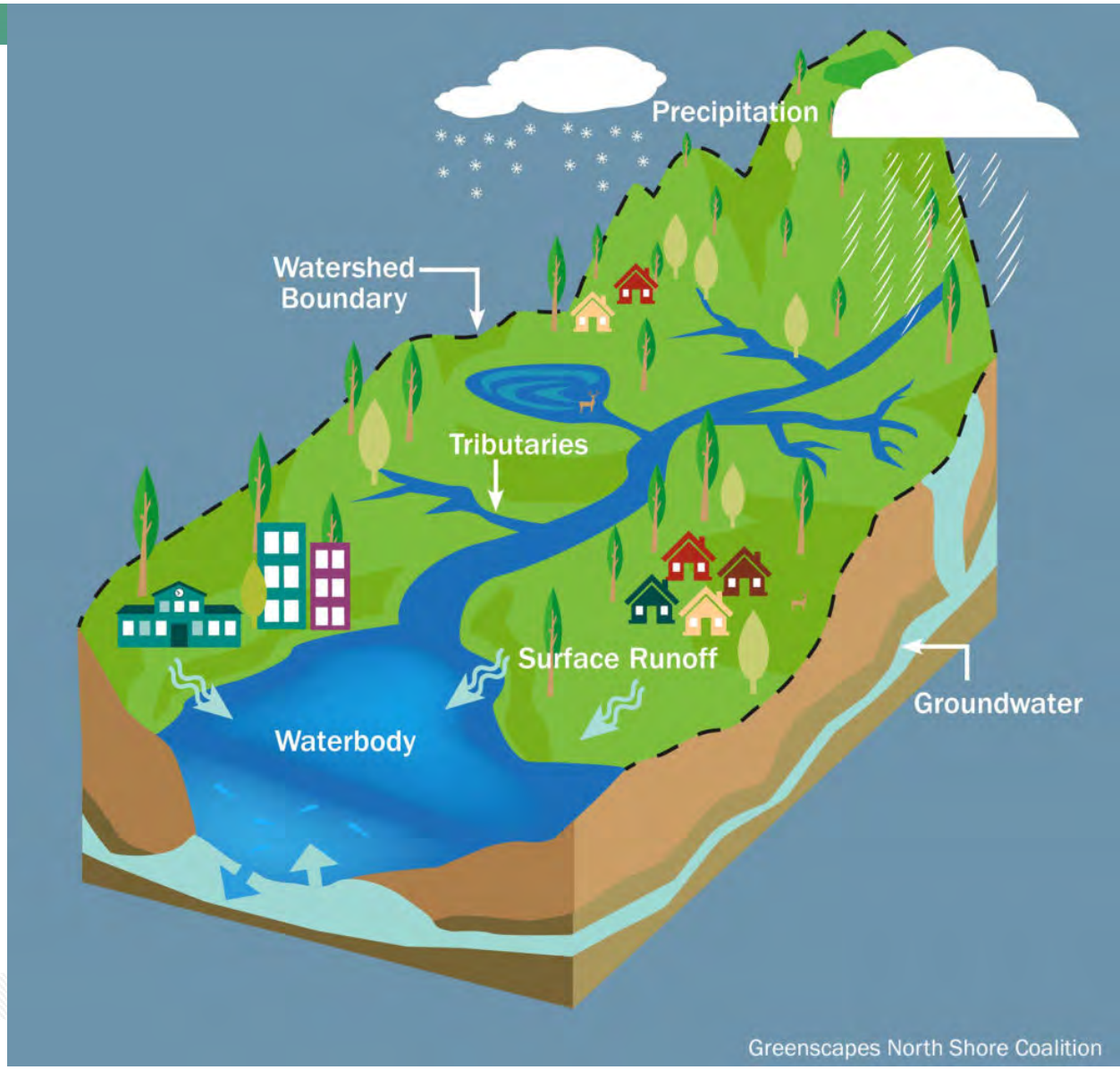
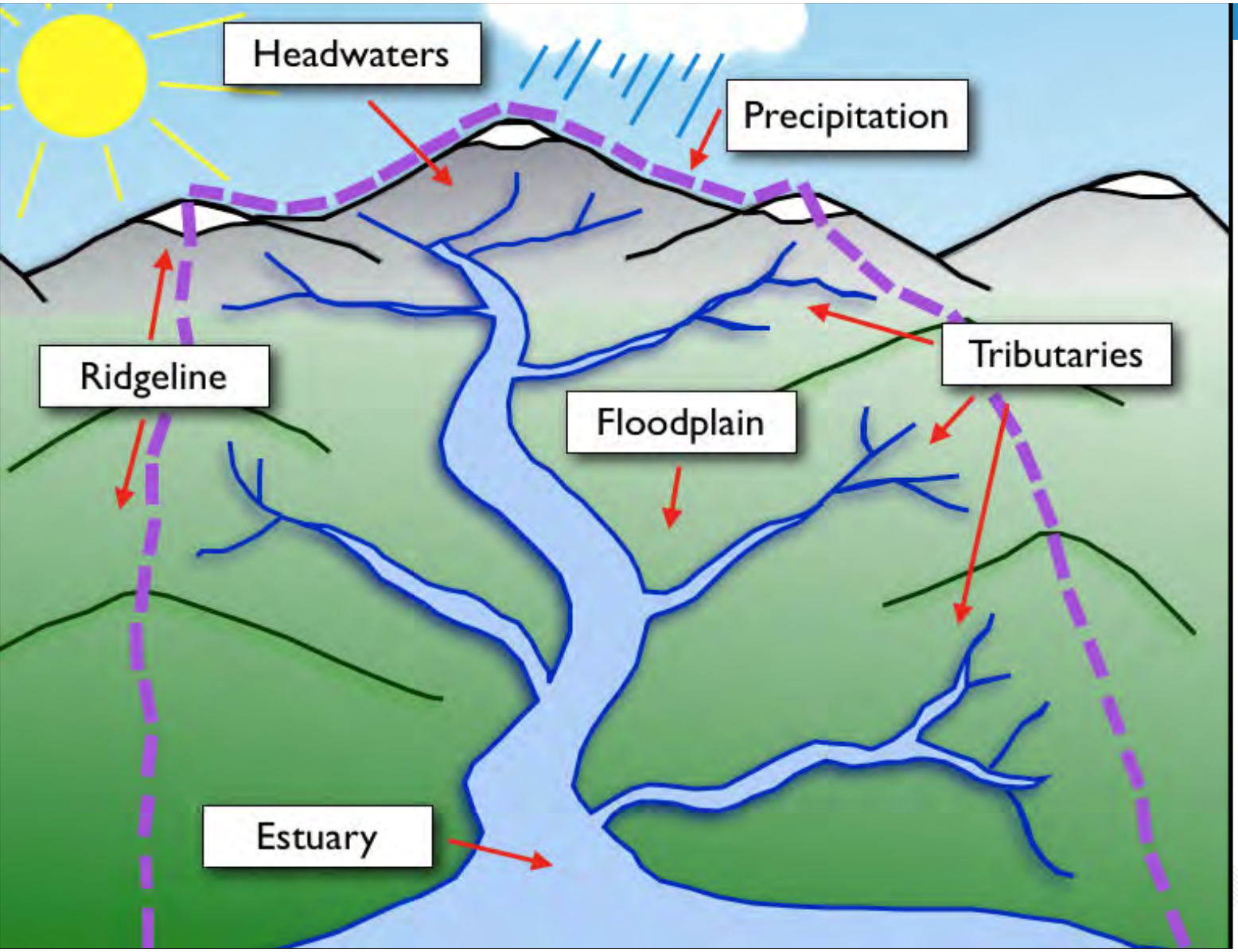
A watershed is…

an area of land where all the water that is under it, or flows through it, collects in the same place.

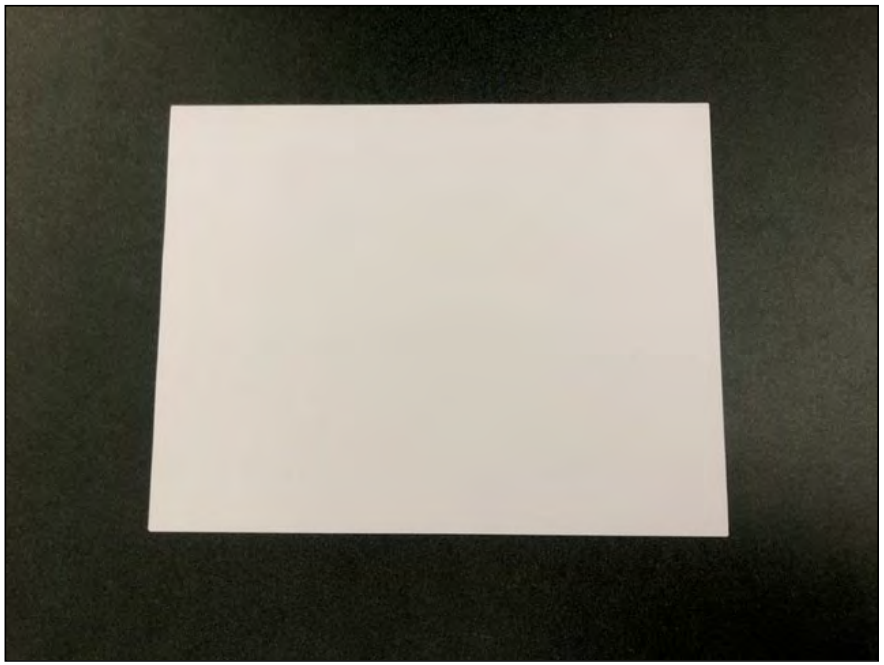
This could be a river, bay or ocean.

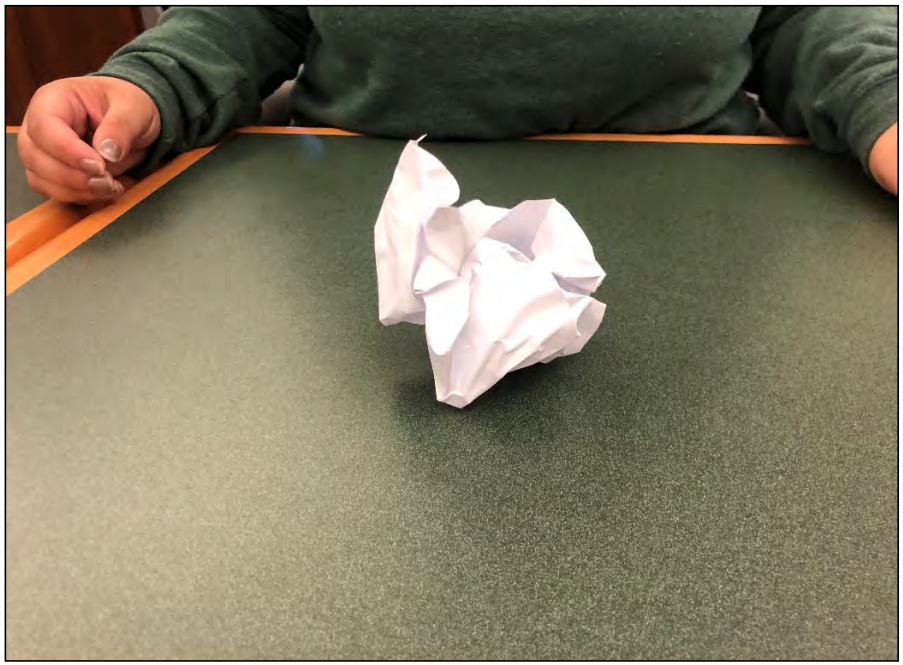
And we all live in one!





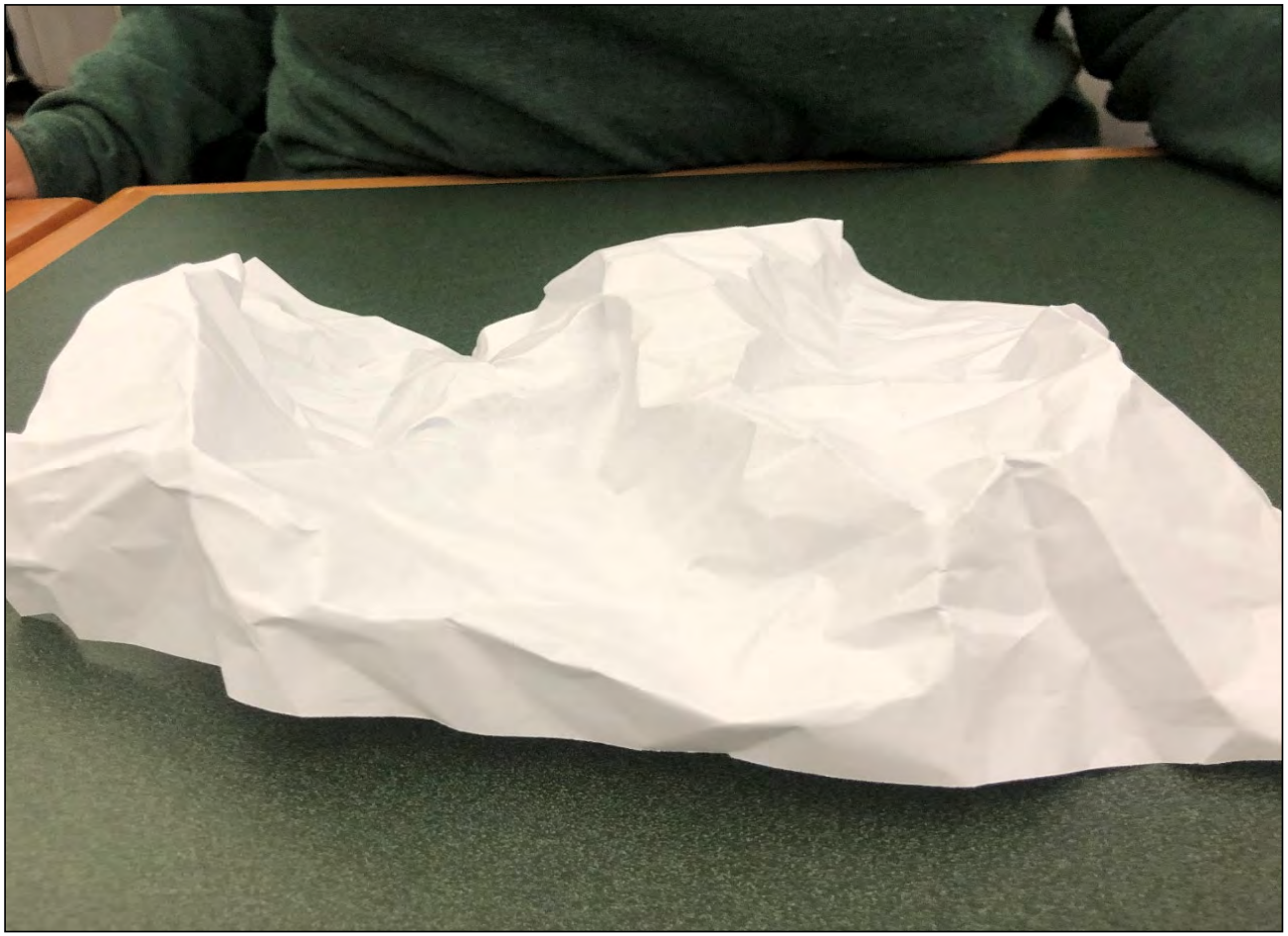
Now let's make a Watershed Map!





Step 1: Crumple up the paper

Step 2:
Unravel the paper, but make sure it’s not completely flat.



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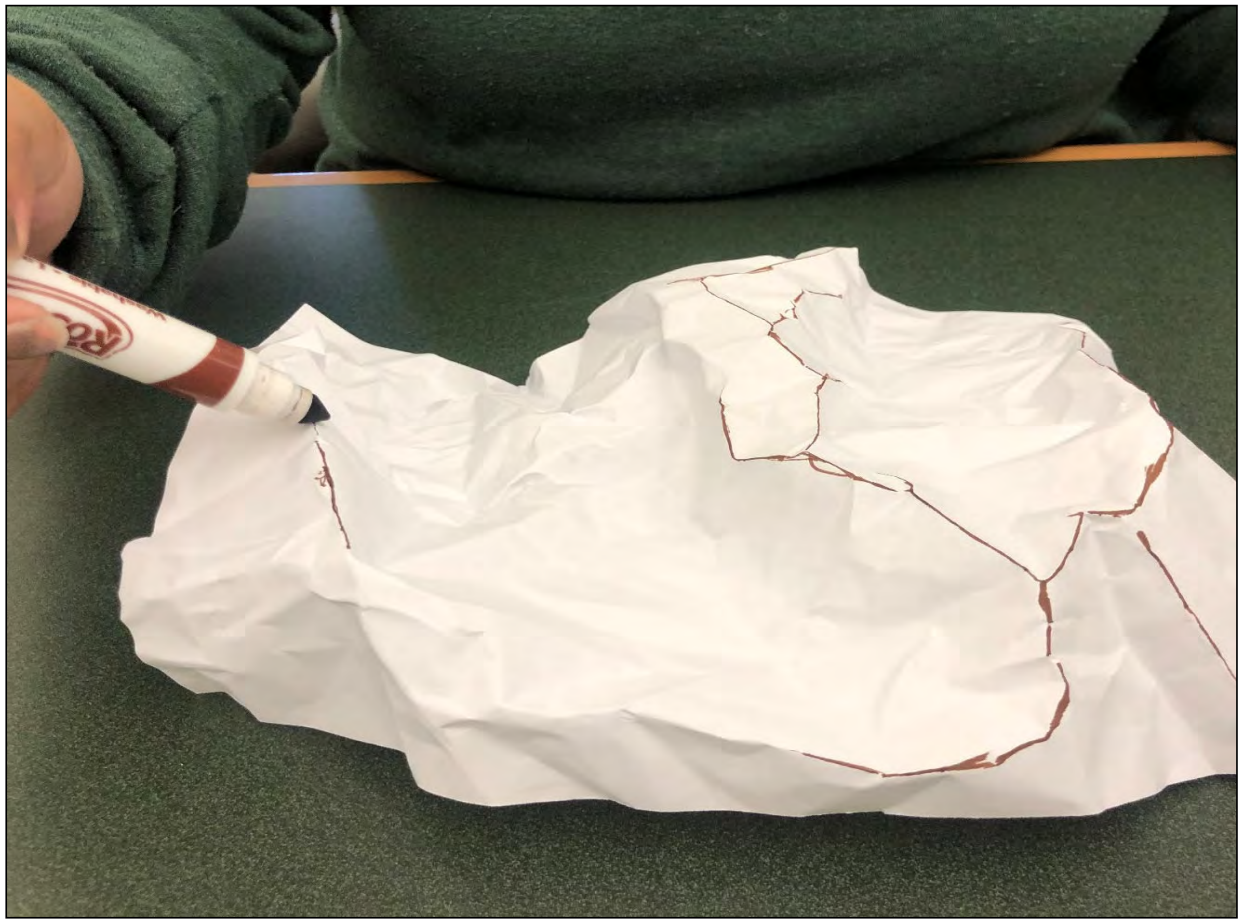
Step 3: Use a **brown** marker to mark the high places which are the **ridges** of the mountains.



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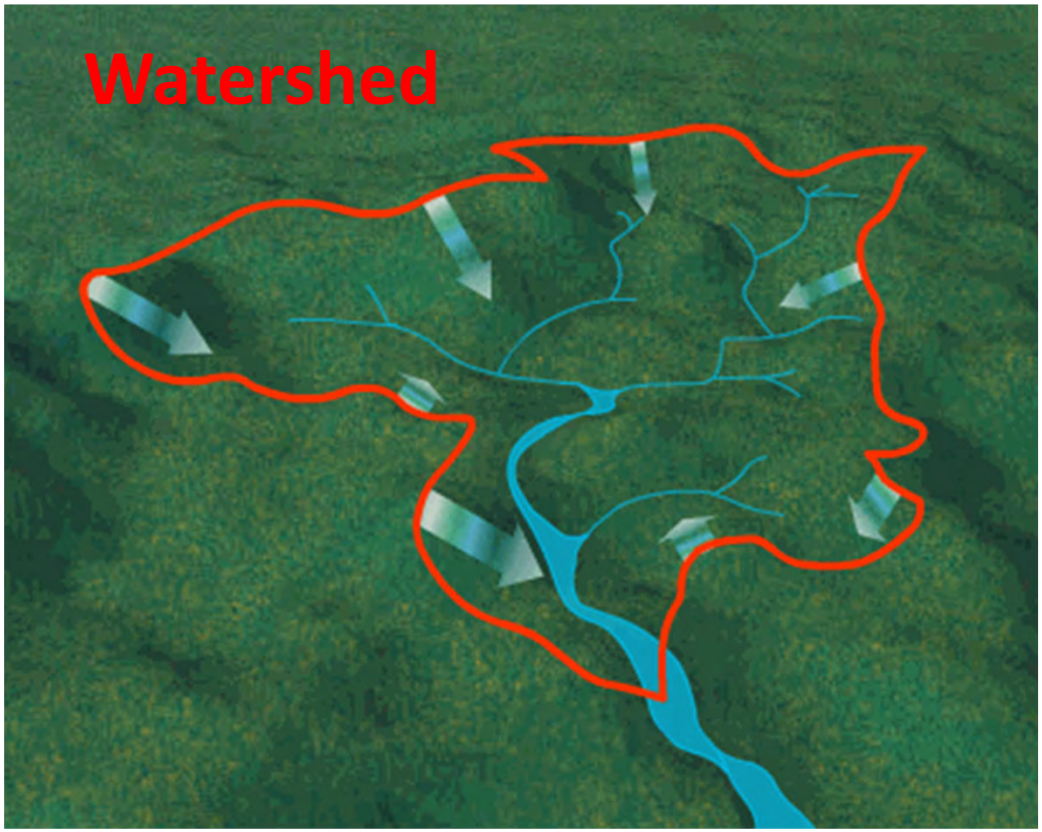
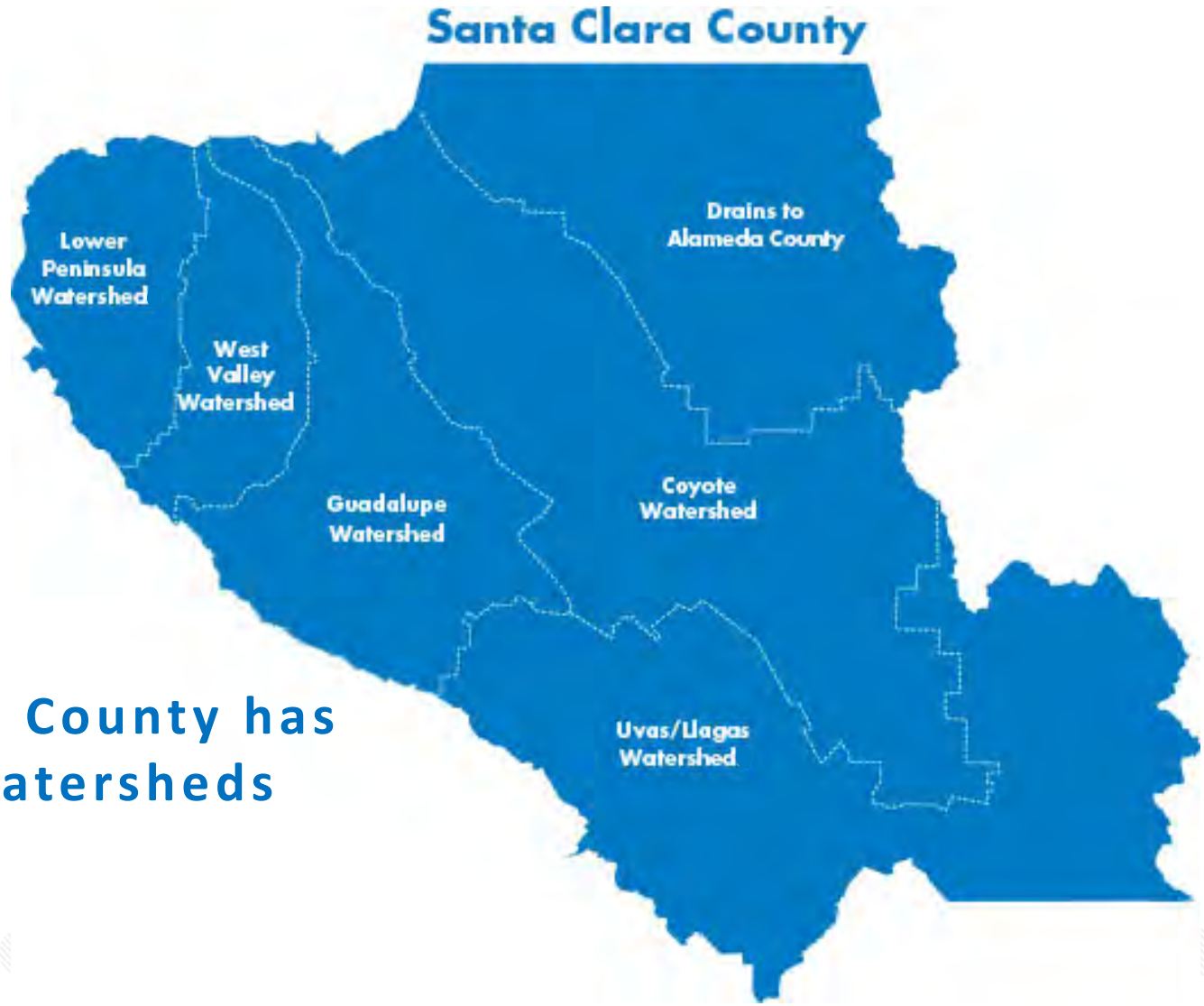
Ridgelines and Boundaries

The **ridgeline** is the highest points of the watershed that form a **boundary** and divide one watershed from another.





Santa Clara County has 5 main watersheds

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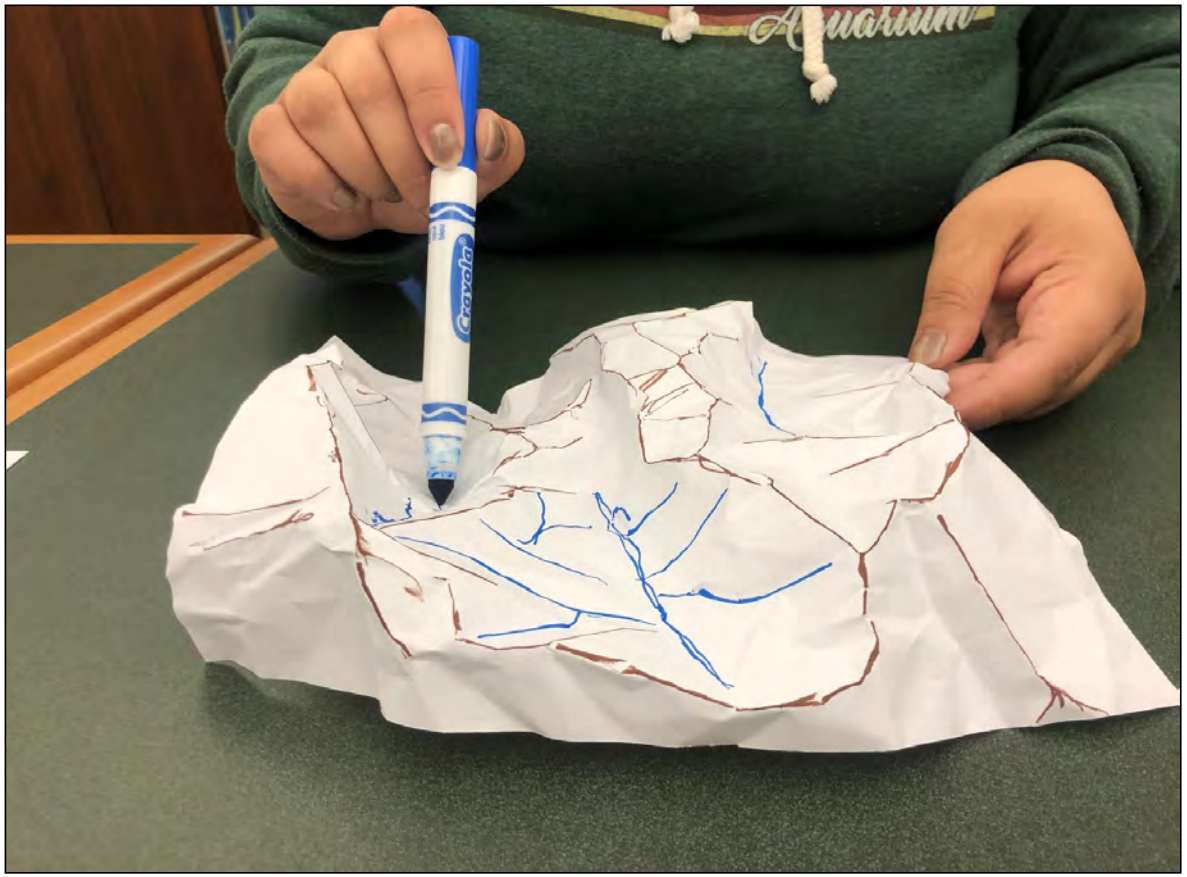
Step 4:

Use a **blue** marker to mark where you predict water will flow.

Rivers will form in the valleys. Draw creeks and streams that could flow down from the mountains.



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Precipitation is water that falls to the earth in the form of rain, hail, sleet and snow.

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Headwaters are the places where streams begin, often at the highest point in a watershed.

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Tributaries

Small **tributary** streams flow into one another to form larger streams.

Larger streams join to form rivers.

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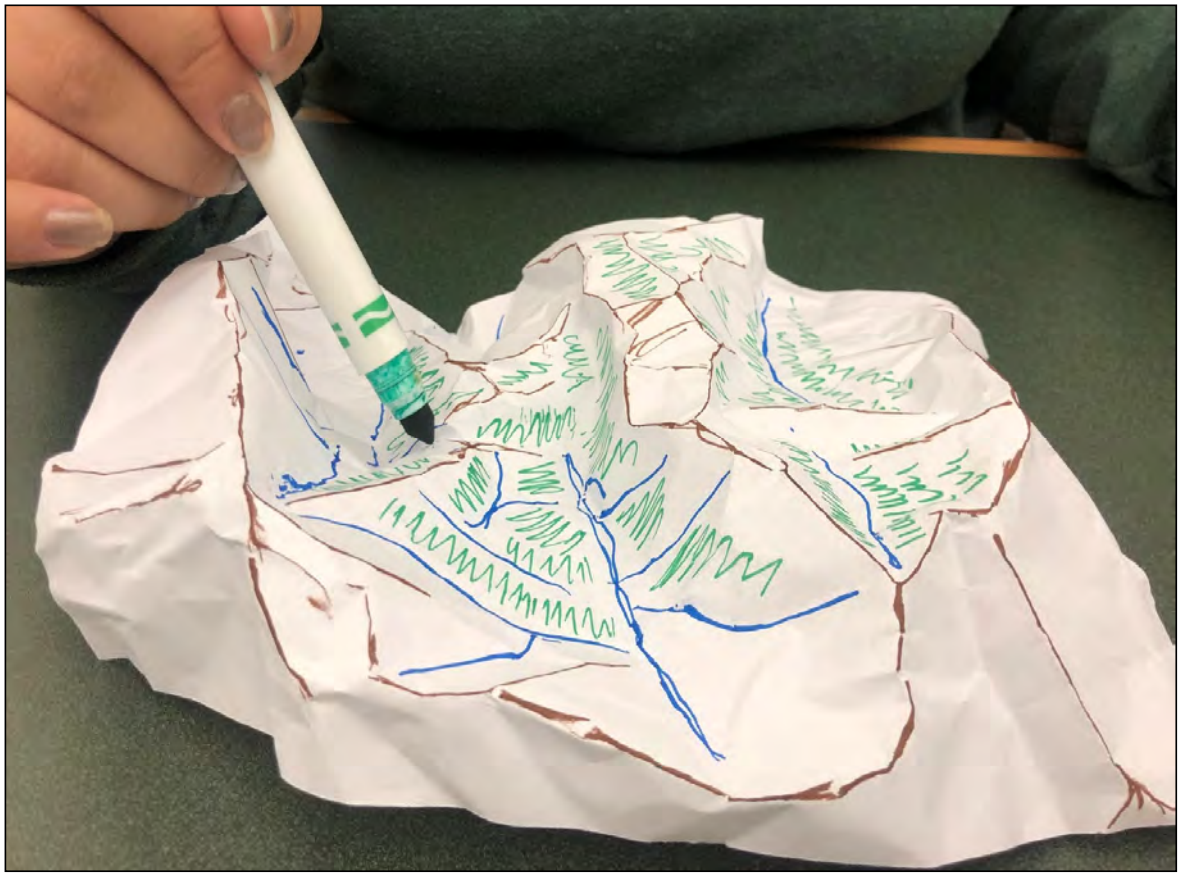
Step 5:

Add vegetation with your **green** marker.

Where do you think plants will grow? Close to water or far away?



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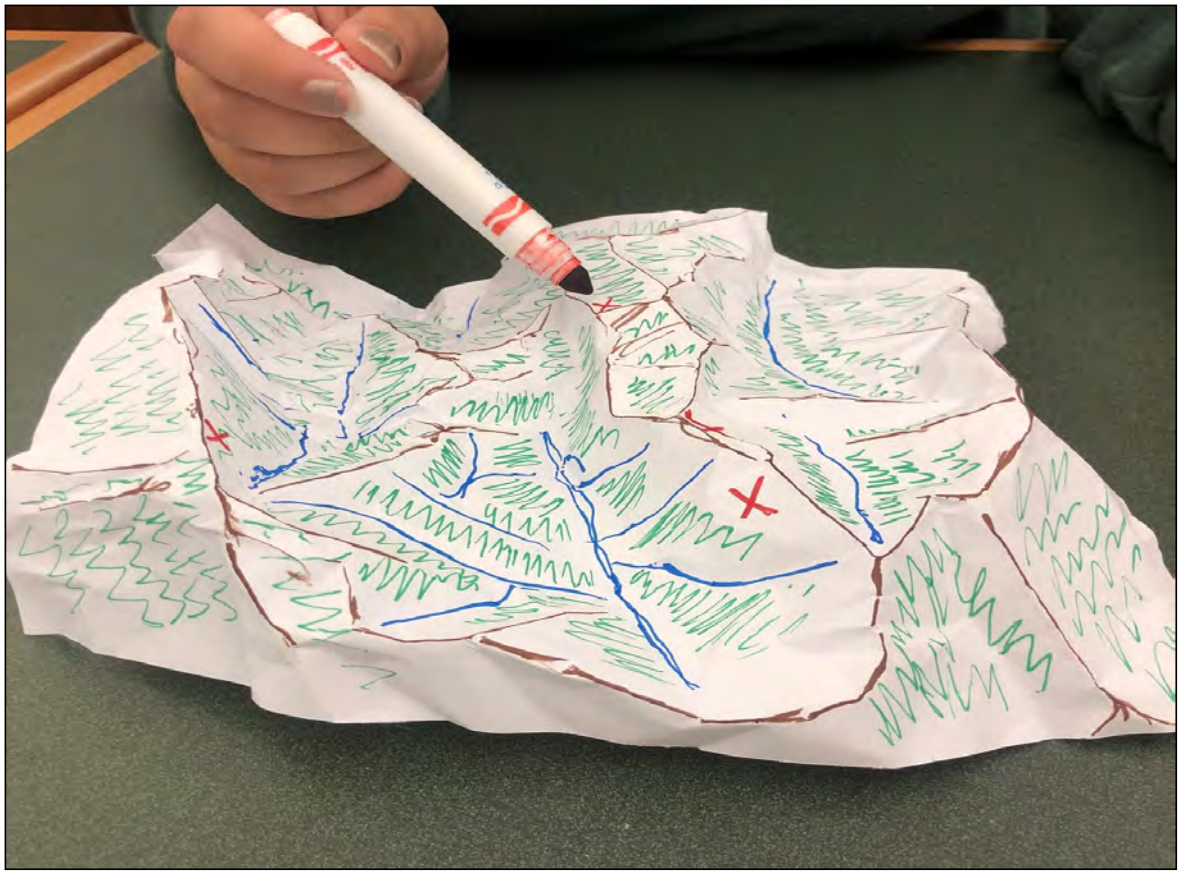
Alamitos Creek

Step 6:

Where would you like to live?

Put a red **X** where you would like your house to be and then add 4 or 5 **X** for other houses.



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Do you know where the water from storm drains flows to?

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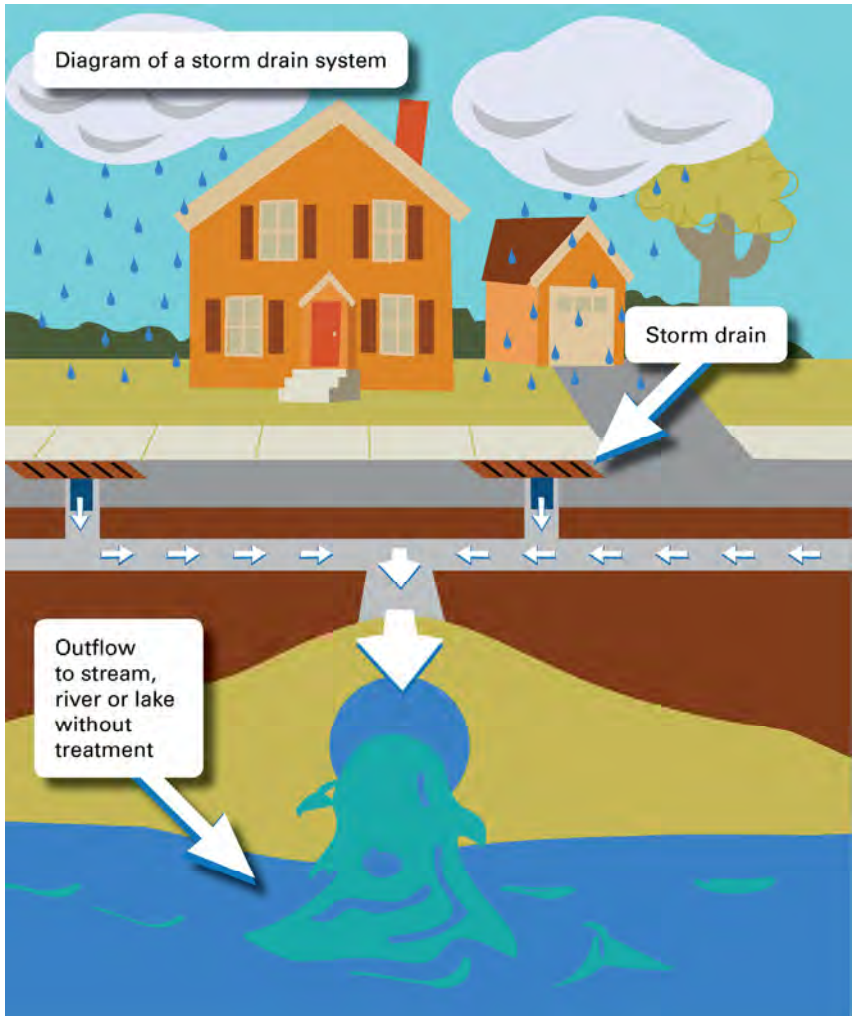
In Santa Clara County our storm drains connect to our creeks through underground pipes.

The water flows to our creeks, on to **San Francisco Bay** and the **Pacific Ocean**.



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Step 7:

Use your **orange** marker to draw an orange rectangle beside each house.

These represent the storm drains in each neighborhood.

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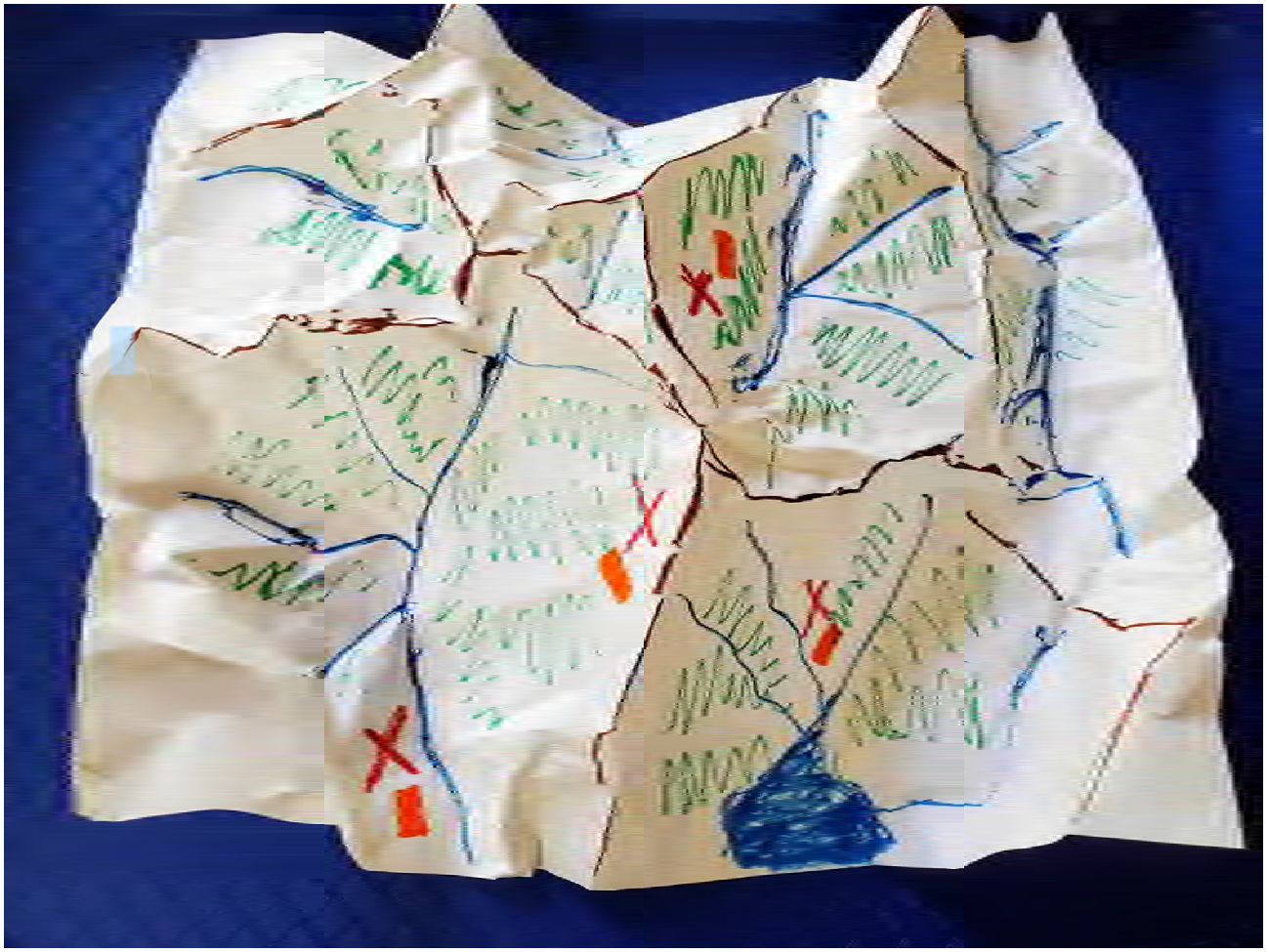

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STEP 1: Place your map on your plate or tray and don't move it!

Now you're going to sprinkle your maps with water to simulate rain.

Pay close attention to where the water is flowing!

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- What did you observe?
- How did the water flow?
- Where did the water end up?
- What happened to the orange squares that represented storm drains?

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Why is it important to know about watersheds?

Guadalupe River in downtown San Jose

Lexington Reservoir in Los Gatos

Los Gatos Creek Trail

Watersheds are where we live!

What happens in your local watershed affects your local water supply, so what can you do to protect your watershed?

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Calabazas Creek

Los Gatos Creek

Calabazas Creek

These are storm drain outlets

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This is one of our local creeks

You can make a difference & protect your watershed

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“Adopt A Creek” or join a clean up event!

Visit our Valley Water website to learn more:
https://www.valleywater.org/learning-center/adopt-a-creek

Valley Water


REDUCE
REUSE
RECYCLE
Happy Learning

Reuse: use things over again!

REFUSE: Don’t take things you don’t need!

Thank you!

Email us at
education@valleywater.org
Or **mail us** at
Education Outreach, Valley Water
5750 Almaden Expressway,
San Jose CA 95118

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Almaden Lake Improvement Project

Water 101 Academy Session 3 - April 6, 2022

Presented by: Sunshine Julian, Capital Engineering Manager

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Project Location

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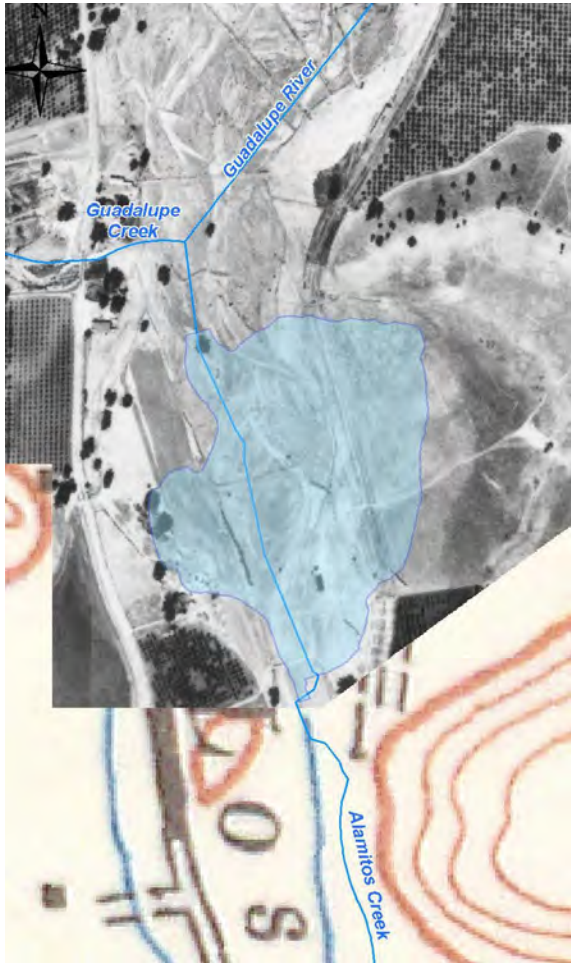
Almaden Lake's History



July 1939

May 1976

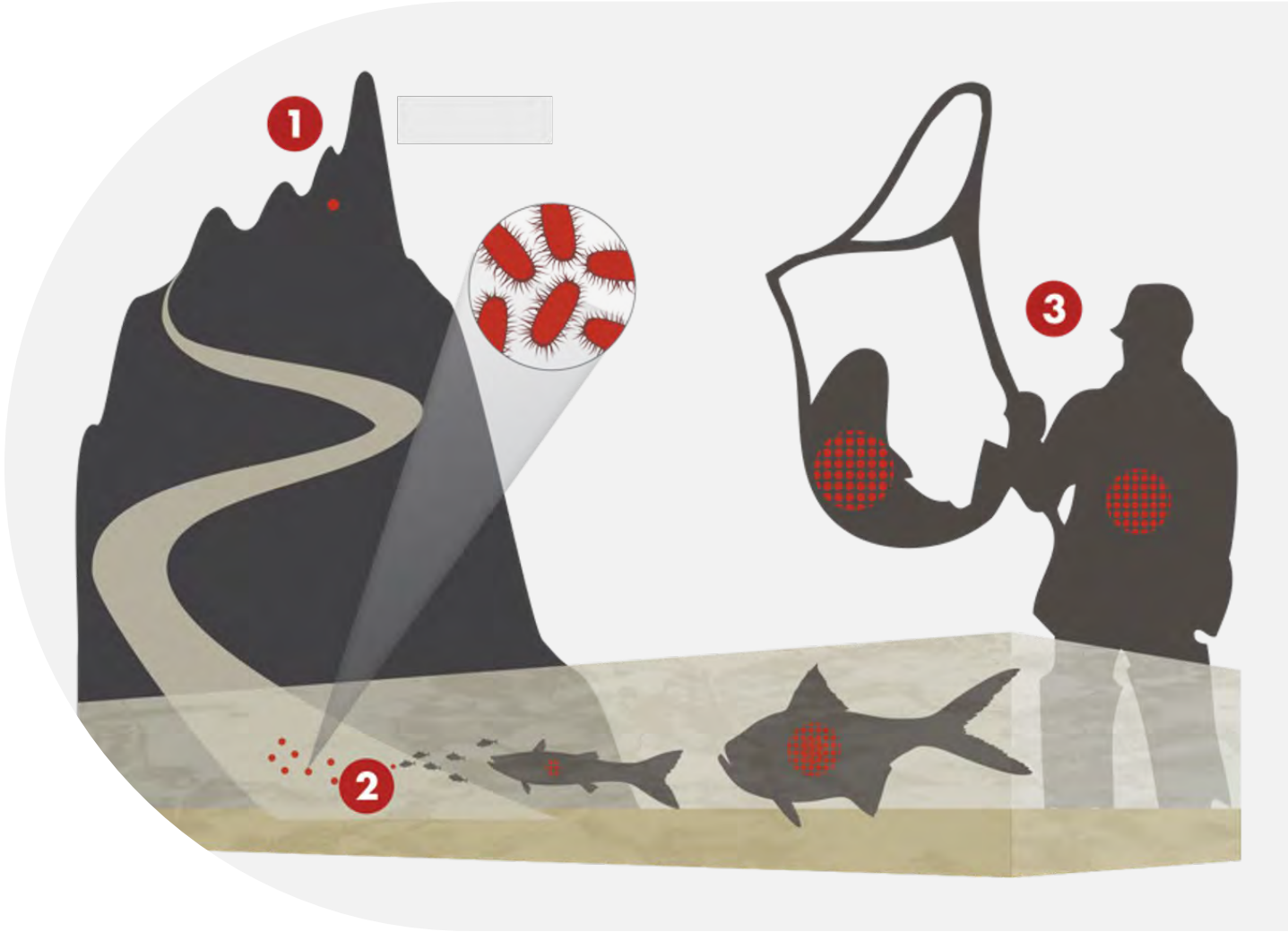
April 2001

Project Need – Fish Habitat & Migration

- Alamitos Creek supports federally threatened Central CA Coast steelhead
- Fish can get lost in the lake
- Native fish can fall prey to non-native fish

Project Need – Mercury

- Almaden Lake is located downstream of the former New Almaden Quicksilver Mine.
- The current lake configuration can promote the conversion of mercury to methylmercury, especially in the summer.



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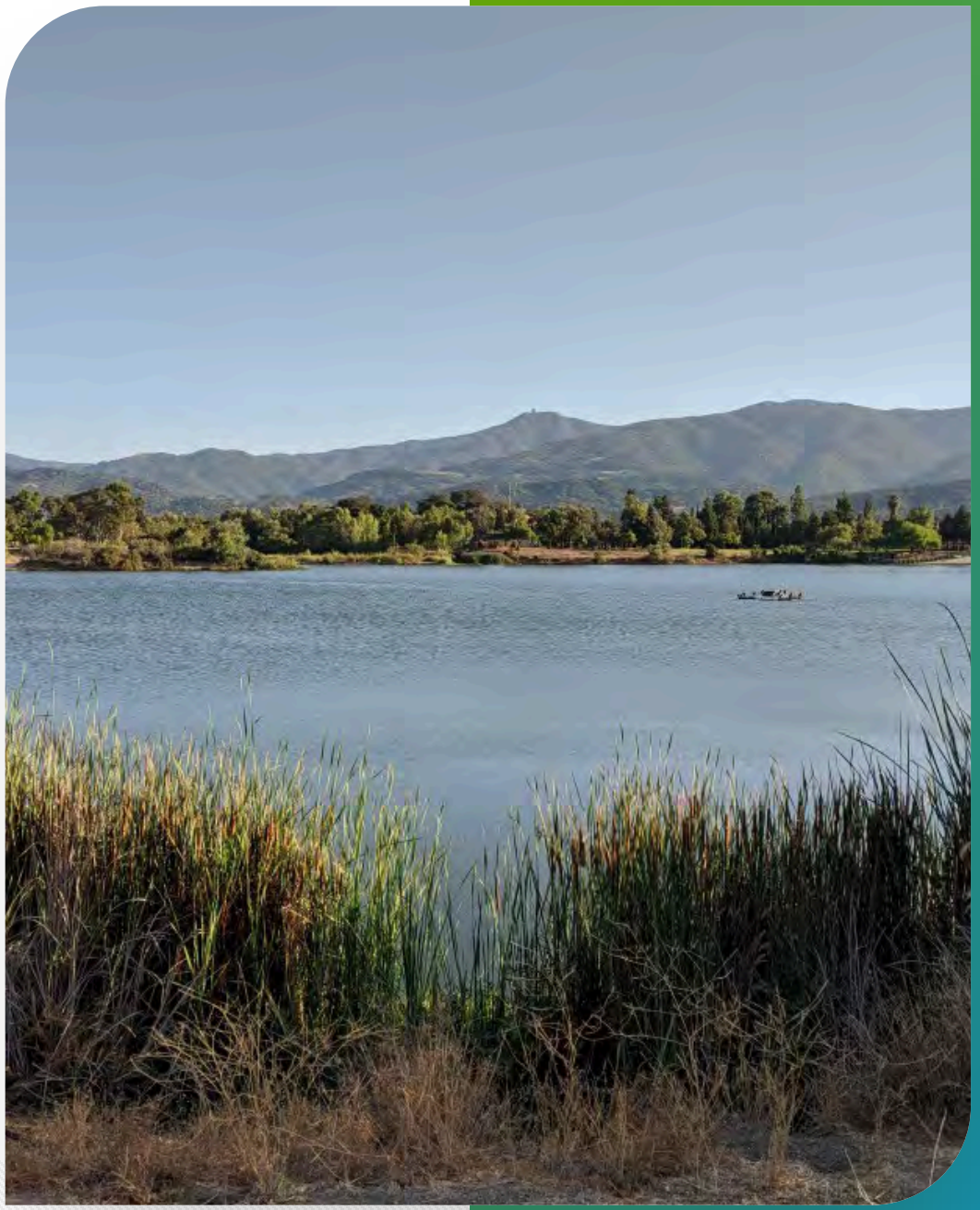
Project Need – Water Quality

- Almaden Lake can experience elevated bacteria levels and seasonal algae blooms.



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ALMADEN LAKE IMPROVEMENT

Project Objectives

The project needs have led to the development of the project objectives described here.

- Separate Alamitos Creek from Almaden Lake.
- Reduce production of methylmercury and mercury in fish in Almaden Lake to meet applicable water quality objectives.
- Remove potential lake entrainment and impacts from predatory fish to cold-water fish.
- Improve temperature conditions for native fish.
- Minimize impacts to existing recreational features.

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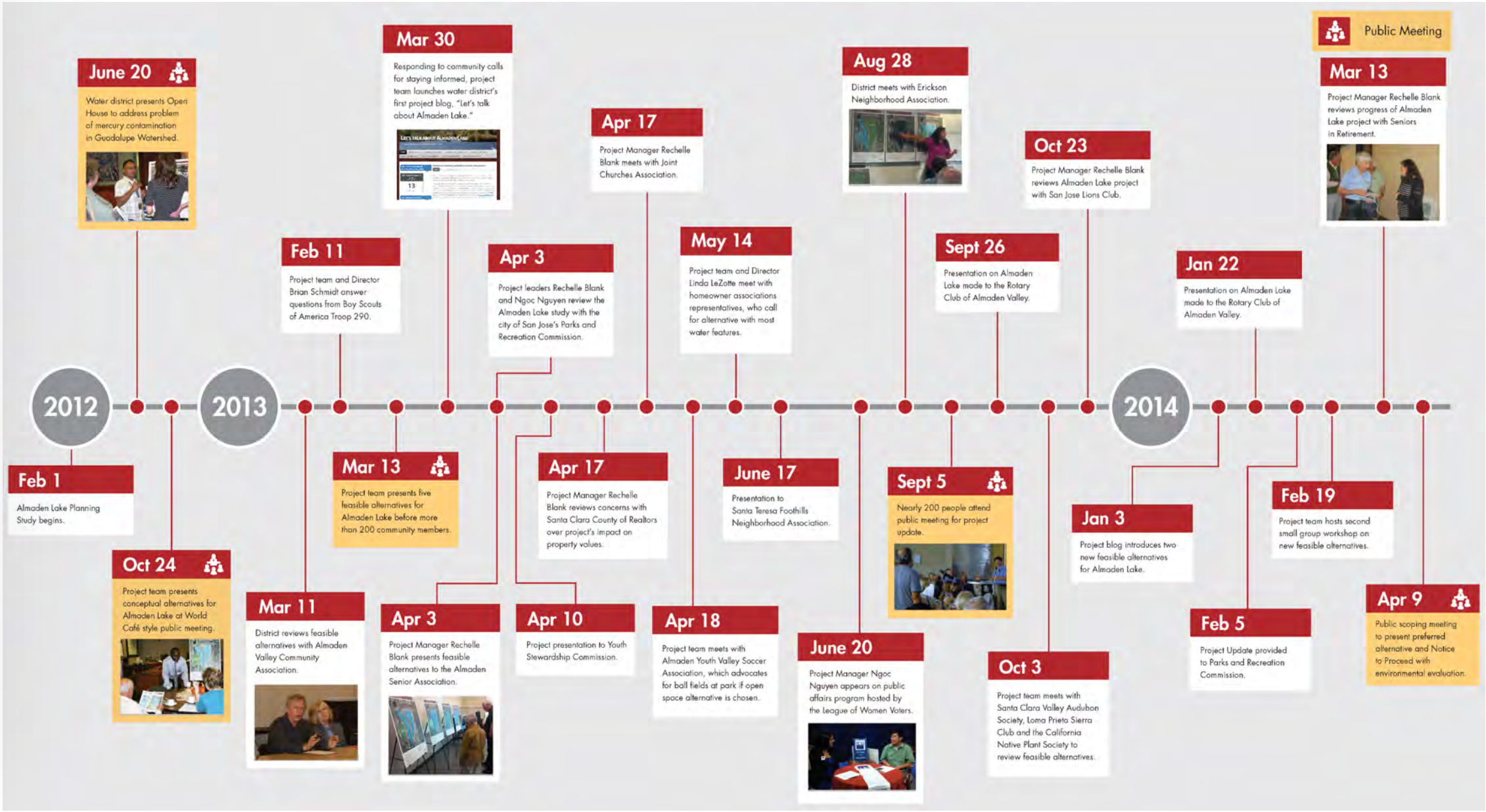
Project Input



Project Features

- Restore Alamitos Creek channel connection
- Construct new levee with dual maintenance road/walking trail
- Regrade and cap mercury-laden sediment at the lake's bottom.
- Create new island and stabilize existing island.
- Provide new water source.
- Create a new park area.

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Clean Water • Healthy Environment • Flood Protection

Water 101 Academy, April 2022

Presented by: **Meenakshi Ganjoo,** Program Administrator

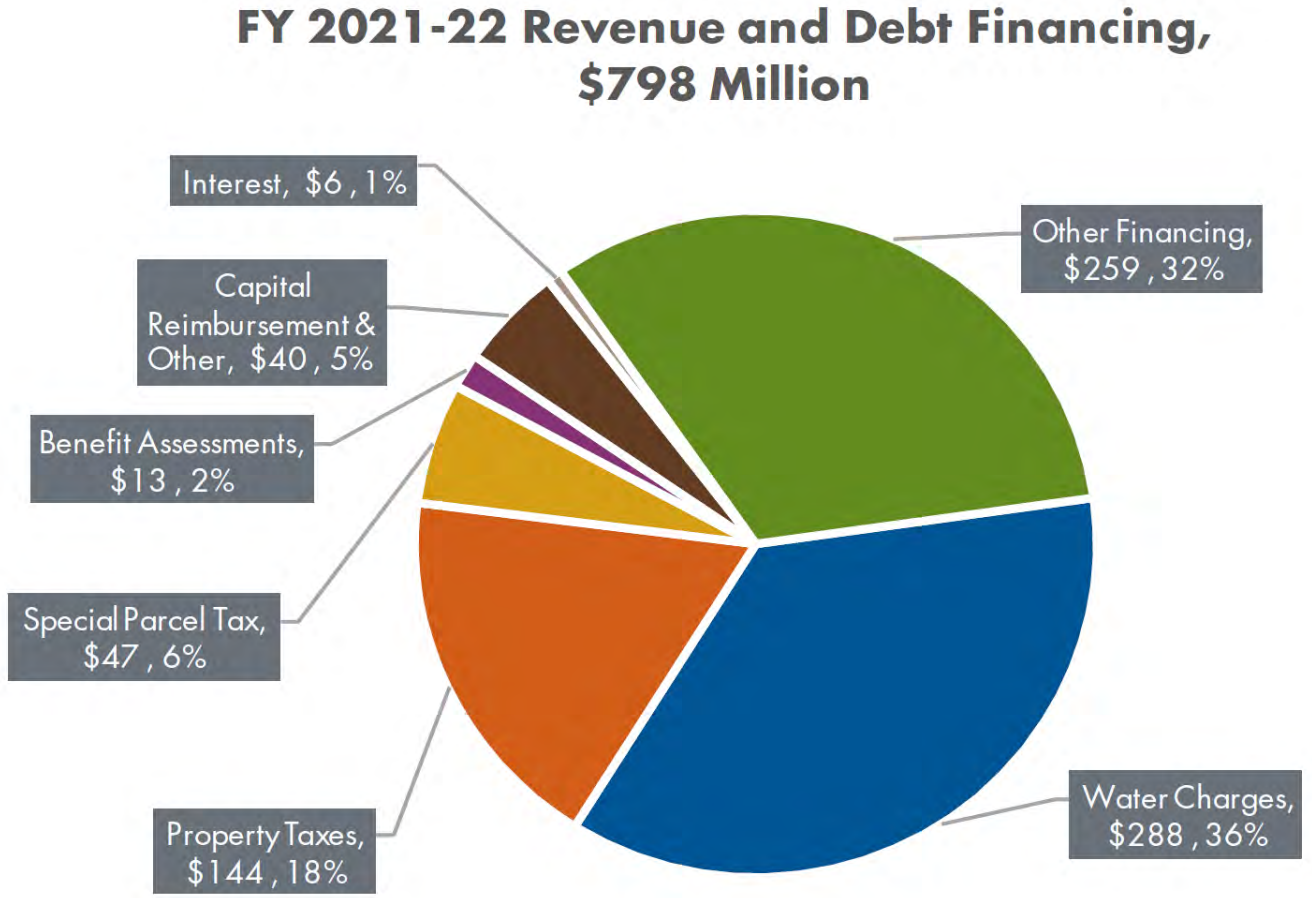
Valley Water

Agenda

- Valley Water Revenue Sources
- Voter-Approved Measures
- Renewed Safe, Clean Water Program
- Questions

Main Revenue Sources

- Water Charges (Water Utility Fund - 61)
- 1% Ad-Valorem Property Tax (Watershed Stream Stewardship Fund - 12)
- Special Parcel Tax (Safe, Clean Water Fund - 26)



History of Voter-Approved Measures

Two-thirds of voters approved the 15-year Clean, Safe Creeks and Natural Flood Protection Plan.

74% of voters approved the 15-year Safe, Clean Water and Natural Flood Protection Program focused on five (5) priorities

75% of voters approved the renewal of the Safe, Clean Water and Natural Flood Protection Program focused on six (6) priorities

6 Community-Preferred Priorities

Renewed Program Highlights

Continues local funding for vital projects benefitting the community beyond 15-years.

Maintains existing parcel tax rate structure.

Adds a new priority to better reflect what is important to the community.

Continues independent monitoring with all expenditures published annually and external independent audits.

Updates existing projects and adds new or enhanced projects to address changing conditions and align with the community's needs today.

Based on input from tens of thousands of county residents and stakeholders.

Priority A: Ensure a Safe, Reliable Water Supply

A1: Pacheco Reservoir Expansion

A2: Water Conservation Rebates and Programs

A3: Pipeline Reliability

Priority B: Reduce Toxins, Hazards, and Contaminants in Our Waterways

B1: Impaired Water Bodies Improvement

B2: Inter-Agency Urban Runoff Program

B3: Hazardous Materials Management and Response

B4: Support Volunteer Cleanup Efforts

Priority C: Protect Our Water Supply and Dams from Earthquakes and Other Natural Disasters

C1: Anderson Dam Seismic Retrofit

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Priority D: Restore Wildlife Habitat and Provide Open Space

D1: Management of Riparian Planting and Invasive Plant Removal
D2: Revitalize Riparian, Upland and Wetland Habitat
D3: Sediment Reuse to Support Shoreline Restoration
D4: Fish Habitat and Passage Improvement
D5: Ecological Data Collection and Analysis
D6: Restoration of Natural Creek Functions
D7: Partnerships for the Conservation of Habitat Lands

Priority E: Provide Flood Protection to Homes, Businesses, Schools, Streets, and Highways

E1: Coyote Creek Flood Protection

E2: Sunnyvale East and Sunnyvale West Channels Flood Protection

E3: Lower Berryessa Flood Protection, including Tularcitos and Upper Calera Creeks (Phase 3)

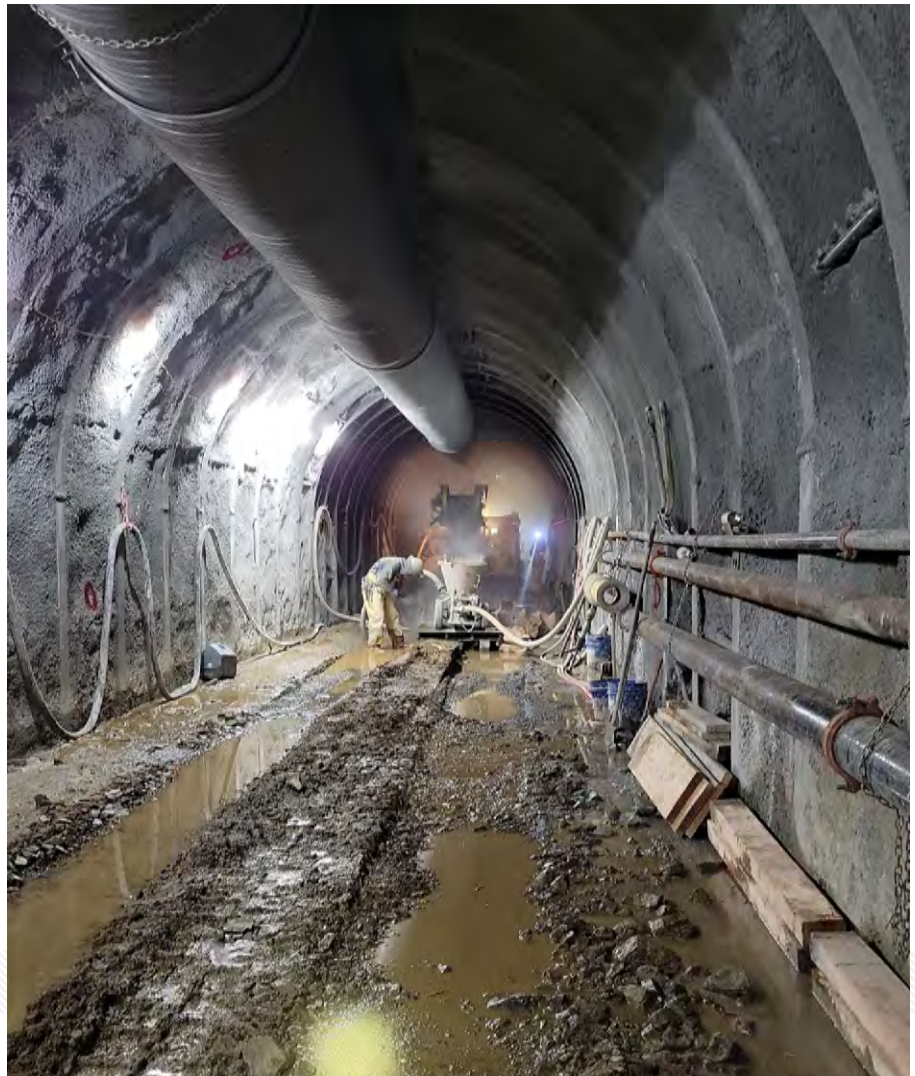
E4: Upper Penitencia Creek Flood Protection

E5: San Francisquito Creek Flood Protection

E6: Upper Llagas Creek Flood Protection

E7: San Francisco Bay Shoreline Protection

E8: Upper Guadalupe River Flood Protection



Priority F: Support Public Health and Public Safety for Our Community

F1: Vegetation Control and Sediment Removal for Capacity

F2: Emergency Response Planning and Preparedness

F3: Flood Risk Assessment Studies

F4: Vegetation Management for Access and Fire Safety

F5: Good Neighbor Program: Encampment Cleanup

Priority F: Support Public Health and Public Safety for Our Community (cont.)

F6: Good Neighbor Program: Graffiti and Litter Removal and Public Art

F7: Emergency Response Upgrades

F8: Sustainable Creek Infrastructure for Continued Public Safety

F9: Grants and Partnerships for Safe, Clean Water, Flood Protection and Environmental Stewardship

Change Control Process

Types of Changes	Adjustments	Modifications
Text	Edits to text for correction of grammatical errors, information/ data updates and overall readability	Changes to a project KPIs
Schedule	Adjustments to project schedules provided in the original Program	
Funding	Fiscal year budget adjustments and increases to project funding allocations that do not impact any project deliverables in the Program	Increases to project funding allocations that impact the KPIs of any project in the Program

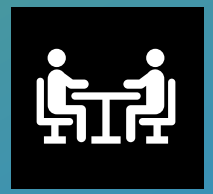
Transparency and Accountability

Public & Stakeholder Engagement Process every 15-years

Board Ability to Reassess Need of Tax every 15-years

Multiple 15-Year Financial Planning Cycles

5-Year Checkpoints and Implementation Plans



5-Year Professional, Independent Audits

Annual Reports; Quarterly Website Updates

Change Control Process

Independent Monitoring Committee (IMC)

- Analyze Valley Water's program annual reports
- Produce annual reports with recommendations
- Present recommendations to the Valley Water Board
- Review 5-year implementation plans

- Participate in stakeholder engagement process every 15 years

QUESTIONS

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Clean Water • Healthy Environment • Flood Protection