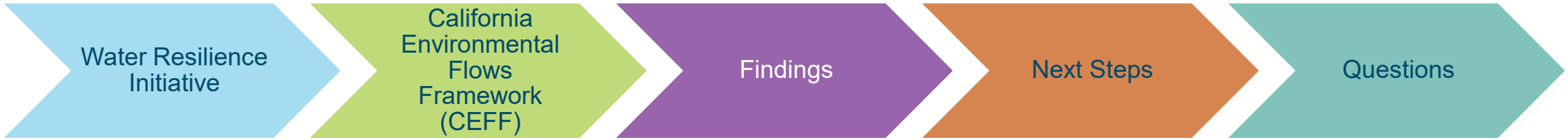
WATER RESILIENCE INITIATIVE OVERVIEW & CALIFORNIA ENVIRONMENTAL FLOWS FRAMEWORK STATUS UPDATE

Najwa Pitois
Principal Water Resources Planner

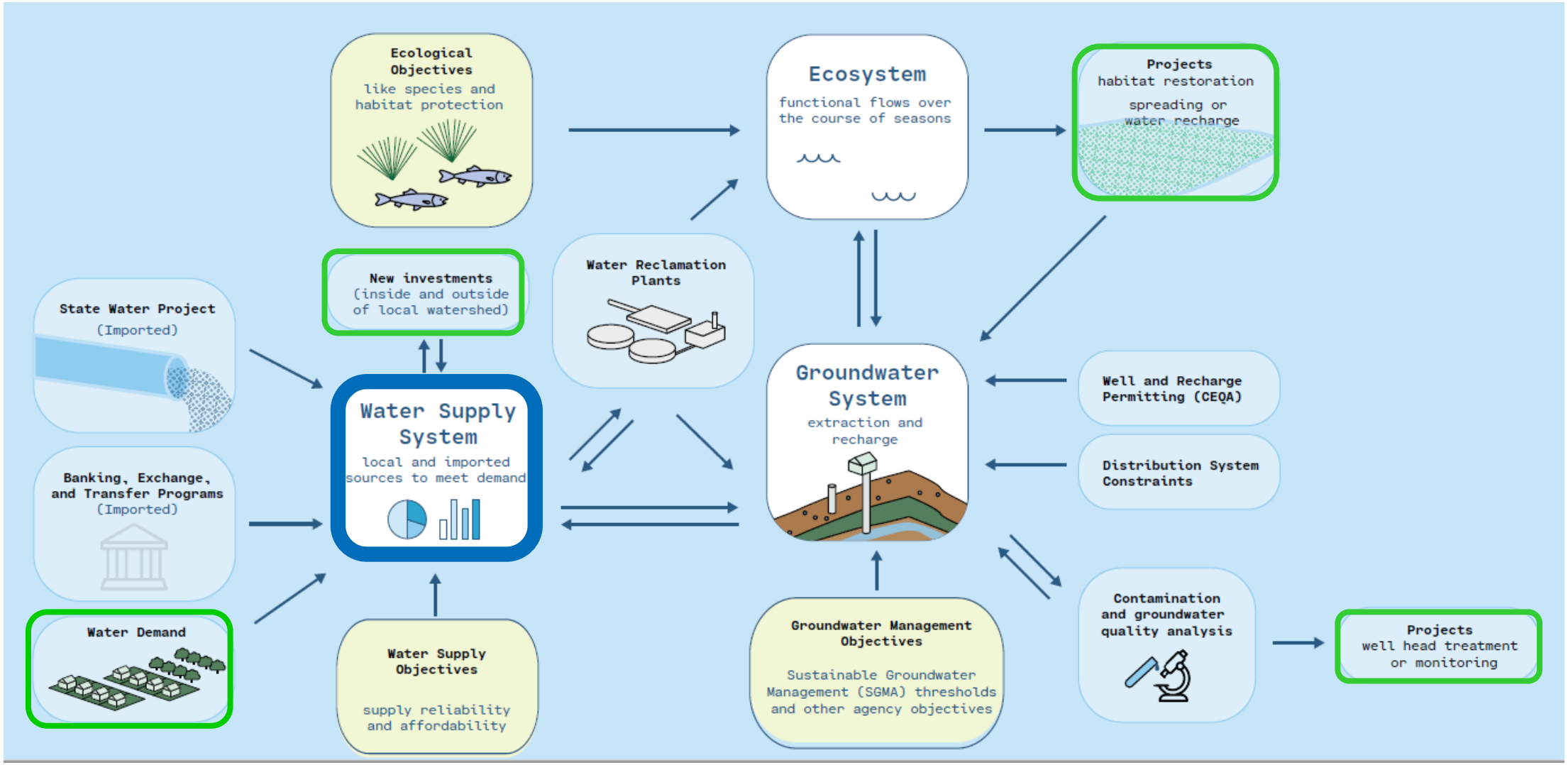
SCV WATER

OUTLINE / OVERVIEW



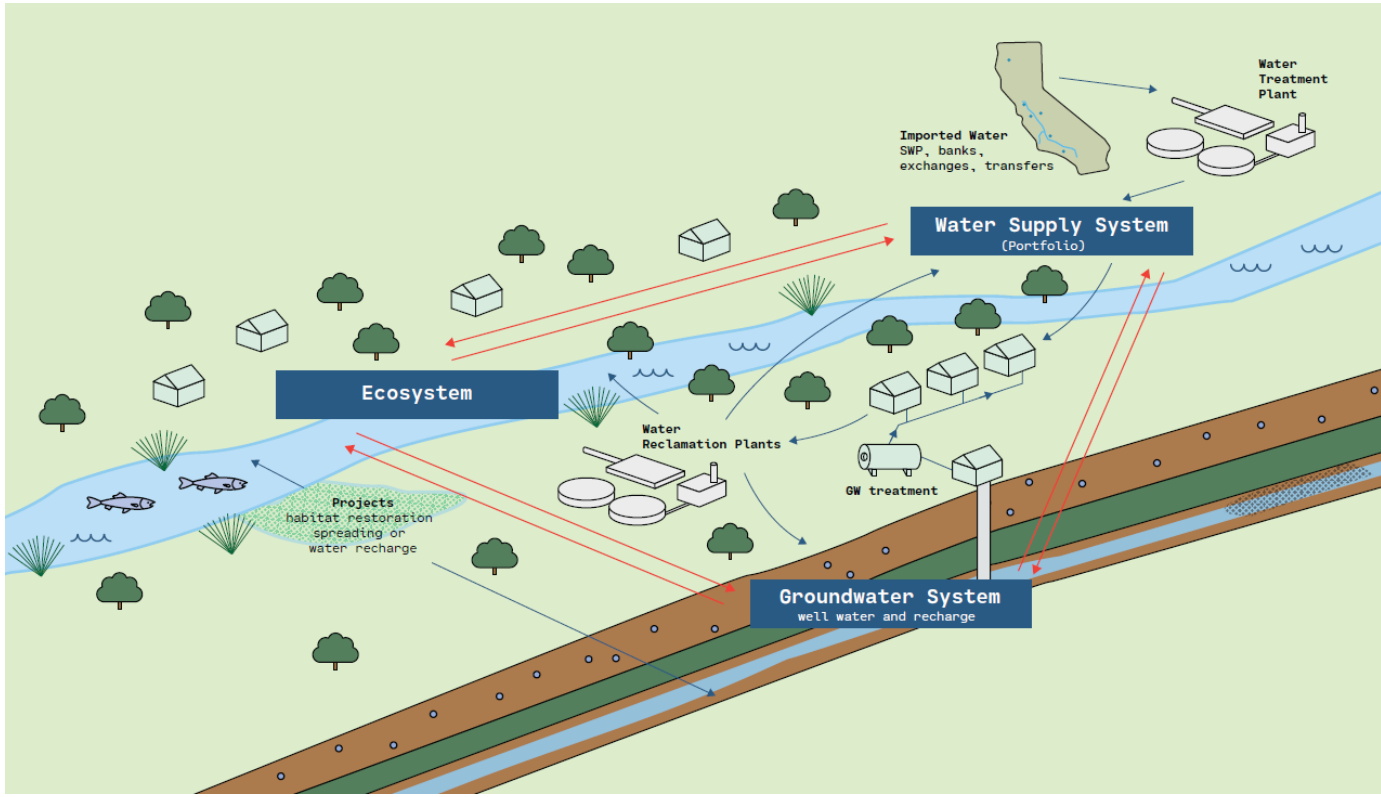

Water Resilience Initiative
California Environmental Flows Framework (CEFF)
Findings
Next Steps
Questions

WATER RESILIENCE INITIATIVE (WRI) SCOPE



WRI – LOCAL SUPPLY COMPONENT
(GROUNDWATER AND RECYCLED WATER)

- **Integrates**
  - SCV Water's mission and values
  - SCV Water's Santa Clara River policies
- **Driven by**
  - Need for water supply reliability
  - Needs of the ecological systems and regulatory framework
- **Improved Planning Methodology**
  - Current and future climate and regulatory challenges
  - Relationships with other stakeholders



Water Resilience Initiative

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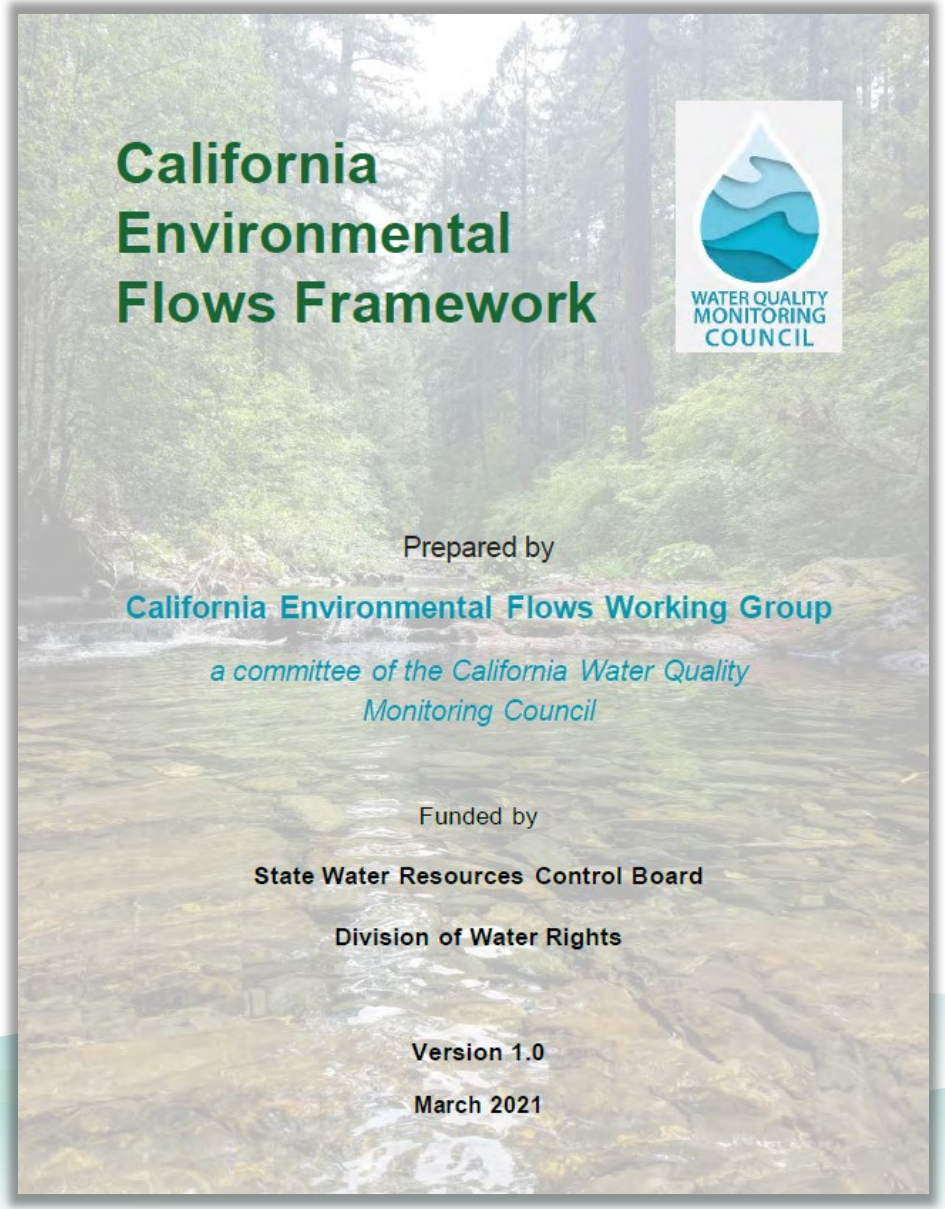
CALIFORNIA ENVIRONMENTAL FLOWS FRAMEWORK (CEFF)

- SCV Water embarked on applying the CEFF to the Upper Santa Clara River
- Co-developed by agencies of the State Environmental Flows Workgroup
- Provides statewide technical guidance for managers to employ a functional flows approach to efficiently develop scientifically defensible environmental flow recommendations.



WHY CEFF?

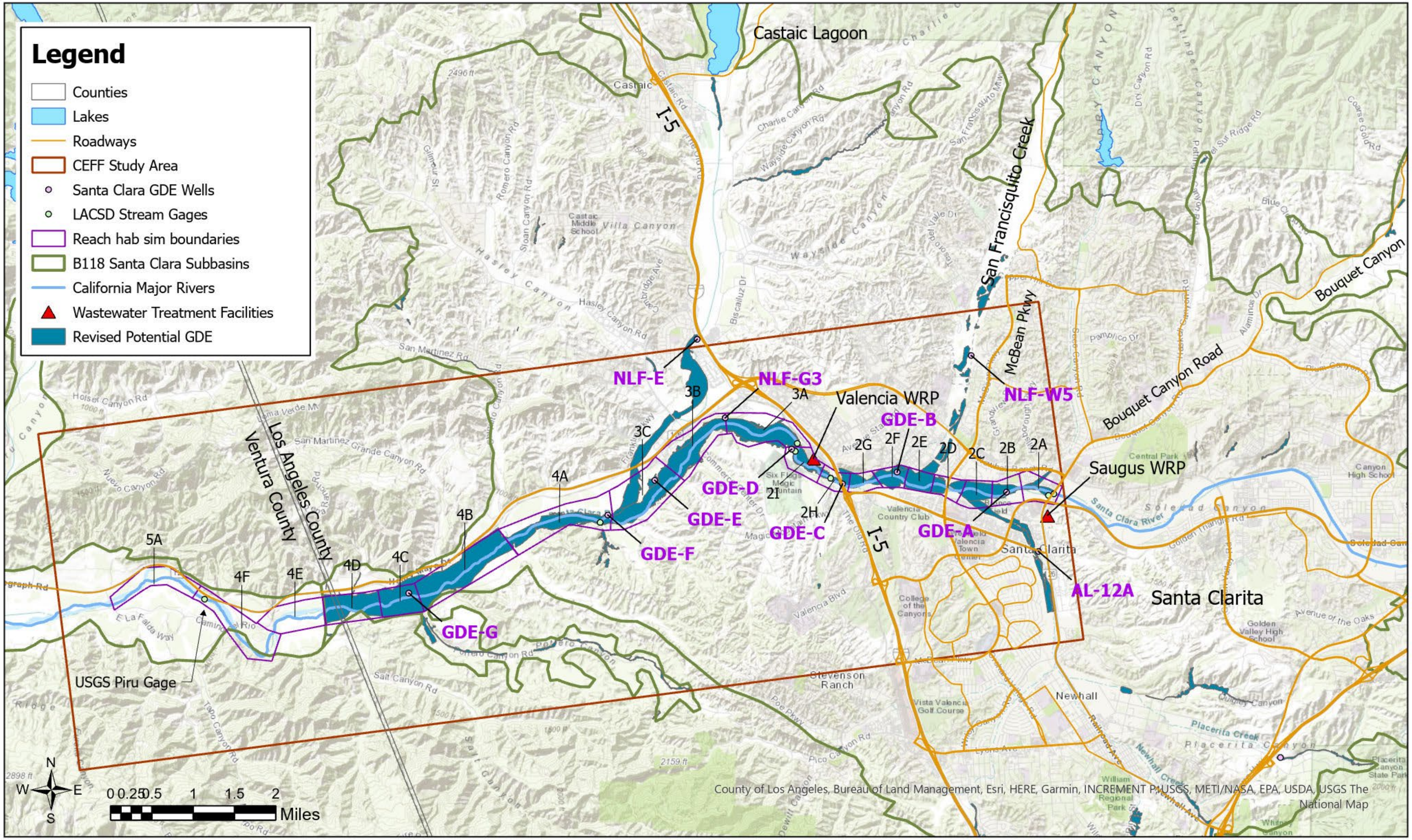
- Recommended by SWRCB
- Conducting CEFF allows SCV Water to lead planning effort
- Quantifiable metrics for dialogue with stakeholders

CEF FRAMEWORK

CEFF Section	Action
Section A: Identify ecological flow criteria using natural functional flows	**Define ecological management goals**
	Obtain natural ranges for functional flow metrics
	Evaluate whether the natural ranges of function flow metrics will support functions needed to achieve ecological management goals
	Select ecological flow criteria
Section B: Develop ecological flow criteria for focal flow components requiring additional consideration	Develop detailed conceptual model relating focal flow components to ecological management goals
	Quantify flow-ecology relationships
	Define ecological flow criteria for focal flow components
Section C: Develop environmental flow recommendations	**Identify management objectives**
	Assess flow alteration
	Evaluate management scenarios and assess tradeoffs
	Define environmental flow recommendations
	Develop an implementation plan

OUR APPROACH

CEFF STUDY SETTING



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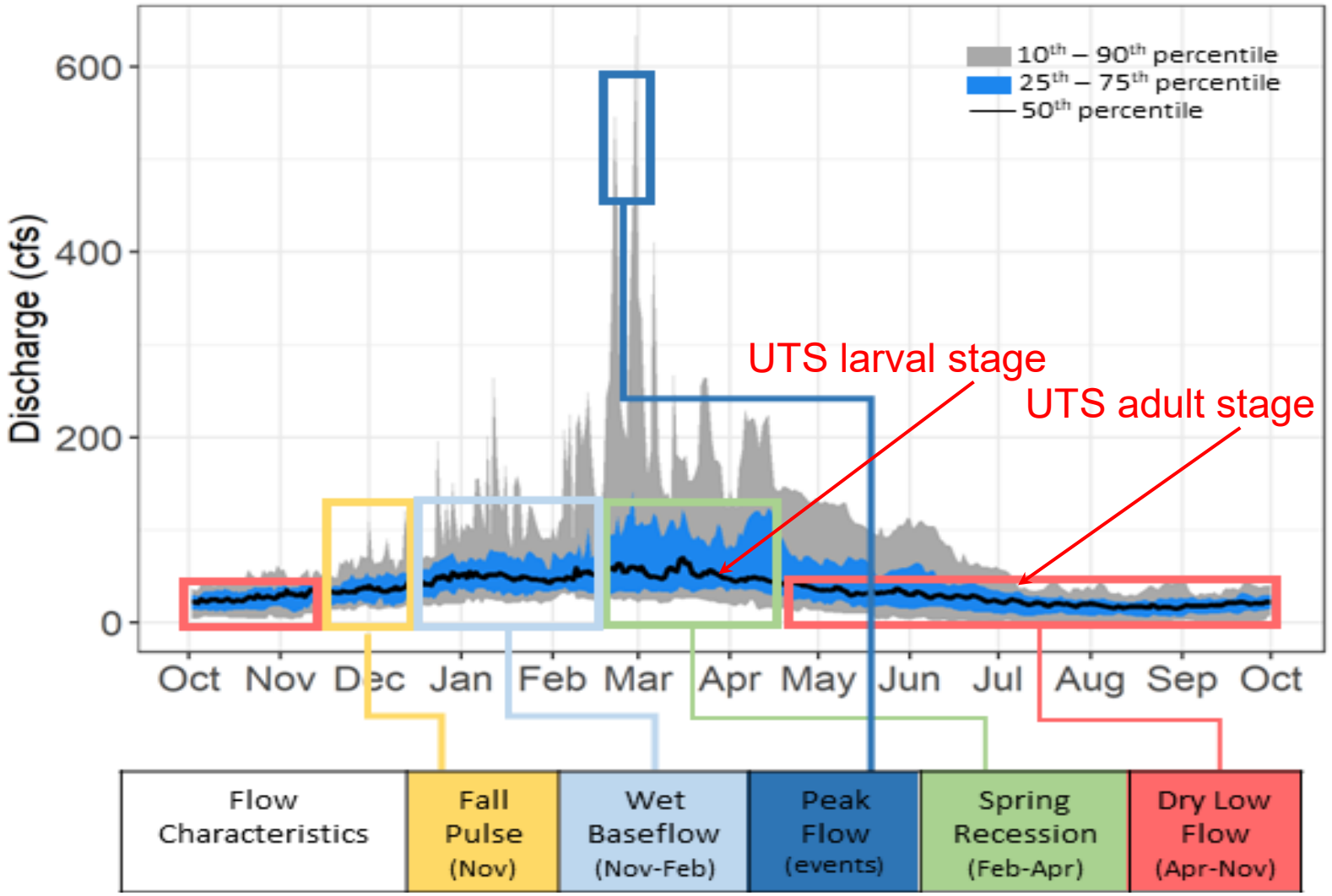
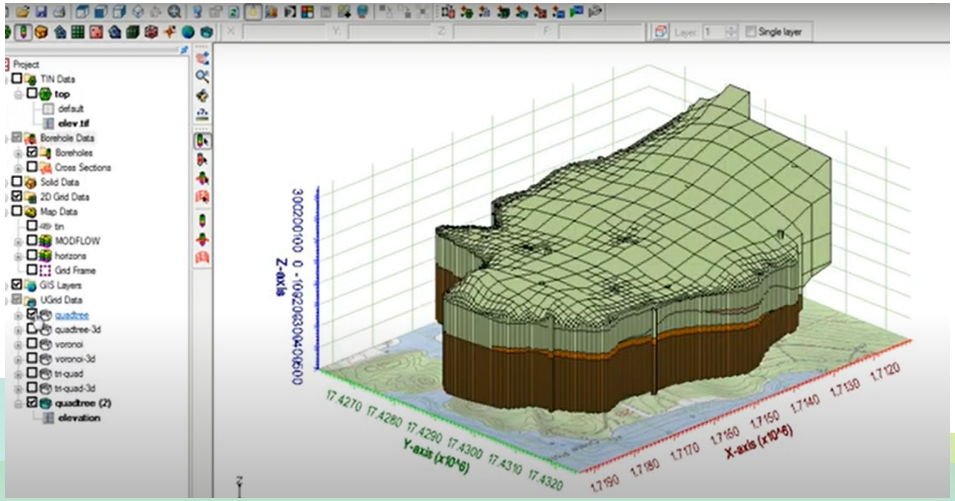
FUNCTIONAL FLOWS



DATA SOURCES

Gauge Data

TNC Database



MODFLOW Groundwater Flow Model

Aerial Imagery

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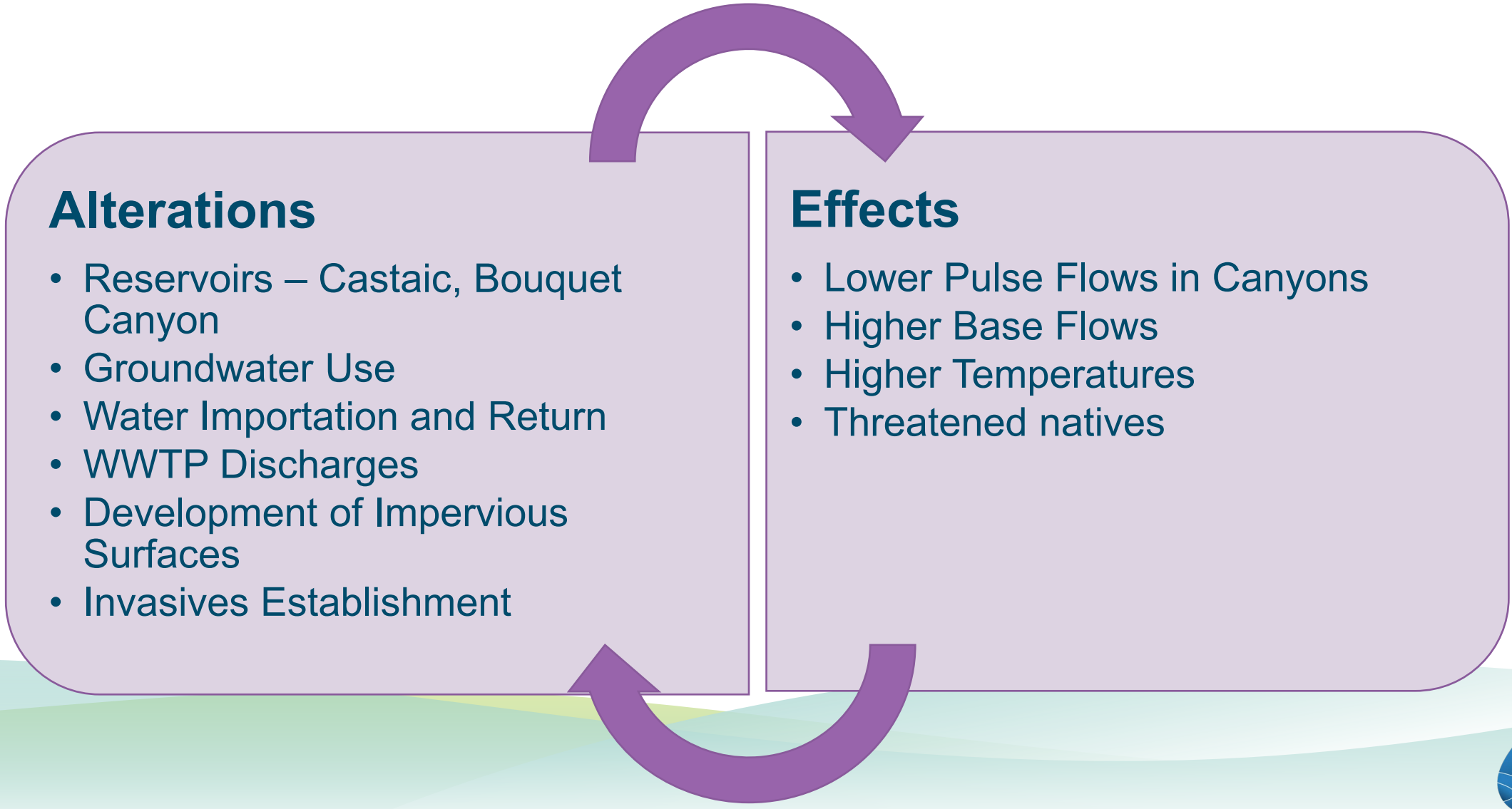
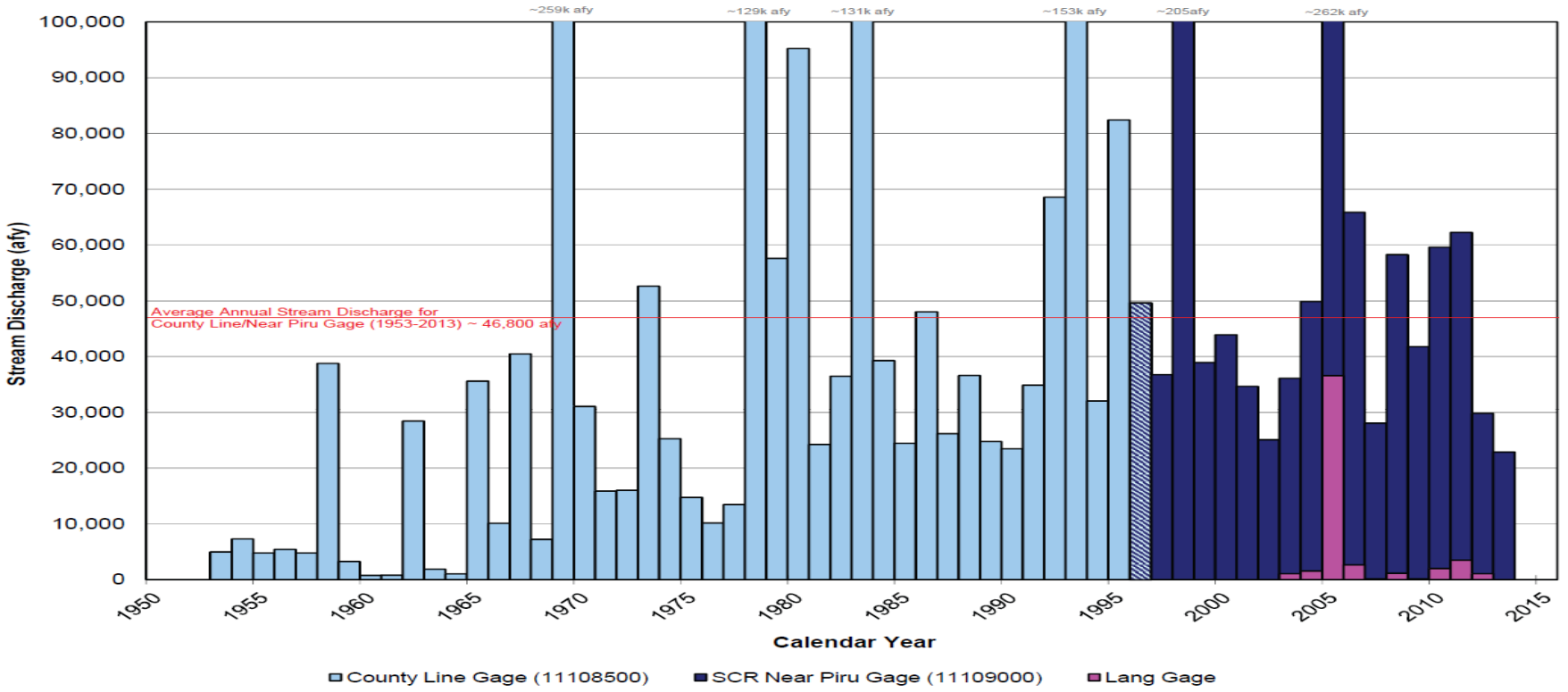
SCR ALTERATIONS OVER TIME



ALTERATION OF HYDROGRAPH FUNCTIONAL FLOWS – RIVER AS A SINGLE UNIT

Annual Flows 1953-2013

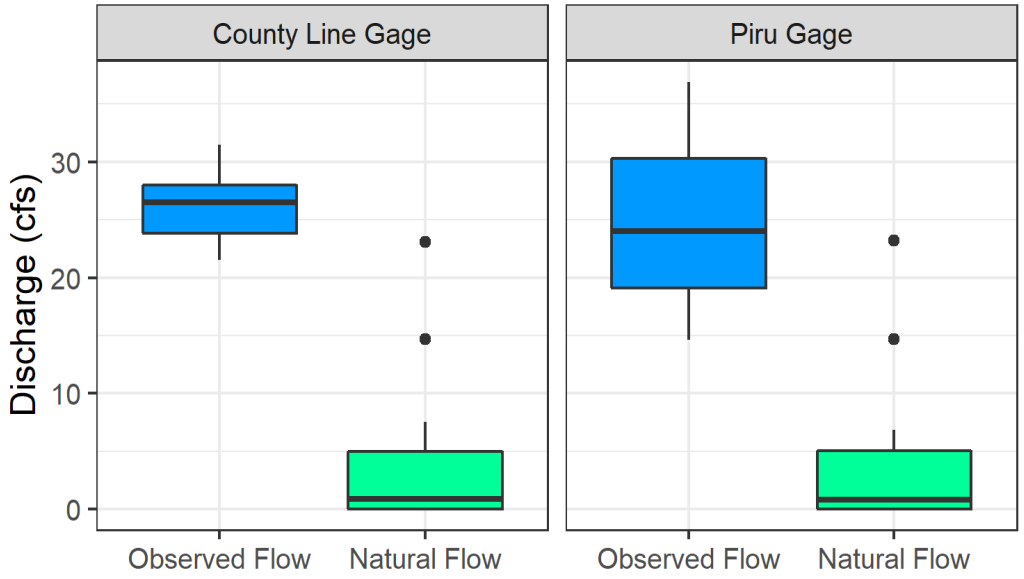


LUHDORFF & SCALMANINI CONSULTING ENGINEERS

Figure 3-15
Annual Stream Discharge
Santa Clarita Valley Water Report

ALTERATION OF HYDROGRAPH FUNCTIONAL FLOWS – RIVER AS A SINGLE UNIT

Dry season baseflow



Hydrograph Component	At USGS Piru Flow Gauge
Fall pulse flows	Likely Unaltered
Wet season baseflow	Likely higher and longer duration
Wet season peak flows	Likely unaltered except for higher duration of Q10
Spring recession flows	Likely unaltered except for timing (later)
Dry season low flow	Likely altered

"Natural" dry season baseflow below Valencia WRP estimated at ~0-5 cfs

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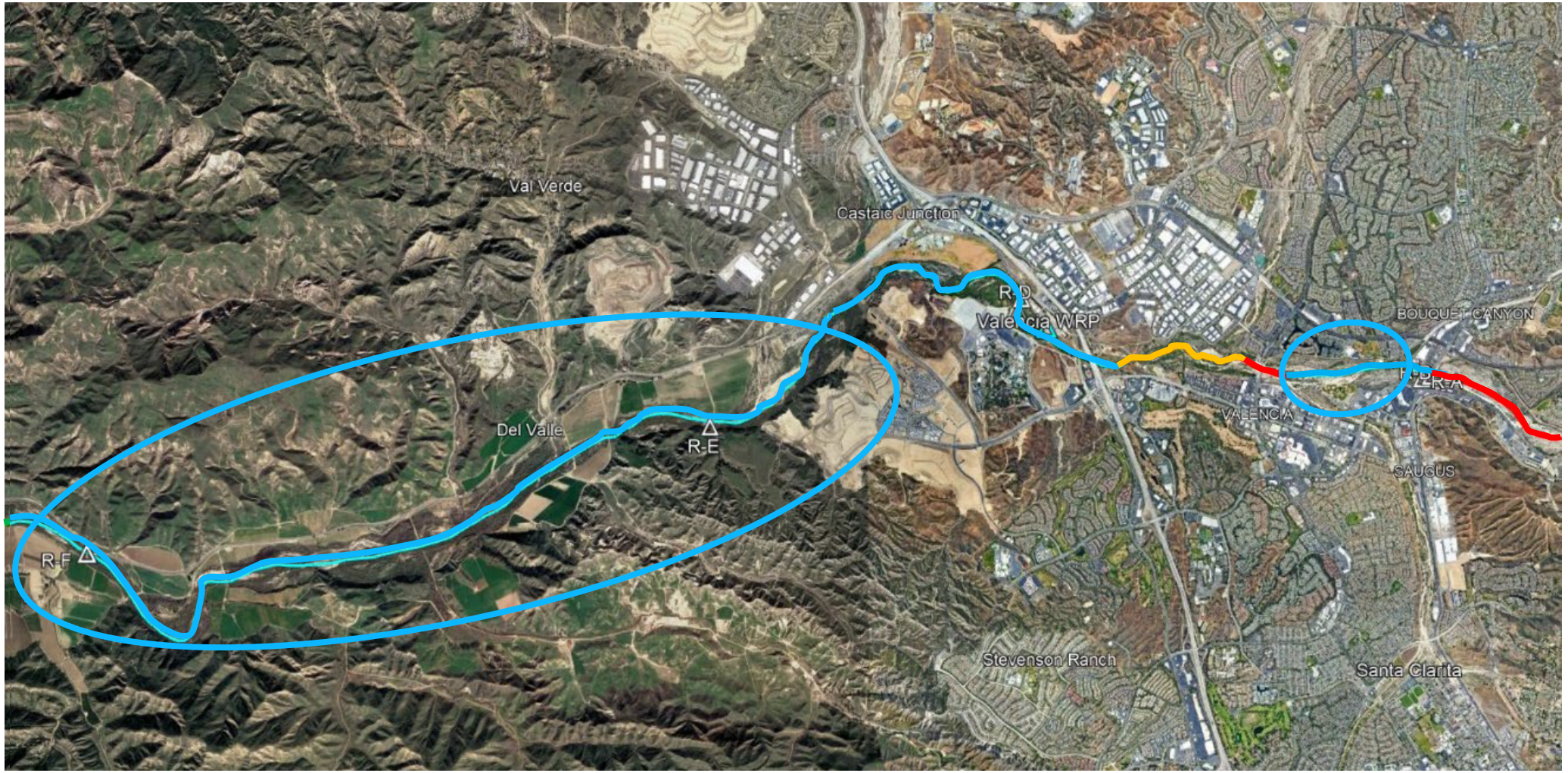
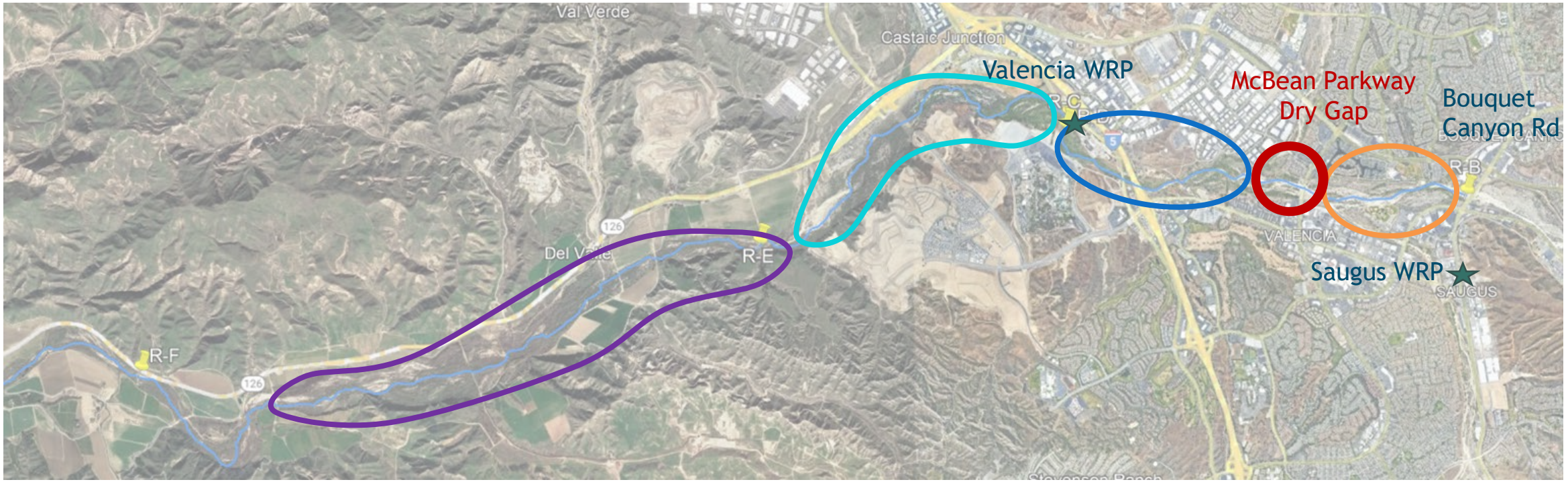
HISTORIC AND EXISTING CHANNEL TYPES



1940s
2023

- Ephemeral
- Intermittent
- Semi perennial
- Perennial

HISTORIC AND EXISTING CHANNEL TYPES



EXAMPLE

Assessing Natural Flow

Mapping and Analyzing McBean Dry Gap

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MAPPING THE MCBEAN PARKWAY DRY GAP OVER TIME

Upwelling/emergence point ▲

▼ Infiltration point

Flow direction

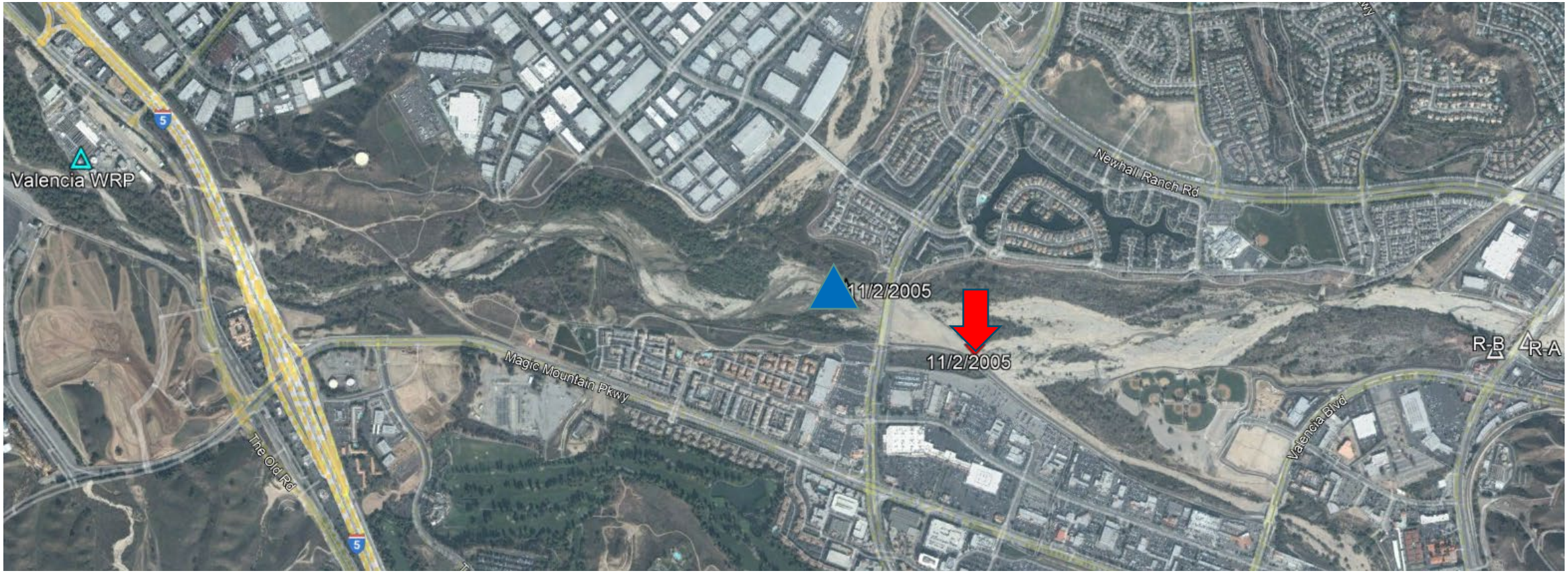
Dry Gap

Flow direction

MAPPING THE MCBEAN PARKWAY DRY GAP OVER TIME

Upwelling/emergence point

Infiltration point



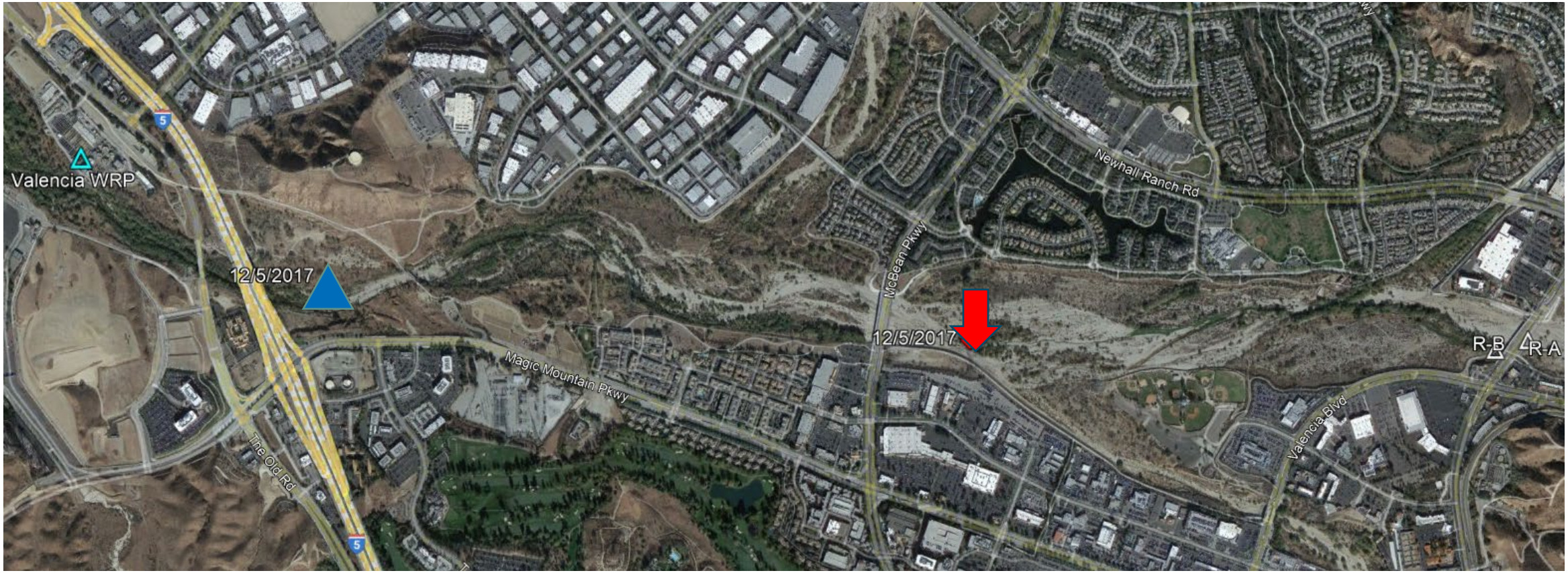
Flow direction

Flow direction

MAPPING THE MCBEAN PARKWAY DRY GAP OVER TIME

Upwelling/emergence point ▲

Infiltration point ▼



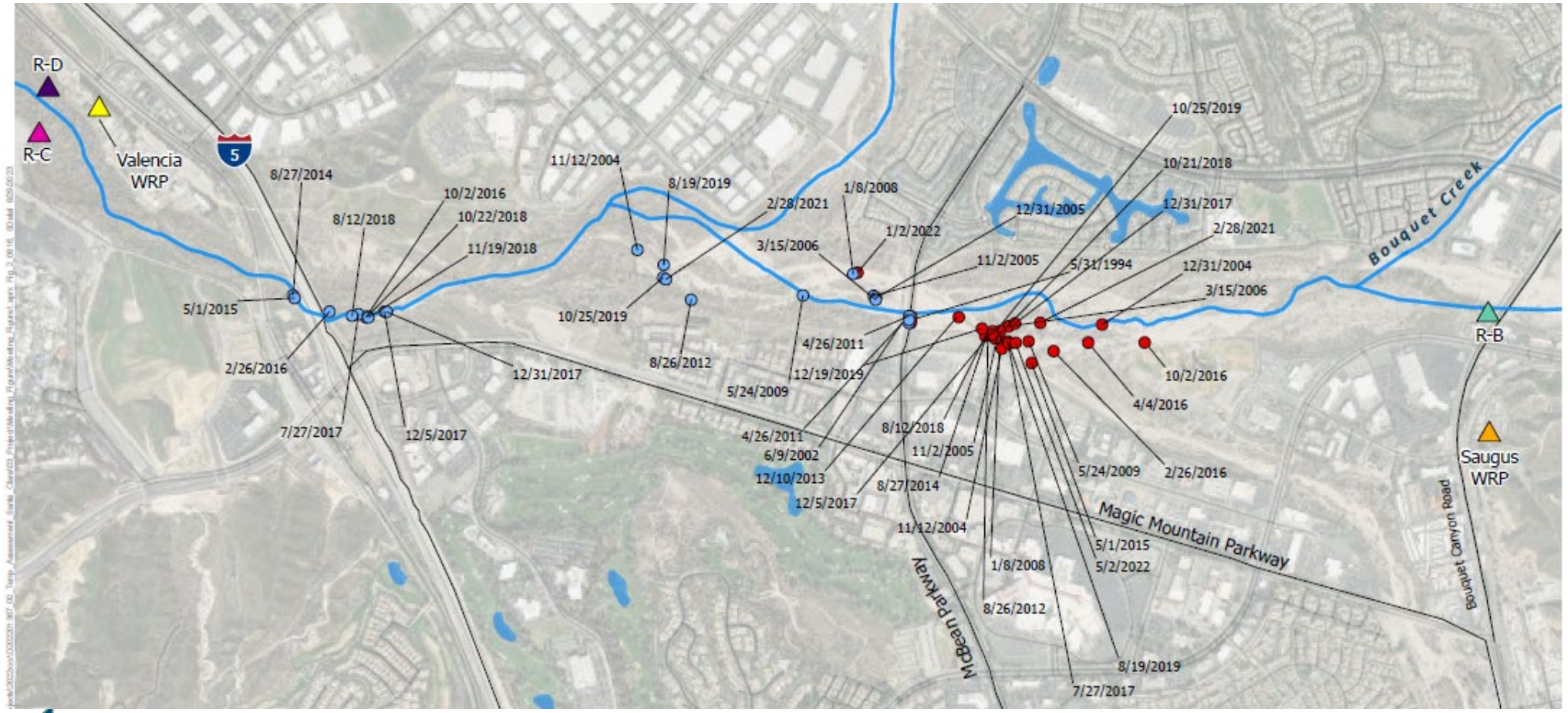
Flow direction

Flow direction

MAPPING THE MCBEAN PARKWAY DRY GAP OVER TIME

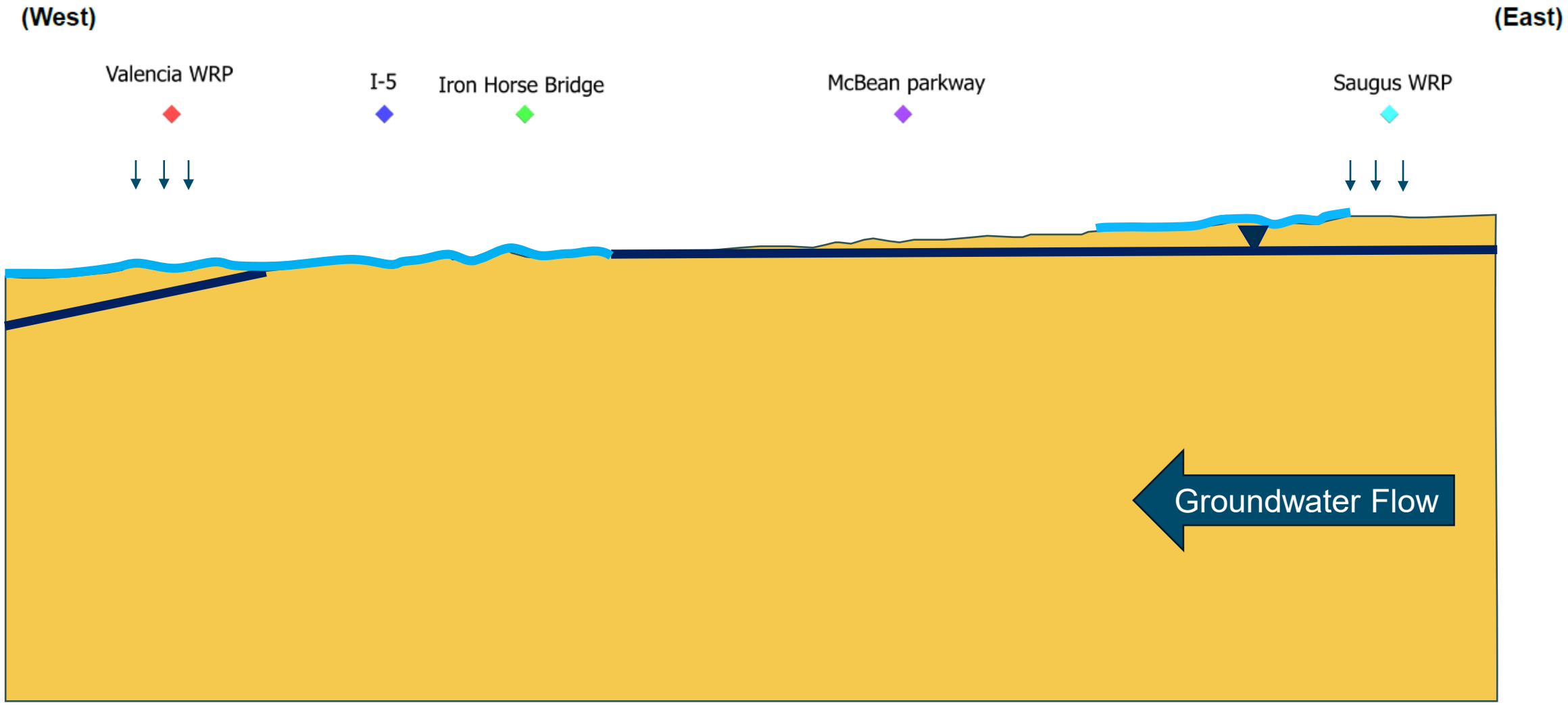
Upwelling points

Infiltration points

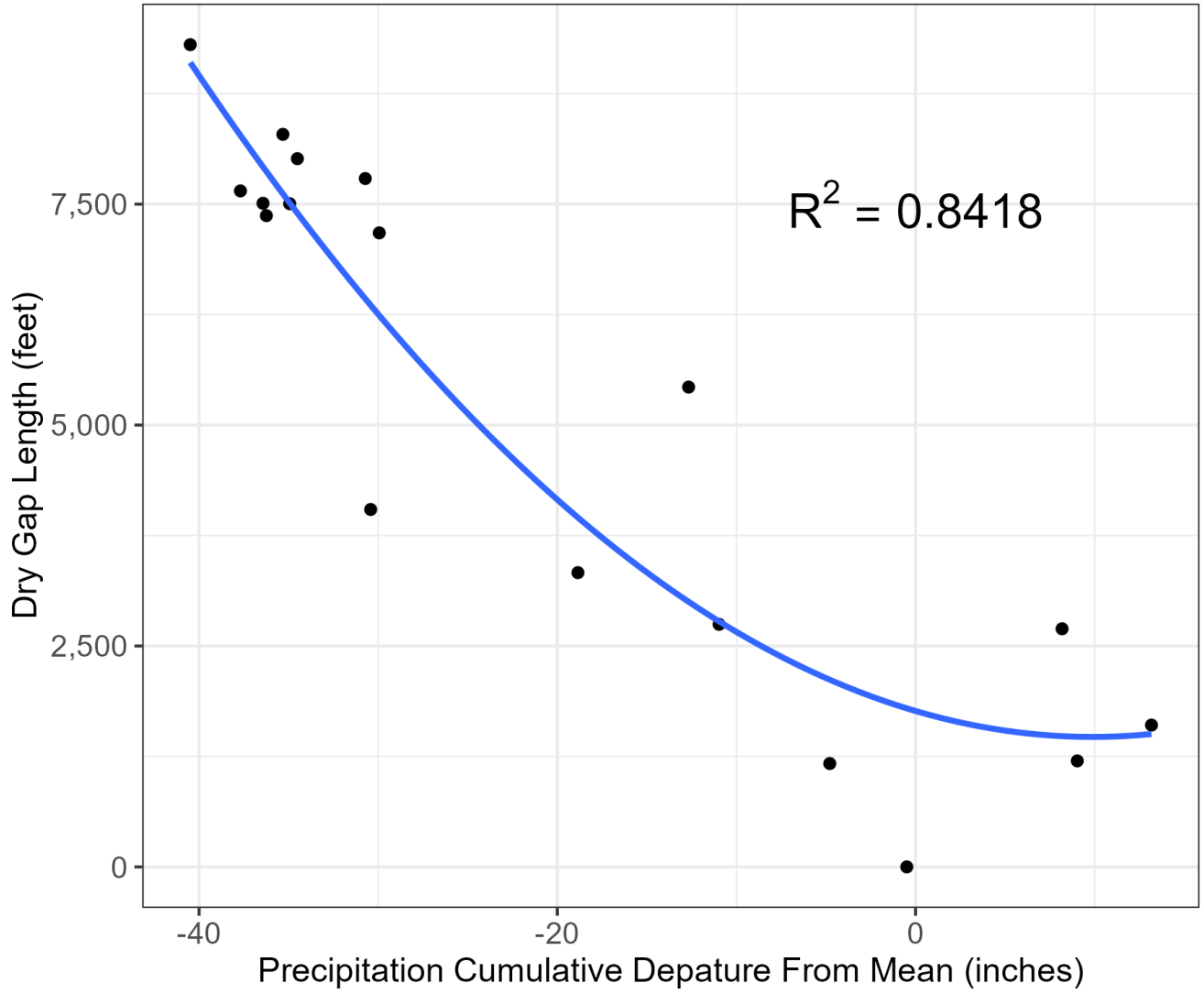


Flow direction

MAPPING THE MCBEAN PARKWAY DRY GAP OVER TIME

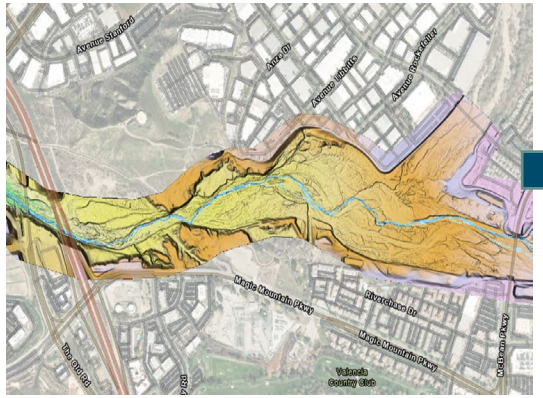


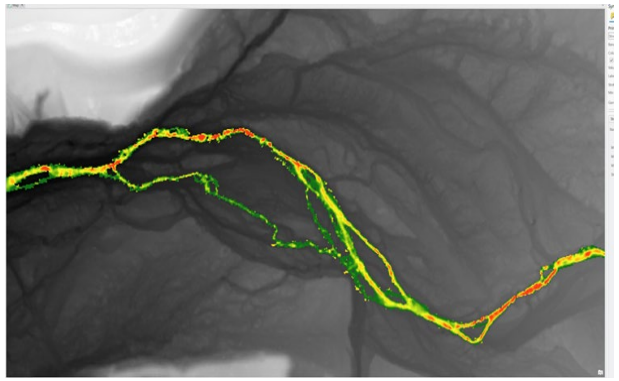
MAPPING THE MCBEAN PARKWAY DRY GAP OVER TIME



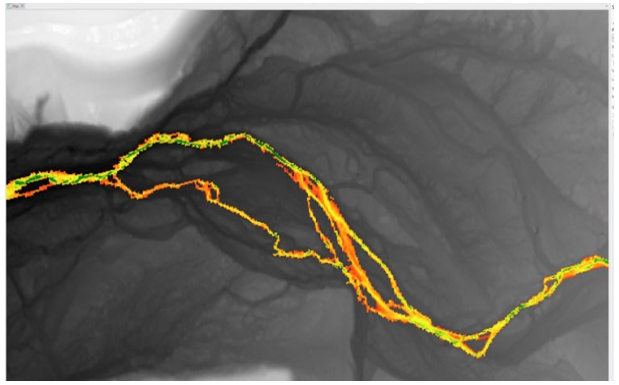
HABITAT SUITABILITY MODEL

2022 LiDAR survey of river channel





velocity



depth

temperature

Habitat Suitability Curves

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SPECIES OF SPECIAL CONCERN

Species	Federal Status	State Status
Unarmored Threespine Stickleback	Endangered	Endangered, Fully Protected
Santa Ana Sucker	Threatened	
Arroyo Chub	-	Species of Special Concern
Western Pond Turtle	Candidate	Species of Special Concern
Least Bells Vireo	Endangered	Endangered



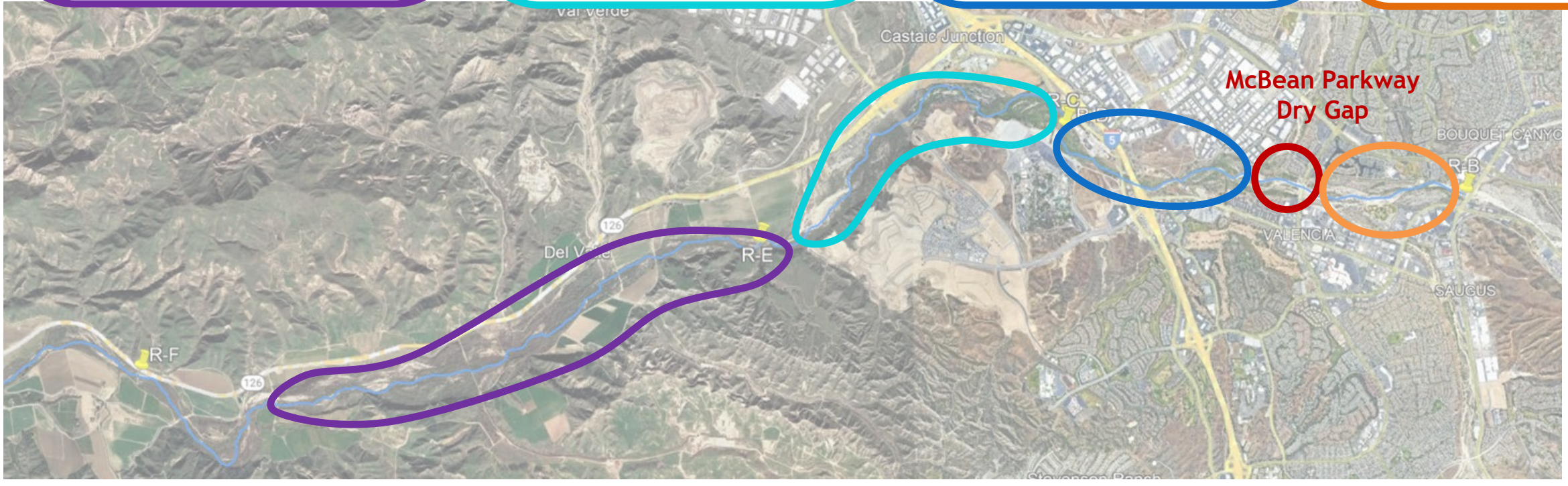

PRELIMINARY ASSESSMENTS OF GROUNDWATER – HABITAT RELATIONSHIPS

Castaic Creek to Piru
- UTS suitability not impacted by lower flows/losing conditions during 2015-18 drought
- SAS suitability correlates to flow; reduced during 2015-2018 drought when creek switched from gaining to losing

Valencia WRP to Castaic Creek
- UTS relatively insensitive to flow fluctuations (Valencia WRP dominates habitat)
- UTS prefer less flow (incl. losing periods)
- SAS prefer more flow (gaining conditions)

San Francisquito Canyon to Valencia WRP
- UTS habitat expands and contracts in response to natural cycle of variable groundwater upwelling during wet periods or droughts

Saugus to McBean
- Unaffected by groundwater fluctuations

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FINDINGS

- SCV Water is conducting a CEFF study, consistent with its strategic plan and watershed stewardship objectives, to better understand how water importation, groundwater use, and water recycling initiatives affect and are constrained by the environmental flow needs of the river system.

- Flows, and the extent and location of wet and dry channel areas, are highly variable.

- The main changes to the hydrology of the Santa Clara River since the formation of Castaic Lake Water Agency are the addition of Saugus and Valencia WRP dry period flows.

FINDINGS

- The Habitat Suitability Model is a function of flow and temperature. Preliminary findings indicate that:
  - On average, flow is the limiting factor for UTS and SAS upstream of Valencia WRP.
  - Temperature appears to be the limiting factor for UTS downstream of the Valencia WRP.
  - Depth and substrate appear to be the limiting factors for SAS downstream of the Valencia WRP.

- The WRI will continue to look for ways to improve water supply, the river system, and other objectives.

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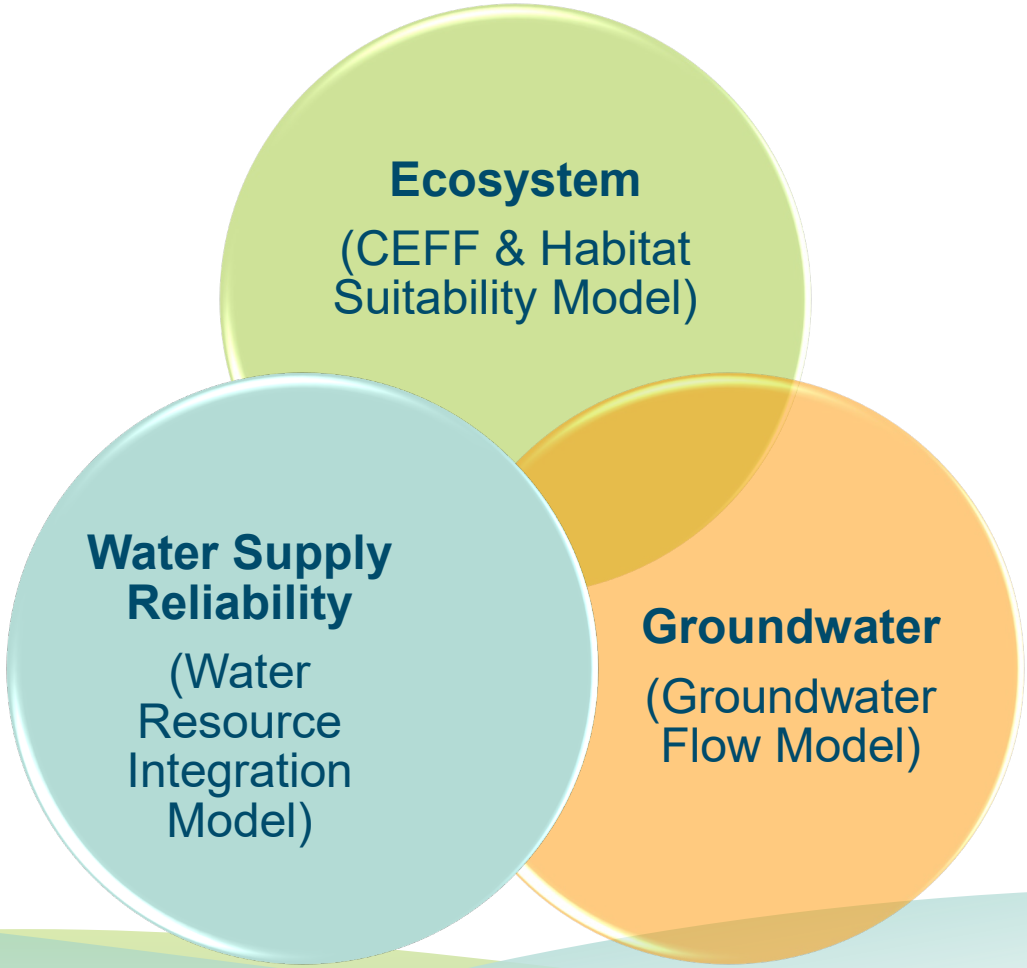
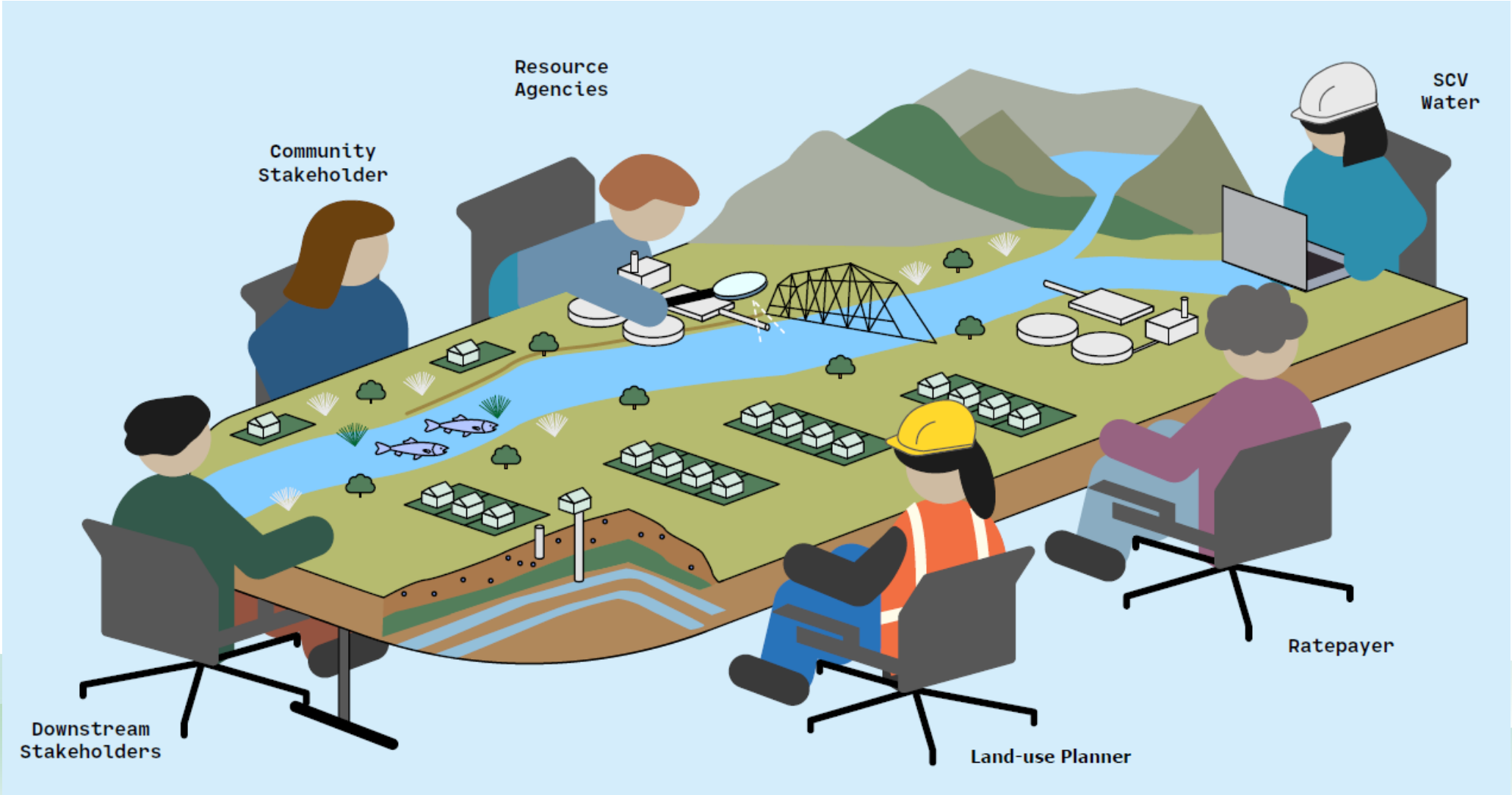
NEXT STEPS | INTEGRATED EVALUATIONS



NEXT STEPS | BRING STAKEHOLDER VIEWS TO THE BOARD

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EXTRA SLIDES

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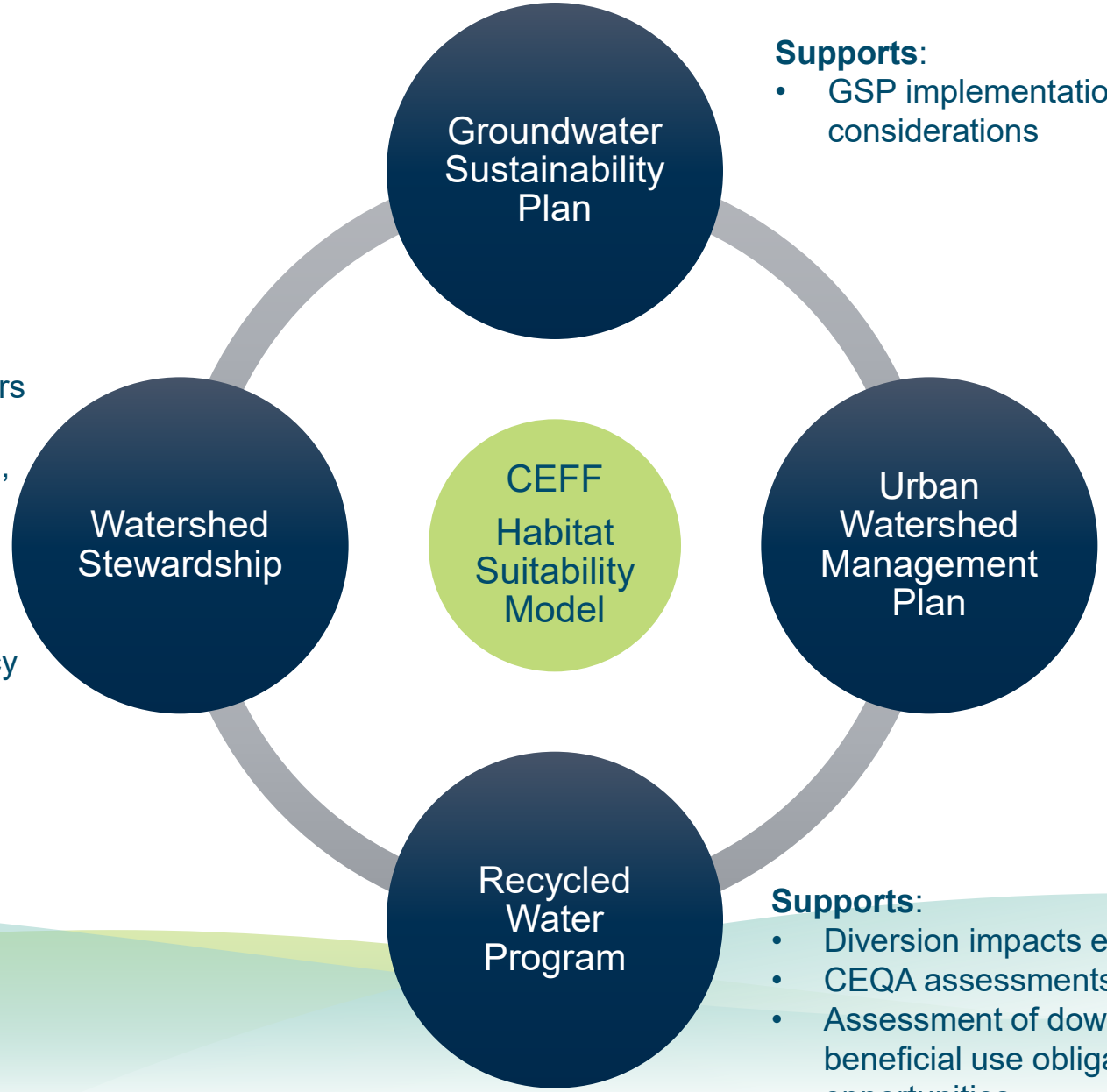
HOW THIS WORK SUPPORTS THE GSP AND UWMP



Supports:
- GSP implementation for GDE considerations

Supports:
- Three-year drought water supply availability
- Water Supply Assessments
- CEQA assessments

Supports:
- Diversion impacts evaluation
- CEQA assessments
- Assessment of downstream beneficial use obligations and opportunities

Supports:
- Facilitates relationships and leadership with local stakeholders
  - LACSD, LADWP, DWR, CDFW, RWQCB, SWRCB, USFWS, TNC, NGOs
- Advances SWRCB's In-Stream Flow Analysis Goals
- Comports with Board's stated environmental stewardship policy objectives
- Enhances influence on land use decisions within floodplain

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CEFF STATUS

CEFF Section	CEFF Step	Action	Status
Section A: Identify ecological flow criteria using natural functional flows	Step 1	**Define ecological management goals**	**In progress**
	Step 2	Obtain natural ranges for functional flow metrics	✓
	Step 3	Evaluate whether the natural ranges of function flow metrics will support functions needed to achieve ecological management goals	✓
	Step 4	Select ecological flow criteria	✓
Section B: Develop ecological flow criteria for focal flow components requiring additional consideration	Step 5	Develop detailed conceptual model relating focal flow components to ecological management goals	✓
	Step 6	Quantify flow-ecology relationships	✓
	Step 7	Define ecological flow criteria for focal flow components	✓
Section C: Develop environmental flow recommendations	Step 8	**Identify management objectives**	**In progress**
	Step 9	Assess flow alteration	✓
	Step 10	Evaluate management scenarios and assess tradeoffs	**In progress**
	Step 11	Define environmental flow recommendations	**In progress**
	Step 12	Develop an implementation plan	**In progress**

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EVALUATING TRADEOFFS