

EXECUTIVE SUMMARY

A ROADMAP TO WATER RESILIENCE

The Coachella Valley Regional Water Resilience Plan (CVRWRP) provides a roadmap for strengthening the resilience of regional water resources, systems, and infrastructure, along with the communities that demand on them, in the face of a changing climate. Developed through a partnership among the Coachella Valley Water District (CVWD), Pueblo Unido Community Development Corporation (PUCDC), the Torres Martinez Desert Cahuilla Indians (TMDCI), regional water agencies, community organizations, and local stakeholders, the plan focuses on protecting the communities and water systems most vulnerable to climate-related impacts. The CVRWRP places particular emphasis on domestic well users, small water systems, Tribal communities, disadvantaged communities, farmworker communities, and mobile home parks, recognizing that these populations often experience climate risks first and have the fewest resources available to respond. The CVRWRP was funded through a grant through the Regional Resilience Grant Program (RRGP) from the California Governor's Office of Land Use and Climate Innovation (LCI).

The Coachella Valley is in central Riverside County and is characterized by a unique desert environment, rapidly growing communities, extensive agricultural production, and a complex network of groundwater, imported water, recycled water, and stormwater management systems. The region experiences a hot arid climate with minimal annual precipitation, high summer temperatures, and increasing exposure to climate hazards such as drought, extreme heat, flooding, high winds, and power disruptions.

The Coachella Valley is also one of California's most socially and economically diverse regions. The eastern Coachella Valley contains numerous Tribal communities, domestic well users, farmworker communities, and mobile home parks that face unique water resource and infrastructure challenges. Previous planning efforts have identified disparities in access to safe and reliable drinking water, wastewater disposal, flood protection, and climate adaptation resources. Many residents rely on small water systems, domestic wells, or aging infrastructure that may be particularly vulnerable to drought, groundwater quality concerns, flooding, and extreme weather events.

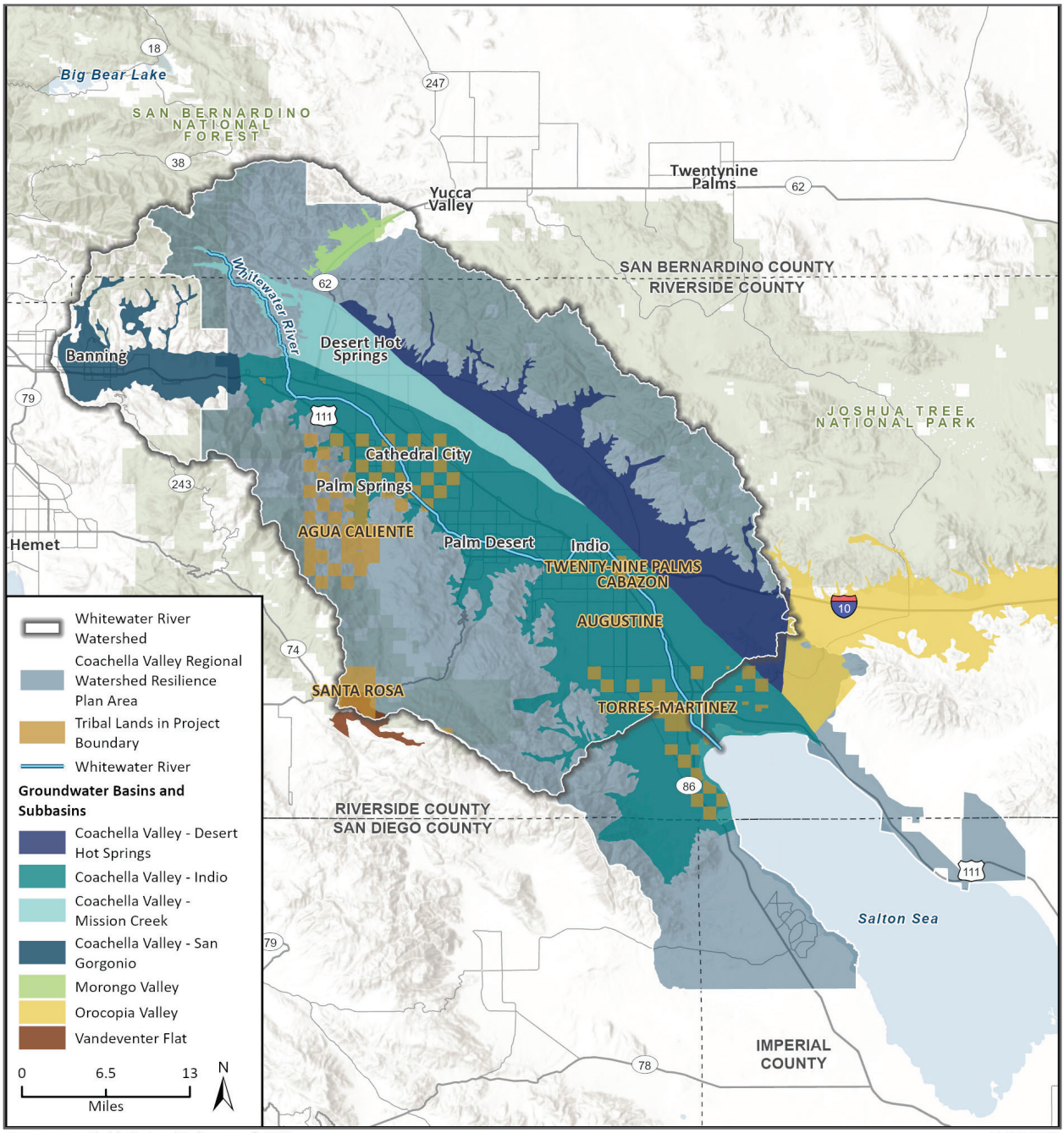
Groundwater remains the primary domestic water supply source for the Coachella Valley and has played a central role in the region's development. Historically, groundwater pumping exceeded natural recharge, contributing to declining groundwater levels in the portions of the Coachella Valley Groundwater Basin that underly the Valley floor (Indio and Mission Creek Subbasins). However, significant investments in groundwater replenishment, imported water deliveries, source substitution, and water use efficiency have helped stabilize and recover groundwater levels within both the Indio and Mission Creek Subbasins. Figure 1 shows the CVRWRP planning area, in addition to local Tribal territories.



Documenting small, independent groundwater systems, the Well Inventory Study helps to fill a critical data gap in understanding groundwater use across the Coachella Valley. New information from this study ensures that these small water sources are considered in future planning, basin management, and climate resilience efforts.

Domestic Wells

A domestic well is a privately owned groundwater well that supplies water to a single residence or a small number of residences and is not operated as a regulated public water system. Domestic wells are typically self-supplied, rely on a single groundwater source, and are responsible for their own operation, maintenance, water quality monitoring, and treatment. A small water system is a groundwater-dependent drinking water system that serves a limited number of connections.



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Additional data provided by CPAD, 2025; NHD, 2024; DWR, 2024.

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Fig 1 Whitewater River Valley

Figure ES-1. CVRWRP Planning Area

The plan builds upon decades of investment in groundwater sustainability, flood management, water quality protection, habitat conservation, and regional water planning. Rather than replacing existing plans, the CVRWRP serves as an implementation-focused framework that integrates climate risk information, community priorities, and water management objectives into a coordinated strategy for action.

Technical Elements of the CVRWRP

Key components of the planning process included:

Quantitative Domestic Well and Small Water System Inventory

Conducted field assessments of domestic wells and small water systems to better understand existing conditions, infrastructure needs, and water quality challenges for communities that rely on small water systems.

Climate Hazard Projections and Vulnerability Assessment

Evaluated future climate risks using recently released climate projections from California's Fifth Climate Change Assessment to assess potential impacts from drought, extreme heat, flooding, wildfire and wind.[1]

Development of Resilience Actions and Implementation Roadmaps

Identified priority actions to improve water reliability, water quality, emergency preparedness, flood resilience, groundwater sustainability, and community capacity, and translated those actions into implementation-focused roadmaps that identify funding opportunities, partnerships, barriers, and next steps.



Water stewardship connects generations. Through conversations at community pop-up events, participants of all ages learned about local water infrastructure and systems and how these systems can build resilience.

The CVRWRP benefited from robust community participation and leadership throughout the planning process. The CVRWRP facilitated workshops, community pop-ups, planning input sessions, surveys, and site visits. CVWD, PUCDC, TMDCI and regional water agencies led the project. Figure 3 demonstrates the key leadership and roles that influenced the CVRWRP outcomes. Key leadership and roles that influenced the CVRWRP outcomes can be seen on page 8.

1. Governor's Office of Land Use and Climate Innovation. California's Fifth Climate Change Assessment. Accessed here: https://lci.ca.gov/climate/icarp/climate-assessment/. Accessed August 2026.

The Vision for a Resilient Coachella Valley

The CVRWRP envisions a future where all residents have access to safe, reliable, and affordable water; where communities are prepared for drought, flooding, extreme heat, and other climate hazards; and where natural and built systems work together to sustain long-term environmental, economic, and community well-being. The plan recognizes that resilience extends beyond infrastructure and includes healthy ecosystems, strong community partnerships, reliable drinking water, protected cultural resources, and equitable access to adaptation resources.



The CVRWRP finds that climate change will intensify existing water challenges rather than create entirely new ones. Declining imported water reliability, groundwater stress, extreme heat, flooding, water quality concerns, aging infrastructure, and limited system redundancy will disproportionately affect domestic well users, small water systems, Tribal communities, and other underserved areas. The plan responds with implementation-ready actions focused on safe drinking water, resilient infrastructure, groundwater sustainability, flood protection, emergency preparedness, and long-term community capacity.





We envision a community where all residents have reliable access to clean, safe, and affordable water. Our region is prepared for climate extremes and can bounce back when flooding and heat events occur. We have social networks and natural and built infrastructure that support long-term human and ecological health. We will achieve resilience by centering community needs through inclusive planning and locally driven solutions.

CVRWRP Goals

The CVRWRP Goals were developed and revised throughout the CVRWRP planning process, to best represent community vision for water resilience.

Build Physical and Nature-Based Connections

Upgrade groundwater well and water delivery systems to improve wellhead protection, water pressure, reliability, and storage capacity for small water systems. Improve our physical infrastructure to store, move, and share water more flexibly and integrate innovative nature-based strategies.

Address Water Quality Needs

Prioritize actions that improve access to clean water. Reduce presence of contaminants in delivered groundwater supplies, and address taste, odor, and discoloration concerns.

Expand Local Water Access

Reduce reliance on bottled water and improve trust in tap water quality through transparent communication and assistance programs. Manage imported water to sustain and enhance local groundwater resources.

Be Ready

Prepare for more intense climate threats, including more severe and frequent droughts, wind, wildfire, precipitation, floods and heat events. Improve onsite infrastructure and preparedness planning and improve communications, recovery strategies, and adaptive management to weather these evolving hazards.

Enhance Community Contributions

Provide residents with water treatment technologies and water quality information to actively participate in resilience planning and decision-making. Actively listen to all perspectives and prioritize solutions that address the needs of vulnerable community members.

CVRWRP Leadership

The CVRWRP was guided by a collaborative leadership structure that combined technical expertise, community knowledge, and regional planning experience. The Core Team, led by CVWD, PUCDC, and TMDCI, directed the planning process, helped shape the project vision, and ensured that the needs of domestic well users, small water systems, Tribal communities, and disadvantaged communities remained central to the plan. Their leadership was instrumental in designing the climate vulnerability assessment, conducting the small water system inventory, engaging communities, and identifying practical resilience actions.

An Advisory Group composed of regional water agencies, wastewater agencies, and community-based organizations provided technical guidance at key decision points and helped align the CVRWRP with ongoing water management, groundwater sustainability, water quality, and resilience initiatives throughout the Coachella Valley. Equally important, community members, Tribal representatives, and local organizations contributed direct input through workshops, surveys, community events, and planning sessions, shaping the implementation actions included in the plan.



Input sessions between the community and water agency partners provided critical dialogue and feedback that later informed the development of strategies to address the resiliency of Coachella Valley's water systems.

CVRWRP Leadership

Advisory Group

Provided guidance at key decision points and shared regional expertise to shape technical elements of the CVRWRP.

Core Team

Led planning effort and provided oversight of planning vision and outcomes.

The Public

Provided insight on community priorities and values.

- Community Members
- Community Organizations

CVRWRP Development

1. Climate vulnerability analysis
2. Small water system inventory and domestic well survey
3. Community workshops and input sessions
4. Adaptation strategies
5. Implementation roadmaps

Community Engagement and Relationship-Driven Planning

Community engagement was the foundation of the CVRWRP. The planning process was designed to ensure that local knowledge, lived experience, and community priorities directly informed the vulnerability assessment, adaptation strategies, and implementation actions.

Engagement Highlights

150+
Survey Responses

25+
Organizations Participated

170+
Community Members Engaged

120+
Domestic Well and Small Water System Site Visits

Community workshops, planning input sessions, community pop-ups, and Tribal engagement activities conducted throughout the planning process

What We Heard

Across surveys, workshops, site visits, and community events, residents consistently identified:

- Drinking water quality concerns
- Reliance on bottled water
- Aging and deteriorating water infrastructure
- Persistent flooding during extreme rain events
- Water reliability concerns
- Limited support for domestic well users and small systems

Many residents described resilience in simple but powerful terms: confidence that their water is safe to drink, cook with, and use every day. Community priorities directly shaped the resilience strategies and actions included in the CVRWRP.



The Water Fair, held March 2026, provided an opportunity for meaningful dialogue between residents, scientists, engineers, and water professionals. Residents of Coachella Valley shared about their experiences with drought and flooding, highlighting the need for investment in emergency response for water agencies.



Hands-on games and activities at community events, like the Water Fair, made learning about water, climate resilience, and environmental stewardship fun and accessible for all ages.



Community engagement played a critical role in the development of the Coachella Valley Regional Water Resilience Plan. At local events, TMDCI and PUCDC exchanged information and local knowledge with community members, helping ensure that community perspectives informed the Plan's priorities, strategies, and implementation.

Residents also expressed strong interest in household-scale solutions, including filtration systems, improved treatment technologies, and access to alternative water sources where existing supplies are unreliable.

Priorities include:

- Improve and protect drinking water quality
- Upgrade aging wells, pipelines, and water infrastructure
- Expand access to safe and affordable water supplies
- Increase technical assistance and support for residents and small water systems
- Protect groundwater resources and natural water supplies
- Strengthen emergency preparedness and water system reliability during drought, extreme heat, and other climate hazards
- Improve community communication and access to water-related information

Climate Hazards and Key Vulnerabilities

The CVRWRP evaluated the impacts of five primary climate hazards:

Drought

To sustain groundwater levels for users across the Coachella Valley, CVWD and DWA contract, exchange, and replenish surface water from California's State Water Project into the groundwater basin. By 2043, average State Water Project deliveries (imported water from the Sacramento-San Joaquin Delta) are projected to decline from approximately 54% of the contractor's allocations today to 43–48%, while deliveries during extended drought periods may decline to as little as 13–15%. Locally, climate scenarios indicate groundwater levels could decline by up to 50 feet near Coachella, Indio, and Bermuda Dunes in the Indio Subbasin and by approximately 30 feet in portions of the Mission Creek Subbasin if ongoing groundwater management and replenishment efforts are not maintained, potentially affecting more than 60 domestic wells.[2]

State Water Project Water and Coachella Valley

Water delivered through California's State Water Project originates in Northern California and is conveyed through the Sacramento-San Joaquin Delta, a critical hub in the state's water delivery system. CVWD holds State Water Project entitlements of up to 138,350 acre-feet per year, which are exchanged for Colorado River water and used to replenish local groundwater supplies, helping support long-term water reliability throughout the Coachella Valley.

Extreme Heat

Extreme heat is projected to intensify substantially between 2045 and 2074, with the largest increases occurring across the eastern and central Coachella Valley, including communities near Coachella, Indio, La Quinta, and the Salton Sea. Climate projections indicate these areas may experience 700 to more than 900 days above 114 degrees over a 30-year period, equivalent to roughly 25–30 additional extreme heat days per year. Under California's Global Warming Level framework, the region is projected to experience an average increase of approximately 20 additional extreme heat days annually at 3.0°C warming (2060-2100), increasing water demand, evapotranspiration, and stress on groundwater-dependent resources.

2. For more information about the Indio Subbasin, please click here: https://www.indiosubbasinsgma.org/. To learn more about the Mission Creek Subbasin, visit please click here: https://www.missioncreeksubbasinsgma.org/

Wildfire

While much of the Coachella Valley is projected to experience little change or slight decreases in overall fire-weather conditions, localized increases are projected along the northern mountain front near Desert Hot Springs and Highway 62, foothill communities extending through Palm Springs, Cathedral City, Rancho Mirage, Palm Desert, Indian Wells, and La Quinta, and portions of the Salton Sea shoreline. Under a 3.0°C Global Warming Level, these areas are projected to experience more frequent periods of hot, dry, and windy conditions conducive to wildfire ignition and spread.

Wind

Climate change is expected to increase the frequency of conditions associated with hot, dry, and windy weather, particularly along the mountain front between Desert Hot Springs and La Quinta and in localized areas surrounding the Salton Sea. These conditions may increase dust generation, evaporation losses, wildfire risk, and infrastructure maintenance needs, particularly in exposed areas of the eastern Coachella Valley.

Analysis of future climate conditions, existing water systems, domestic wells, small water systems, and community vulnerability identified eight key climate vulnerabilities.

Extreme Precipitation and Flooding

Although annual precipitation is not projected to increase substantially, a growing share of rainfall is expected to occur during short-duration, high-intensity storm events. By the mid-century period (2045–2074), approximately 12–33% of annual precipitation may occur during extreme rainfall events, particularly across the eastern Coachella Valley, the northeastern corridor above Desert Hot Springs, and areas adjacent to major washes and the Salton Sea shoreline.



Flash flooding from Tropical Storm Hillary, August 20, 2023 in Palm Desert. As climate change increases the frequency and intensity of extreme precipitation events, understanding local vulnerabilities will be crucial to protect infrastructure and communities.

Source: AP Photo/ Mark J. Terrill; Coachella Valley mud flows: Cathedral City, Palm Springs hit with major flooding, shutting down 10 Freeway - ABC7 Los Angeles

8 Key Climate Change Vulnerabilities

Key vulnerabilities for the CVRWRP were identified through an integrated assessment of climate hazard projections, existing plans and studies, and extensive stakeholder engagement. Input from the CVRWRP Core Team, Advisory Committee, surveys, interviews, and community workshops was used to validate and refine vulnerabilities based on local conditions, community concerns, and regional resilience priorities.

01

Water Reliability Concerns Under a Changing Climate: Rising temperatures are increasing urban, agricultural, and outdoor water demand while variability in State Water Project and Colorado River deliveries and a shift from snowpack-dominated runoff to rainfall reduces supply reliability.

02

Regional Groundwater Quality Degradation: Elevated nitrate, total dissolved solids (TDS), Chromium 6, Arsenic and emerging contaminants threaten groundwater quality and increase treatment costs, particularly for small systems, domestic wells, and Tribal communities.

03

Flooding Risk to System Infrastructure and Access Issues: Many communities rely on aging infrastructure prone to flooding-induced mechanical failure, reduced drainage capacity, and overflows. Flooding can damage onsite well and water distribution systems and facilities and damage mobile homes, further risking access. Road closures and poor conditions can delay maintenance and emergency repairs, prolong outages, and limit response. Lack of system redundancy increases risk of disruption.

04

Septic System Vulnerability and Water Quality Impacts: Hotter, drier conditions reduce soil infiltration, increasing flash-flood risk and mobilizing contaminants from septic systems into surface and groundwater supplies. Intense rainfall events overwhelm stormwater and wastewater systems, with recent flooding and sediment transport in Polanco parks highlighting ongoing compliance, water quality, and public health concerns.









> “With rising ambient temperatures, system demand naturally increases, reducing our ability to fill storage tanks before peak energy hours. To manage this, we must start our pumps earlier than usual to meet demand while minimizing operations during peak periods. The goal is to limit energy usage during these high-demand times to reduce electrical costs and help prevent strain on the power grid that can lead to brownouts or blackouts for residential customers—events that can be dangerous, especially when air conditioning is essential for public safety.”
>
> **– Levi Anderson, CVWD**

05

Drought, Fire, and Wind Interactions: Fire risk, driven by ongoing drought and persistent wind conditions, can strain water supplies and impact water quality, as demonstrated by recent fires that disrupted schools and communities, including on Tribal lands. Lack of planning capacity for fire restricts mobilization and proactive action. Inadequate property maintenance and debris clearing, in conjunction with inconsistent booster pump testing, can increase risk.

06

Energy Constraints and Water Infrastructure Vulnerability: Extreme heat drives higher electricity demand, stressing the regional power grid and increasing the risk of Public Safety Power Shutoffs that can disrupt water pumping, treatment, and emergency response. Lack of redundant power sources at onsite water distribution makes small water systems and Polanco parks more vulnerable.

07

Capacity, Trust, and Data Limitations for Small Water Systems: Limited capacity, fragmented responsibility for well oversight, limited capacity for water quality treatment, and insufficient coordination among agencies (including Tribal and federal entities) constrain effective water management.

08

Groundwater Level Decline and Reliability Risk: Local water levels could decline due to changes in groundwater replenishment and/or increased pumping. These water level declines could result in domestic well pumping issues, loss of storage, and potentially land subsidence or dry wells.







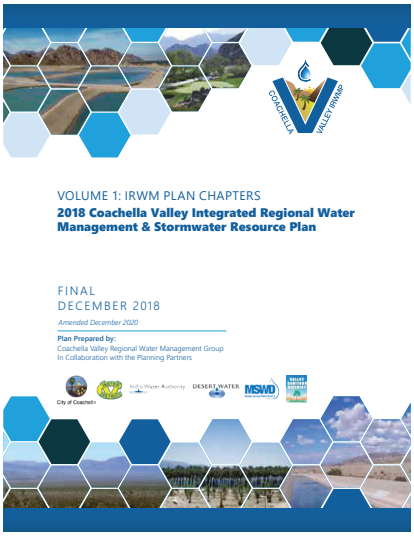


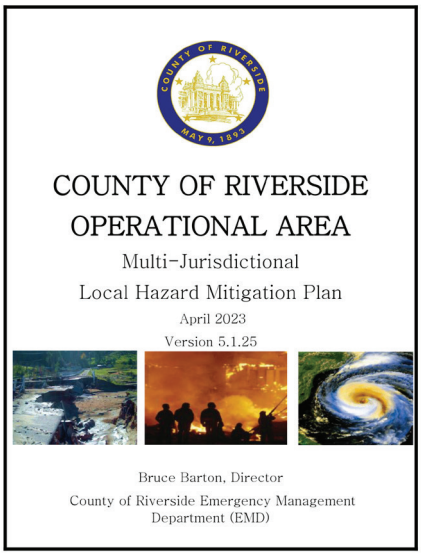
Elevating Existing Plans and Investments

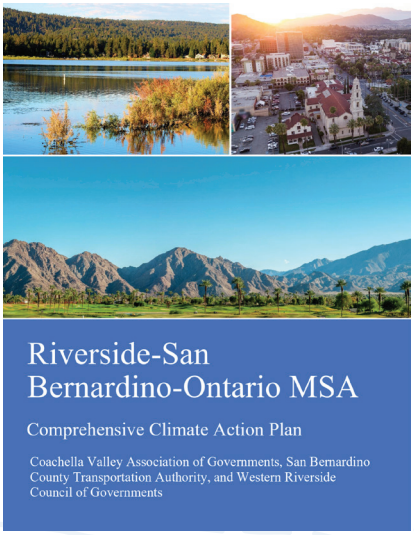
A key objective of the CVRWRP is to amplify and accelerate implementation of existing regional plans and investments. The plan does not create a new planning framework; instead, it helps connect climate resilience objectives with ongoing water management, infrastructure, ecosystem, and community development efforts already underway throughout the Valley.

The CVRWRP Supports Implementation of:

- Coachella Valley IRWM & Stormwater Resource Plan
- Indio Subbasin Alternative Plan
- Mission Creek Subbasin Alternative Plan
- Regional Urban Water Management Plan
- Coachella Valley Salt and Nutrient Management Plan
- CVWD Hazard Mitigation Plan
- Riverside County Multi-Jurisdictional Hazard Mitigation Plan
- Eastern Coachella Valley Water Supply Plan
- Coachella Valley Stormwater Master Plan
- Coachella Valley Multiple Species Habitat Conservation Plan
- Salton Sea Management Program
- CVAG Comprehensive Climate Action Plan
- Tribal habitat restoration and stewardship initiatives







Domestic Wells Face Unique Challenges

Domestic wells and small water systems are a vital part of this groundwater ecosystem of the Coachella Valley region, as they are often the sole source of drinking water for residents outside of municipal service areas, including mobile home parks, Polanco parks, Tribal communities, and rural residents. These systems face unique challenges. The map on the following page shows the density of domestic wells which are most prone to flood exposure and social flood vulnerability.

CLIMATE HAZARD IMPACTS TO
Small Water Systems in Coachella Valley

Drought
Prolonged droughts can reduce groundwater recharge and associated water levels, straining small water systems' ability to meet demand.

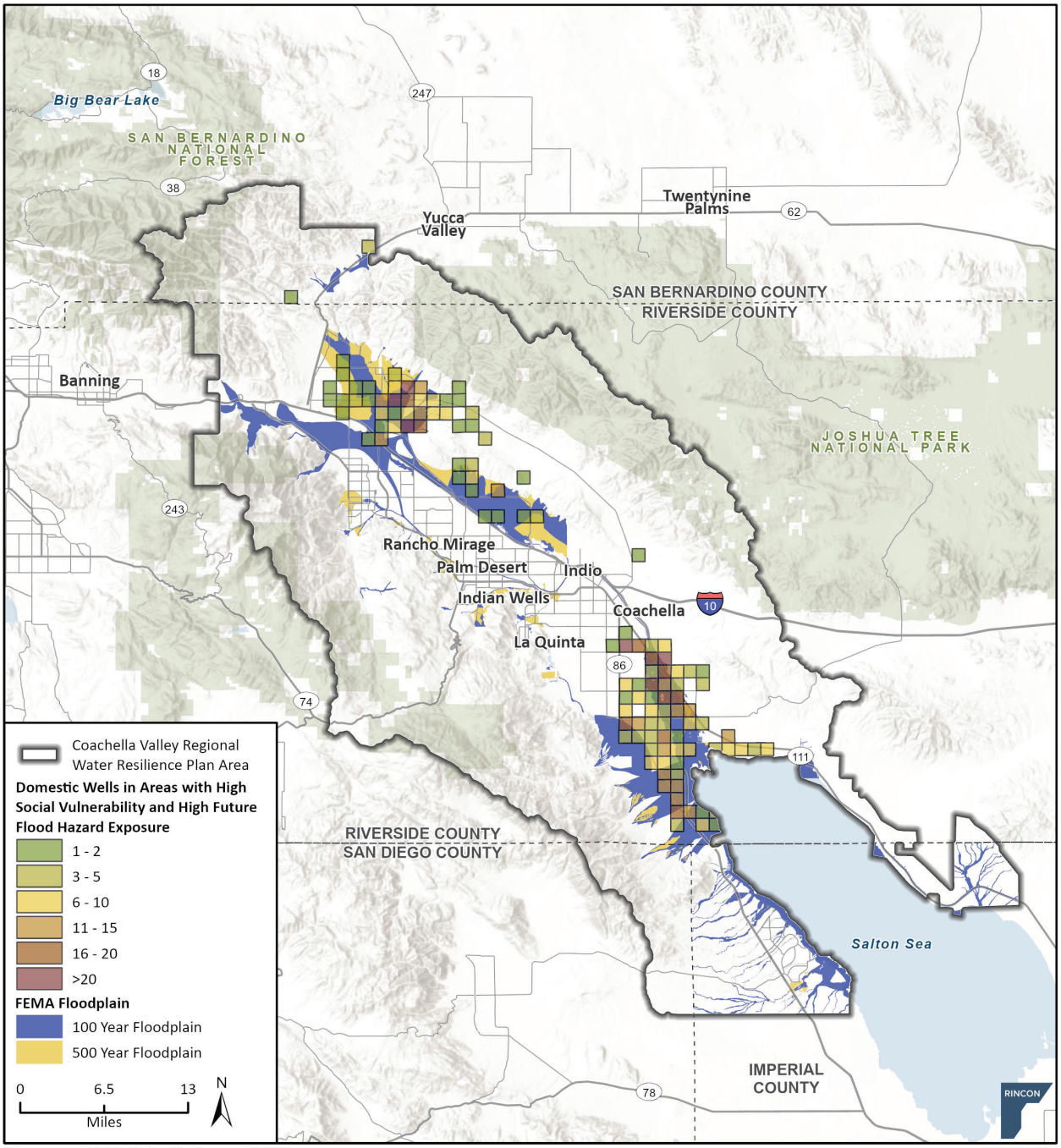
Extreme Heat
Rising temperatures can intensify water evaporation and increase demand, putting additional pressure on small water systems to maintain adequate supply and infrastructure.

Extreme Precipitation
Sudden and intense rainfall events may overwhelm infrastructure, causing flooding, contamination, and damage to small water systems.

Fire
Fires can damage infrastructure, degrade water quality through ash and debris contamination, and disrupt water supply lines for small systems.

Extreme Wind
Wind can increase evaporation rates, intensify dust storms that degrade water and air quality, and disrupt critical infrastructure.

Figure ES-2 below illustrates the overlap between the location of domestic wells, social vulnerability, and future flood hazard exposure within the Coachella Valley Regional Water Resilience Plan area. Grid cells represent areas with domestic wells and are colored according to a combined index of social vulnerability and high future flood hazard exposure. Darker orange and brown tones indicate higher values, while blue and yellow areas represent FEMA's 100-year and 500-year flood zones, respectively. The map highlights two primary concentrations of potentially vulnerable communities that rely on domestic wells: the northern/central portion of the valley near the Palm Springs–Rancho Mirage area, and the eastern/southern portion of the valley around Coachella and northwest of the Salton Sea. In several of these areas, domestic wells are located within or immediately adjacent to identified flood zones, highlighting locations where households that rely on individual wells may face both flood exposure and social vulnerability.



Basemap provided by Esri and its licensors © 2026.
Additional data provided by CPAD, 2025; NHD, 2024; DWR, 2024, TODD Groundwater, 2026; FEMA, 2025; Vulnerable Communities Platforms, 2026.

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Fig 8 Domestic Wells and Future Flood Risk

Figure ES-2. Domestic Wells and Future Flood Risk.

Climate Change and Water

A diverse set of water resource systems support communities, ecosystems, and working lands throughout the region.

Ecosystems

The interconnected terrestrial and aquatic habitats, species, and ecological processes that support biodiversity, ecosystem functions, and the natural resources upon which communities depend.

Flood Management

The natural and engineered systems, practices, and infrastructure that manage stormwater and flood flows to reduce risks to people, property, critical infrastructure, and natural resources.

Tribal and Cultural Resources

The lands, waters, cultural landscapes, traditional knowledge, sacred sites, and natural resources that hold cultural, historical, and spiritual significance for Tribal Nations and local communities.

Water Supply

The surface water, groundwater, imported water, recycled water, and supporting infrastructure systems that provide reliable water for communities, agriculture, ecosystems, and economic activities throughout the Coachella Valley region.

Groundwater Management

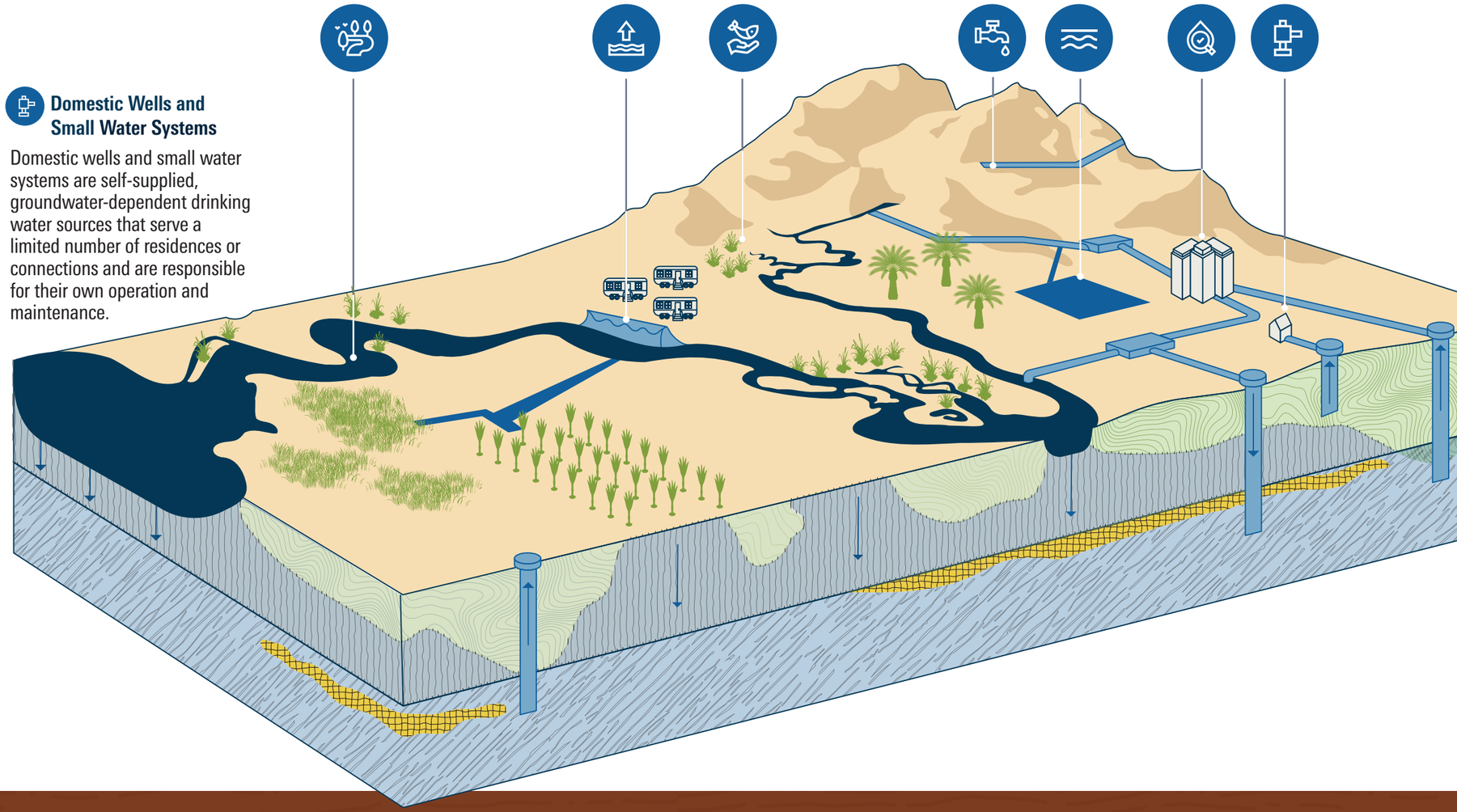
The sustainable management of groundwater resources through recharge, storage, extraction, monitoring, and conservation practices that support long-term water reliability and basin health.

Water Quality

The physical, chemical, and biological characteristics of surface water, groundwater, and recycled water that influence their suitability for drinking water, agriculture, ecosystem health, recreation, and other beneficial uses.

Domestic Wells and Small Water Systems

Domestic wells and small water systems are self-supplied, groundwater-dependent drinking water sources that serve a limited number of residences or connections and are responsible for their own operation and maintenance.



CLIMATE CHANGE WILL IMPACT WATER SYSTEMS AND COMMUNITIES IN COACHELLA VALLEY IN A VARIETY OF IMPORTANT WAYS:

Water Supply and Reliability

- Decreased deliveries of State Water Project and Colorado River water supplies due to scarcity across the West
- Increased demands resulting in groundwater depletion risks
- Increased evapotranspiration rates leading to higher outdoor and agricultural water use
- Increased reliance on groundwater during drought periods
- Wind-driven electrical line damage leading to power outages and water access issues

Infrastructure, Water Quality and Public Safety

- Increased runoff resulting from extreme precipitation events and associated flooding and damage to vital infrastructure
- Damage to water conveyance infrastructure from flooding events
- Increased risk of sediment, pesticides, and nutrients in water bodies due to elevated runoff rates
- Shifts in groundwater quality, including changes in contaminant concentrations due to altered recharge patterns and drought
- Impacts to public health and safety during storm events

Habitat and Ecosystem Health

- Increased vulnerability of habitats and species to temperature increases
- Increased vulnerability of vegetation and wildlife to invasive species
- Increased risk of habitat degradation

KEY RESILIENCE STRATEGIES
for the Coachella Valley

Implementation Action 1
Target Technical Assistance and System Upgrades to Improve Water Quality for Small Water Systems

Implementation Action 2
Improve Emergency Preparedness and Redundancy of Critical Services

Implementation Action 3
Strengthen Energy Resilience for Water Infrastructure

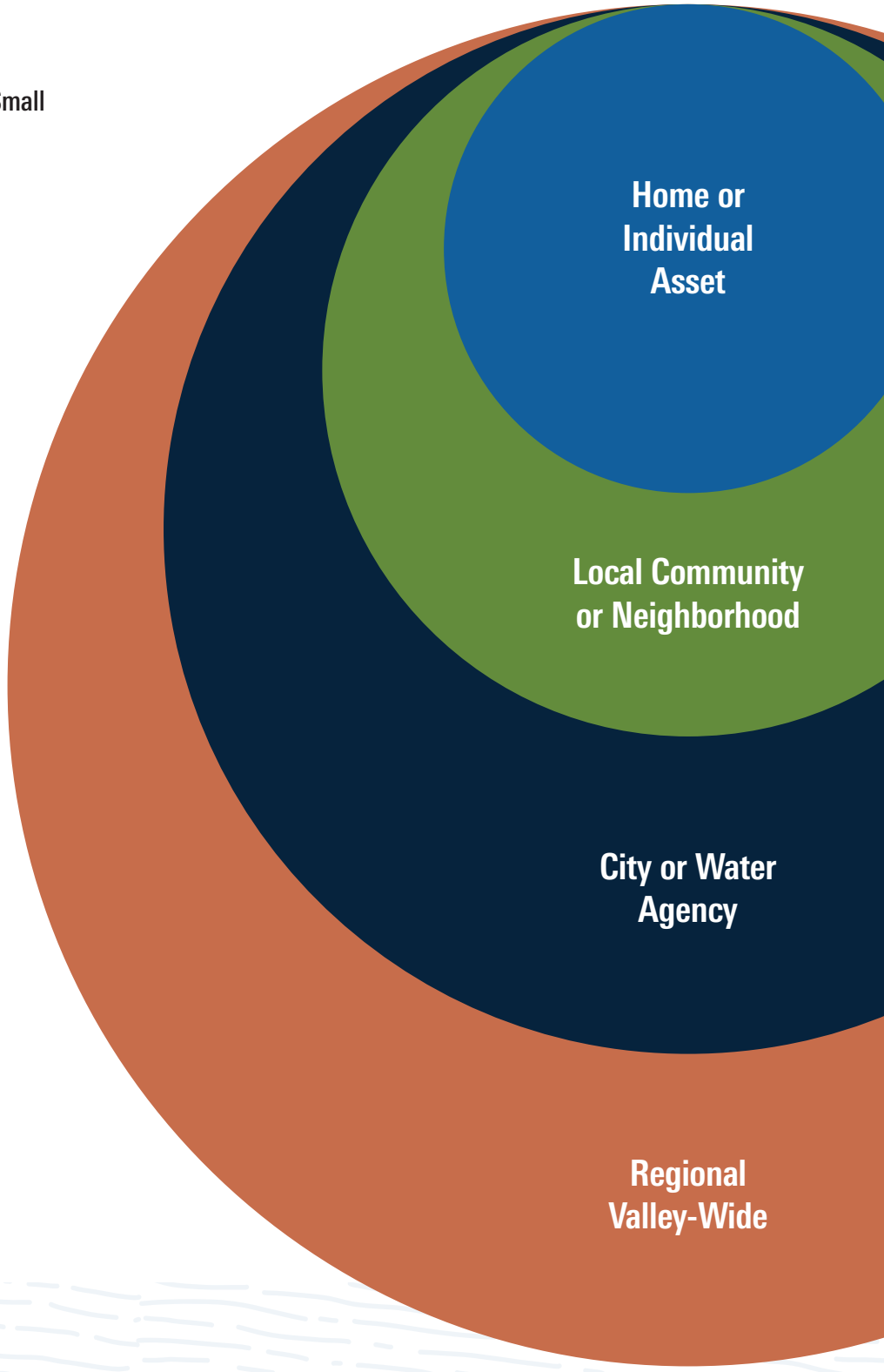
Implementation Action 4
Develop Decentralized Flood Management and Stormwater Capture

Implementation Action 5
Build Regional Support to Adapt Small Water Systems

Implementation Action 6
Advance Water Supply Projects and Facility Expansions

Implementation Action 7
Advance Outdoor Water Use Efficiency Priorities

Implementation Action 8
Engage in Strategic Policy Change and Regulatory Streamlining



Key Strategies and Actions

Strategy	Implementation Action	Implementation Roles		Relevant Funding Opportunities
Implementation Action 1 - Target Technical Assistance and System Upgrades to Improve Water Quality for Small Water Systems	Translate regional water quality monitoring and domestic well/small water system inventory data into a targeted treatment implementation program for groundwater-dependent communities. The program should consolidate available EPA, Riverside County, water agency, CVRWRP inventory, and CV-SNMP monitoring data into a publicly accessibly database. Identify priority water quality gaps and direct funding toward the installation, routine testing, filter replacement, operator support, and long-term maintenance of wellhead, Point of Entry, and Point of Use treatment systems in underserved areas affected by arsenic, nitrate, chromium-6, and other contaminants.	**City**	• Provide municipal water, land-use, and infrastructure data; identify affected neighborhoods and facilities. • Support local outreach and issue land-use, building, encroachment, or intertie approvals, as applicable. • Coordinate treatment projects with emergency planning and longer-term service or consolidation decisions.	• SWRCB - DWSRF/CWSRF and Clean, Safe, Reliable Drinking Water - $610M • DWR - Sustainable Groundwater Management Grant Program - $386.25M • DWR - Watershed Resilience Program - $100M • CNRA - Tribal Nature-Based Solutions Program - $10M • DWR - Technical Support Services - amount varies • SWRCB - State Revolving Fund Programs - capitalization varies
		County	• Riverside County Environmental Health provides domestic-well and small-system information and coordinates drinking-water compliance. • Support sampling priorities, permits, privacy protections, and referrals for unincorporated communities. • Coordinate County data with the regional database and help identify high-vulnerability locations.	
		Water Agency	• Integrate monitoring and inventory datasets; identify contaminant and monitoring gaps. • Complete treatment feasibility reviews and implement wellhead, POE/POU, shared-service, or consolidation solutions. • Provide operator support, routine testing, filter replacement, repairs, long-term O&M, and SGMA/CV-SNMP reporting.	
		NGO/Tribes	• PUCDC leads the working group and trusted engagement with households, mobile home parks, and Tribal communities. • Support enrollment, field verification, treatment selection, funding navigation, and understandable public information. • Conduct household follow-up and elevate community preferences, affordability concerns, and maintenance needs.	
Implementation Action 2 - Improve Emergency Preparedness and Redundancy of Critical Services	Expand water storage tanks to support both emergency response and domestic water supply needs. Coordinate dual-purpose storage requirements with fire departments so storage can support both fire flows and domestic water systems.	**City**	• Identify municipal storage, fire-flow, outage, and emergency-access deficiencies. • Support tank siting, land-use approvals, grading/building permits, easements, and integration into local hazard and capital plans. • Participate in operating, communication, and reimbursement agreements.	• DWR - Small Communities Flood Risk Reduction Program - $250M • Cal OES - Wildfire Mitigation Grant Program - $135M • CAL FIRE - Local Fire Prevention and Workforce Development - $185M • SWRCB - DWSRF/CWSRF and Clean, Safe, Reliable Drinking Water - $610M • USDA Rural Development - Emergency Community Water Assistance Grants
		County	• Riverside County Fire leads the countywide assessment and development of dual-purpose storage criteria. • Emergency Management integrates facilities into emergency operations and continuity planning; Environmental Health supports drinking-water requirements. • Coordinate liability, reimbursement, private-well protection, communications, and priorities in unincorporated communities.	
		Water Agency	• Assess storage capacity, tank condition, interties, backup power, distribution compatibility, and system deficiencies. • Lead feasibility studies, engineering, permitting, construction, commissioning, asset management, and long-term O&M. • Establish operating protocols that preserve water quality and domestic reliability while meeting emergency fire-flow needs.	
		NGO/Tribes	• Document community reliability gaps and past concerns regarding emergency use of private infrastructure. • Support transparent siting, design, and operating discussions with disadvantaged and Tribal communities. • Help identify priority mobile home parks and small systems and communicate available assistance.	

Implementation Action 3 - Strengthen Energy Resilience for Water Infrastructure	Deploy solar-powered backup systems with battery storage, black-start capabilities, and pump-compatible controls to maintain operation of wells, booster pumps, and critical small water system facilities during grid outages. Prioritize collaborative pilot projects at Tribal and small water system sites, leveraging available battery incentives, direct-pay financing opportunities for Tribes, and lessons learned from existing backup power installations to overcome the technical and financial barriers associated with powering submersible groundwater pumps.	**City**	• Identify critical municipal water or emergency facilities and outage-sensitive locations. • Process electrical and building permits and incorporate resilient power into local emergency and climate planning. • Coordinate public-facility pilot opportunities where relevant.	• Cal OES - Wildfire Mitigation Grant Program - $135M • CAL FIRE - Local Fire Prevention and Workforce Development - $185M • CVMC - Reduce the Risks of Climate Change Impacts - $11M • CEC - Electric Program Investment Charge - amount varies • CEC - Community Energy Resilience Funding - amount varies • U.S. DOE - Tribal Energy Program - amount varies
		County	• Emergency Management identifies continuity-of-operations priorities and outage scenarios. • Office of Economic Development helps coordinate incentives, financing, technical partners, and scalable deployment. • Support emergency planning links among Tribes, utilities, water providers, and small systems.	
		Water Agency	• Assess electrical loads, pump startup surges, battery sizing, controls, black-start capability, and utility interconnection needs. • Lead design, procurement, installation, commissioning, safety compliance, performance monitoring, and equipment replacement planning. • Document cost-effectiveness and lessons learned for regional replication.	
		NGO/Tribes	• TMDCI and PUCDC lead Tribal and small-system pilot partnerships and priority-site identification. • Support community communication, direct-pay and incentive navigation, and locally appropriate ownership models. • Help document service-reliability and environmental-justice benefits.	
Implementation Action 4 - Develop Decentralized Flood Management and Stormwater Capture	Coordinate with Riverside County, CVWD's stormwater program, and local jurisdictions to identify and implement flood mitigation projects in underserved communities, manufactured housing areas, and critical infrastructure corridors with documented flooding concerns, including locations such as 70th Street, Pierce Street, and communities throughout the eastern Coachella Valley. Incorporate centralized and decentralized stormwater catchment features into flood management approaches, where feasible, to slow, capture, store, infiltrate, and beneficially use stormwater closer to where runoff is generated while complementing regional flood control infrastructure. Integrate future flood risk projections into capital improvement planning, development review, infrastructure design standards, and groundwater sustainability planning to support flood-risk reduction, groundwater quality protection, and aquifer replenishment.	**City**	• Map recurring flood locations and risks to neighborhoods, roads, manufactured housing, and critical infrastructure. • Integrate future flood risk and centralized/decentralized stormwater catchment opportunities into capital planning, development review, infrastructure design standards, and land-use planning. • Identify City-owned streets, parks, facilities, and other suitable sites for distributed stormwater catchment, and provide local permits, rights-of-way, and long-term maintenance for priority projects.	• DWR - Flood Control Subventions Program - $150M • DWR - Small Communities Flood Risk Reduction Program - $250M • SWRCB - Storm Water Grant Program - $110M • DWR - Watershed Resilience Program - $100M • WCB - Protect and Enhance Fish and Wildlife - $668M • FEMA - BRIC/Flood Mitigation Assistance - amount varies
		County	• Lead regional flood-risk assessment and coordinate major flood-management infrastructure and projects in unincorporated areas • Integrate future flood risk into County transportation corridors, land-use review, infrastructure planning, permitting, and capital investments. • Advance projects in underserved and manufactured housing communities with documented flooding concerns, including areas near 70th Street and Pierce Street, while identifying opportunities to combine regional flood infrastructure with decentralized stormwater catchment.	
		Water Agency	• Provide technical leadership for stormwater management, catchment, infiltration, groundwater recharge, and groundwater-quality considerations, consistent with agency authority. • Coordinate with the County and local jurisdictions to identify where centralized facilities and decentralized catchment features can complement CVWD's existing regional flood-control system. CVWD's existing system includes debris basins, levees, stormwater channels, and the Coachella Valley Stormwater Channel. • Evaluate stormwater capture, infiltration, recharge, and groundwater-quality performance and incorporate applicable groundwater outcomes into regional groundwater planning and reporting.	
		NGO/Tribes	• Document community flooding concerns, access constraints, infrastructure vulnerabilities, and priority locations, particularly in underserved communities. • Support community and Tribal participation in project identification, prioritization, and design, including consideration of decentralized catchment opportunities. • Support community outreach, funding applications, construction communication, and post-project feedback to help ensure investments respond to locally identified needs.	

Implementation Action 5 - Build Regional Support to Adapt Small Water Systems	Expand septic-to-sewer conversion, wastewater consolidation, and wastewater infrastructure improvement programs throughout disadvantaged communities in the eastern Coachella Valley to reduce groundwater contamination, protect drinking water supplies, improve public health outcomes, and support long-term groundwater sustainability. Building upon CVWD's Sanitation Master Plan, the ongoing Consolidation Master Plan update, and work led through the DAC Infrastructure Task Force, this action prioritizes extending centralized wastewater collection and treatment infrastructure to communities currently reliant on aging or failing septic systems.	**City**	• Coordinate land-use, street, utility, and capital projects with sewer extensions and customer connections. • Issue encroachment, grading, construction, and other local approvals; support easements and service-area changes. • Help identify public facilities and neighborhoods that can be efficiently connected.	• SWRCB - DWSRF/CWSRF and Clean, Safe, Reliable Drinking Water - $610M • SWRCB - Water Recycling Funding Program - $386.25M • DWR - Regional Conveyance Grant Program - $2.67M • SWRCB - SAFER Program - amount varies • USDA Rural Development - Water and Waste Disposal Program - amount varies • EPA - WIIN and Community Infrastructure programs - amount varies
		County	• Environmental Health coordinates septic abandonment, inspections, public-health compliance, and service transitions. • Support rights-of-way, permits, utility coordination, and implementation in unincorporated communities. • Participate through the DAC Infrastructure Task Force and identify communities remaining on septic systems.	
		Water Agency	• CVWD completes the Consolidation Master Plan update and project prioritization. • Plan backbone and trunk infrastructure; lead feasibility, environmental review, design, permitting, funding, construction, connections, and operations. • Monitor customer connections, nitrate-loading reduction, system performance, affordability, and groundwater-quality outcomes.	
		NGO/Tribes	• LCJA, PUCDC, TMDCI, and the DAC Infrastructure Task Force lead community needs identification and sustained outreach. • Assist households with easements, connection requirements, affordability programs, and construction coordination. • Deliver septic maintenance education and financial-assistance information in areas remaining unsewered.	
Implementation Action 6 - Advance Water Supply Projects and Facility Expansions	Advance implementation of recycled water, groundwater replenishment, and water reuse projects identified in the Indio and Mission Creek Alternative Plans, including expansions of WRP-4, WRP-7, WRP-10, Nancy Wright RWRF, Horton Wastewater Treatment Plant, EVRA potable reuse, four different groundwater recharge facilities, and non-potable distribution systems. Prioritize SGMA-benefit and source substitution projects that reduce groundwater pumping through the expansion of recycled water, blended recycled water with Colorado River Aqueduct supplies, and groundwater replenishment projects to improve basin sustainability.	**City**	• Coordinate land-use approvals, rights-of-way, construction permits, and recycled-water customer conversions. • Align municipal capital projects and landscape irrigation with non-potable distribution expansion. • Support public outreach for recycled-water and potable-reuse projects.	• SWRCB - Water Recycling Funding Program - $386.25M • DWR - Sustainable Groundwater Management Grant Program - $386.25M • SWRCB - DWSRF/CWSRF and Clean, Safe, Reliable Drinking Water - $610M • DWR - Regional Conveyance Grant Program - $2.67M • DOC - Multi-benefit Land Repurposing Program - $200M • USBR - WaterSMART - amount varies
		County	• Coordinate land-use and infrastructure approvals for treatment, storage, conveyance, and recharge facilities in County areas. • Support easements, utility crossings, construction coordination, and regional project alignment. • Help connect projects to County climate, drought, and disadvantaged-community priorities where applicable.	
		Water Agency	• CVWD and partner agencies update schedules and sequence projects using readiness, demand, regulation, and SGMA benefits. • Lead feasibility, alternatives analysis, design, environmental review, permitting, finance, construction, commissioning, and operation. • Track recycled-water production, recharge, source substitution, pumping reduction, groundwater response, and SGMA performance.	
		NGO/Tribes	• Support transparent public education and community engagement, particularly for potable reuse. • Advocate for equitable distribution of reliability, affordability, and groundwater benefits. • Participate in regional coalitions, letters of support, and customer outreach when appropriate.	

Implementation Action 7 - Advance Outdoor Water Use Efficiency Priorities	Coordinate with CVWD, local water suppliers, jurisdictions, agricultural operators, golf courses, HOAs, businesses, institutions, and community partners to build upon CV Water Counts as the regional platform for coordinated water-use efficiency implementation. Expand existing education, outreach, rebate, turf-conversion, and irrigation-efficiency efforts while using regional conservation data to identify underserved customer segments, target the highest-value conservation opportunities, and improve measurement of resulting water savings. Use the existing CV Water Counts framework to test, coordinate, evaluate, and scale water-efficiency strategies across participating agencies.	**City**	• Implement and promote CV Water Counts programs and participating-agency incentives through local outreach, planning, and community programs. • Identify municipal facilities, parks, streetscapes, and other high-water-use landscapes for turf conversion, irrigation-efficiency upgrades, and demonstration projects. • Apply local landscape and water-efficiency requirements and coordinate with water suppliers to increase participation among residents, HOAs, businesses, and institutional customers.
		County	• Promote CV Water Counts resources and available conservation programs in unincorporated communities. • Identify County facilities and landscapes where water-efficiency improvements and demonstration projects could be implemented. • Support outreach and partnerships with agricultural operators, large landowners, businesses, institutions, and underserved communities to broaden participation in water-efficiency programs.
		Water Agency	• Lead and coordinate CV Water Counts, including regional education, outreach, conservation messaging, and coordination among participating water suppliers. CV Water Counts was established by regional water suppliers for coordinated water-conservation education and awareness. • Implement and refine rebates, landscape conversion, irrigation-efficiency, audits, and other conservation programs based on customer needs and regional conservation data. CVWD already offers residential, HOA and commercial landscape and irrigation incentives and conducts outreach and education. • Track participation, water savings, program saturation, and cost-effectiveness to identify gaps and target future investments. The Regional Water Conservation Study provides an existing foundation for evaluating savings, targeting, incentive levels, and program saturation.
		NGO/Tribes	• Support culturally and community-appropriate outreach and education to increase awareness of water-use efficiency programs and available incentives. • Help identify barriers to participation and underserved customer groups and connect residents and landowners with appropriate programs and resources. • Partner on education, demonstration projects, and community engagement that can expand participation in CV Water Counts and reinforce long-term water conservation.
			• DOC - Multi-benefit Land Repurposing Program - $200M • SWRCB - Storm Water Grant Program - $110M • DWR - Watershed Resilience Program - $100M • WCB - Protect and Enhance Fish and Wildlife - $668M • SDRC - Conservation, Nature-Based Solutions, and Public Access - $48M • CDFA - Healthy Soils - $65M

Implementation Action 8 - Engage in Strategic Policy Change and Regulatory Streamlining	Align CVRWRP implementation actions with Riverside County Ordinance 348 and related land use, floodplain management, environmental health, and development review requirements. Identify opportunities to develop clear permitting pathways, interagency coordination procedures, and project review guidance that support implementation of stormwater capture, groundwater recharge, flood mitigation, decentralized water infrastructure, habitat restoration, and other resilience projects for small water systems. Incorporate future climate conditions, flood risk projections, groundwater sustainability objectives, and water quality considerations into project planning and design standards to reduce regulatory uncertainty and help priority projects move more efficiently from planning to implementation.	**City** • Document municipal permits, standards, responsible departments, review sequencing, and typical information needs. • Participate in the interagency working group and test the permitting matrix on priority projects. • Incorporate adopted climate-informed review procedures into development, capital, hazard, and resilience planning. **County** • Planning and Public Works lead the Ordinance 348 and County-process review, subject to County confirmation. • Convene Environmental Health, Emergency Management, Flood Control, water agencies, Tribes, cities, and NGOs. • Develop the permitting matrix, standardized review guidance, pilot pathway, staff procedures, and periodic updates. **Water Agency** • Define technical, operational, and regulatory requirements for recharge, stormwater, flood, decentralized-water, and habitat projects. • Provide pilot projects and coordinate with the Regional Water Board, EPA, and other permitting agencies. • Align guidance with SGMA, Alternative Plans, capital programs, and groundwater-quality objectives. **NGO/Tribes** • Identify barriers experienced by community organizations, small systems, Tribes, and disadvantaged communities. • Help develop plain-language guidance, applicant checklists, technical assistance, and community-facing information. • Participate in pilot reviews and track whether streamlined processes improve project readiness and access.	• DWR - Watershed Resilience Program - $100M • CVMC - Reduce the Risks of Climate Change Impacts - $11M • SDRC - Conservation, Nature-Based Solutions, and Public Access - $48M • CNRA - Nature and Climate Education Facilities Program - $25M • FEMA - Building Resilient Infrastructure and Communities - amount varies • EPA - Environmental Justice and Community Capacity programs - amount varies

Notes: Action language is reproduced verbatim from the implementation roadmaps provided. Roles synthesize the roadmaps' priority next steps, permitting needs, and identified partnerships. Funding amounts shown are total Proposition 4 allocations where provided; "amount varies" indicates that no single amount was supplied in the roadmap materials. Confirm current eligibility, available balances, match, and solicitation requirements before application. Action 8 County lead roles remain subject to County confirmation.

Measuring Success Toward Water Resilience

The CVRWRP is intended to advance implementation and deliver measurable improvements in water resilience for communities throughout the Coachella Valley. As projects move forward, partners may consider tracking the following indicators to evaluate progress and inform future investment decisions:

- **Households and water systems receiving assistance** through water quality testing, technical assistance programs, treatment system installation, or funding support.
- **Domestic wells and small water systems assessed, monitored, or added to regional databases** to improve understanding of water quality, infrastructure conditions, and climate vulnerability.
- **Treatment, backup power, and resilience systems installed**, including point-of-entry (POE) and point-of-use (POU) treatment systems, shade trees, emergency generators, solar-plus-storage systems, and other reliability improvements.
- **Additional emergency water storage and system redundancy created** through expanded storage capacity, interconnections, backup supplies, and other emergency preparedness measures.
- **Flood and stormwater mitigation projects advanced**, including projects that reduce community flood risk, improve groundwater recharge, and provide multiple environmental and community benefits.
- **Grant funding and implementation resources secured** from local, state, federal, Tribal, and private-sector funding programs.
- **Workforce, operator, and technical capacity expanded** through training, technical assistance, partnerships, and programs that support long-term operation and maintenance of water infrastructure.





Moving from Planning to Implementation

The CVRWRP's primary contribution is translating climate vulnerability information and community priorities into implementable projects, partnerships, and funding opportunities. Through resilience portfolios, implementation roadmaps, and priority actions, the plan provides a pathway for advancing projects that improve drinking water quality, protect groundwater resources, reduce flood risk, enhance ecosystem health, and strengthen the resilience of communities throughout the Coachella Valley.

Align and Amplify Existing Regional Efforts

The Coachella Valley already benefits from extensive planning and investment through innovative water supply projects and Tribal and community-led initiatives that are actively improving water quality for vulnerable communities. Aligning priorities, bundling projects, and pursuing coordinated implementation can maximize resilience benefits and improve competitiveness for funding.

Build Capacity to Operate and Maintain Resilience Infrastructure

Many of the resilience investments identified through the CVRWRP require long-term operations and maintenance to deliver lasting benefits. Long-term resilience will depend on a skilled workforce capable of operating, maintaining, and upgrading domestic wells, small water systems, decentralized treatment systems, and resilience infrastructure.

Build Redundancy into Critical Water and Power Systems

Many domestic wells, small water systems, and Tribal water systems rely on a single well, pump, power source, or treatment system, leaving communities vulnerable to outages, equipment failures, flooding, and extreme weather events. Expanding backup water supplies, emergency storage, interconnections, alternative power sources, and redundant treatment and pumping infrastructure can improve system reliability and help ensure continued access to safe drinking water during emergencies and prolonged disruptions.

Prioritize Multi-Benefit Solutions

Projects that address multiple challenges simultaneously, such as groundwater recharge, stormwater capture, water reuse, habitat restoration, flood management, and water quality improvements, provide the greatest return on investment and resilience benefits.

Streamline Policies and Permitting

Many resilience projects face complex permitting and regulatory requirements. Improving interagency coordination, integrating climate considerations into planning and permitting, and reducing implementation barriers can accelerate delivery of priority projects.





Funding and Implementation Strategy

Because the identified actions span water quality, groundwater sustainability, flood management, energy resilience, emergency preparedness, recycled water, and community resilience, no single funding source will be sufficient. Instead, implementation should focus on bundling projects, sequencing investments, and aligning projects with multiple state, federal, Tribal, and private-sector funding opportunities to maximize competitiveness and long-term impact.

Leverage Proposition 4, WaterSMART, and Regional Funding Opportunities

Several priority actions align closely with California's Proposition 4 funding programs expected to be released between 2027 and 2030, including the Water Resilience Projects (WRP) program and Sustainable Groundwater Management (SGM) program administered by DWR. Groundwater recharge, domestic well protection, recycled water reuse, flood management, nature-based solutions, Tribal resilience projects, and drinking water quality improvements are all likely to align strongly with Proposition 4 priorities. At the federal level, the Bureau of Reclamation's WaterSMART program continues to provide funding for drought resilience, water reuse, conservation, recharge, and climate adaptation projects. Many CVRWRP actions, including recycled water expansions, groundwater recharge, source substitution projects, and domestic well resilience efforts, are strong candidates for future WaterSMART funding opportunities.



Additional opportunities may include:

- State Water Board SAFER Program for domestic well assistance, water quality testing, and drinking water improvements.
- FEMA BRIC and Hazard Mitigation Assistance Programs for flood mitigation, emergency preparedness, backup power, and critical infrastructure protection.
- California Strategic Growth Council and Extreme Heat & Community Resilience Programs for shade, cooling, and community resilience projects.
- Salton Sea Management Program funding for habitat, dust reduction, stormwater management, and community resilience projects in the eastern Coachella Valley.
- Regional Water Board funding programs supporting groundwater quality, stormwater capture, septic-to-sewer conversion, and nonpoint source pollution reduction.

Bundle Projects Into Regional Resilience Portfolios

Rather than pursuing funding for individual projects, agencies and partners should package related investments into multi-benefit resilience portfolios. For example, stormwater capture, groundwater recharge, flood mitigation, septic protection, and habitat restoration projects can be combined into a single regional funding package. Similarly, domestic well monitoring, water quality testing, POE/POU treatment, and technical assistance programs can be advanced together under a drinking water resilience initiative. Bundling projects increases funding competitiveness, demonstrates regional coordination, and allows partners to leverage multiple funding sources simultaneously.

Expand Public-Private and Tribal Partnerships

Many CVRWRP actions can be strengthened through partnerships with agricultural operators, developers, utilities, Tribal governments, community organizations, and philanthropic partners. Public-private partnerships may be particularly effective for stormwater infiltration, agricultural return-flow management, distributed energy systems, water-use efficiency programs, and habitat restoration projects. Tribal partners may also benefit from direct-pay provisions, battery incentives, and other federal financing opportunities that can support resilient water and energy infrastructure.



Groundwater continues to support the diverse activities of the Coachella Valley. It provides a critical water supply that sustains agriculture, animal husbandry, industry, residences, and cultural resources.

Implementation Spotlight: From Planning to Action

With support from the California Governor's Office of Land Use and Climate Innovation (LCI), the CVRWRP is already advancing on-the-ground resilience projects that directly benefit communities served by small water systems. Through this implementation effort, PUCDC is installing seven point-of-entry (POE) treatment systems to improve drinking water quality for households in eastern Coachella Valley facing groundwater contamination concerns, while TMDCI is upgrading a critical groundwater well by installing a new air compressor system to improve reliability and long-term water access. These projects demonstrate how targeted technical assistance and relatively small capital investments can provide immediate benefits for communities that rely on domestic wells and small water systems. By addressing site-specific water quality and reliability challenges, these efforts help build resilience while providing practical examples that can be replicated in other underserved communities throughout the Coachella Valley.