

Director's Note

The 2024–25 runoff year marked the third consecutive year of average to above-average precipitation in the Owens Valley. After the exceptionally wet winter of 2023, this year's near-average runoff helped maintain generally elevated groundwater levels, even as water tables declined modestly across all wellfields. These conditions supported continued increases in vegetation cover in many areas, and several long-monitored parcels recovered to within their baseline conditions. At the same time, a number of parcels remain below baseline, underscoring the long-term challenges of sustaining groundwater-dependent ecosystems under the water management regime in the Owens Valley.

This year also saw steady progress in several core Water Department programs. Staff completed another full season of soil-water and vegetation monitoring, continued rare plant surveys, and advanced the multi-year Type D riparian study, which will provide important insights into tree recruitment and riparian forest dynamics along the Owens River. We also welcomed a new Research Assistant, James Mills, and saw major improvements in our winter saltcedar program under the leadership of Tyler Starbard.

The Water Department and the MOU parties continued working through several long-standing mitigation issues, including Five Bridges and other revegetation parcels. These sites highlight the importance of clear standards for project sustainability and long-term success. At the same time, public-facing tools, such as the Green Book Vegetation Monitoring app and the updated Mitigation Map, are making it easier than ever for community members to explore data and track progress.

We hope this edition of the *Owens Valley Monitor* provides a clear and useful overview of the year's hydrologic conditions, monitoring results, and ongoing work. Additional reports, data tools, and background information are available on our website at

<https://www.inyowater.org/documents/reports/inyo-county-water-dept-annual-report/>.

Hydrologic Conditions

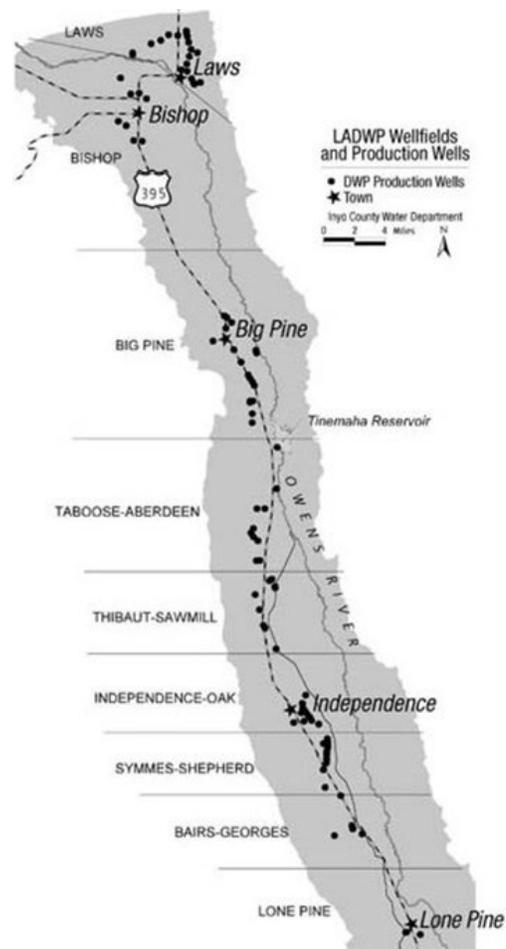
Runoff and pumping

For the 2024-25 runoff year (April 1, 2024 – March 31, 2025), the reported measured runoff was 404,291 ac-ft, approximately 99% of the 1971-2020 long-term average. The reported runoff was slightly less than the prediction of 102% of average runoff. Total Los Angeles Department of Water and Power (LADWP) pumping within the Owens Valley from Laws to Lone Pine for 2024-25 was 48,678 ac-ft, which was 63% of LADWP's planned maximum pumping amount of 77,413 ac-ft. Reported Owens Valley water uses for 2024-25 were 97,378 ac-ft, including 50,713 ac-ft of irrigation, and Eastern Sierra water exports were approximately 271,380 ac-ft, which is 60% of LADWP's 2024-25 anticipated annual demand (450,000 ac-ft).

Depth to groundwater

The wellfield average change in depth to water DTW from April 2024 to April 2025 was a decrease of -1.5 feet, with a median decrease of -0.9 feet in the 46 indicator monitoring wells. The largest wellfield average decreases were observed in Laws (-3.4 ft), Big Pine (-1.5 ft), Independence-Oak (-1.6 ft), and Bairs-Georges (-2.1 ft). Taboose-Aberdeen (-0.6 ft), Thibaut-Sawmill (-0.9 ft), and Symmes-Shepherd (-0.4 ft) wellfields saw more moderate decreases of less than one foot. Despite valley-wide groundwater level decreases, levels remained above those of the mid-1980's vegetation baseline period in about 65% (30 of 46) of the Indicator wells. DTW is informational only and has no role in On/Off determination which relies on soil water and vegetation measurements.

The very wet 2017, strong 2019, and record 2023 winter contributed to water table recovery (i.e., increases) from the recent drought periods. Runoff from these wet years and associated decreases in pumping resulted in increases in water levels across all wellfields to above baseline conditions by April of 2024, except for the chronically below-baseline Independence-Oak and Symmes-Shepherd wellfields. During runoff year 2024-25, water levels declined from these high levels across all wellfields. Independence-Oak and Symmes-Shepherd remained the two wellfields below baseline as of April 2025 based on a set of approximately 180 monitoring wells that have measurements from the mid-1980s to the present. More wellfield-specific information can be found on ICWD's website: <https://www.inyowater.org/maps-data/hydrology/>.



2025-26 LADWP Operations Plan

Predicted runoff from the Owens River watershed during the 2025-26 runoff year is forecast to be 375,100 acre-feet (ac-ft or AF) or 92% of the 50-year (1971-2020) average. The actual runoff value will be available in 2026. LADWP is predicting 95,130 ac-ft of water will be used in the Owens Valley, 50,400 ac-ft of which is planned for irrigation. The 2025-26 water exports from the Eastern Sierra (Inyo and Mono Counties) are planned to be slightly lower than 2024-25 exports at 269,000 ac-ft, or 55% of LADWP anticipated annual need.

LADWP planned pumping for 2025-26 is between 62,160 to 83,760 ac-ft. The pumping, at the low-end, is for sole-source (in-valley) uses and some export; under LADWP's high pumping scenario, significantly more pumping for aqueduct supply is planned. Inyo County, like most years, recommended reduced pumping amounts by wellfield below LADWP's minimum proposed pumping for 2025-26 of 48,720 ac-ft.

Average groundwater levels are expected to decrease in all seven analyzed wellfields under LADWP's 2025-26 maximum and minimum proposed pumping scenarios. The average deepening of the water table across the wellfields is estimated to be -1.9 feet year-over-year under LADWP's maximum pumping scenario, -1.2 feet under LADWP's minimum pumping scenario, and -1.0 feet with Inyo County recommended reduced pumping. By April 2026, under LADWP's maximum pumping scenario, average predicted water levels would be below baseline in Laws (-0.7 feet), Independence-Oak (-3.2 feet), and Symmes-Shepherd (-3.6 feet). In Big Pine, Taboose-Aberdeen, Thibaut-Sawmill, and Bairs-Georges wellfields, average water levels are predicted to be unchanged (0.0) to 4.9 feet above baseline.

Evaluation of 2024-25 Depth to Water Predictions

ICWD routinely uses models to predict the effects of pumping on DTW as part of its analysis of LADWP's annual Operations Plans. ICWD staff conducts an annual audit which examines the accuracy of these models by comparing the predictions with DTW measurements collected the following year on April 1. The 2024-25 audit showed model performance was satisfactory and comparable to previous non-extreme years. Actual groundwater levels were nearly an even split between shallower and deeper than predicted levels using LADWP's minimum planned pumping. The average absolute difference between 2024 water level predictions and 2025 measured water levels was 1.0 feet under the minimum pumping scenario. Model predictions were within 1.5 ft of actual in 83% of the wells (38 of 46), and within one foot of actual in 65% of the wells (30 of 46).

Soil Water Conditions

The Long Term Water Agreement establishes procedures to determine which LADWP pumping wells can be operated based on soil water and vegetation measurements. Through this program, termed On/Off, ICWD regularly measures depth to groundwater and soil water content at 25 monitoring sites in wellfields and eight sites in control areas. DTW is informational only and has no role in On/Off determination. The purpose for monitoring soil water and the On/Off procedures is to manage pumping to protect plant communities that require periodic access to the water table for long-

term survival. Generally, the sites with “On” status have wet soil and shallow water tables, and sites in “Off” status have dry soil and relatively deep water tables.

To assist in the evaluation of LADWP pumping proposals, ICWD examined the DTW and soil water data to determine whether groundwater was accessible to plants at the permanent monitoring sites at the beginning of the 2025 growing season. At the beginning of the 2024-25 runoff year (April 1, 2024), 20 sites were in “On” status. At the end of the runoff year (March 31, 2025), the same 20 sites were in “On” status. Most sites experienced some level of groundwater recharge into the rooting zone of plants (2-4 meters deep) in 2024-25. Soil moisture amounts decreased in all seven wellfields as measured from April 1, 2024, to April 1, 2025. Control area soil moisture also decreased year-to-year.

At the beginning of the 2025 growing season (April), the water table had supplied, or was capable of supplying, water to the root zone at 19 of the 25 wellfield monitoring sites. The trend from 2024 to 2025 was for soil moisture at monitoring sites to become less connected to the water table corresponding to overall groundwater level decreases. Six wellfield sites (LW2, LW3, TA5, IO2, SS2, and SS4) are now disconnected from the water table and have low soil moisture levels; three of these sites were mapped as Alkali Meadow vegetation during the baseline vegetation inventory of the mid-1980s. The eight control sites had groundwater supplied to their respective root zones.

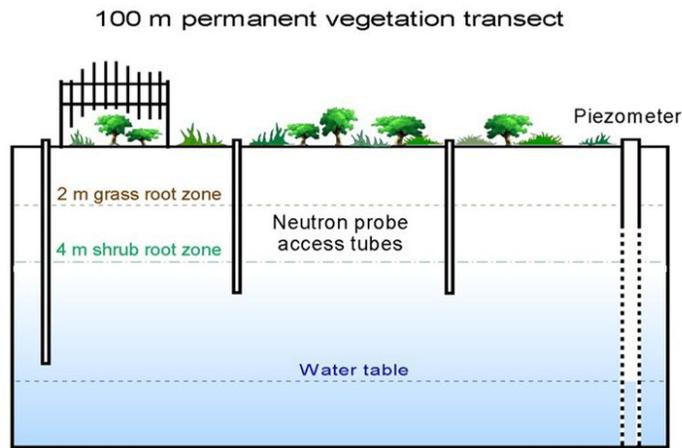


Diagram of soil water measurement site

Vegetation Conditions

Every summer, ICWD and LADWP staff measure vegetation cover and composition on approximately 140 parcels in the Owens Valley using the line point intercept method. In the summer of 2024, staff read 1,788 transects in 145 wellfield and control parcels.

2024 marked the second year of generally wet conditions after the drought period of 2020-2022. As a result, water levels and vegetation cover continued to increase in many vegetation parcels. Overall

vegetation cover in 2024 was higher by a statistically significant margin compared to baseline vegetation conditions.

Looking at vegetation cover trends since the baseline period, control parcels show no statistically significant trends over time while wellfield parcels show a statistically significant upward trend in shrub cover, but no statistically significant change in grass cover. This indicates that control parcels, which are ostensibly not affected by pumping, have not changed much over time; while wellfield parcels, which are affected by pumping, have shown an increase in the proportion of shrub cover over time.

While overall vegetation conditions are consistent with or above baseline valley wide, 23 individual parcels were below baseline vegetation cover in 2024. Of these parcels, 15 have been significantly below baseline cover for the past five years or more. More information regarding these specific parcels can be found in the complete 2024 Vegetation Conditions Report (which can be accessed at <https://inyowater.org/documents/reports/inyo-county-water-dept-annual-report/>).

Three parcels in the Laws Wellfield recovered to within baseline in 2024 after being below baseline for a number of years.

The Water Department has developed public-facing tools and applications for exploring these data. The first of these is a Green Book Vegetation Monitoring app (<https://inyo.shinyapps.io/inyoShiny/>), which allows the user to view various types of data for each parcel measured. This is an interactive version of the static parcel-level PDF plots the Water Department produces each year (which can still be accessed at <https://www.inyowater.org/documents/reports/inyocounty-water-dept-annual-report/>).

Rare Plants

The Inyo County Water Department (ICWD) monitors populations of rare plants in the Owens Valley each year in accordance with Long Term Water Agreement goals to manage rare plants in a manner consistent with State and Federal laws.

Sidalcea covillei (checkerbloom) is listed as endangered by the state of California and is a US Fish and Wildlife species of concern. It is also listed under CNPS List 1B.1 (rare, threatened, or endangered in CA and elsewhere). The Water Department has monitored, in total, up to 31 *S. covillei* sites 1993-2023. In 2024, ICWD monitored six *S. covillei* sites, and thirteen additional sites were noted as present or absent while surveying for *Calochortus excavatus* and during summer vegetation surveys.

Inyo County star-tulip (*Calochortus excavatus*) is listed under CNPS List 1B.1 (rare, threatened, or endangered in CA and elsewhere). Currently there are 80 known sites supporting *C. excavatus* being monitored, all of which are in the Owens Valley in Inyo County (Table 7.1). The Water Department monitors 31 *C. excavatus* populations annually, LADWP monitors approximately six populations, and the Bureau of Land Management monitors eight populations. In 2024, Inyo County staff surveyed 32 populations, and they are located on land owned by LADWP. Individual *C. excavatus* plants were counted using walking grids located within previously mapped population boundaries.

Due to the average 2023-24 winter precipitation, many annuals grew in 2024, and Inyo County staff did look for and find some rare annual species that are only found in the wetter years.

Geyer's Milkvetch (*Astragalus geyeri* var. *geyeri*): In 2024 at the Reinhackle location, 24 plants were found; 37.5% were vegetative, 0.0% were flowering and 62.5% were in fruit.

Parish's Popcorn Flower (*Plagiobothrys parishii*): In 2024 *P. parishii* was not documented at any location during *Calochortus* or *Sidalcea* surveys. While surveying the Thibaut Ponds unit of the Blackrock Waterfowl Management Area, it was found in vegetative state and flowering in Spring and senescing in Fall, and thousands of individuals were present.

Hall's Meadow Hawksbeard (*Crepis runcinata* ssp. *ballii*): In 2024 *C. runcinata* ssp. *ballii* was documented at 10 sites while surveying for other rare plant species.

White Flowered Rabbitbrush (*Ericameria albida*): In 2024 *E. albida* was documented in two line-point vegetation parcels.

Torrey's Blazing Star (*Mentzelia torreyi*): In 2024 *M. torreyi* was documented at one location during vegetation surveys and seen but not documented at other locations while conducting BWMA avian surveys. For all locations the population appears to be stable.

Alkali Cordgrass (*Spartina gracilis*): In 2024 *S. gracilis* was documented during rare plant surveys at four locations and at another four locations during vegetation surveys. The populations appear to be stable.



Saltcedar

Tyler Starbard, our Research Assistant, took over the winter saltcedar (tamarisk) program in 2024-25. He greatly improved the organization of the work and the communication with LADWP staff. We hired one seasonal employee to work with Tyler for the winter. Together, they mapped, cut, pulled, and treated saltcedar for 63 days throughout the winter. About half of their time was spent in McIver Ditch and on the west side of the Lower Owens River between Mazourka and Two Culverts. Other areas treated included Arkansas Flats, Diaz Lake, spreading basins, and Hidden Pond.

Type D Study

The fieldwork component of a monitoring program focused on riparian vegetation along the Owens River was completed in fall 2024. Riparian vegetation is the transitional vegetation zone between the upland and a river or stream and is also designated by the technical appendix to the Long Term Water Agreement, the Green Book, as “Type D” vegetation. This project was initiated to fulfil two roles: 1) to prescribe and test methods to establish a long-term riparian monitoring program for the Green Book and 2) to understand mechanisms that promote tree recruitment to preserve riparian forest as a component of the Owens River riparian vegetation community and thus inform management via the Green Book and the Lower Owens River Project. Full rationale and field methods are described in the draft plan and former annual reports ([2020](#) and see Appendix 1, [2021](#), [2022](#), [2023](#)).

The study was designed to answer the following questions: 1) what were the historic conditions (e.g. hydrologic, edaphic, or climatic) that fostered riparian tree germination and establishment along the Owens River, 2) what is the age of trees located along the channel, the edges of the floodplain, or along old Owens River channel meanders, 3) what were the past and present hydrologic conditions that contributed to tree recruitment and survival in each of these locations, and 4) how do riparian tree stands on the Owens River recover from fire and what is the influence of the hydrologic regime on post-fire recovery?

Riparian transects were established between 2020 and 2024 to sample understory vegetation, tree stem and canopy density, size (diameter at breast height), and height, and to collect tree core samples for age estimates. The study also characterizes the topographic surface elevation of each cored tree relative to the low flow river stage (Figure 1), and soils are collected for salinity and texture analyses.



Figure 1. Establishing the elevation of cored tree bases relative to the stage of the river during low flow conditions.

An additional 44 transects were surveyed in the summer of 2024 for a total of 180 transects sampled along eight Middle Owens River reaches and four Lower Owens River reaches (Figure 2). During the summer and fall of 2024, an additional 120 trees were cored for a total of 486 trees to be used for age estimation collected during five field seasons.



Figure 2. A Type D transect setup along the Lower Owens River on reach 5 south of the Islands, measuring canopy cover.

A complete report summarizing this project is expected in the 2026 Inyo County Water Department annual report which is anticipated to include the following datasets or analyses:

1. **tree age structure and density** – how many trees per reach and the range of age or size distribution
2. **percent canopy cover and canopy closure** – this will help clarify the habitat conditions within the forest (how open or shady is the riparian zone) and what habitat is present to support associated species (like birds, invertebrates, and mammals)
3. **riparian corridor width** – is also relevant as a habitat indicator for associated species
4. **soil salinity and texture** – can help explain tree seed germination and survival
5. **age estimates** for riparian trees by river section (middle or lower Owens) and reach will help to understand how and when trees recruited historically
6. **river stage (and flow)** during the original year of tree establishment – which will help understand what topographic germination surfaces were wet-up during establishment like the bank, floodplain, or terrace which can influence future tree recruitment survival
7. **additional environmental strata** including prior fire and additional hydrologic conditions like supplemental irrigation, or recruitment in alternate channel meanders not adjacent to the river.

Bishop Cone Audit

The Bishop Cone Audit (Audit or BCA) is an annual comparison between LADWP's water usage on Los Angeles-owned lands on the Bishop Cone and its amount of groundwater extraction from wells on the Bishop Cone (Cone). The Bishop Cone Audit is required by the Inyo County/Los Angeles Long Term Water Agreement. The "Bishop Cone" is a reference to the legally defined area in the 1940 Hillside Decree which incorporates most of the Bishop Creek alluvial fan along with a portion of the northern Owens Valley from Bishop south towards Big Pine. The Water Agreement and the Green Book define the terms, conditions, and procedures of the Bishop Cone Audit. ICWD staff compiles the Bishop Cone Audit from data provided by LADWP. The Audit sums pumping and flowing well amounts and compares those totals to water use on Los Angeles-owned land during a given runoff year (April 1 to March 31) to determine whether LADWP's groundwater extractions exceed its surface water uses on the Bishop Cone. The annual Audit reports are available on the ICWD website: <https://www.inyowater.org/documents/reports/bishop-cone/>.

Three accounts (BC339, BC393, and BCRECF) were combined into a single account (BCKINGSL) to improve the accuracy of LADWP water use tracking in the audit this year. The accounts that received no credit for the 2024-25 Audit are: BC362D, BC392, BCRVRECA, and BC302B.

For runoff year 2023-24, LADWP extracted 7,680 AF of groundwater (776 AF from pumped wells and 6,904 AF from flowing wells). For runoff year 2024-25, LADWP extracted 10,450 AF of groundwater (3,813 AF from pumped wells and 6,637 AF from flowing wells). LADWP groundwater extractions on the Bishop Cone for the 2024-25 runoff year increased by 2,770 AF compared to the previous year. Runoff year 2023-24 was an historic high which corresponded to lower than average LADWP pumping while 2024-25 runoff was nearly equivalent (99%) to the long-term average.

For runoff year 2023-24, LADWP used 71,015 ac-ft of water on Los Angeles-owned lands, which is more than the amount extracted. For runoff year 2024-25, LADWP used 33,557 ac-ft of water, which is also more than the amount extracted. The Water Agreement provides that, during any runoff year, total groundwater extraction by LADWP on the Bishop Cone shall not exceed water usage on Los Angeles-owned land on the Cone. Therefore, LADWP was in compliance with the above provision for runoff years 2023-24 and 2024-25 as the total uses on the Bishop Cone exceeded the total groundwater extractions for each year.

OVGA

The Owens Valley Groundwater Authority (OVGA) continues to implement the OVGA Groundwater Sustainability Plan. The three primary activities involve the well registration program, well permit review, and the annual report. The well registration program was initiated in late 2023, with the first reporting deadline of April 1, 2024. As of the writing of this report, about 25% of the known non-de minimis well owners have registered their wells and have begun reporting on pumping amounts (de minimis is two acre-feet or less). The OVGA Board has conducted outreach to well owners to encourage registration. If you are a well owner and have questions about this program, contact ICWD/OVGA staff (see back page for contact information).

The Water Year 2022 Annual Report was approved by the Board and submitted in the summer of 2024. The Water Year 2023 draft Annual Report has been prepared and was presented to the Board in February. This also opened a public comment period. Based on the public comments received, a final draft will be produced and taken to the Board for approval in the summer. Following the submittal of this annual report, work will begin on the Water Year 2024 Annual Report.

Toward the end of the reporting period, the OVGA received notification that the GSP has been deemed incomplete upon an initial review by the Department of Water Resources. The reason given was that the OVGA no longer has jurisdiction over the entire Owens Valley groundwater subbasin since Mono County and Tri-Valley Groundwater Management District are now separate Groundwater Sustainability Agencies. The OVGA Board will discuss this finding at an upcoming meeting.

Mitigation Projects

The Inyo County Water Department continues to track progress on mitigation projects carried out under the 1991 EIR, 1997 MOU, and subsequent agreements with the Los Angeles Department of Water and Power (LADWP). This year's review highlights several long-standing issues at specific sites that are unresolved. These projects are or will be examined through a group process involving parties to the MOU that is underway.

Five Bridges Site

The Five Bridges area remains one of the most challenging riparian restoration projects in the Owens Valley. In the mid-1980s, groundwater pumping from nearby wells destroyed roughly 300 acres of riparian and meadow vegetation. While approximately 240 acres have partially recovered, the remaining 60 acres are devoid of riparian vegetation and are dominated by invasive white-top (*Lepidium latifolium*). Repeated herbicide, mowing, disking, and replanting treatments over decades have failed to control the weed or restore native vegetation. Experts now acknowledge that *Lepidium* cannot be effectively eradicated with current methods. A working group is considering alternatives for irrigation and tree-planting trials, but if riparian goals cannot be achieved, alternative mitigation—potentially at Hines Springs—might be recommended.

Laws Type-E Transfer Project

LADWP established native vegetation on 253 acres of retired farmland using greenhouse grown plants established with support from subsurface drip irrigation but ceased irrigation in 2022, starting a two-year period of monitoring vegetation cover and species composition. The County questioned whether the species selected could persist without continued irrigation and raised concerns about inconsistencies in data collection. LADWP and the County are now developing an amendment to the CEQA Mitigation and Monitoring Plan that will strengthen data collection methods, lengthen evaluation periods, and establish clearer success benchmarks.

Assessing Sustainability and Project Completion

A major unresolved issue across the mitigation program is how to determine when a revegetation project is complete. The 1999 Revegetation Plan identifies “sustainability” as a key criterion but provides no clear method for evaluating it. LADWP has declared several projects complete based on single-year vegetation measurements, but without assessing long-term persistence. The County

maintains that completion cannot be confirmed until sustainability is defined and measured consistently.

Homestead Project

This Additional Mitigation project was intended to include a one-acre pond. Initial ponding was temporary; the shallow pond has converted into a cattail and bulrush marsh. Options under review include excavating a new pond at the site or relocating it elsewhere—both requiring new design work and possibly environmental review.

Owens River Water Trail (ORWT)

The Owens River Water Trail project, part of the Lower Owens River Project Recreational Use Plan, continues to advance after years of delay due to lease negotiations. The County has retained an engineering firm to design launch and take-out facilities, parking, restrooms, signage, and access paths to meet ADA and public-safety standards. Grant funding deadlines have been extended to March 2027, preserving project viability. Local residents in Lone Pine are working with individuals throughout the County and in Southern California to form a river stewardship group to support long-term community engagement and maintenance of the project.

Public Access and Transparency Tools

The Water Department's interactive online [Mitigation Map](#) and [Mitigation Table](#) have been updated and are available on the County website. The Mitigation Map consolidates more than three decades of mitigation commitments, showing project locations, goals, legal origins, and implementation status. The tool enhances accountability, tracks progress toward compliance, and allows the public and decision makers to easily identify where obligations have been met and where work remains.

Conclusion

While progress has been made in standardizing monitoring methods, several key mitigation sites—Five Bridges, Homestead, and Laws Type-E—remain incomplete or unresolved. The County continues to advocate for transparent standards for sustainability, realistic project goals, and adaptive management to ensure that LADWP's long-term mitigation obligations in the Owens Valley are met both in spirit and in practice.

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