
The Story of the
Coachella Valley Water District
Making every drop count since 1918

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Coachella Valley Water District

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— *Jeff Crider*

Preface

As we celebrate the 100th anniversary of CVWD, we celebrate the foresight of our founders who realized that our most precious resource needed to be protected and preserved. We also celebrate the contributions of employees who have worked over the years to provide water service to our communities. And we celebrate the communities that make up the Coachella Valley.

One hundred years ago, our founders worked to make sure that every drop of water would count in the Coachella Valley. We are as committed to this goal today as we were then and we will maintain this commitment in the years ahead. ~

Note

The Coachella Valley Water District was originally known as the Coachella Valley County Water District. The word “county” was dropped in 1980. Throughout this book, CVCWD and CVWD are used to reflect the name at the time being referenced. ~

Introduction

For more than a half century, the Coachella Valley has been one of the most sought after vacation destinations in North America in addition to possessing some of the most productive farmland in the world.

Initially a weekend or winter getaway for the rich and famous, from the Hollywood elite to the CEOs of America's most successful companies, the valley's tourism economy has grown into a $5 billion business with 18,000 hotel rooms, 124 golf courses as well as internationally famous sports and entertainment events, from the CareerBuilder Challenge golf tournament, formerly the Bob Hope Classic, to the BNP Paribas Open at the Indian Wells Tennis Garden to the Coachella and Stagecoach music festivals.

So much tourism has also led to the Coachella Valley's emergence as one of the nation's most vibrant second home markets, fueled as much by snowbirds from the Pacific Northwest and Canada as by the residents of coastal Los Angeles, Orange and San Diego counties looking for a convenient weekend escape.

Even U.S. presidents have purchased homes here, including Dwight Eisenhower and Gerald Ford, and several others have vacationed here.

"It's an oasis, really, a safe haven for people," said Joyce Kiehl, director of communications for the Greater Palm Springs Convention & Visitors Bureau in Rancho Mirage.

At the same time, the farmlands of the eastern Coachella Valley fuel a $1 billion agribusiness with some of the highest per acre crop yields in the world, with winter vegetables, bell peppers, table grapes, dates and lemons among the valley's top crops.

The Coachella Valley's multi-billion dollar economy would not exist, however, without Coachella Valley Water District. It has spent the past century working to maintain the integrity of the local groundwater basin, while importing enough water along with Desert Water Agency to meet the needs of residents and businesses throughout the district's 1,000 square-mile service area, which stretches from the northern shores of the Salton Sea to the Whitewater River area west of Palm Springs.

"Without imported water, this place would be an absolute ghost town," said Bobby Bianco, a prominent table grape and citrus grower from Bakersfield-based Anthony Vineyards, whose family started farming in the Coachella Valley in 1954.

But instead of being a "ghost town," the Coachella Valley is the single most productive agricultural region in Riverside County, producing $649.7 million of the county's $1.3 billion in total agricultural production in 2015, according to the Riverside County Agricultural Commissioner's office.

None of this would be possible without imported water, courtesy of CVWD.

To further understand the magnitude of CVWD's economic impact in the valley, consider local retail sales statistics. While Palm Springs is outside CVWD's boundaries, $5 billion of Coachella Valley's $6.7 billion in 2016 retail sales were produced by businesses located within CVWD's boundaries, according to David Robinson, a GIS coordinator for the Coachella Valley Economic Partnership who compiled the figures using Esri business data.

CVWD's domestic service area includes the cities of Rancho Mirage, Palm Desert, Indian Wells and La Quinta as well as portions of Cathedral City, Indio, Thousand Palms, Bermuda Dunes, Mecca, Thermal, Oasis, the Salton Sea communities and the lucrative farm fields of the eastern Coachella Valley.

How and why the Coachella Valley Water District came into being and how the district has evolved to support the growth of the Coachella Valley's agricultural- and tourism-based economy during the past 100 years is the focus of this book. ~


COACHELLA VALLEY
WATER DISTRICT
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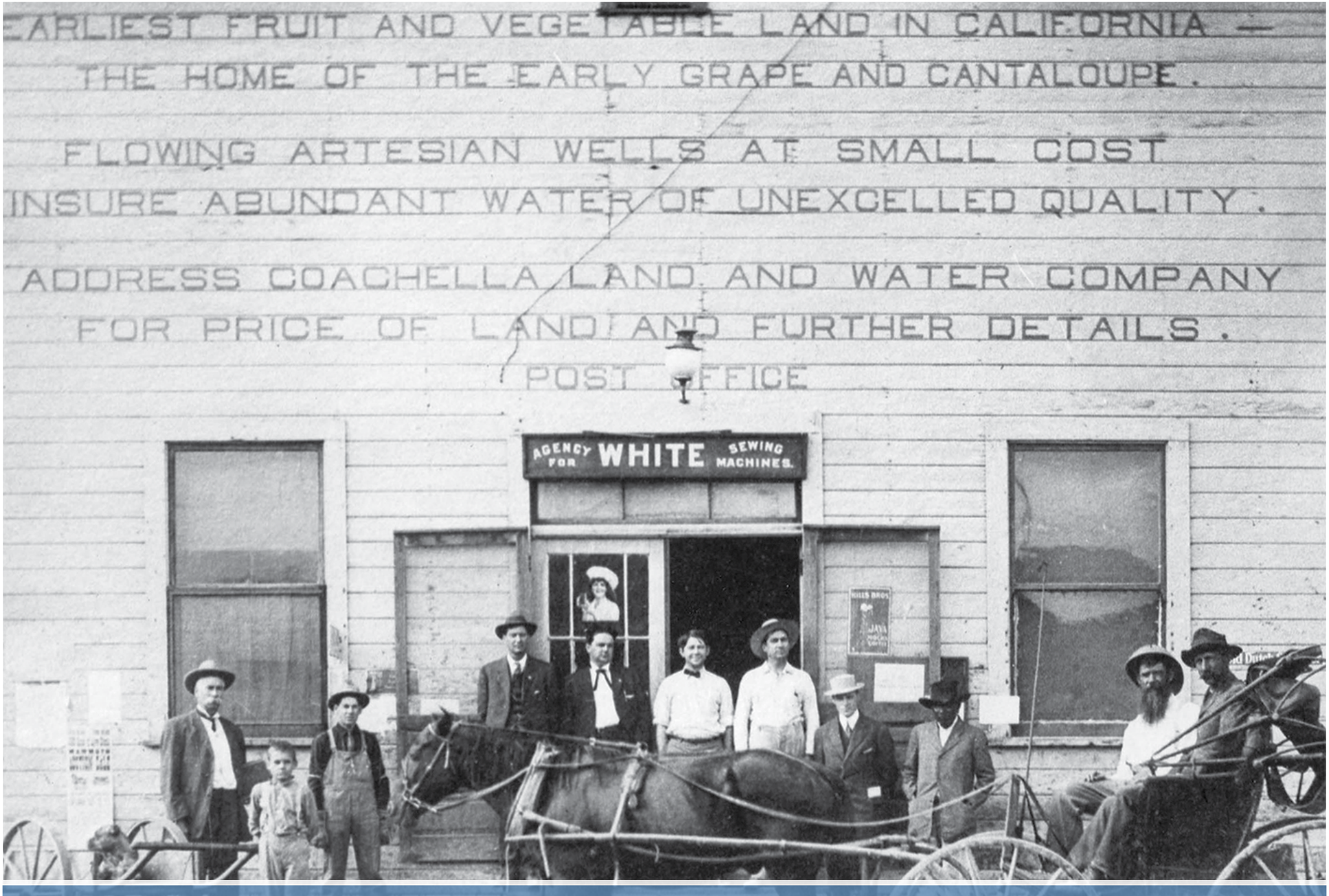

Early visitors to Coachella couldn't help but notice the tempting marketing pitch on this storefront, which noted that the Coachella Valley had the *"earliest fruit and vegetable land in California"* as well as *"flowing artesian wells at small cost."* *Courtesy of Coachella Valley Historical Society*

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"FOUR OASES IN THE WILDERNESS"

Visitors who came to the Coachella Valley a century ago marveled over its scenic beauty, the fertility of its soils and the entrepreneurial spirit of those who settled here.

"Think of this, 300 artesian wells pouring forth tens of millions of gallons of water every day, and clothing with vegetation a valley that was inexorably marked 'desert' on every map up to four or five years ago."

— A *Los Angeles Times* report

Although Cahuilla Indians have inhabited the Coachella Valley for thousands of years, this area was largely unknown to non-Native American settlers until the Southern Pacific Railroad began offering rail service to the valley in 1876.

Working to create a southern transcontinental railroad route, Southern Pacific established rail service from Los Angeles to Colton in 1875 and from Colton to Indio in 1876. By 1877, Southern Pacific had extended its rail service to Yuma, Ariz. and by 1881, it had connected with other rail lines that extended eastward to New Orleans and beyond.

In those days, Indio was known as Indian Wells and the Coachella Valley was considered to be a desert wasteland. But Southern Pacific nurtured the initial development of the area by constructing a craftsman-style railroad depot and hotel.

"Southern Pacific tried to make life as comfortable as it could for their workers in order to keep them from leaving such a difficult area to live at the time," R.F. Graettinger wrote in a March 12, 1963 historical account in *The Desert Sun*.

The railway soon brought settlers into the eastern Coachella Valley from across the United States who learned of the valley's artesian wells and its rich soils, which were ideal for farming.

Others marveled at the valley's scenic beauty, bordered by the snow-capped San Bernardino Mountains on the north and the rugged Santa Rosa and San Jacinto Mountains on the west, the latter being the steepest mountains in North America, rising more than 10,000 feet above the valley floor in less than seven miles.

A *Los Angeles Times* reporter who visited the valley in the early 20th century was struck as much by its beauty as by the fertility of its soils and the entrepreneurial spirit of those who settled here.

This 1912 photo shows Coachella Valley pioneer Ben Laflin (wearing a hat) with his family as they stand next an artesian well. Ben Sr. and Judy Laflin founded the Oasis Date Gardens in Thermal. *Courtesy of Coachella Valley Historical Society*

"The Coachella Valley comes as a welcome relief to the eye," the reporter wrote in Jan. 1, 1905, "for here we have the first dots of vivid green strung along the railway like ganglia on a nerve fiber — Mecca, Thermal, Coachella, Indio, four oases in the wilderness. The average tourist and sightseer does not linger here and yet this valley touches some of the most beautiful scenery in the state, while it also teaches a wonderful lesson of human enterprise."

Indeed, while the reporter notes the scenic beauty of the Indian Canyons near Palm Springs, the writer is equally struck by the valley's abundant water supply and its rich farming potential.

"Think of this, 300 artesian wells pouring forth tens of millions of gallons of water every day, and clothing with vegetation a valley that was inexorably marked 'desert' on every map up to four or five years ago."

By 1905, the valley's farmers had already demonstrated their ability to successfully produce a great variety of crops, including alfalfa hay, sweet potatoes, watermelons and table grapes, with the Thompson seedless variety showing particular promise.

In those early days, cantaloupes were the valley's biggest crop, and they were of such high quality that they were known across the country. It was also a crop that came into being at the initiative of local farmers.

"The cantaloupe industry of the Coachella Valley has been built up absolutely without outside capital — by the community itself, and with its own resources," the *Times* noted. "The central packinghouse is at the town of Coachella. From the other towns in the valley broken carloads are collected, but the entire crop is assembled at Coachella, where the cars are fully loaded and the special trains dispatched. … The fine quality and uniformity of size is the chief thing aimed at by the Coachella grower, whose special brand, The Mermaid, is becoming known all over America."

But while cantaloupes were initially one of the Coachella Valley's most important exports, farmers found they could make money producing a wide variety of crops.

The *Times* noted that farmers focused on melons only during the first six months of the year.

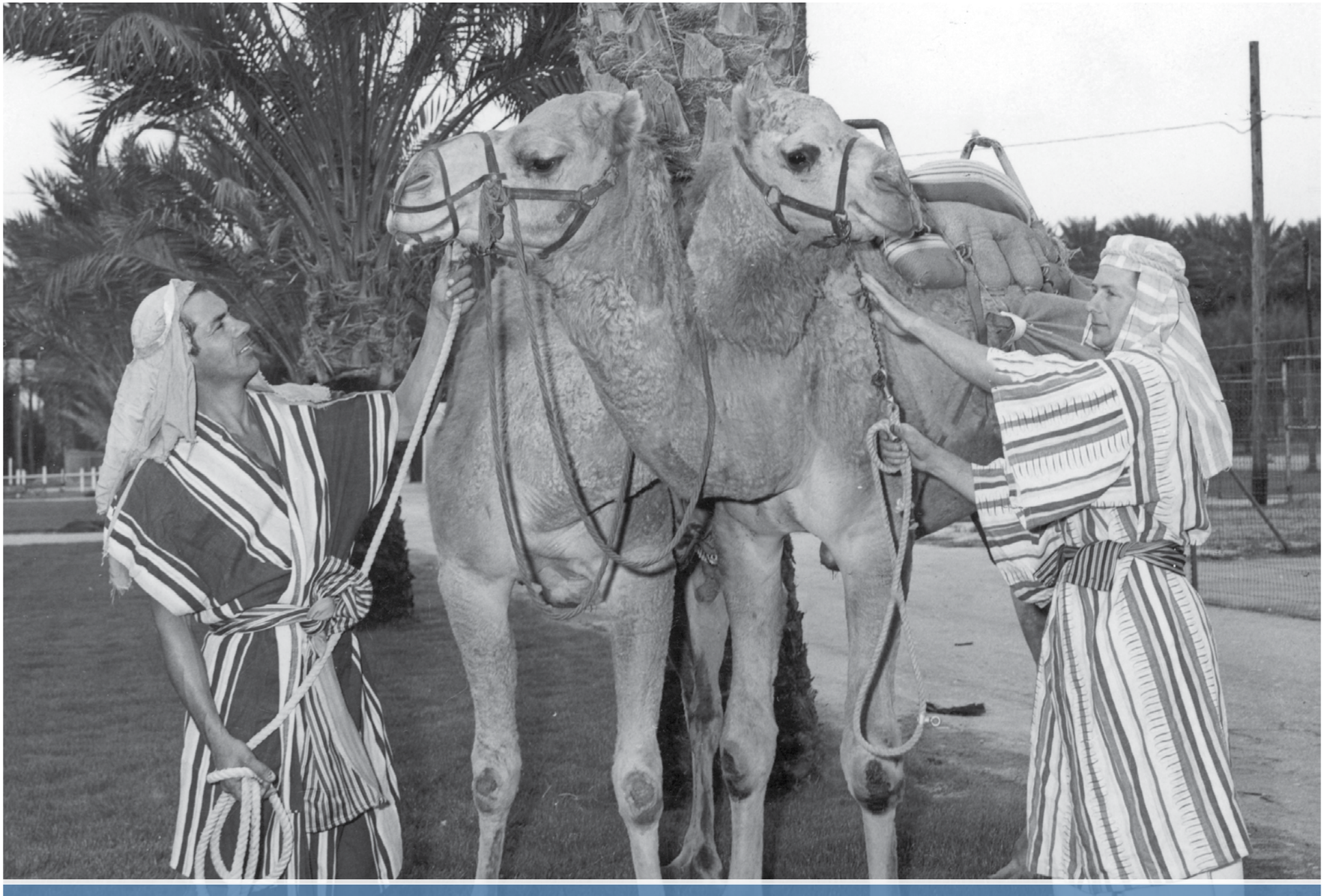
"For a fall crop," the *Times* wrote, "they plant Indian corn, beans and vegetables of all kinds. Wheat and barley can also be raised, and taken off in time for spring melons to be sown."

The Coachella Valley's arid climate and local water resources captured the attention of U.S. Department of Agriculture scientists who saw the valley as an ideal place to grow dates imported from North Africa and the Middle East.

Bernard Johnson, one of the valley's first pioneering settlers, traveled to Algeria and returned in September 1903 with the first commercial importation of date shoots, mostly of the Deglet Noor variety, which he planted near Mecca.

A year later, the USDA established an experimental date garden in collaboration with the University of California, based on research by USDA scientist Walter T. Swingle, who determined that conditions in the Salton Basin were most akin to those of southern Algeria, where the best Deglet Noor dates were grown.

Entrepreneurs and scientists alike saw dates as a potentially lucrative crop that could generate considerable revenue from the sands of the Coachella Valley. Their successes producing dates enticed other growers as well as outside investors to get into the act, including Rebecca Lee Downey, a Los Angeles doctor who was considered to be the valley's largest date grower, according to a July 21, 1912 report in the *Times*.



This undated photo shows two men with camels dressed in Middle Eastern attire as they prepare for the Indio Date Festival. *Courtesy of the Historical Society of Palm Desert*

DATE GARDENS BRING THE ROMANCE OF THE MIDDLE EAST TO THE COACHELLA VALLEY

Early 20th century entrepreneurs used the valley's picturesque date gardens for marketing purposes, tapping into romantic notions of the Middle East to promote tourism, while putting the valley's tiny communities on the map.

Sarah McCormick Seekatz, a Coachella Valley native, explored the growth of the valley's date industry and America's fascination with the Middle East in the 20th century in her Ph.D. dissertation at the University of California, Riverside. She also wrote about the subject in a 2016 book, *Indio's Date Festival*.

"Those who used fantasies of the Middle East as a form of boosterism in Southern California did so with the hope of promoting the unique ties the areas shared — the imported date fruit industry and the desert landscape — to sell the crop, the land, and tourist experiences," Seekatz wrote in a Feb. 5, 2013 historical essay.

"The Southern Pacific Railroad also functioned as a backer, seeking to encourage development in the Coachella Valley that would foster tourist travel, expand land sales and perhaps increase railroad usage by future farmers," Seekatz wrote.

The town of Mecca was originally called Walters in recognition of an early Coachella Valley settler. But the name was changed to Mecca in 1904 for marketing purposes.

The Middle Eastern theme continued to be used for special events in the valley, such as the Riverside County Fair and National Date Festival in Indio, which featured an Arabian Nights pageant and Queen Scheherazade contest beginning in 1949.

Above is a well drilled by Martin & Sandford on Thayer Brothers Ranch at Avenue 61 and Pierce in 1910. *Courtesy of Coachella Valley Historical Society*

THE ORIGINS OF COACHELLA VALLEY WATER DISTRICT

Concerns over declining groundwater supplies and efforts by outside interests to seize Whitewater River water prompted Coachella Valley residents to form their own water agency in 1918 to protect local water supplies and also to import supplemental water from the Colorado River.

"The Cassandras in our midst say that with 300 wells perpetually flowing, and eight drilling plants steadily at work, pulling down others, the end must come soon," the *Times* wrote in a Jan. 1, 1905 report.

When a *Los Angeles Times* reporter visited the Coachella Valley in 1904 to report on the rapid growth of the area's agricultural industry, the reporter downplayed concerns about the impact a growing agriculture industry would have on the valley's artesian water supplies.

"The Cassandras in our midst say that with 300 wells perpetually flowing, and eight drilling plants steadily at work, pulling down others, the end must come soon," the *Times* wrote in a Jan. 1, 1905 report.

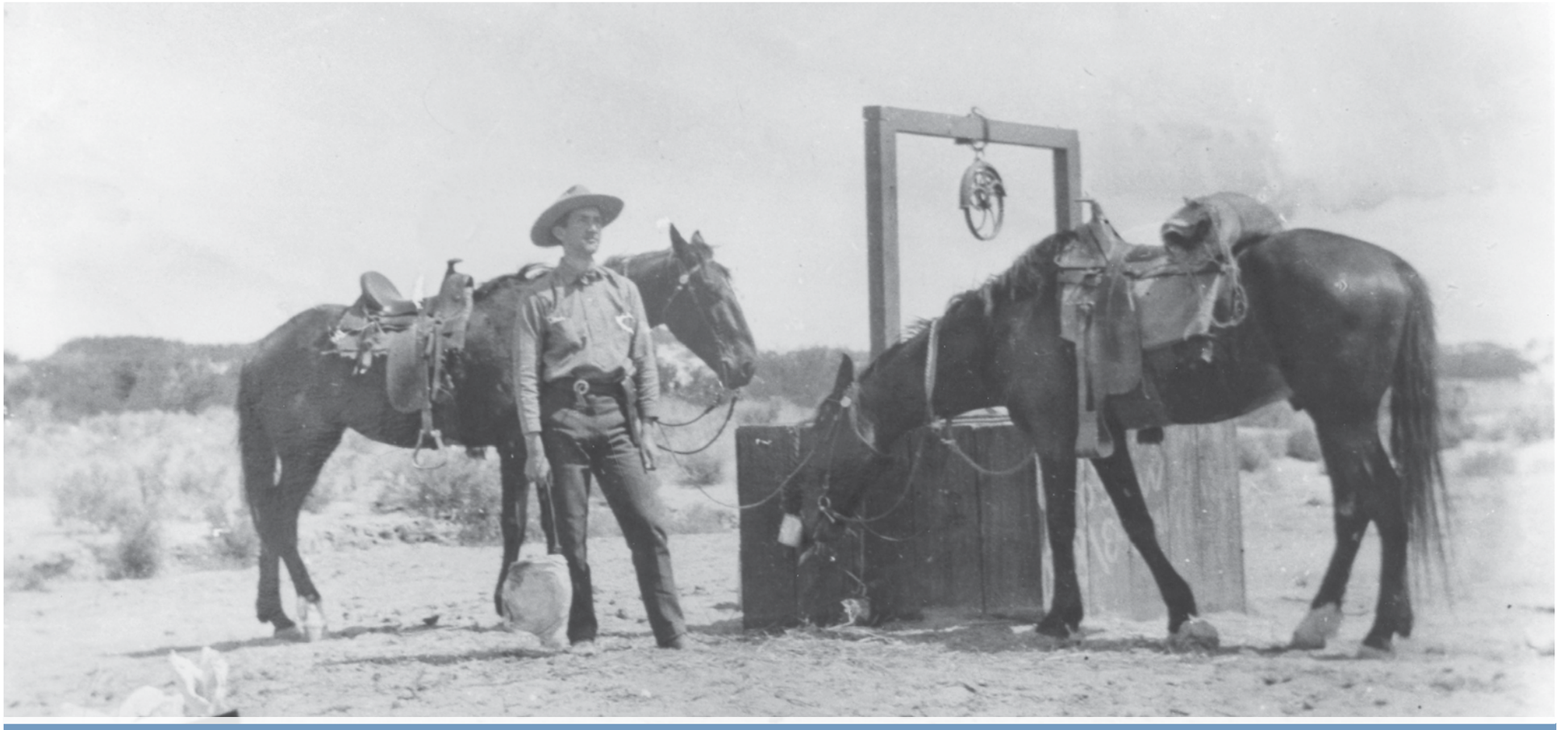
"But actual experience gives not the slightest support to this prediction. It is conclusively proved that the artesian supply is quite independent of the rainfall in the adjacent mountains and is absolutely unaffected by local conditions. Each year during the past five years, irrespective of all rainfall near or far away, the pressure of water has declined steadily from June to August, and then comes back to normal. This periodicity has been unaffected by the rapidly growing number of wells."

"By 1907, there were approximately 400 wells in the Coachella Valley, and by 1913 approximately 4,000 acres were under cultivation," according to a 1955 historical report produced by the U.S. Bureau of Reclamation.

Over time, however, the artesian wells that used to shoot water 20 or more feet into the air gradually disappeared, prompting concerns that the valley's growing agriculture industry was, in fact, greatly reducing local groundwater supplies.

"By 1907, there were approximately 400 wells in the Coachella Valley, and by 1913 approximately 4,000 acres were under cultivation," according to a 1955 historical report produced by the U.S. Bureau of Reclamation.

As water supply concerns mounted, some talked about the idea of importing water from the Colorado River.



A man stops with his horses at a water well. *Courtesy of Coachella Valley Historical Society*

Otho Moore, a Coachella Valley pioneer and historian who lived in Indio from 1898 until his death in 1970, described the predicament in *Coachella Valley's Golden Years*, which documents the early history of the Coachella Valley and CVWD. The book was published to mark the district's 50th anniversary in 1968.

"As wells were drilled in the lower valley, our wells around Indio went down," Moore wrote, adding, "As land developed further down the valley, the farther down we had to go for water. Soon, there were no artesian wells at Coachella, where the railroad had drilled a well in what is now Cantaloupe Avenue (Highway 111). It was (also) costing more money to pump with gas and electric motors, which came in with electricity after 1913."

Coachella Valley residents were also alarmed by the efforts of various water companies and entrepreneurs to capture and divert water from the Whitewater River at the west end of the valley for use by farmers in Banning and the Imperial Valley.

Fed by snowmelt and streamflows from the San Bernardino Mountains, the Whitewater River was considered a critical source of groundwater replenishment in the Coachella Valley.

But efforts were underway as early as 1910 to divert Whitewater stream flows to Banning, prompting protests from Coachella Valley residents.

The Whitewater River was also targeted by businessmen from Los Angeles and San Diego who wanted to build a canal that would enable the river to be used as a water supply for Imperial Valley farmers.

Imperial Valley farmers were already using Colorado River water that was carried into the valley across Mexico by the Alamo River, the same Colorado River tributary that formed the Salton Sea during a historic flood that lasted from 1905 to 1907.

By 1915, the Imperial Valley had 120,000 acres of land under cultivation with barley, alfalfa and cotton among the top crops. The Imperial Valley also had a beef industry with 75,000 head of cattle.

This rapid growth prompted farmers and entrepreneurs to thirst for additional drinking water to sustain the Imperial Valley's growing population, which rocketed from "not a single settled person" in 1900 to 50,000 by 1915, according to a Jan. 1, 1916 report in the *Times*.

But while various initiatives to divert Whitewater River water outside the Coachella Valley never got very far, they alarmed valley residents to the point where they realized they needed to form their own independent water agency, not only to protect their local surface water resources, but to give them their own government agency that would be authorized to import supplemental water to support the growth of the Coachella Valley's agricultural industry.

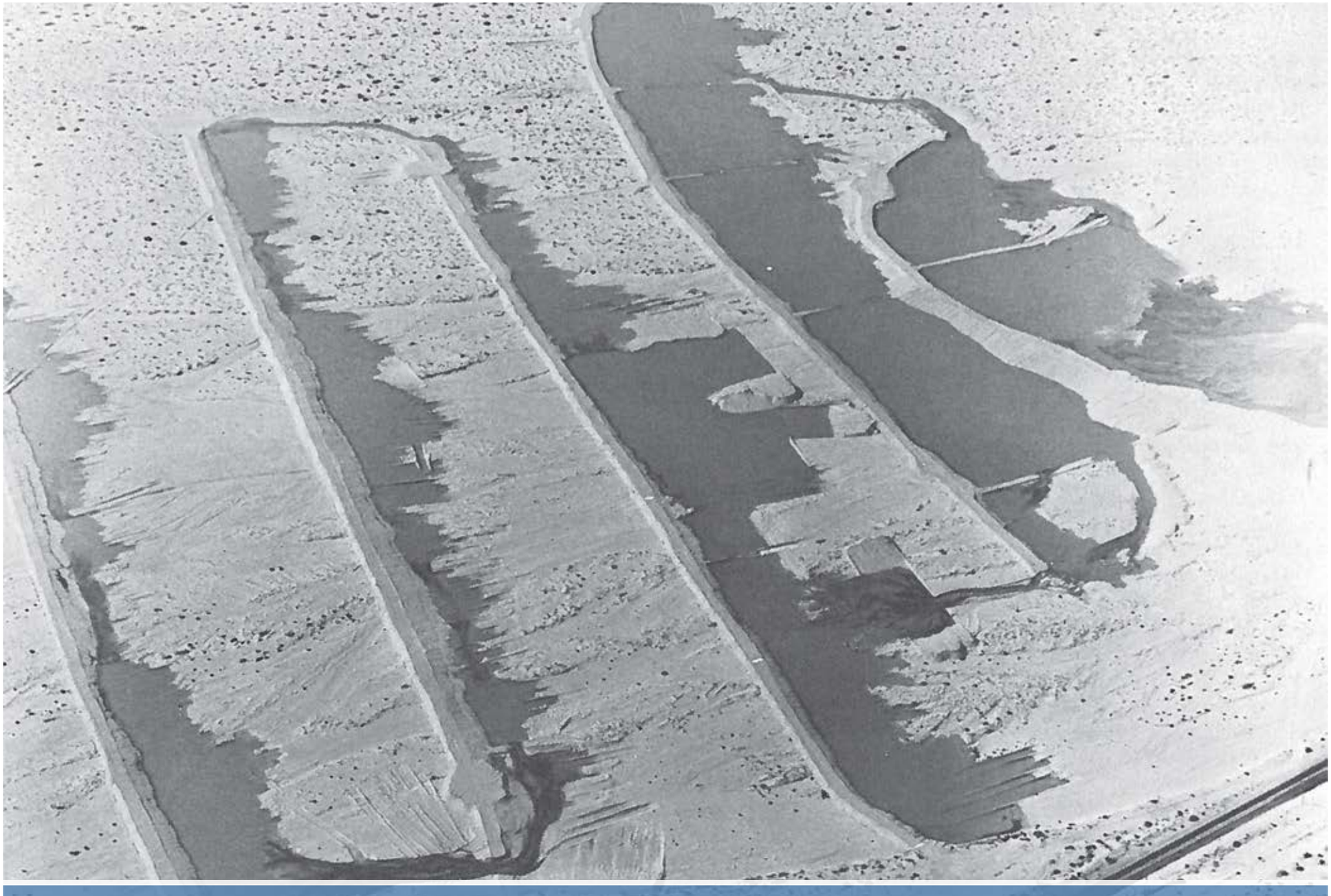
The turning point came in late 1917, after the *Times* outlined a plan by F. H. Merrill and W. B. Baker of Los Angeles to divert Whitewater River water to the Imperial Valley.

"The project's cost of $4,900,000 may have dampened the early ardor for the 150,000 acre foot Morongo Dam, the 65-mile long canal, as well as a reservoir at Marshall's Dry Lake (La Quinta Cove), with a five-foot pipeline to Imperial Valley," the *Times* wrote in a Nov. 9, 1917 report. "But the scheme did serve to get the valley aroused to seek protection of its water resources."

Indeed, publicity surrounding the scheme prompted Coachella Valley residents to move quickly. They petitioned the Riverside County Board of Supervisors on Dec. 5, 1917, to facilitate the formation of the Coachella Valley County Water District.

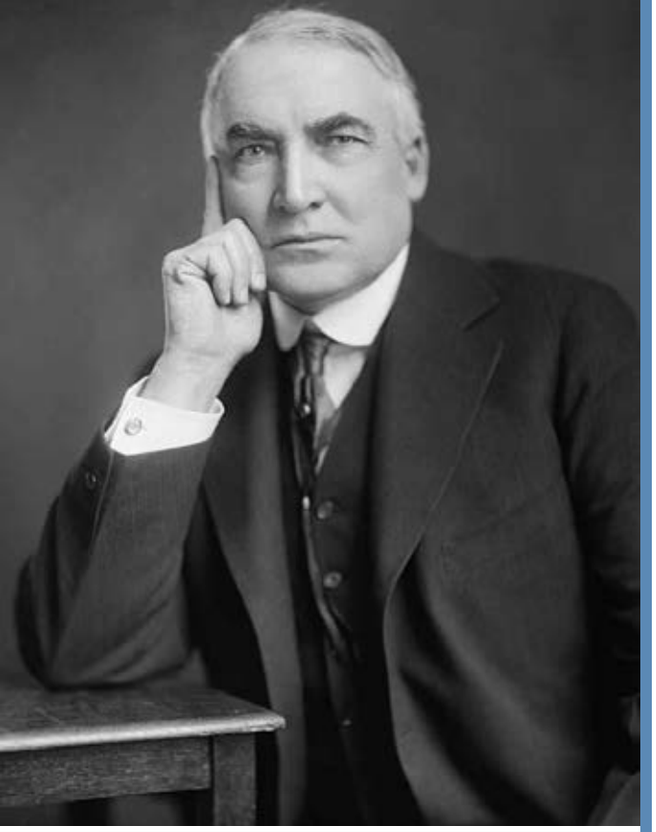
An election was held on Jan. 9, 1918, in which 373 valley citizens cast their ballots 324 to 49 in favor of organizing the Coachella Valley County Water District.

Valley residents knew what could happen if they didn't move quickly to secure their water rights. After all, it had only been a little over a decade since the Los Angeles Department of Water and Power had made headlines by buying up enough land in the Owens Valley with its associated water rights to limit that high desert valley's future agricultural potential. LADWP completed construction of its Owens Valley lifeline, the 233-mile Los Angeles Aqueduct, in 1913.



Coachella Valley County Water District's spreading grounds near the Whitewater River in 1920. *CVWD archive photo*

Photos page 19 — Top - President Warren Harding, Bottom - President Calvin Coolidge



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COACHELLA VALLEY COUNTY WATER DISTRICT'S FIRST ACTIONS

Initial efforts included filing for unclaimed Whitewater River water rights and launching a lengthy effort to secure Colorado River water as a supplemental water supply .

Coachella Valley County Water District wasted no time in setting out to protect and expand the valley's water resources.

The district's first actions were to file for rights to all unclaimed Whitewater River water and to acquire land near Windy Point west of Palm Springs to be used as a groundwater replenishment area.

These efforts included aggressive lobbying that prompted President Woodrow Wilson to sign an order on Oct. 16, 1918 to set aside public lands in the Whitewater River area so that they could be used for groundwater recharge purposes. The lobbying effort continued in the 1920s and resulted in additional presidential orders, signed by Warren Harding and Calvin Coolidge, which enabled the Coachella-based water district to obtain additional land for groundwater recharge efforts in the Whitewater River area.

CVCWD's second step, taken almost simultaneously, was to seek imported Colorado River water to assure farmers of a dependable irrigation water supply without depleting the groundwater basin, which was vitally needed for domestic uses.

In 1919, the CVCWD board entered into its first contract with the federal government under the Kettner Bill to survey possible routes for the All-American Canal, a canal to bring water to the Coachella Valley from the Colorado River.

A second contract was made under the Kincaid Act in 1921 to survey the route that would eventually bring Colorado River water into the Coachella Valley.

A family physician, DR. S.S.M. JENNINGS was Coachella Valley County Water District's first president, serving from 1918 to 1928. He was later appointed by the Riverside County Board of Supervisors to serve again from 1931 to 1933.

"Dr. S.S.M. Jennings was the individual who had more to do with bringing water to this desert than any other person," CVWD wrote in the 1968 book, *Coachella Valley's Golden Years.*

CVWD WAS THE NATION'S FIRST MAJOR IRRIGATION DISTRICT TO USE TELEMETRY TO MANAGE THE FLOW OF WATER

During the 1950s and 60s, CVCWD General Manager Lowell Weeks was inspired by NASA's effective use of "telemetry," a form of telecommunications that transmits data to a remote location, either by wire, radio or other means. "If NASA can use it to monitor and manage the movement of a space capsule," Lowell reasoned, "then we can use it to track and control the movement of water."

To turn Weeks' dream into reality, the district started hiring electronics and communications experts coming out of the military. By 1968 they had designed and assembled one of the first telemetry systems in the United States to be used by a major irrigation facility.

The district's telemetry system is often called "SCADA," which stands for "Supervisory Control And Data Acquisition."

The first phase of the project was new sensors at the first 10 gates on the Coachella Branch of the All-American Canal to control the flow of water. This allowed the operator to input multiple types of set points and the field sensors located at each "Check Structure" would adjust the canal gates as needed. Some of these Gates are over 100 miles away. The next project phase was a "Radio Polling System" and another type of field sensor. The SCADA System would poll numerous field sites, such as wells, lift stations and booster stations, and transmit data from these sites wirelessly over a radio.

Though the foundational principles haven't changed much since 1968, the district's SCADA system has gone through several upgrades over the years as the technology has shifted into the digital age.

"The district's expansive and complex water delivery systems practically demand the use of telemetry," said Kevin Hemp, district education specialist. "Without it, consistent, reliable, and efficient control would be nearly impossible to achieve."

The Coachella Branch of the All-American Canal is one of two lifelines that bring Colorado River water into the valley. *CVWD archive photo*

COLORADO RIVER SILT, MEXICAN WATER RIGHTS AND THE THIRST FOR COLORADO RIVER WATER

Water districts in the Imperial and Coachella valleys see construction of an All-American Canal as a solution to their respective water woes.

"The New and Alamo channels drove into Mexico, then veered back north into the United States, a hundred-mile semi-loop, and ended at the foot of the Chocolate Mountains, where the delinquent river would form a huge evanescent body of water called the Salton Sea."

—Marc Reisner, author of *Cadillac Desert*

Visionaries had talked about using Colorado River water to develop the agricultural potential of the Imperial Valley as early as 1850. In fact, Colorado River waters had naturally found their way into the valley throughout history, creating ancient Lake Cahuilla on the site of today's Salton Sea.

This would happen not only during periods of extreme flooding, but as a result of the massive amounts of silt carried by the Colorado River as it carved its way through mountains, canyons and deserts on its way to the Gulf of California.

At times, the Colorado River would deposit enough silt in areas south of the Mexican border that it would serve as a temporary dike and redirect the river's flow toward the Imperial Valley and the Salton Sink, following the natural contours of the land.

Marc Reisner describes this phenomenon in *Cadillac Desert*, his famed 1986 book about the use of water in the West.

"There was so much silt," he wrote, "that it raised the entire riverbed, foot by foot, year by year, until the Colorado slipped out of its loose confinement of low sandy bluffs and tore off in some other direction, instantly digging a new course. It developed an affection for several such channels, returning to them again and again — Bee River, New River, Alamo River, big braided washes that sat dry and expectant in the desert, waiting for the river to return. The New and Alamo channels drove into Mexico, then veered back north into the United States, a hundred-mile semi-loop, and ended at the foot of the Chocolate Mountains, where the delinquent river would form a huge evanescent body of water called the Salton Sea. After a while, the New and Alamo channels would themselves silt up and the Colorado River would throw itself back into its old bed and return to the Gulf of California."

A former U.S. Reclamation Service engineer named Charles R. Rockwood built the first canal to divert Colorado River water to the Imperial Valley. “His business model was based on creating a lucrative farming industry that would supply and deliver winter harvested crops and vegetables via the Southern Pacific Railroad to large population centers back east,” Imperial Irrigation District writes in an historical account on its website.

Rockwood’s canal was easily overwhelmed by silt and the Colorado River floods of 1905 to 1907, which formed today’s Salton Sea. But as far as Imperial and Coachella Valley farmers were concerned, the bigger issue with Rockwood’s canal was the fact that it ran through Mexico.

Ideally, Rockwood and his business partner would have started the canal near Yuma, Ariz. and run it westward to the Imperial Valley. But the Algodones sand dunes, California’s largest mass of sand dunes, stood in the way. So Rockwood opted to build most of the canal through Mexico before crossing the border via a dry overflow channel known as the Alamo River wash.

To do business in Mexico, however, Rockwood and his partner had to organize a Mexican corporation — which they established in 1898 as La Sociedad de Irrigación y Terrenos de Baja California, S. A. — and share their canal water with Mexico.

“Under the concession of 1904, Mexico had the right to one half of the water flowing through the canals in lower California, which, in effect, represented a loss of that much water to the supply available for Imperial Valley,” wrote M.J. Dowd, a consulting engineer and executive officer of the Imperial Irrigation District board, who described the arrangement in an historical account of IID’s first 40 years.

So while Rockwood’s canal was eventually repaired after the 1905-1907 floods, Dowd said Imperial Valley farmers soon came to the conclusion that they would be better served in the long run by building a new canal north of the border.

By constructing an All-American Canal, Dowd wrote, this loss of water to Mexico could be recovered and made available to increase development in the Imperial Valley. The idea of extending the canal northward to serve farmers in the Coachella Valley was also widely discussed.

But farmers in both the Imperial and Coachella valleys realized that to build a project of this magnitude their respective water agencies would need financing from the United States government.

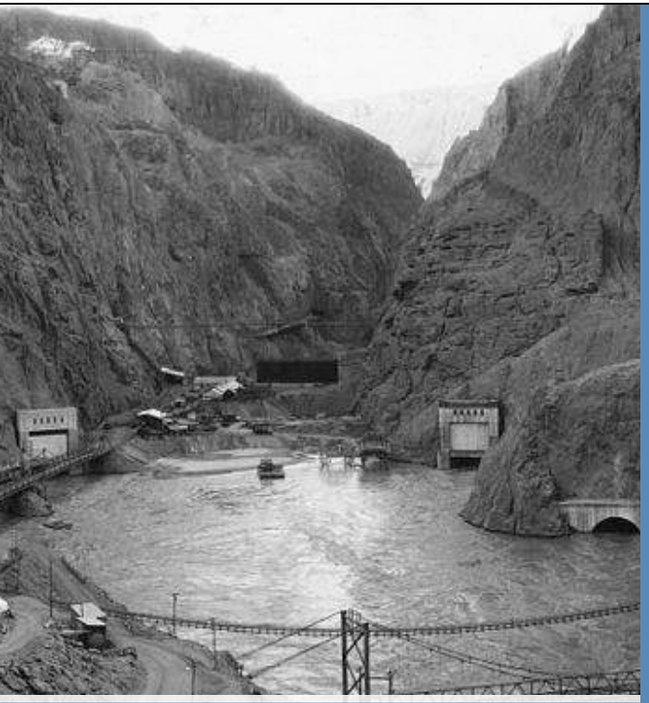
Congress did not authorize financing for construction of the canal until 1928, however, because it was consumed with conflicts involving the water rights of the seven Basin States that border the Colorado River.

Other disagreements involved the proposed Boulder Canyon Project, which included construction of Hoover Dam, a hydroelectric power plant at the dam and the All-American Canal connecting the Laguna Dam near Yuma, Ariz. with the Imperial and Coachella valleys.

Even after Congress authorized financing mechanisms for construction of the All-American Canal in 1928, conflicts between Imperial Irrigation District and Coachella Valley County Water District delayed the signing of a contract for canal construction until 1934, and it wasn’t until 1938 — 20 years after the formation of Coachella Valley County Water District — that construction would begin on the Coachella Branch of the All-American Canal.

THE BOULDER CANYON PROJECT AND THE TAMING OF THE COLORADO RIVER

Legislation authorizing construction of Hoover Dam and the All-American Canal is caught up in a political storm as states wrangle over Colorado River water rights.



Construction workers had to create diversion tunnels to redirect the Colorado River while they were building Hoover Dam. This photo was taken in 1933. *Courtesy of the U.S. Bureau of Reclamation*

In the 1920s, the upper basin states of Colorado, Utah, New Mexico and Wyoming were alarmed at the prospect of losing Colorado River water to the faster growing lower basin states of California, Arizona and Nevada.

"At the time, the upper basin states were concerned that plans for Hoover Dam and other water development projects in the lower basin would, under the Western water law doctrine of prior appropriation, deprive them of their ability to use the river's flows in the future," the U.S. Bureau of Reclamation writes in an historical account on its website.

There was particular fear of California's thirst for Colorado River water, according to author Marc Reisner, who describes the political battle leading up to the construction of Hoover Dam in *Cadillac Desert.*

"The problem with such a dam, from the point of view of the basin at large, was that California was then the only state in a position to use the water," he wrote. "Wyoming, Arizona, Nevada, and New Mexico were still mostly uninhabited. Colorado and Utah had a few hundred thousand people each, but they had scarcely begun to tap the Colorado River and its tributaries; most of Utah's irrigation had been developed in another basin. California, on the other hand, was gaining people like no place on earth, and most of the growth was occurring in the south. The Imperial Valley could have

> **"The problem with such a dam, from the point of view of the basin at large, was that California was then the only state in a position to use the water."**

immediately used three or four million acre-feet of water, the consumption of the upper basin states and then some. The Coachella Valley, farther north, and the Palo Verde and Yuma projects could swallow another million acre-feet. Los Angeles, growing like a gourd in the night, would soon overrun its Owens Valley supply; the next logical source of water — the only logical source, was the Colorado River."

Herbert Hoover, President Warren G. Harding's Secretary of Commerce, tried to assuage the mounting tensions between the states by proposing that the upper and lower basin states each have the right to develop and use 7.5 million acre-feet of Colorado River water each year. This meant that Colorado, Utah, New Mexico and Wyoming could rest assured that they could collectively share 7.5 million acre-feet of water each year while downstream states of California, Nevada and Arizona would share another 7.5 million acre-feet.

To sweeten the deal, known as the Colorado River Compact of 1922, the lower basin states would also receive the right to increase their apportionment by an additional 1 million acre-feet per year, assuming surplus water was available. "This represented a bonus to ensure lower basin acceptance of the compact," according to Joe Gelt of the University of Arizona's Water Resource Research Center in Tucson, who discussed the accord in an August 1997 report.

Arizona, however, refused to ratify the Colorado River Compact of 1922. "Arizona representatives have expressed the fear that more rapid appropriation of water in California would create vested rights to the Colorado river water which would block future use of the water in their state," according to a 1927 congressional research report titled "*The Colorado River Problems*."

Arizona's concerns didn't stop California's representatives from pushing legislation to build Hoover Dam. In fact, Rep. Phil D. Swing, a former Imperial Irrigation District attorney, and Sen. Hiram W. Johnson, a former California governor, made three separate attempts between 1922 and 1927 to win support for their Swing-Johnson bills, which would authorize construction of Hoover Dam, a hydroelectric power plant and the All-American Canal.

But their legislation failed to come to a vote because of continuing state concerns involving water rights as well as opposition from power companies concerned about competition from the federal government.

Arizona, for its part, was also concerned about losing Colorado River water to Mexico as a result of the Colorado River Compact, according to an article in the June 2013 issue of the *Arizona Journal of Environmental Law & Policy*.

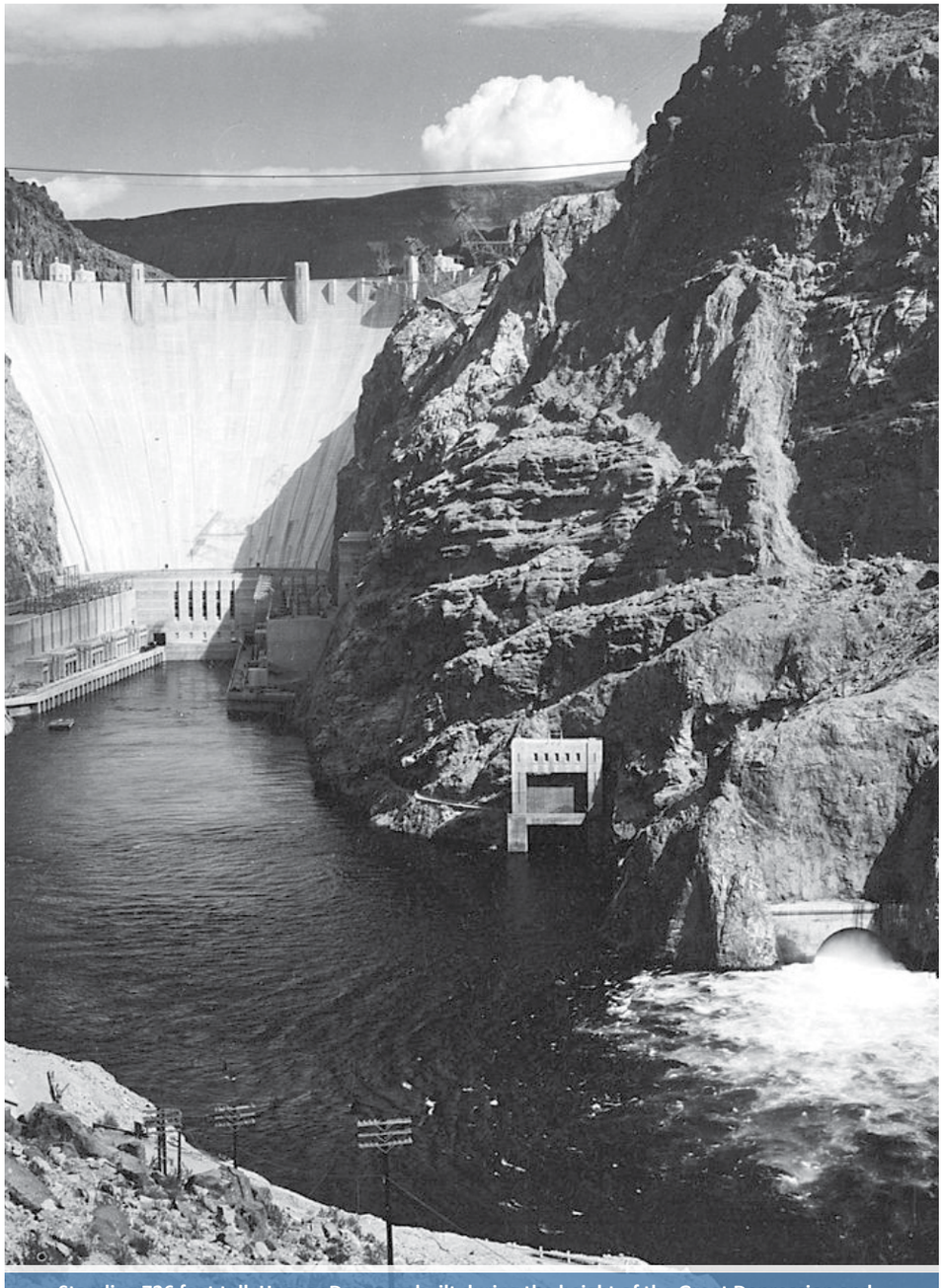
"Many, especially large agricultural users in the state, were disappointed that the Compact placed no restraint on the use of the water from the River by Mexico," Robert Glennon and Jacob Kavkewitz wrote in a Nov. 5, 2013 analysis of the agreement in The *Arizona Journal of Environmental Law & Policy*, adding, "Agricultural interests feared that the Compact would allow Mexican farmers to outcompete Arizona farmers."

But Swing and Johnson never gave up, and after they introduced their legislation for a fourth time in late 1927, it eventually cleared both houses of Congress and resulted in the Boulder Canyon Project Act, which was signed into law by President Coolidge on Dec. 21, 1928.

Congress, however, would not allow the Boulder Canyon Project Act to become effective unless all seven states ratified the 1928 legislation or unless California agreed "irrevocably and unconditionally" to limit its annual consumptive use of Colorado River water to 4.4 million acre-feet plus half of any surplus water that may exist.

Eager to see construction of Hoover Dam, its associated power plant and the All-American Canal, California agreed to this arrangement, with its legislature approving the California Limitation Act in 1929.

"Arizona representatives have expressed the fear that more rapid appropriation of water in California would create vested rights to the Colorado river water which would block future use of the water in their state," according to a 1927 congressional research report titled "*The Colorado River Problems*."



Standing 726 feet tall, Hoover Dam was built during the height of the Great Depression and completed ahead of schedule in less than five years. *Ansel Adams photo courtesy of the National Archives*

Two years later, Southern California water agencies joined the cities of Los Angeles and San Diego in approving the Seven Party Agreement of 1931, which further helped settle conflicts between California's agricultural and municipal interests — at least for the time being.

Under the agreement — signed by Palo Verde Irrigation District, the Imperial Irrigation District, Coachella Valley County Water District, The Metropolitan Water District of Southern California; the City of Los Angeles; the City of San Diego; and the County of San Diego — a system was set up whereby Palo Verde, Imperial Irrigation District, the Yuma Project and CVCWD were collectively allocated up to 3.85 million acre-feet of Colorado River water per year in the first three priorities.

Palo Verde, Imperial Irrigation District and CVCWD were also allocated a shared sixth priority use of up to 300,000 acre-feet of water per year.

The Metropolitan Water District and/or the City of Los Angeles had priority 5 for 550,000 acre-feet of water, while the City of San Diego and/or the County of San Diego had a right to 112,000 acre-feet.

The Seven Party Agreement did not specify the amount of Colorado River water that would go to each agency, however. That question would not be resolved until 72 years later, in 2003, when Coachella Valley Water District finalized the Quantification Settlement Agreement with Imperial Irrigation District, The Metropolitan Water District, San Diego County Water Authority, the State of California and the U.S. Department of the Interior.

Table grapes continue to be cultivated in the Coachella Valley but face tremendous pricing competition from Mexico as a result of lower labor costs south of the border. *CVWD archive photo*

A POLITICAL BATTLE BREAKS OUT AS COACHELLA VALLEY FARMERS TAKE AIM AT IMPERIAL IRRIGATION DISTRICT

As the nation fell deeper into the Great Depression, there was bitter disagreement over whether Coachella Valley County Water District should have a separate contract and financing with the federal government or partner with Imperial Irrigation District, which was suffering mounting financial woes.

"There was a legitimate concern on behalf of the Coachella Valley farmers that they could lose their land," said Steve Abbott, a Riverside-based attorney with Redwine & Sherrill who has studied California water law and history for nearly 30 years.

While it may have seemed easy enough to move forward with construction of a canal immediately after passage of the Boulder Canyon Project Act, major disputes broke out over how CVCWD would pay for its portion of the canal and whether it was better for the district to partner with Imperial Irrigation District on the project or secure its own separate contract and financing with the federal government.

The CVCWD Board of Directors believed it was more cost effective to partner with IID to build the Coachella segment of the canal. The U.S. Bureau of Reclamation also issued statements indicating its preference to have a single contract with IID that included the Coachella segment of the canal.

According to an Oct. 29, 1932 article in the *Los Angeles Times*, the CVCWD engineers had determined "a savings of $22 per acre for the lands of this district over any other program and a contract was drawn up that was approved by the Department of the Interior and by the people of Imperial Valley."

Elwood Mead, the commissioner of the Bureau of Reclamation for whom Lake Mead is named, also announced in El Centro in 1931 that the U.S. government would only deal with one entity in a contract to build the canal. Therefore, he said, it was imperative that IID and CVCWD work together on the project.

But a group of Coachella Valley farmers headed by Dr. Harry Forbes argued that partnering with IID in a contract to obtain Colorado River water was a bad idea. Forbes and other Coachella Valley farmers not only feared that CVCWD would be considered an inferior of IID with junior water rights, but they worried about the financing mechanisms in place at the time, which could put Coachella Valley landowners at risk of losing their lands if any property owners in the district defaulted on their tax payments. This was a particularly high risk during the Great Depression of the 1930s.

> **"The Imperial Valley is wallowing in the slough of despondency, gang rule, racketeering, political mud slinging and verging on bankruptcy," the editorial stated, adding, "The farmers down there are unable to meet their county taxes, irrigation taxes or bond payments and interest. They are calling upon the state, the government, the banks and the Lord for help, but no help is in sight. Coachella Valley voters would be far more ignorant and unwise than we choose to think they are if they allowed themselves and their lands to be pulled into this stinking morass."**

Opposition to joint canal contract with IID leads to recall effort

One opposition group, the Coachella Valley Landowners Association, spelled out the risks of partnering with IID in a letter to local landowners:

"Ask anyone who has had experience with the Mattoon Act or any special assessment district what can happen to your land with this proven unsound method of borrowing money," the letter stated, adding, "Imperial's $14,500,000 bonded debt is a tax lien on all the land of the district and will be an immediate tax lien on your land if you sign a petition of inclusion. Each parcel of land is required to pay the entire sum of the bond, principal and any interest — nearly $26,000,000 — if the other parcels cannot pay."

The association warned that this method of financing was particularly dangerous during the Depression, when many farmers were defaulting on their property taxes.

"Over 30% of the Imperial taxes were not paid in December 1931," the association wrote. "According to press reports, the June 1932 delinquency rate may exceed 50%."

"There was a legitimate concern on behalf of the Coachella Valley farmers that they could lose their land," said Steve Abbott, a Riverside-based attorney with Redwine & Sherrill who has studied California water law and history for nearly 30 years.

And while public outrage over the devastating effects of the Mattoon Act led to its eventual repeal in 1933, the financial crisis affecting IID was very real. Indeed, IID was forced to seek bankruptcy reorganization on two separate occasions in the 1930s.

But despite Coachella Valley farmers' wariness of partnering with IID, the CVCWD Board of Directors continued to support a joint contract with IID. Coachella Valley farmers responded by launching a recall effort to replace all five CVCWD board members with representatives who were committed to insisting on a separate contract with the Bureau of Reclamation to build the Coachella Branch of the All-American Canal.

As the election campaign revved up, a local publication called *The Submarine* published an editorial on Sept. 2, 1932 that described the predicament facing Coachella Valley voters in the starkest terms.

"The Imperial Valley is wallowing in the slough of despondency, gang rule, racketeering, political mud slinging and verging on bankruptcy," the editorial stated, adding, "The farmers down there are unable to meet their county taxes, irrigation taxes or bond payments and interest. They are calling upon the state, the government, the banks and the Lord for help, but no help is in sight. Coachella Valley voters would be far more ignorant and unwise than we choose to think they are if they allowed themselves and their lands to be pulled into this stinking morass."

IID continues to push for a joint contract with CVCWD, despite recall effort

Imperial Irrigation District didn't sit in silence as Coachella Valley farmers attacked the agency as well as its plans for a joint IID-CVCWD contract to build the All-American Canal. In fact, the concept of a joint contract had already been approved by Imperial Valley voters.

IID, for its part, sent a telegram on Oct. 22, 1932 to John H. Edwards, acting Secretary of the Interior, warning that it could not guarantee that Colorado River water would be available for the Coachella Valley if the latter insisted on having a separate contract with the federal government.

"Imperial Irrigation District can make no assurance of water for Coachella Valley as a basis of a separate contract for that area," the telegram stated.

Women grading and sorting dates at the CalDate packing shed in Indio. *Courtesy of Coachella Valley Historical Society*

"There are approximately 850,000 acres in Imperial County for which the district has rights to be satisfied from priority number three. Coachella Valley has no water right from the Colorado River. Therefore, obviously, the district rights must first be satisfied before Coachella Valley can receive water."

But while this cable was likely intended to pressure Coachella landowners to support the joint contract, it also highlighted the need for CVCWD to secure its own Colorado River water rights, which some recall proponents were committed to do.

When the recall election took place on Oct. 28, 1932, the recall proponents won by a margin of 300 votes. Seven days later, on Nov. 4, 1932, the newly installed CVCWD board held a conference with Edward Hyatt, state engineer of California, and discussed "the definite allocation of water for the Coachella Valley out of the 4,400,000 acre-feet apportioned to California by the Swing-Johnson Bill."

According to a Nov. 4, 1932 report in the small newspaper *Date Palm*, this was the first time that the Coachella Valley officially asked for a definite allocation of water from the Colorado River.

Workers start to place concrete on the service area of the Coachella Branch of the All-American Canal. *CVWD archive photo*

OPTIMISM SWEEPS THE VALLEY

Local newspapers rejoice as Coachella Valley County Water District signs a contract to build the All-American Canal.

"There are no clouds on our horizon … "— *Date Palm*, Aug. 24, 1934

"...Coachella Valley's future is assured. With the signing of our separate contract for participation in the All-American Canal, our last hazard has been removed. There are no clouds on our horizon, except those of a general nature which will be solved when the world rights itself along economic lines."

— Date Palm

The long-awaited signing of a contract between Coachella Valley County Water District and the U.S. Bureau of Reclamation to build the Coachella segment of the All-American Canal brought a wave of optimism into the valley at a time when California and the nation were suffering tremendous economic hardships as a result of the Great Depression.

"The general outlook for business may be uncertain," The *Date Palm* proclaimed in an Aug. 24, 1934 editorial that was reprinted from *The Submarine*. "But Coachella Valley's future is assured. With the signing of our separate contract for participation in the All-American Canal, our last hazard has been removed. There are no clouds on our horizon, except those of a general nature which will be solved when the world rights itself along economic lines."

The only thing needed, the editorial stated, was patience. "If the small rancher and the small businessman will but dig his toes in and hang on, keeping his foothold here in the valley, in a very few years he will be able to reap the reward of his labor and vision.

"With splendid artesian water below, ample irrigation water and cheap power from the Colorado River project above, and a soil and a climate which are unique in many practical ways, this section is in an (enviable) position. The rarest and choicest tropical fruits and vegetables can be grown here and placed on the market from two to six weeks before other sections are ready to ship!"

The editorial also referenced an influx of "ranchers and aspiring real estate men" in the days following the announcement of the contract. "A number of properties have been leased, others have been sold and at least two reputable real estate firms are planning to open offices in the valley this fall.

Ranchers from drought stricken areas are looking wistfully at sections where irrigation lessens the hazards of wrestling with Mother Nature."

CVCWD's vision as well as its confidence in Coachella Valley's economic future were put in writing when CVCWD President Harry T. Forbes signed the contract with Federal Emergency Administrator of Public Works and Secretary of Interior Harold L. Ikes to build Imperial Dam and the All-American Canal on Oct. 15, 1934.

The $38.5 million contract ($693 million in 2017 dollars) was an astounding amount of debt to take on, particularly when one considers that the contract was signed in the midst of the biggest economic depression this country experienced in the past century.

But while CVCWD's contract with the Bureau of Reclamation created the legal and financial means of bringing Colorado River water into the Coachella Valley, it would still be more than a dozen years before the canal and its associated pipelines would deliver water to Coachella Valley's farm fields.

COACHELLA VALLEY FARMERS PIONEER MODERN DRIP IRRIGATION TECHNIQUES IN CALIFORNIA

Several Coachella Valley farmers were among the first to use modern drip irrigation technology in California, which they found could reduce their water consumption by 40 to 50 percent, depending on the crop.

While the concept of drip irrigation has been around since ancient times, publicity involving advances in drip irrigation technology in Israel caught the attention of Coachella Valley farmers in the early 1970s.

Bobby Bianco, president of Bakersfield-based Anthony Vineyards, which has over 5,000 acres of crops in the eastern Coachella Valley, made two trips to Israel in the 1970s to see firsthand how drip irrigation was being used and how it could save water and improve crop yields.

After initial experiments with drip irrigation systems on his table grape crops in the Coachella Valley, he soon expanded it to other crops.

ENDLESS DELAYS

Construction of the All-American Canal and its Coachella branch are delayed as a result of complications from the Depression and World War II.

Although Coachella Valley County Water District secured a separate contract with the U.S. Bureau of Reclamation to build the 123-mile Coachella Branch of the All-American Canal, the canal construction was fraught with numerous setbacks.

Initial complications involved delays securing rights of way to build the canal to problems involving the financial stability of some of the firms hired to build various sections of the canal. Construction was subsequently delayed by materials and manpower shortages stemming from World War II.

Eric A. Stene of the U.S. Bureau of Reclamation office in Denver, Colo. documented these problems in a 1995 historical report on the All-American Canal. He reported that two contracting companies became financially unstable while working on the Imperial County portion of the canal, forcing their bond companies to take over the work.

Coachella Valley Water District also documented a variety of problems affecting canal construction in a 2002 history of the Coachella Canal in Riverside and Imperial counties.

According to the report, construction of the first 43-mile segment of the Coachella branch of the All-American Canal started in August 1938 and was completed ahead of schedule on March 30, 1940 by W.E. Callahan Construction Company and J.P. Shirley of Yuma, Ariz.

Work on the second 43-mile section of the canal began on Sept. 9, 1939, under a contract with Morrison-Knudson Company, Inc., and M. H. Hasler, one of the many contractors involved in the construction of Hoover Dam. But work was suspended by order of the War Production Board and the second segment of the canal was not completed until March 22, 1943.

Bids for the third segment of the canal were opened on Oct. 27, 1941, but were rejected because they exceeded estimates and because of uncertainties involving the availability of materials during World War II.

Unwilling to accept the repeated delays caused by the war, CVCWD gave former Rep. Phil D. Swing a two-year contract during fiscal year 1941 to lobby U.S. officials to support the rapid completion of the Coachella Branch of the All-American Canal.

Heavy equipment was used for much of the All-American Canal construction. *CVWD archive photo*

"Mr. Phil Swing, Special Counsel for the District, made three trips to Washington to further the project during the past budget year," CVCWD stated in the district's annual report for fiscal 1943. "Two trips were to interest the Department of Agriculture and the War Production Board in this area as a Guayule (rubber) producing project, and the last trip was to further this project as a war food production area. It appears at the present time that the latter effort may soon be successful."

In the early 194Os, CVCWD officials managed to persuade the War Food Administration to allocate steel needed for the Coachella Canal so that the valley's farmers could increase their food production to support the War Production Board.

"At a hearing in Washington on August 26th, officials of the War Food Administration, the Bureau of Reclamation and your District strongly urged the W.P.B. to allocate sufficient steel to permit the prompt construction of our canal and distribution system to put Colorado River water on at least 22,500 acres of land in our Valley by the fall of 1944," CVCWD President Harry W. Forbes wrote in his annual report for fiscal year 1943, adding, "The approval of the W.P.B. was granted on October 4th for this work. It is now assured that construction will be completed for this emergency food project."

But, alas, the delays continued as a result of the war effort.

Bids were opened again for the third segment of the canal in 1944 and a contract was awarded to J.F. Shea Company on March 9 of that year. However, construction was hampered in 1944 and 1945 by shortages of labor, equipment repair parts, housing for employees and materials.

The shortage of housing for employees was eased in 1945 with the construction of a government camp for Bureau of Reclamation employees, which was located one mile outside Coachella. The camp consisted of 13 three-bedroom and 12 two-bedroom houses, later used as CVWD housing.

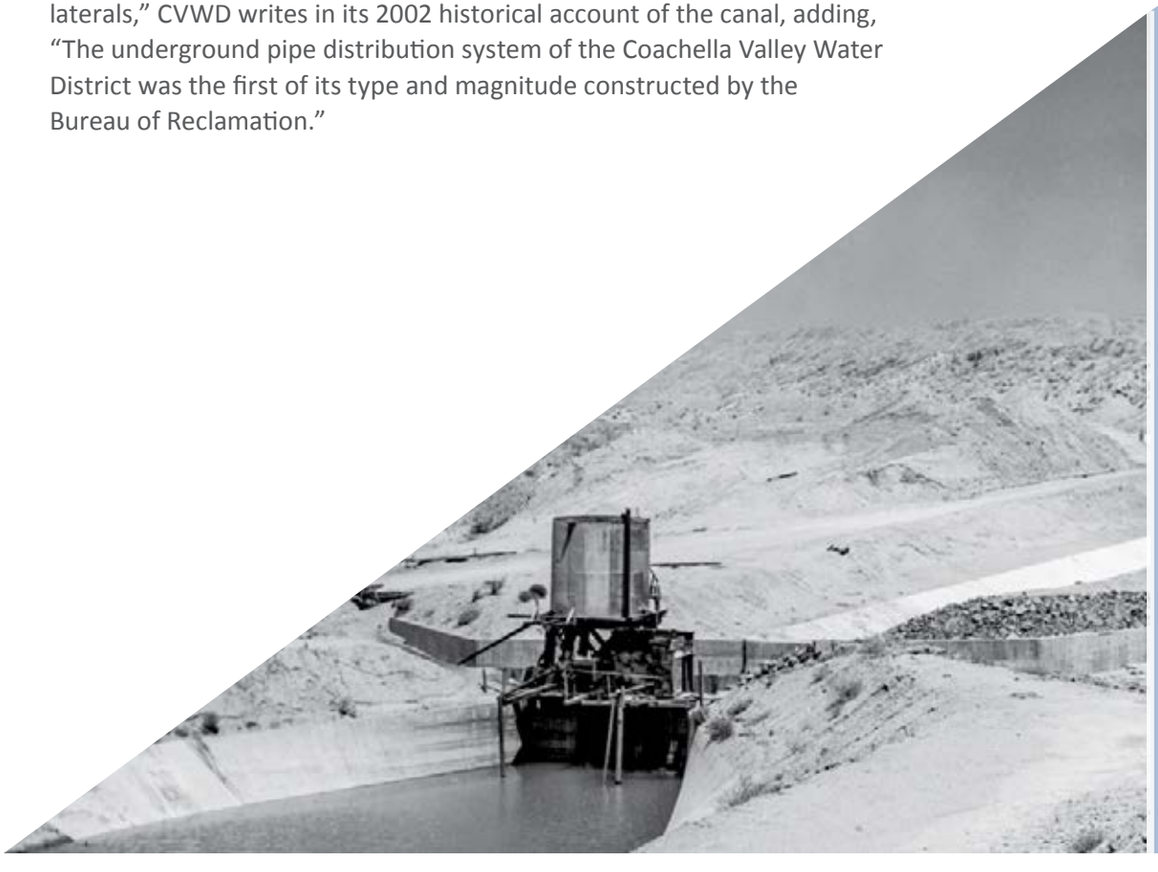
Contracts for the fourth and fifth reaches of the canal were also awarded to the Shea Company and the Morrison-Knudsen Company on Feb. 4 and May 31, 1946, while a contract for the final reach of the canal was awarded to Otto B. Ashbach and Sons, who completed their work on June 26, 1948.

The Coachella Valley started to receive Colorado River water from the All-American Canal in March 1949.

But before water could be delivered to farms across the Coachella Valley, CVCWD would first have to construct a canal water distribution system.

Construction of an underground canal water distribution system began in 1948 and was completed in 1954.

“The distribution system, consisting of 500 miles of concrete pipelines, was designed to serve 78,530 irrigable acres through a system of 80 distribution laterals,” CVWD writes in its 2002 historical account of the canal, adding, “The underground pipe distribution system of the Coachella Valley Water District was the first of its type and magnitude constructed by the Bureau of Reclamation.”



DR. HARRY W. FORBES was president of Coachella Valley County Water District during the contentious period from 1932 to 1945, which included the political fight with Imperial Irrigation District over whether to partner with IID in a single contract for Colorado River water. He was also president of the district throughout the difficult years of the Depression and World War II, when he made numerous trips to Washington, D.C. to pressure the federal government to expedite work on the Coachella Branch of the All-American Canal.

Forbes represented CVCWD in a hearing in Washington, D.C. before officials of the War Production Board, the War Food Administration and the Bureau of Reclamation to determine whether All-American Canal construction should be continued. “After complete hearings, it was decided that the work should progress as rapidly as possible,” CVCWD wrote in its annual report for fiscal year 1945.

At the time of his death on Jan. 31, 1945, Forbes was representing the district and Southern California in public hearings involving the 1944 treaty between the U.S. and Mexico that granted Mexico the right to 1.5 million acre-feet of Colorado River water per year. The treaty was ultimately ratified by the U.S. Senate in 1945, although CVCWD and other Western interests were strongly opposed to the agreement.

Table grapes have been harvested in the Coachella Valley for over 100 years. Farmers continued to harvest more crops in the valley throughout the 1930s and 40s, despite delays in the construction of the Coachella Branch of the All-American Canal. *Courtesy of Coachella Valley Historical Society*

RAYS OF HOPE

Despite the delays in building the All-American Canal, the Coachella Valley's agriculture and tourism industries continued to grow.

"New development within the Valley was carried on without reference to the fact that canal water was not available," J. H. Snyder, Coachella Valley County Water District's chief engineer and general manager, wrote in his annual report for fiscal year 1948.

The Coachella Valley's agriculture industry continued to grow throughout the 1920s, 1930s and 1940s, despite the delays in building the All-American Canal and delivering Colorado River water to local farmers.

"New development within the Valley was carried on without reference to the fact that canal water was not available," J. H. Snyder, Coachella Valley County Water District's chief engineer and general manager, wrote in his annual report for fiscal year 1948, adding, "Some 100 wells were drilled during the 1947-48 year to provide supplemental water for existing farms and to start new farm enterprises."

In fact, CVCWD's annual reports documented serious and mounting concerns about groundwater overdraft throughout the 1940s, which underscored the urgency of completing the Coachella branch of the All-American Canal.

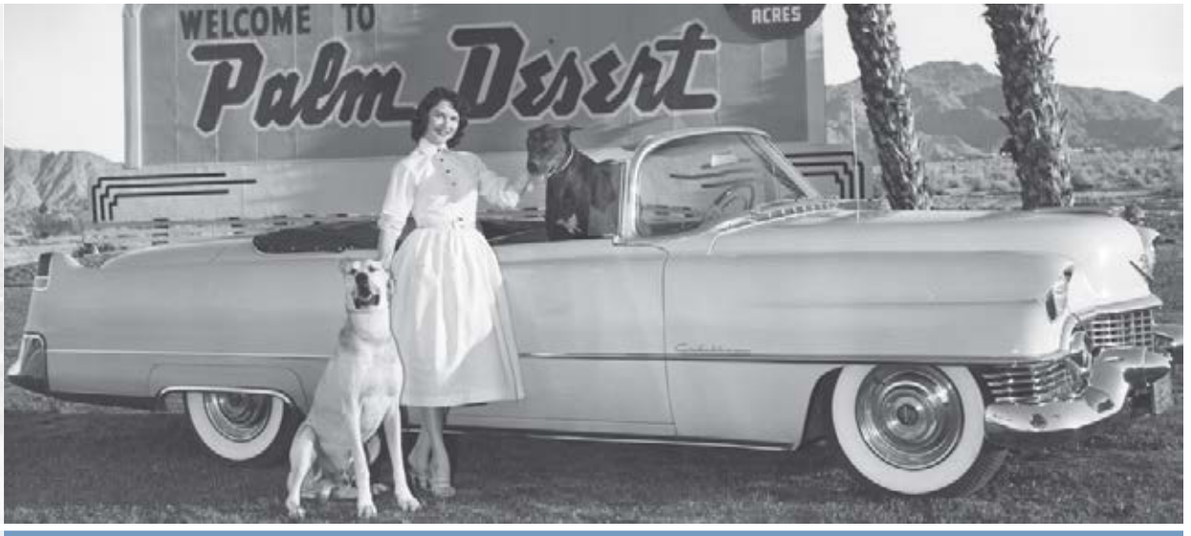
"The existing underground water supply of the District has shown rapid depletion during the past year," CVCWD wrote in its annual report for fiscal year 1945. "The urgency of completion of a supplemental water supply is now apparent to practically all of our land owners."

But despite the obvious strain on local groundwater supplies, annual crop reports produced by the Riverside County Agriculture Commissioner's office document steady increases in acreage and agricultural production in the Coachella Valley in the 1920s, 1930s and 1940s, with dates and table grapes among the valley's top crops.

Dates were a particularly lucrative product, which the *Los Angeles Times* touted as the "state's most romantic crop" in a March 23, 1936 report.

In 1928, the year Congress approved the Boulder Canyon Project Act to build Hoover Dam and the All-American Canal, the Coachella Valley had 600 bearing acres of dates that netted $389,213 in sales. By 1949, when Colorado River water finally arrived in the valley, the bearing acreage for dates had increased sixfold to 3,673 acres, while sales rocketed more to $4,800,560.

This photo from the late 1940s shows El Paseo and Highway 111 in what would eventually become Palm Desert. *Courtesy of the Historical Society of Palm Desert*



An early promotional photo of Palm Desert. *Courtesy of the Historical Society of Palm Desert*

Table grape production nearly doubled, from 2,313 bearing acres in 1928 to 4,530 acres in 1949, while sales mushroomed from $164,360 to $3,663,340.

Meanwhile, overall acreage under cultivation in the Coachella Valley nearly doubled from about 11,500 acres in 1918 — the year CVCWD was formed — to 19,000 acres in 1949, according to *The Reclamation Era*, a magazine of the U.S. Bureau of Reclamation.

The federal government's enactment of the Bracero Program on Aug. 4, 1942 also helped to ensure that growers could offset farm labor shortages resulting from World War II by importing temporary guest laborers from Mexico.

The valley's tourism industry continued to grow. Some of the valley's most famous hotels were built from the 1920s to the 1940s.

The La Quinta Hotel opened in 1926 and added a nine-hole golf course in 1927.

El Mirador Hotel in Palm Springs opened on New Year's Eve in 1928, while the Racquet Club of Palm Springs opened in 1934. Desert Spa, one of the nation's first natural hot springs resorts, opened in Desert Hot Springs in 1940. It was later renamed Two Bunch Palms.

Each of these resorts catered to movie stars, celebrities and wealthy people seeking a quiet, oasis-like escape.

Lynn J. Rogers, outdoor editor for the *Los Angeles Times*, marveled over the richness of the valley's tourism and agriculture potential in an April 17, 1938 article — in the height of the Depression.

The federal government's enactment of the Bracero Program on Aug. 4, 1942 also helped to ensure that growers could offset farm labor shortages resulting from World War II by importing temporary guest laborers from Mexico.

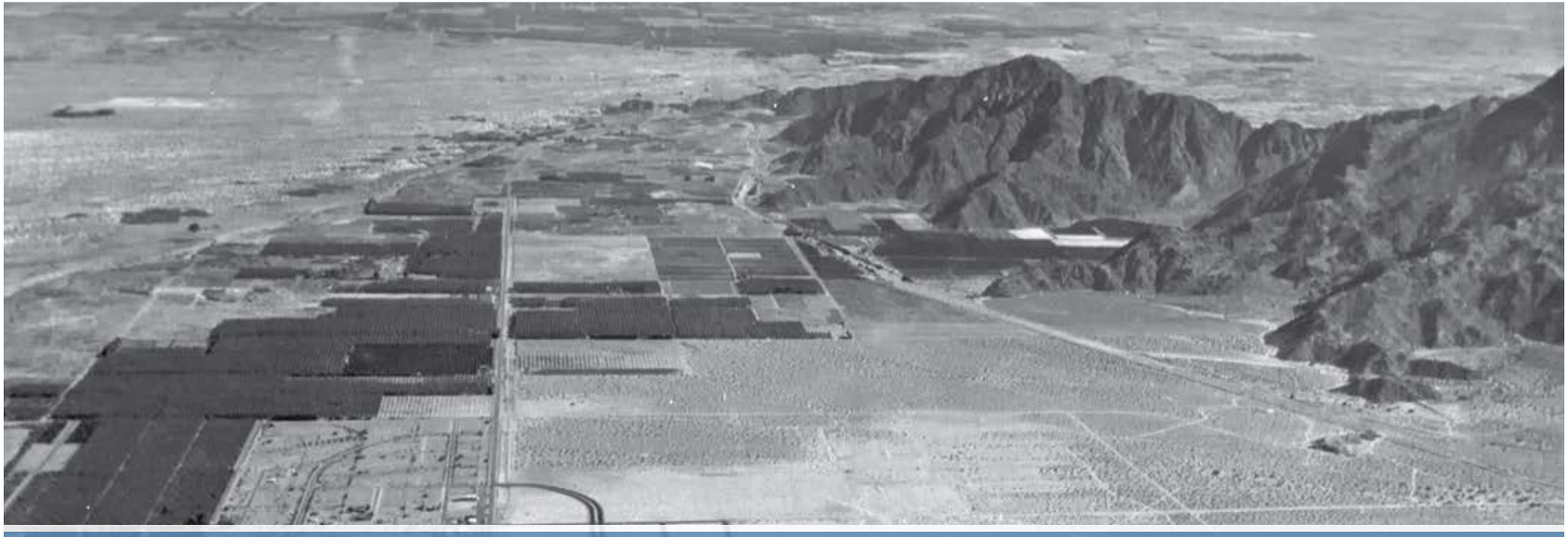


Photo from the late 1940s looking toward La Quinta from the future Palm Desert area. *Courtesy of the Historical Society of Palm Desert*

"Today," Rogers wrote, "it is a veritable Garden of Eden crowned glistening green and laden with incomparable sweets. Its great wastelands have been converted into an exotic development without parallel in America."

At the time Rogers wrote the report, there were 16,000 acres of Coachella Valley land under cultivation. Rogers suggested people consider visiting the valley as a weekend getaway.

A new city was also born as the Coachella Valley waited for the arrival of Colorado River water.

On Oct. 8, 1946, nearly three years before the waters of the Colorado began to irrigate Coachella Valley farmlands, the *Los Angeles Times* published a report announcing plans by local businessmen to build the city of Palm Desert on a 1,480-acre tract at the intersection of the Palms to Pines Highway and Palm Springs Road, which is now Highway 111.

"Today," Rogers wrote, "it is a veritable Garden of Eden crowned glistening green and laden with incomparable sweets. Its great wastelands have been converted into an exotic development without parallel in America."

A 1935 advertising photo for California dates shows women sorting and grading dates. *Courtesy of Coachella Valley Historical Society*

BOOM TIMES

When Colorado River water finally arrives in the Coachella Valley in 1949, it sets off an agricultural boom.

By the time Colorado River water was finally delivered to the Coachella Valley's farm fields through the All-American Canal, groundwater levels had fallen to depths that were worrisome to farmers and Coachella Valley County Water District officials alike.

"The (overdraft) on the underground water supply has continued throughout the year at a rate higher than any before," CVCWD Chief Engineer and General Manager J.H. Snyder wrote in his annual report for fiscal 1948, adding, "The threat of real disaster due to absolute failure of water in wells is greater now than at any time in the history of the Valley. It is estimated at this time that there are 25,000 acres of ground under actual cultivation in Coachella Valley. With a water supply adequate for only 9,000 to 11,000 acres, the seriousness of the excess uses are readily apparent."

As Colorado River water arrived, however, it not only eased concerns about groundwater overdraft, but it helped farmers transform the eastern Coachella Valley into some of the most productive agriculture land in the country.

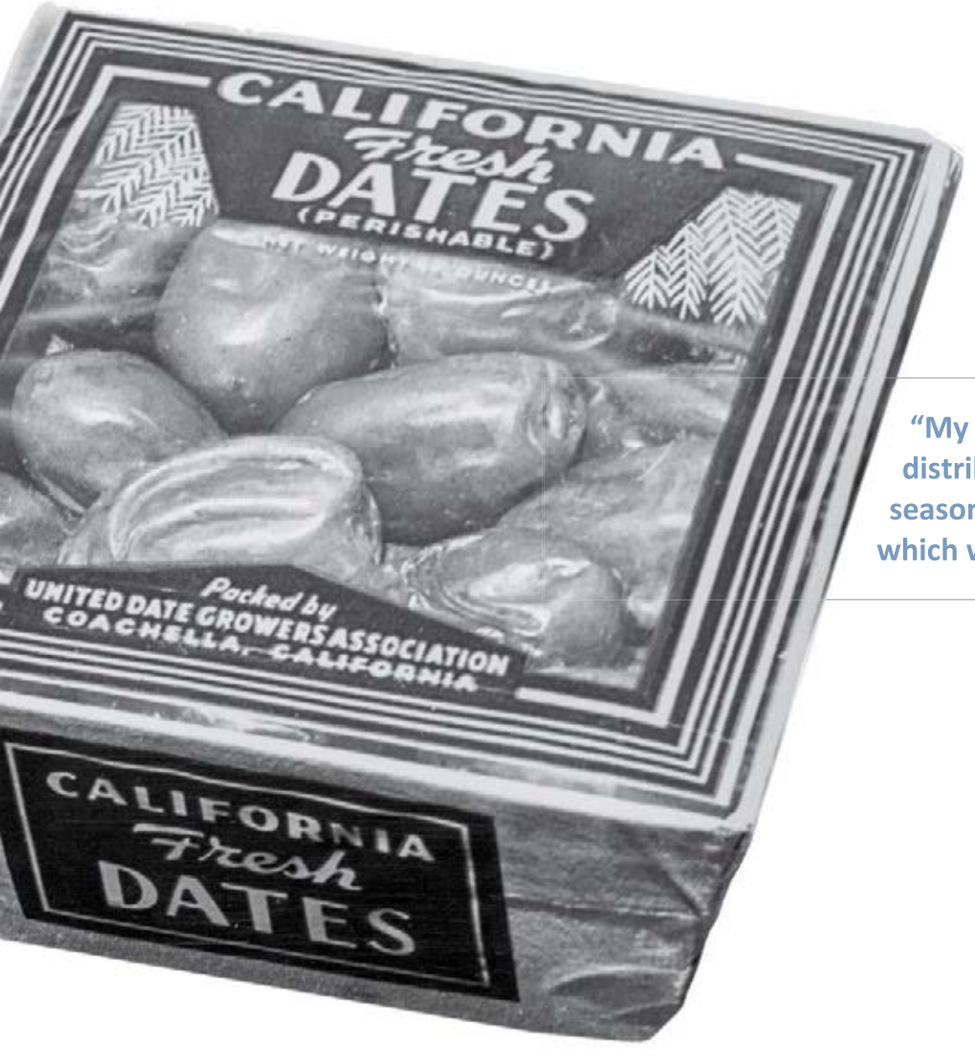
According to a history of the Coachella Canal written by CVWD staff in 2002, "Irrigated acreage, which increased slowly from 16,350 in 1940 to 19,725 in 1947 had by 1954 expanded to 50,446 acres, with the 30,000-acre increase during the 7 years following 1947 directly attributable to the availability of an adequate supply of gravity irrigation water."

Meanwhile, crop values increased dramatically.

"Per acre crop income between 1940 and 1954 increased from $154 to $480 per acre," the district wrote in its report, adding, "During the same period, total gross crop income increased from $2,500,000 to about $24,600,000."

The arrival of Colorado River water through the All-American Canal also made possible increases in the cultivation of dates, grapefruit and other tree and vine crops and the expansion of field crops.

"Dates, together with desert grapefruit and other tree and vine crops, mature slowly, but the value of this production has increased by nearly $4 million between 1946 and 1954, with reported income in 1954 of $12,200,000. Field crops, which were not included widely in the rotation prior to the availability of Colorado River water, increased in value in 8 years in excess of 900 percent to $3,800,000."



The Coachella Valley's raw desert land also increased significantly in value with the arrival of Colorado River water.

"The rise in value of raw desert land from roughly $25 per acre in 1940 to an estimated $250 in 1954 is indicative of the values with the magic touch of irrigation where the application of water can bring a crop income of $500 per acre from land otherwise unproductive and worthless even for grazing," the district wrote.

"My grandfather saw the potential of the area with the new canal and distribution system," John Powell Jr. said, noting the valley's extended growing season as well as its proximity to Los Angeles. "You also had the railroad here, which was important for transporting produce across the country."

Some of the Coachella Valley's largest agribusinesses were established during the late 1940s and 1950s and continue in business today.

"There are 20 or 30 farming families who have been here a long time," said Albert P. Keck II, a third generation date grower and president of Hadley Date Gardens in Thermal. Keck's family has been growing dates, citrus and winter vegetables in the valley since before World War II.

Other longtime growers include Coachella-based Peter Rabbit Farms, once the nation's third largest supplier of baby carrots. It evolved out of Cardinal Distributing, which was established in 1950 by Palmer Powell, grandfather of CVWD Director John Powell Jr., board president who has served on the board since 2010 as well as from 1998 to 2000. Powell's father, John Powell Sr., also served on the district's board.

The Powell family's involvement in Coachella Valley agriculture stretches back to the 1930s.

Palmer Powell was a partner with the Sunrise Produce Company, which supplied fresh produce to the wholesale terminal market in San Francisco from farms across the Southwest.

Display of California dates at Sears Roebuck & Co. in Hackensack, New Jersey. *Courtesy of Coachella Valley Historical Society*

Interior of store shared by the Jim Cash Grocery Store and Shepard's Jewelry Store on Fargo Street in Indio in the 1930s. *Courtesy of Coachella Valley Historical Society*

Sunrise opened a packing plant in Coachella in 1939, which packed tomatoes, cantaloupes and other items. It was run by Palmer Powell's partner, Bill Kelly.

But after World War II, Safeway and other big grocery store chains began to appear, and Palmer realized it would only be a matter of time before the chain stores would cut out the wholesale terminal markets and purchase produce directly from farmers. That's what prompted him to open Cardinal Distributing so that he would be in a position to supply the chain stores.

"My grandfather saw the potential of the area with the new canal and distribution system," John Powell Jr. said, noting the valley's extended growing season as well as its proximity to Los Angeles. "You also had the railroad here, which was important for transporting produce across the country."

With his background in produce packing and sales, Palmer Powell contracted with growers across the Coachella Valley and Cardinal Distributing initially packed and cooled a variety of fruits and vegetables, including tomatoes, cantaloupes, grapes and carrots. The company had a refrigerated cold storage facility on site, which was unusual at the time.

In addition to contracting with growers, the company also grew its own fruits and vegetables and continued to develop its business.

Taking an idea from a competing company called Sunny Sally, Cardinal Distributing started packing carrots in cellophane bags, becoming only the second company in the nation to take this approach. As a marketing tactic, Palmer Powell started placing images of Bugs Bunny on the new carrot bags, for which he had to pay a 5% royalty fee on gross sales to Warner Brothers. Palmer's wife, Faye, subsequently came up with the idea of a new label with Peter Rabbit, which is still in use today.

Other pioneering farming families include the Bianco family of Anthony Vineyards, who have had farming operations in the Coachella Valley since 1954. The company currently has 5,000 acres of table grapes and dates in the valley, according to Anthony Vineyards Vice President Bobby Bianco, whose son, Anthony, is the company's farm manager and has served on CVWD's board of directors since 2016.

Irrigation and drainage techniques sustain Coachella Valley agriculture like these artichokes. *CVWD archive photo*

A SECOND LIFELINE

Coachella Valley County Water District General Manager and Chief Engineer Lowell Weeks developed a second lifeline that would prove to be critical to Coachella Valley agriculture: An underground salt water drainage system.

While the All-American Canal was considered "the lifeline" that enabled farmers to convert the sands of the eastern Coachella Valley into some of the nation's most lucrative crops, it wasn't the only lifeline that farmers needed to be successful.

Coachella Valley farmers also needed a drainage system to carry away the salts found naturally in shallow groundwater that leached out of their fields as they irrigated their land with Colorado River water.

"Without this second line, farming in the entire valley would be virtually impossible," CVWD wrote in *Coachella Valley's Golden Years*.

In fact, experts believe that many agrarian-based, ancient civilizations perished because they had inadequate drainage for farmland. The buildup of salt in the soil made it unusable for crops.

CVWD's salt drainage system was the brainchild of Lowell Weeks, general manager and chief engineer, who worked with the district from 1950 to 1986.

Weeks, with staff assistance, developed the criteria for the depth and hydraulic capacity of underground on-farm tile drainage systems, which were installed throughout the 1950s and 1960s.

Farmers installed the drain lines on their properties at their own expense.

"Ranchers' drainage lines, drawing the salt-ladened water down to a depth of about 7 feet, empty their liquid burden into laterals laid and maintained by the CVCWD at the lower side of the ranch property," the district wrote in its annual report for fiscal 1969.

This second "lifeline"carries agricultural drainage water from the farm lands out to the Salton Sea. A 2,500-mile network of pipelines serves more than 37,000 acres of farmland.

As a result of his pioneering work, Weeks was recognized as one of the foremost experts on farm tile drainage.

Former President Dwight D. Eisenhower enjoys a game of golf at Eldorado Country Club in Indian Wells. *Courtesy of the Historical Society of Palm Desert*

PLAYGROUND OF PRESIDENTS

It was Dwight Eisenhower who initially gave the Coachella Valley the ability to market itself as the "playground of presidents," a tradition that continues to this day.

The Coachella Valley has been called the playground of presidents since at least the 1950s, a reputation that was fostered as much by development of its famed golf courses as by the valley's striking scenery and winter climate.

The Coachella Valley's first 18-hole golf course was established in 1951 at the prestigious Thunderbird Country Club in Rancho Mirage, whose early members included some of the most famous entertainers of the 20th century, including Bob Hope, Bing Crosby, Desi Arnaz and Lucille Ball as well as Ralph Kiner, a Hall of Fame baseball player.

The valley's second 18-hole golf course was built a year later at Tamarisk Country Club in Rancho Mirage, whose famous members included Jack Benny, George Burns, Danny Kaye and four of the five Marx Brothers.

A major golf enthusiast, former President Dwight Eisenhower started his visits to the Coachella Valley after he was inaugurated in 1953, and he eventually became a winter resident at Eldorado Country Club, according to Larry Bohannan, a longtime *Desert Sun* reporter who wrote the book *Palm Springs Golf: A History of Coachella Valley Legends & Fairways*, in 2015.

"Eisenhower's first venture into the desert came in 1954 at Thunderbird Country Club at the invitation of Paul Helm, a Los Angeles businessman who was also a member of the desert country club," Bohannan writes in his historical account, adding, "Joining Eisenhower for the round was Eisenhower's young vice president, a young former congressman from California named Richard Nixon. Both men would play golf in the desert for years into the future."

In fact, other presidents would follow Eisenhower's lead in those early years, including John F. Kennedy and Lyndon Johnson.

Of course, if you look way back in Coachella Valley history, you'll find accounts of other presidents who have visited the area, including Harry Truman, Franklin Roosevelt and Herbert Hoover.

But of all of the presidents, it was Eisenhower who initially gave the valley an enduring ability to market itself as "the playground of presidents," a tradition that continues to this day.

Indeed, former President Gerald Ford and his wife, Betty, lived part time at Thunderbird Country Club for many years beginning in 1978, while former President Ronald Reagan and his wife, Nancy, were frequent guests of Leonore and Walter Annenberg at their Sunnylands Estate in Rancho Mirage. More recently, President Barack Obama and his wife, Michelle, also developed a tradition of vacationing in the desert before leaving office.

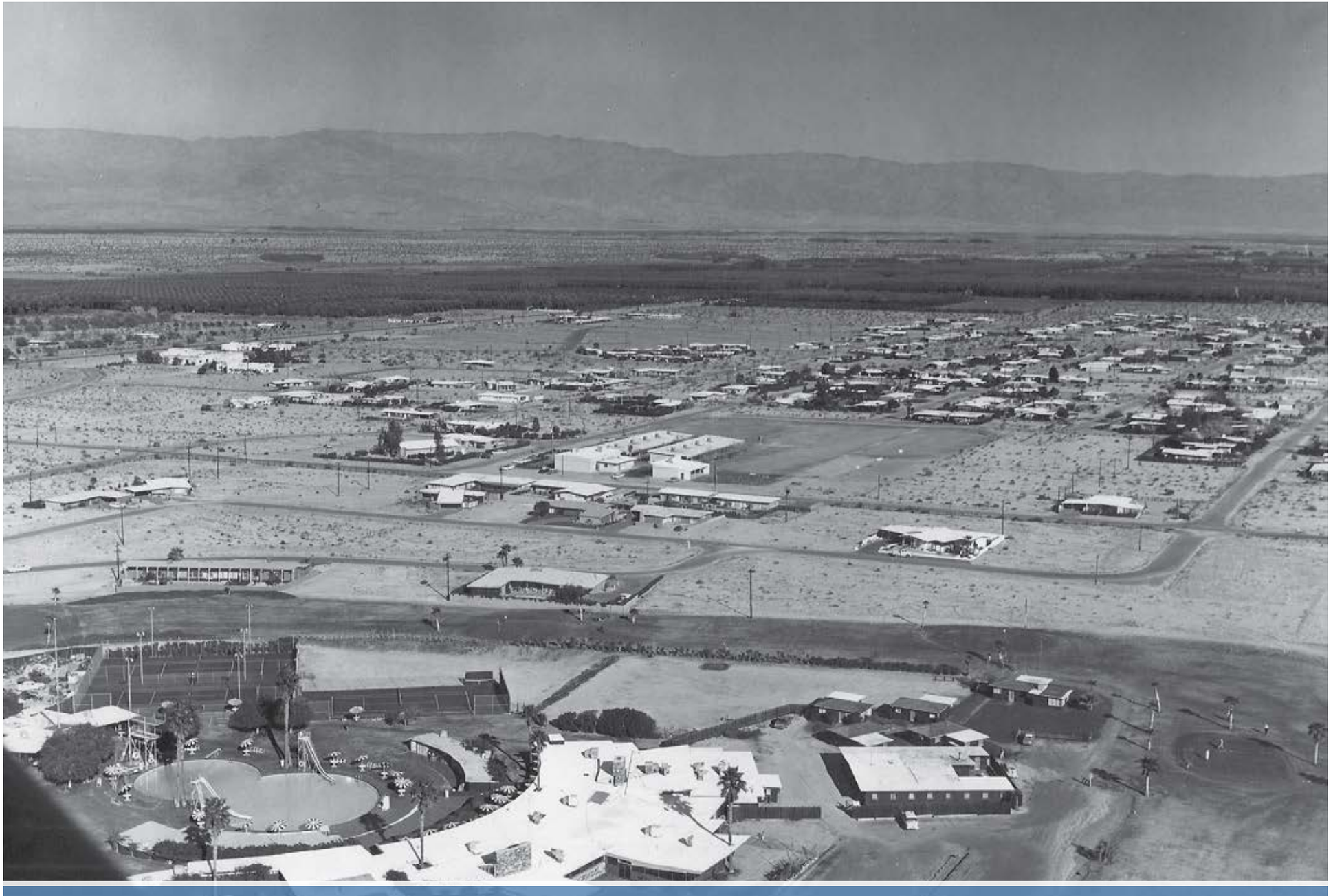


Photo from 1959 showing increasing development in Palm Desert. In the foreground is Shadow Mountain Resort and Club. *Courtesy of the Historical Society of Palm Desert*

TURNING POINT

Coachella Valley County Water District comes of age in the 1960s, becoming a provider of domestic water and sewer services across the valley, while securing a contract for State Water Project water and developing major flood control projects.

"… our District is striving to anticipate the needs and meet them promptly so that progress shall not be impeded."
— CVCWD Board President Leon Kennedy

"The inflection point was 1960," said Bill Bone, founder and chairman of Sunrise Company in Palm Desert. "Two things happened — Interstate 10 and air conditioning."

The 1960s marked a critical period of growth and change in Coachella Valley County Water District history.

After focusing its efforts for more than four decades on importing and distributing Colorado River water to Coachella Valley farmers, the district quickly broadened its responsibilities to include providing residential water, sewer and expanded flood control services in the 1960s.

The catalyst for CVCWD expansion was the valley's population growth and the inability of existing private water companies to keep up with rising demand for water, wastewater and flood control services.

"The inflection point was 1960," said Bill Bone, founder and chairman of Sunrise Company in Palm Desert. "Two things happened — Interstate 10 and air conditioning."

Prior to 1960, Bone said, the Coachella Valley wasn't a convenient place for Los Angeles or Orange county residents to go for a weekend getaway because it took them four or five hours on surface streets to get here. But with the completion of Interstate 10 in 1960, drive times were cut in half and the valley became easily accessible as a weekend destination.

Air conditioning units also began to be widely installed on houses that year, which made it much more feasible for people to consider having second homes in the Coachella Valley or living in the valley year round, he said.

The 1960s were also the time when the district expanded its strategic role of safeguarding the valley's domestic groundwater supplies by contracting with the state Department of Water Resources to import State Water Project water for groundwater replenishment purposes.

Coachella Valley County Water District enters the domestic water business

Water was initially provided to Coachella Valley homes and non-agricultural businesses by small, independent water companies. But as the valley's population grew, most of these companies found that they were no longer able to keep up with the infrastructure needs of their growing communities.

CVCWD started with the acquisition of Palm Desert Water Company in 1961, which the district considered to be "a well engineered system, possessing good wells and storage facilities" that served more than 700 homes and businesses, according to the district's annual report for 1962.

CVCWD also acquired two other domestic water systems serving Eldorado Country Club in Indian Wells and the Silver Spur subdivision in Palm Desert at roughly the same time.

But the district's domestic water company acquisitions grew quickly after 1961 with the valley's population growth, prompting privately held water companies to look to CVCWD for help.

"Unprecedented growth and activity have marked the past 12 months in the District's operations," former CVCWD President Leon Kennedy wrote in the agency's annual report for 1964.

Kennedy noted that when the district started providing domestic water service in 1961, it provided drinking water to a total of 1,100 meters. But by 1964, he said, that number had tripled to 3,250 "and the number rises substantially each month."

By 1965, land owners had approved bond initiatives that enabled CVCWD to launch domestic water systems in several other communities, including Sky Valley, near Desert Hot Springs; Cahuilla Hills, near Palm Desert; and Salton Sea Water District.

Water system acquisitions continued throughout the late 1960s and early 1970s. CVCWD's annual report for fiscal 1970, for example, noted the acquisition of Palm Valley Water Company, serving a residential area north of Palm Desert, as well as the Tamarisk Water Company, serving homes in the area surrounding Tamarisk Country Club, Rancho Mirage, between the Thunderbird Country Club, Rancho Mirage, and Cathedral City.

CVCWD extended water lines for the Marrakesh Country Club in Palm Desert, which was established by pioneer golf club developer Johnny Dawson, as well as a program to supply domestic water "to the booming mobile home section east of Desert Hot Springs where high-fluoride wells had been condemned by County Health officials."

The report also documented CVCWD's involvement in a federally funded domestic water system at Bombay Beach in Imperial County and the water service being planned for more than 3,000 additional homes as well as new golf courses, including the Mission Hills Country Club in Rancho Mirage.

CVCWD acquired Rancho Mirage Water Company in 1971, and by September 1973, water service connections had increased to 10,741, of which 9,413 were residential, a nearly tenfold increase from 1961 when CVCWD entered the domestic water business.

Bob Hope tries out a golf club at the 1969 groundbreaking event for Eisenhower Memorial Hospital with (from left) Gov. Ronald Reagan, Dolores Hope and Edgar N. Eisenhower, a brother of former President Dwight D. Eisenhower, who died in March of that year. *Courtesy of Eisenhower Medical Center*

Coachella Valley County Water District secures a second source of imported water for replenishing local groundwater basins

While the All-American Canal and its Coachella branch enabled farmers to cultivate thousands of acres of crops in the eastern Coachella Valley, more water was needed to replenish declining groundwater levels in the greater Palm Springs area as the valley's population grew.

The groundwater basin in the eastern half of the valley recovered as farmers transitioned from well pumping to using canal water but rising population growth in the western valley resulted in overpumping groundwater in the Whitewater subbasin.

A 1978 report by the U.S. Bureau of Reclamation indicated that groundwater levels had fallen by nearly 80 feet under Palm Springs and just over 50 feet in Palm Desert between 1936 and 1967.

CVCWD saw a solution to this problem by contracting with the state Department of Water Resources to import State Water Project water from Northern California for groundwater replenishment in the Whitewater area.

Originally called the Feather River Project, the State Water Project was designed to transport water from the wettest and most sparsely populated regions of California to water agencies serving cities and farms in the southern two-thirds of the state, which did not have enough water to meet their needs.

CVCWD became a State Water Project contractor in 1963, initially contracting for 20,000-acre-feet of water, which could be available as soon as an aqueduct carrying water to Southern California was completed.

Plans originally called for the State Water Project aqueduct to be completed as far south as Lake Perris east of Riverside. It would be up to local water agencies south of San Bernardino to pay for construction of an Eastern Branch Extension from San Bernardino to carry State Water Project water through the San Gorgonio Pass and down into the Coachella Valley.

Realizing the enormous costs of aqueduct construction, CVCWD General Manager Lowell Weeks and Desert Water Agency in Palm Springs came up with an alternative solution that proved to be much more economically feasible: They negotiated separate exchange agreements with The Metropolitan Water District of Southern California in Los Angeles to swap their respective State Water Project entitlements for an equal amount of Colorado River water.

The additional Colorado River water would be delivered to both agencies through Metropolitan's Colorado River Aqueduct, which runs from the Colorado River at Lake Havasu westward to Lake Matthews, south of Riverside. The water would be released into the Whitewater River and conveyed to the Whitewater spreading basins already being used to capture snowmelt and other runoff from nearby mountains. The swap enabled CVCWD and DWA to begin receiving water for groundwater replenishment without having to pay for construction of a new canal.

Both CVCWD and DWA levy assessments on each acre-foot of groundwater pumped from the basin to offset a portion of the costs of purchasing State Water Project water as well as the costs of operating and maintaining the recharge ponds. CVCWD's assessment is levied on all pumpers who take 25 acre-feet or more in any year from the groundwater basin in the area benefitting from replenishment. A separate tax assessment is also used to pay for imported water.

Since 1973, CVCWD and DWA have replenished the Whitewater groundwater basin with more than 3.3 million acre-feet of imported water.

Coachella Valley County Water District enters the wastewater treatment and recycling business

Coachella Valley County Water District entered the wastewater reclamation and treatment business in 1968 when it purchased the water and sewer system for Palm Desert Country Club.

Recycled water produced by the facility was used to irrigate part of the golf course there. But as the valley's growth accelerated, CVCWD recognized the threats that septic systems posed to local groundwater supplies and partnered with communities and cities across the valley to set up improvement districts so that CVCWD could obtain the necessary bond financing to build modern wastewater treatment facilities.

CVCWD opened its first wastewater treatment and recycling facility in 1975 on Cook Street just north of the Whitewater River Stormwater Channel near what is now Palm Desert High School. The plant was needed to treat and recycle wastewater from residential and commercial developments in Palm Desert, Indian Wells and Rancho Mirage, which wanted to secure a modern wastewater facility to accommodate Eisenhower Medical Center.

"The attack upon the sanitation problem was set in motion after the Eisenhower Area interests (Eisenhower Medical Center, Desert Island Country Club and Palm Desert Greens) backed a $5,500,000 bond issue," CVCWD wrote in its annual report for fiscal 1972, adding, "When the plant reaches its capacity of 2,000,000 gallons per day, it will be reclaiming nearly seven acre-feet of water each day. This then could be available for use on golf courses, planted areas or grassed sections of the nearby Whitewater River Stormwater Channel."

This water reclamation plant has since been expanded to an 18-million gallon a day capacity.

After Congress passed the Clean Water Act of 1972, the district applied for and received grants that helped pay for the construction of North Shore and Bombay Beach wastewater treatment plants.

Coachella Valley County Water District builds Lake Cahuilla for recreation and to help it manage water imports from the Colorado River

When the Coachella Branch of the All-American Canal was built in the 1930s and 1940s, there was no funding to build a reservoir at the end of the canal.

This proved to be problematic, both for Coachella Valley County Water District and for growers in the eastern Coachella Valley, because it limited CVCWD's ability to respond to emergency requests for canal water.

In the early days, it took five days for water to travel from Hoover Dam to the Coachella Valley, which meant that growers had to place orders for their anticipated water needs at least a week in advance. But when weather conditions warranted sudden increases in irrigation, CVCWD didn't have a lot of wiggle room.

To solve this problem, Coachella Valley voters approved construction of a 1,300-acre foot terminal reservoir in 1963, using an interest free loan from the U.S. Bureau of Reclamation. CVCWD planned to use the reservoir to accommodate emergency agricultural irrigation needs as well as to provide a recreational lake.

The district named the reservoir Lake Cahuilla after the ancient body of freshwater that was created by Colorado River floods in the Salton Sink.

When it was completed in 1969, Lake Cahuilla was the largest soil-cement lined reservoir in the world. The reservoir is located between Avenues 56 and 58, west of Jefferson Street in La Quinta. It has a surface area of 135 acres and a maximum depth of 12 feet. The Riverside County Regional Park and Open Space District oversees the lake's recreational uses and stocks it with catfish and trout.

Coachella Valley County Water District takes on flood control

Ninety-two year old Louise Rodarte Neeley of Palm Desert remembers the great storm of 1938, which flooded rivers and storm channels throughout Southern California, including the Whitewater River Stormwater Channel that runs across the Coachella Valley from Whitewater to the Salton Sea.

"It rained for three days," said Neeley, a historian for the La Quinta Historical Society who lived near Point Happy in La Quinta at the time of the storm.

Men survey the washed out Palm Springs Bridge over Tahquitz Wash on Palm Canyon Drive after the 1938 flood.
Courtesy of Coachella Valley Historical Society

"You could hear the roar of the water like a railroad train, the water was so fierce and high."

While the 1938 storm was one of the biggest to hit the valley during the past century, the Coachella Valley has been ravaged by periodic flooding throughout its history.

Indeed, CVCWD has documented at least 10 major floods that affected the Coachella Valley before the district was formed in 1918, including floods in 1862, when "a lake covering more than 100,000 acres was reported in the Salton Sink." Other floods were documented in 1884, 1886, 1889, 1891, 1901, 1903, 1906, 1909 and 1916.

The 1916 flood was particularly devastating. "Indio has a sheet of water a mile wide," CVCWD wrote in *Coachella Valley's Golden Years*.

"Water was two feet deep or more on Fargo Street. Coachella, Thermal, and Mecca were under water and many miles of county roads (were) damaged or left in shambles, including the new paved road in the upper valley. Nine passenger trains were marooned in Indio for more than five days, taxing the community's food supplies. The Whitewater's meandering channel had become a narrowed, deeply scoured channel up to 50 feet deep from Cathedral City to Point Happy."

The flood threat not only comes from the Whitewater River, which collects runoff from Mount San Gorgonio and Mount San Jacinto, but numerous canyons surrounding the valley in the San Bernardino, San Jacinto and Santa Rosa mountains.

"The valley, with a flood front of about 150 miles — reaching all the way to the summit of the San Gorgonio Pass — has one of the most acute stormwater problems of any area of California," Coachella Valley County Water District wrote in the district's annual report for fiscal year 1967.

Stormwater control activities actually predate the formation of Coachella Valley Water District. When CVCWD began operations in 1918, it shared an office with the Coachella Valley Stormwater District that was formed in 1915.

At that time, the stormwater district focused its efforts on capturing the flows of the Whitewater River so they could be used for groundwater replenishment.

"A 1916 study by the State of California recommended that the Coachella Valley Stormwater District entrap and spread waters of the Whitewater River near Windy Point northwest of Palm Springs to recharge the groundwater basin," CVCWD wrote in *Coachella Valley's Golden Years*.

But the stormwater district was too small and lacked funds to build the necessary infrastructure to protect Coachella Valley residents and businesses from major floods.

Coachella Valley voters authorized CVCWD to merge with the Stormwater District in 1937, when both agencies had limited funds. But it wasn't until the 1960s that CVCWD embarked on major flood control efforts.

"The floods of 1965 demonstrated the need for major flood control improvements throughout the district," Denise Goolsby of *The Desert Sun* wrote in a July 29, 2015 historical account of Coachella Valley's biggest floods.

Recognizing that major flood control channels were needed not only for public safety and property protection, but to pave the way for future growth across the valley, CVCWD General Manager and Chief Engineer Lowell Weeks embarked on a long-range plan to construct a major stormwater channel through the trough of the valley and to construct the contributory channels as development occurred and when funds became available.

Weeks was also responsible for devising a board-accepted policy that requires developers adjacent to or within a flood prone area to provide funds for the construction of necessary stormwater protection facilities.

"It rained for three days," said Neeley, a historian for the La Quinta Historical Society who lived near Point Happy in La Quinta at the time of the storm. "You could hear the roar of the water like a railroad train, the water was so fierce and high."

CVCWD's annual report for fiscal year 1965 highlights the district's adoption of a stormwater master plan that highlights the rebuilding of the 50-mile Whitewater River-Coachella Valley Stormwater Channel, a 10-year project that the district said would "play a major role in protecting millions of dollars in property and possibly save countless lives in times of major flooding from the three mountain ranges standing at the west end of the Coachella Valley and draining into this area."

CVCWD added, "Its completion is set for 1970, and meantime stormwater engineers will hope no catastrophic-size flood is set to test the works."

Unfortunately, that is exactly what happened.

During the winter of 1968 and 1969, the Coachella Valley was hit with devastating floods fueled by El Niño powered storms that drenched California and the West.

"Not within the memory of persons now living has there been such a season of floods as that which struck our valley in the first two months of 1969," said CVCWD Board President Leon Kennedy, who described the flooding in the district's annual report for that year.

CVWD's stormwater channels withstood the onslaught, but were damaged.

"… the Whitewater and Coachella Storm Drains, which your district has been busy rebuilding and bringing up to major flood standards in a 10-year construction program, withstood the assaults of the flood and prevented loss of life or private property. This is not to say, however, that our channels escaped without damage.

They were seriously eroded by all five floods of the past four years, and after each storm, we have been extremely fortunate to have State and Federal emergency assistance officials and leaders of the U.S. Army Corps of Engineers come to our help in restoring the storm courses."

Flooding in downtown Coachella in 1939. *Courtesy of the Coachella Valley History Museum*

"Not within the memory of persons now living has there been such a season of floods as that which struck our valley in the first two months of 1969," said CVCWD Board President Leon Kennedy, who described the flooding in the district's annual report for that year.

Flooding in downtown Coachella in 1939. *Courtesy of the Coachella Valley History Museum*

El Paseo was primarily developed in the 1980s in Palm Desert along with the Palm Desert Town Center, now known as Westfield Palm Desert, and the McCallum Theatre.
Photo by Chris Miller, courtesy of the Greater Palm Springs Convention & Visitors Bureau

15

THE VALLEY'S REAL ESTATE MARKET EXPLODES

CVCWD's installation of new flood control, water and sewer service facilities sets the stage for the valley's real estate boom.

"To me, we were on the forefront of development in the valley, but we had to have developers that were bringing in projects and money," said former CVWD General Manager and Chief Engineer Tom Levy, who served the district from 1972 to 2002.

"There was no grant system to provide (the district) with money to go build infrastructure and hope people would come."

The growth of the Coachella Valley in the 1970s and 1980s was led by developers.

"To me, we were on the forefront of development in the valley, but we had to have developers that were bringing in projects and money," said former CVWD General Manager and Chief Engineer Tom Levy, who served the district from 1972 to 2002.

"There was no grant system to provide (the district) with money to go build infrastructure and hope people would come."

But developers found the Coachella Valley to be a promising market, particularly for country club style developments.

Indeed, while Coachella Valley developers found a lucrative market building luxury homes around golf courses in the 1950s, by the late 1960s and 1970s, developers found they could sell a lot more homes using the same concept by building more affordable homes for residents of Los Angeles, Orange and San Diego counties who wanted a weekend getaway.

"From about 1975 to 1990, this place went crazy," said Larry Bohannan, a *Desert Sun* sports reporter who wrote the book, *Palm Springs Golf: A History of Coachella Valley Legends & Fairways*, in 2015.

"It seemed like a golf course was opening every month. By my count, in the 1980s, 34 courses opened. That's about one every 100 days for an entire decade, and we had homes being built around these courses."

Bill Bone, founder and chairman of Sunrise Company in Palm Desert, was responsible for much of the growth that took place in the Coachella Valley during the 1970s and 1980s.

"We were the first high volume home builder to really target the second home market," he said, adding that his company delivered homes at less than half to one-third of the cost of homes in coastal metropolitan areas.

Bone started developing huge tracts of barren desert land to the east, initially in Rancho Mirage and later in Palm Desert, Indian Wells and La Quinta.

He said it made sense to do so not only because the land east of Palm Springs was cheaper, but because there was plenty of developable land that wasn't part of any Indian reservation, so his developments were not encumbered with Indian lease fees.

Golf courses have been a key driver for Coachella Valley tourism. *Photo by Angie Agostino*

The swimming poool at the Doubletree by Hilton in Cathedral City. *Photo by Chris Miller, courtesy of the Greater Palm Springs Convention & Visitors Bureau*

Bone started construction on Sunrise Country Club, his first golf course community, in 1973. The development, adjacent to the famed Thunderbird Country Club in Rancho Mirage, included 746 condominiums built around an 18-hole golf course. It also featured four small lakes, 22 swimming pools and 13 tennis courts, plus a clubhouse, restaurant and grill and pro shops for golf and tennis.

Three years later, in 1976, Bone started building the Rancho Las Palmas Country Club, which had 860 homes with a 27-hole golf course. “We sold out in 19 months,” Bone said.

Bone developed several other prominent country clubs as well, including Monterey Country Club, The Lakes and Palm Valley Country Club in Palm Desert, while his company also worked with Landmark Land Company in planning and developing PGA West in La Quinta where Sunrise built more than 1,600 homes.

But Sunrise Company didn’t just build country club-style resorts. It also built gated master planned communities with no golf, which enticed residents of coastal metropolitan areas.

Of course, these affordable homes were not only attractive to residents of coastal metropolitan areas, but snowbirds as well. “We have a huge number of people from Northern California, the Pacific Northwest, Canada and elsewhere,” Bone said, adding that they came to the valley not only for golf, but the climate.

Bone said the development of a vibrant second home market in the Coachella Valley also paved the way for the area’s emergence as a retirement community. “People started coming out here and making all kinds of friends, and all of a sudden people started to retire here,” he said.

CONVENTION HOTELS COME TO THE COACHELLA VALLEY

The growth of the second home market, combined with the increasing convention hotel business, also created a market for high end retail as well as high quality restaurants and cultural entertainment.

Westin Mission Hills golf course. *Courtesy of the Greater Palm Springs Convention & Visitors Bureau*

Bill Bone recognized the same factors that made the Coachella Valley attractive as a second home market were also compelling attractions for resort hotels.

With this in mind, Bone partnered with Bill Marriott to develop Marriott's 400-room Rancho Las Palmas Resort in Rancho Mirage, which is now part of the Omni hotel chain, as well as the 884-room JW Marriott Desert Springs Resort & Spa in Palm Desert.

They targeted luxury leisure travelers and business meetings, trade shows and conventions. "Marriott is the company that showed everyone you would be successful in this market with a high volume hotel," Bone said, adding that Marriott's pioneering successes in the valley helped to entice other major resort hotels to build facilities here.

These included the 560-room Stouffer Esmeralda Hotel in Indian Wells, which has since been acquired by the Renaissance hotel chain, and the 530-room Hyatt Grand Champions Resort, now known as the Hyatt Regency Indian Wells, and the 512-room Westin Mission Hills Golf Resort & Spa in Rancho Mirage.

The growth of the second home market, combined with growing convention hotel business, also created a market base for high end retail, high quality restaurants and cultural entertainment.

El Paseo was further developed in the 1980s in Palm Desert along with the Palm Desert Town Center, now known as Westfield Palm Desert, and the McCallum Theatre.

All of this growth, however, also necessitated the continued expansion of CVWD's domestic water and wastewater treatment systems and related infrastructure. Meanwhile, residents and businesses in outlying areas continued to petition for assessment districts that would enable CVWD to bring water and wastewater services to their communities.

Voters in the 15,000-acre hot mineral spa area northeast of Bombay Beach in November 1973 approved a $12.5 million bond issue to bring domestic water service to their area.

The Renaissance Indian Wells Resort & Spa in Indian Wells. *Photo by Chris Miller, courtesy of the Greater Palm Springs Convention & Visitors Bureau*

Westin Mission Hills golf course. *Courtesy of the Greater Palm Springs Convention & Visitors Bureau*

"Annexation of the area in March came after overwhelming support for such a move was voiced by residents of the community, which has never had piped in drinking water," CVCWD wrote in its annual report for fiscal year 1974, adding, "Water for the area will have to be piped some 30 miles from wells near Mecca, which currently serve the Salton Sea area from North Shore to Bombay Beach."

Annexation to CVCWD was led by J.T. Triley, who co-owned and operated the Fountain of Youth Spa in Niland, which continues to do business today. "Coachella Valley Water District was a godsend," Triley said. "We never would have made it without them."

CVCWD also began operating a 225,000-gallon per day wastewater reclamation plant in Bombay Beach in 1974, while its 359,000-gallon per day North Shore Wastewater Reclamation Plant came online in 1975.

CVCWD also continued to acquire small water companies as well as wastewater treatment operations that were unable to keep up with rising demands on their systems as the Coachella Valley's population continued to grow, particularly in the central and eastern parts of the valley.

"La Quinta residents complaining of poor service, asked that we acquire the Southern California Water Company system serving that area," the district wrote in its annual report for 1985, noting that condemnation proceedings were underway by the end of the fiscal year.

"Both Westward Ho and Del Safari country clubs relinquished their mutual water company operations to the district during the year and the systems were tied into the district's regional system to provide better service," CVCWD wrote.

Mecca residents, for their part, also filed a petition the same year with the Local Agency Formation Commission asking for the Mecca Sanitation District to be dissolved and for wastewater reclamation operations to be taken over by CVCWD after Mecca was faced with a moratorium on sewer hookups.

TOURISM BECOMES THE VALLEY'S NUMBER ONE INDUSTRY

Golf and swimming pools helped fuel the economy.

Lake Cahuilla is a popular place for families. Boats are no longer allowed on the lake. *CVWD archive photo*

Although Coachella Valley Water District's importation of Colorado River water had given local farmers the ability to create some of the nation's most productive farmland, by the 1980s, tourism had overtaken agriculture as the valley's number one industry.

"It is generally considered that tourism, led by the attraction of golf courses, passed agriculture in the 1970s as the leading contributor to Coachella Valley's economy," Coachella Valley Water District wrote in the district's annual report for fiscal year 1989.

"By the mid-1980s, one in four Coachella Valley jobs was attributed to tourism and that figure was estimated to be one in two for the metropolitan Palm Springs area. Tourism was a $1.3 billion industry and growing.

"Today, more than 80 golf courses sparkle like emeralds at the nearly 1 million travelers using Coachella Valley airports each year."

During the same period, CVWD noted in its report, the Coachella Valley had become not only the golf capital of the world, but the swimming pool capital of the world as well.

The importation of Colorado River water that began in the late 1940s allowed the groundwater basin serving the eastern Coachella Valley to completely recover from its previous overdraft by the early 1960s.

But well levels in the East Valley started declining again as a result of development in the mid-1980s, with some wells in the Oasis area experiencing declines of 60 feet or more.

"By the mid-1980s, one in four Coachella Valley jobs was attributed to tourism and that figure was estimated to be one in two for the metropolitan Palm Springs area. Tourism was a $1.3 billion industry and growing. Today, more than 80 golf courses sparkle like emeralds at the nearly 1 million travelers using Coachella Valley airports each year."

LOWELL O. WEEKS served as general manager and chief engineer of Coachella Valley Water District for 30 of his nearly 36 years with the agency, during which time he saw the district grow from 45 to more than 400 employees.

Weeks joined CVCWD in 1950 and became general manager in 1956. He retired Feb. 28, 1986.

During his tenure, Weeks led CVCWD through a dramatic expansion in which the district evolved from being a provider of irrigation water and stormwater protection services to becoming the Coachella Valley's primary provider of domestic water and wastewater and recycling services.

Weeks is credited with pioneering CVWD's use of an underground drainage system to carry away the salts that leached out of farmers' fields as they irrigated their land with Colorado River water. Weeks, with staff assistance, developed the criteria for the depth and hydraulic capacity of underground on-farm tile drainage systems, which were installed throughout the 1950s and 1960s.

He also advocated for the establishment of the U.S. Salinity Laboratory at the University of California, Riverside so that CVWD would have scientific resources in solving the agricultural drainage issue that was critical for farming in the Coachella Valley.

Weeks was recognized as one of the foremost experts on farm tile drainage and consulted with the U.S. Bureau of Reclamation.

The system also attracted the attention of water agency officials from around the world, who came to the Coachella Valley to learn about the valley's salt drainage system.

Under his leadership, CVWD also pioneered the uses of radio-controlled traveling screens for removal of aquatic weeds and debris as well as weed-eating fish for biological control of aquatic weeds.

CVWD also became a State Water Project contractor during Weeks' tenure, a strategic move that would ultimately provide the Coachella Valley with millions of acre-feet of supplemental water supplies from Northern California.

But instead of committing CVWD customers to pay for construction of a canal to bring State Water Project water to the valley through the San Gorgonio Pass, Weeks partnered with Desert Water Agency and came up with an alternative solution that proved to be much more economically feasible: They negotiated separate exchange agreements with The Metropolitan Water District in Los Angeles to swap their respective State Water Project entitlements for an equal amount of Colorado River water.

More than 500 people attending his retirement dinner listened as a letter from Governor George Deukmejian and a telegram from President Ronald Reagan were read aloud, saluting Weeks' achievements.

THE COST OF GROWTH AND DEVELOPMENT

Groundwater overdraft returns to the valley along with subsidence.

The Coachella Valley has seen strong growth in recent years.
CVWD archive photo

The rapid development of resort hotels, golf courses and country clubs in the western half of the valley resulted in falling groundwater levels despite replenishment efforts by Coachella Valley Water District and Desert Water Agency using their respective allocations of State Water Project water.

In 1980, the U.S. government funded the replacement of the southernmost earthen section of the Coachella Branch of the All-American Canal with 48 miles of cement lined canal — a project that would save an estimated 132,000-acre-feet of water each year that had previously been lost through seepage.

The federal government sent the saved Colorado River water to Mexico to help meet new salinity standards requiring that the salinity at the first dam in Mexico be no greater than 115 ppm above the salinity at Imperial Dam. The water was available for a limited time for that purpose and now has become Colorado River water that firms up CVWD's water supply.

As part of the Quantification Settlement Agreement (QSA), which will be discussed in Chapters 19 and 20, the San Diego County Water Authority agreed to fund the replacement of the last 38-mile earthen segment of the canal between Niland and North Shore and CVWD agreed to waive its call rights on the saved water from the canal lining. The northern section of the canal, from North Shore to Lake Cahuilla, was already lined with cement in the late 1940s.

CVWD thus needed to find other ways to conserve water and stabilize the local groundwater basin.

District staff began an intensive planning process in the early 1990s to address the overdraft problem. But by the time they completed their comprehensive water management plan in 2002, they realized that CVWD and other agencies had not been doing enough to protect the integrity of the groundwater basin. Indeed, they reported that nearly 4.8 million-acre-feet of water had been pumped out of the Coachella Valley's groundwater basin between 1936 and 1999 and had never been replaced.

While the basin contained an estimated 39 million acre-feet of groundwater, CVWD knew it could not allow such overdraft conditions to continue.

"This overdraft condition or 'mining' of the groundwater has caused groundwater levels to decrease more than 60 feet in portions of the Lower (East) Valley and raised concerns about water quality degradation and land subsidence," CVWD wrote in its 2002 Water Management Plan, adding, "Groundwater levels in the Upper (West) Valley have also decreased substantially, except in the areas near the Whitewater Spreading Facility where artificial recharge has successfully raised water levels."

If groundwater overdraft is not addressed, CVWD warned, the consequences would not only be higher pumping costs associated with deeper wells, but land subsidence as well as a potentially irreversible degradation of water quality in the groundwater basin.

In fact, the U.S. Geological Survey subsequently documented subsidence of nine inches to two feet in some areas of Palm Desert, Indian Wells and La Quinta between 1995 and 2010.

CVWD's 2002 Water Management Plan also warned that excessive groundwater overdraft could result in the downward flow and subsequent mixing of low quality groundwater from the degraded upper aquifers in the East Valley or, worse, the intrusion of highly saline water from the Salton Sea.

"Historically, groundwater pressure levels in the lower aquifers have been high enough to keep denser Salton Sea water from displacing the high-quality waters in adjacent freshwater aquifers. Continued decline of groundwater levels may cause high-quality water to be displaced by salt water."

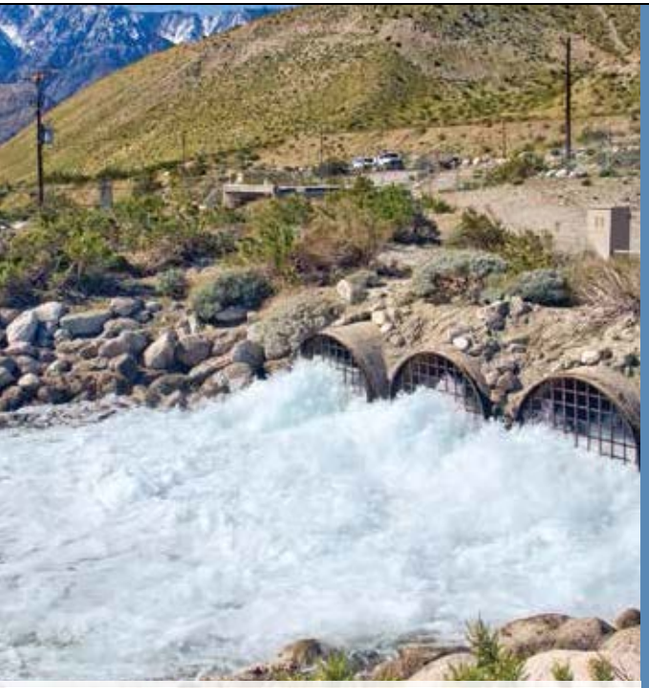
The drop turn-out of the All-American Canal leading to the Coachella Canal. The Coachella Canal is on the right. *CVWD archive photo*

To bring the groundwater overdraft situation under control, CVWD needed to ensure that 1) it had a legally quantified amount of Colorado River water that was sufficient to meet its needs and 2) that it could obtain permission to use Colorado River water for replenishment purposes outside the original boundaries of Improvement District 1, the geographical area established in 1928 where CVWD was originally allowed to use Colorado River water.

CVWD would ultimately obtain both of its objectives with the successful signing of the Quantification Settlement Agreement. Achieving this agreement, however, was no easy task.

THE ROAD TO THE QUANTIFICATION SETTLEMENT AGREEMENT

Water planners sought a new multi-agency agreement when they realized that the Colorado River had been over-allocated.



Water from the Colorado River enters the valley at Whitewater.
CVWD archive photo

When Congress enacted the Boulder Canyon Project Act in 1928, it paved the way for construction of Hoover Dam and hydroelectric facilities, Imperial Dam and the All-American and Coachella canals, and it approved the 1922 Colorado River Compact, which envisioned the annual allocation of 16 million-acre-feet of Colorado River water.

But while that pioneering effort provided critical water supplies that fueled the growth of Southern California, Arizona and Nevada, early planners didn't spend a lot of time worrying about the possibility of drought.

There was a reason for that, according to Steven Abbott of Redwine & Sherrill, who has represented Coachella Valley Water District for 30 years.

"When they divvied up the river," he said, "it was a very wet period in history. In fact, we now know from tree ring studies that the 15-year period from 1905 to 1922, when the Colorado River Compact was signed, was the wettest 15 years in the last half millennia."

But as the West grew and as periodic droughts took place with increasing severity, water planners eventually realized that the Colorado River had been over allocated and that it could not be relied upon to deliver as much water as they originally planned.

Indeed, average Colorado River flows were about 16.1 million acre-feet per year during the 1920s, when the Colorado River Compact was negotiated. However, the average flows from 1995 to 2003 were only 12.4 million acre-feet, according to statistics contained in a 2004 report by the U.S. Geological Survey.

> **"When they divvied up the river," Abbott said, "it was a very wet period in history. In fact, we now know from tree ring studies that the 15-year period from 1905 to 1922, when the Colorado River Compact was signed, was the wettest 15 years in the last half millennia."**

The prospect of extended drought and its effects on Colorado River supplies was concerning to CVWD officials, not only because of the valley's rising population and falling groundwater levels, but because CVWD's annual Colorado River allocation had never been quantified in any of its contracts. Neither had the allocations of other California agricultural water agencies.

And while there has been much discussion in recent years about the drought, Abbott said the anxiety of CVWD and other California agencies can actually be traced to the 1963 Supreme Court Arizona v. California decision, when the Court rejected California's claim for an annual apportionment of 5.3 million acre-feet, the sum of all rights allocated in the 1931 Seven Party Agreement among the California water agencies, and instead limited California to a basic 4.4 million acre foot apportionment.

For Arizona, meanwhile, the decision was a major victory because the court not only confirmed a normal year apportionment of 2.8 million acre-feet of Colorado River for Arizona, but it further ruled that Arizona's use of the waters from the Gila River would not count against its Colorado River water apportionment.

The 649-mile-long Gila River starts on the western slopes of the Continental Divide in New Mexico and flows across southern Arizona to the Colorado River.

"For California, the decision was a litigation disaster," Abbott said. "It meant that in a normal year when no surplus or unused apportionment of Colorado River water was available that only 4.4 million acre-feet of water would be delivered to California."

As one might expect, the Supreme Court ruling had the effect of ratcheting up the tension among California water agencies as they could no longer count on as much Colorado River water coming their way as they had in the past. The tensions were also heightened by the inability of the agricultural agencies to quantify each agency's entitlement to Colorado River water.

"This failure to quantify the individual entitlements of the agricultural agencies would lead to future disputes as to how much each agency was actually entitled to use in a given year, a tension exacerbated by the fact that the majority of the urban priorities fell beyond the basic California apportionment of 4.4 (million acre-feet)," Abbott said.

CVWD planners, for their part, became invariably more concerned as Coachella Valley's population grew and as its groundwater basins fell in the 1980s and the 1990s.

But despite the 1963 Supreme Court decision, California continued to take more than 4.4 million-acre-feet of water from the Colorado River. In fact, the federal government allowed California to take up to 5.3 million acre-feet of water each year from the Colorado River for many years because Arizona hadn't yet built facilities to make use of its full share of Colorado River water.

President Lyndon Johnson signed a bill authorizing construction of the Central Arizona Project in 1968, but the massive water conveyance project, which supplies water to central and southern Arizona, including Phoenix and Tucson, wasn't able to start taking deliveries of Colorado River water until 1985. Before Arizona could get the Central Arizona Project authorized, California interests added a requirement to the legislation. The new requirement was that projects constructed after the 1968 Central Arizona Project legislation was passed would cease to take the Colorado River water before California water users were reduced below California's 4.4 million acre foot Colorado River entitlement.

Nevada also took more Colorado River water than it was supposed to take. The Silver State was decreed a normal year apportionment of 300,000 acre-feet of water each year from the Colorado River, but began taking additional water each year as surplus starting in 2000, in response to the massive population boom in the Las Vegas area.

Meanwhile, in 1988, Imperial Irrigation District signed a 35-year agreement to transfer up to 110,000 acre-feet of water per year to The Metropolitan Water District of Southern California, the first of a series of rural to urban water transfers in Southern California. In order to settle litigation from CVWD, The Metropolitan Water District agreed to provide CVWD 50,000 acre-feet per year if CVWD requested it.

Nevada and California's excessive use of Colorado River water did not go unnoticed by the Upper Basin states of Colorado, Wyoming, New Mexico and Utah. They grew increasingly alarmed as water storage levels in Lake Powell, Ariz., declined.

"Lake Powell's principal purpose is to serve as storage for the Upper Basin states to meet Compact obligations to the Lower Basin, and both Lake Powell and Lake Mead are supposed to be maintained with roughly equal storage," Abbott said. "But as California and Nevada kept draining water out of Lake Mead, that triggered releases out of Lake Powell and the water levels declined."

The sense of crisis intensified as a drought swept across the Southwest in the early 1990s and as questions mounted regarding the amount of Colorado River water some of California's agricultural irrigation districts were using.

U.S. Interior Secretary Bruce Babbitt criticized the increased diversions by Palo Verde and Imperial Irrigation districts in a 1997 speech to the annual conference of the Colorado River Water Users Association in Las Vegas.

"IID's diversions during the past two years have exceeded its long term average use by about 200,000 acre-feet per year, and that is in addition to some 106,000 acre-feet it is obliged to conserve under a transfer agreement with (Metropolitan Water District). This is a disturbing trend, and it is in tension with California's need to bring its use within its entitlement," Babbitt said, adding, "I am aware of no convincing reason why the agricultural districts should be exceeding their 3.85 million acre-foot allotment."

Secretary Babbitt said he would order the Bureau of Reclamation to scrutinize requests for deliveries in excess of long term averages by water districts and to notify him of the implications of such requests.

Babbitt's scrutiny ultimately prompted the agencies to work with each other to outline an agreement, known as a Quantification Settlement Agreement (QSA), which would spell out how many acre-feet of Colorado River water each agency was legally entitled to use.

"What actually got negotiations going was Babbitt's speech," Abbott said.

By 1998, David Hayes, a counselor to Babbitt who later became U.S. Deputy Secretary of the Interior, partnered with David Kennedy, director of California's Department of Water Resources, and they convened a series of meetings with Palo Verde Irrigation District, Imperial Irrigation District, Coachella Valley Water District, Metropolitan Water District and San Diego County Water Authority.

Sixty-seven years after signing the Seven Party Agreement, Southern California water agencies were finally facing the water sharing issues that they had never been able to agree upon before.

THOMAS LEVY retired from Coachella Valley Water District in December 2002 after a 30-year career with the district, the last 16 years of which he served as general manager and chief engineer.

He continued to work for the district as a consultant and served as the agency's lead negotiator for the Quantification Settlement Agreement (QSA), which was signed in October 2003.

Early in his career at CVWD, Levy supervised the construction of numerous wastewater treatment and recycling facilities, including the Wastewater Reclamation Plant in Palm Desert and the North Shore and Bombay Beach reclamation plants.

Levy was also actively involved in the negotiations with Imperial Irrigation District, Palo Verde Irrigation District, San Diego County Water Authority and The Metropolitan Water District of Southern California that ultimately led to the QSA in 2003. The QSA resolved longstanding disagreements between water agencies regarding allocations and uses of Colorado River water, including rural to urban water transfers, but it gave them security knowing they could plan for the future.

Levy was appointed to California's advisory drought planning panel by Governor Gray Davis and served two terms as chairman of the State Water Contractors, the oversight group of the State Water Project.

Levy was instrumental in developing district domestic water and sanitation policy, including charges, regulations and subdivision design manuals. He was also responsible for preparation of several other plans, studies and surveys concerning urban water development to meet the Coachella Valley's growth needs.

Hired by CVWD as a sanitation engineer in 1972, Levy quickly rose through the ranks and was eventually promoted to assistant general manager in August 1984. He was responsible for the planning of Phase Two of the La Quinta Stormwater Project; Deep Canyon Channel Improvements; and the lining of the Whitewater River Channel. He was also responsible for water conservation projects, including the expansion of the Whitewater River Spreading Area facilities and the development of an Urban Water Management Plan.

CVWD's domestic water service more than doubled in size during his tenure as general manager, from less than 42,000 meters in 1986 to more than 86,000 meters in 2002.

Levy also worked with representatives from The Metropolitan Water District of Southern California in Los Angeles and the Colorado River Board to develop the concept of having California, Arizona and Nevada take a proactive role in developing and funding improvements for endangered species so that the water and power resources on the Lower Colorado River would not be at the mercy of the Endangered Species Act. This concept evolved into the Lower Colorado River Multi-Species Habitat Conservation Program, which works toward the recovery of currently listed species and reduces the likelihood of additional species listings while providing 50 years of coverage.

The Thomas Levy Replenishment Facility in south La Quinta. *CVWD archive photo*

THE QUANTIFICATION SETTLEMENT AGREEMENT

The agreement, signed in 2003, resolved longstanding disagreements between water agencies regarding the allocations and uses of Colorado River water.

"What the QSA basically did for the valley was firm up a water supply that would allow us to develop the Coachella Valley for the next 50 to 100 years," said Tom Levy, a former Coachella Valley Water District general manager and chief engineer who was involved in QSA negotiations as the district's lead negotiator.

The Quantification Settlement Agreement was finalized on Oct. 10, 2003 after over four years of QSA negotiations. When it was finally concluded, it resolved longstanding disagreements between water agencies regarding allocations and uses of Colorado River water, including rural to urban water transfers and it gave them security knowing they could plan for the future.

"What the QSA basically did for the valley was firm up a water supply that would allow us to develop the Coachella Valley for the next 50 to 100 years," said Tom Levy, a former Coachella Valley Water District general manager and chief engineer who was involved in QSA negotiations as the district's lead negotiator.

The parties in the settlement include Imperial Irrigation District, Palo Verde Irrigation District, Coachella Valley Water District, The Metropolitan Water District of Southern California, San Diego County Water Authority, the State of California, and the U.S. Department of the Interior.

Key features of the QSA, which will be in effect for up to 75 years, included:

— Establishing Imperial Irrigation District's Colorado River Priority 3 entitlement at 3.1 million acre-feet annually, from which conserved water transfers would be deducted.

— Setting Coachella Valley Water District's annual Priority 3 entitlement at 330,000 acre-feet, from which savings from the Coachella Canal lining project and amounts needed to satisfy certain Indian reservation rights along the River are deducted, and authorizing additional annual transfers of up to 103,000 acre-feet of water from IID to CVWD, and up to 20,000 acre-feet from MWD to CWVD from the 1988 IID-MWD transfer, giving the Coachella-based agency up to 424,000 acre-feet of Colorado River water per year through the Coachella Canal. CVWD can also acquire an additional 35,000 acre-feet per year through an exchange with MWD that may be delivered through the Coachella Canal.

Former CVWD General Manager Tom Levy with former General Manager Steve Robbins at the Thomas Levy Replenishment Facility. *CVWD archive photo*

— Authorizing annual transfers of up to 200,000 acre-feet from IID to San Diego County Water Authority (which are exchanged with MWD in Los Angeles) and transfers ranging from 25,000 to 100,000 acre-feet from Palo Verde Irrigation District to MWD.

Under the terms of the QSA and its enabling legislation, the water agencies also were required to contribute $30 million toward a Salton Sea Restoration Fund to stimulate the state's Salton Sea restoration efforts and to provide $133 million in additional funding to support mitigation activities resulting from QSA water transfers. The State of California also assumed responsibility to plan for and fund measures that would address the impacts of the QSA on the Salton Sea and agreed that the burden of any Salton Sea restoration would be borne by the State and not the water agencies.

The QSA also included a "peace treaty" of sorts between IID and CVWD, which is contained in an Agreement on Conserved Water between the two agencies. Among its many provisions, the agreement states that "neither IID or CVWD will challenge the water use practices or reasonableness of water use of the other, or in any way seek to reduce each other's rights to Consumptive Use of Colorado River water or each other's acquisition of Conserved Water as set forth in the QSA …"

For Coachella Valley Water District, the QSA also allowed the district to use Colorado River water outside of Improvement District 1, the original area eligible to receive Colorado River water under the Boulder Canyon Project Act of 1928. This expansion of use came with the restriction that the water used outside the area must benefit the aquifer that Improvement District 1 overlies. This gave CVWD the ability to implement key strategies outlined in its 2002 Water Management Plan and to aggressively combat groundwater overdraft, both by using canal water for groundwater replenishment and direct irrigation of golf courses outside Improvement District 1.

The QSA agreement was worked out just in time.

The 15-year year period between 2001 and 2016 was the driest period in Colorado River history since record keeping began in the late 1800s.

CVWD PRIORITIZES GROUNDWATER REPLENISHMENT

Armed with the Quantification Settlement Agreement, Coachella Valley Water District uses Colorado River Water to combat groundwater overdraft and subsidence.

A fake dry stream bed provides an attractive look to the front yard of a Coachella Valley home with water efficient landscaping. *CVWD archive photo*

By allowing Coachella Valley Water District to use Colorado River water outside Improvement District 1, the Quantification Settlement Agreement better enabled CVWD to combat groundwater overdraft and subsidence, which was taking place in La Quinta, Indian Wells and Palm Desert.

In June 2009, CVWD completed construction of the Thomas E. Levy Groundwater Replenishment Facility, which is a collection of percolation ponds west of the intersection of Avenue 62 and Monroe Street in south La Quinta.

Named after former CVWD General Manager and Chief Engineer Thomas E. Levy, the 163-acre La Quinta facility replenishes approximately 40,000 acre-feet of Colorado River water annually into the Coachella Valley's aquifer, which is enough to supply at least 60,000 homes while raising groundwater levels 25 to 105 feet over the next 20 years.

Another major project CVWD completed in 2009 was the Mid-Valley Pipeline, a 7-mile long pipeline that runs from Indio to Palm Desert. The $75 million pipeline, buried more than 20 feet below the Coachella Valley Stormwater Channel, carries Colorado River water to CVWD's wastewater reclamation plant on Cook Street in Palm Desert, where it can be used both for groundwater replenishment and golf course irrigation.

Design was underway in 2017 on another groundwater replenishment facility near Cook Street. The facility, the fourth recharge facility in the district's service area and the first recharge facility near Cook Street, is expected to come online in 2018, in time for CVWD's 100th anniversary, and will recharge the groundwater basin in the middle of the Coachella Valley with up to 25,000 acre-feet of water per year.

CVWD transitions golf courses from groundwater to a mix of canal water and recycled water

A key element in CVWD's groundwater replenishment strategy is taking golf courses off groundwater and transitioning them to a mix of canal water and recycled water.

Canal water is essential for this purpose because there isn't enough recycled water available to irrigate all of the valley's golf courses on a year-round basis. Most of valley's recycled water is produced in the winter, when the snowbirds are here. But golf course water demand is highest during the summer, when the valley's population is at its lowest and recycled water supplies are reduced. Canal water is thus needed to make up the difference.

Coachella Valley Water District has been providing recycled water for golf course irrigation since 1968, when it acquired the wastewater treatment and recycling facility at Palm Desert Country Club. But CVWD has been expanding its use of recycled water for golf course irrigation.

The district started using Colorado River water from the Coachella Branch of the All-American Canal to irrigate golf courses in the 1980s and 1990s, including PGA West in 1988, Indio Municipal Golf Course in 1994 and Plantation Golf Club in Indio in 1996.

With the Quantification Settlement Agreement in place, CVWD now uses Colorado River water as well as a mix of canal water and recycled water for golf course irrigation.

As of 2017, 52 of the 106 golf courses within CVWD boundaries receive nonpotable water (Colorado River water or a blend with recycled). In the future, CVWD hopes to connect another 41 additional golf courses to nonpotable water.

District officials emphasize that the more river water used, the less groundwater is pumped from the aquifer — a strategy that's spelled out explicitly in the district's long-term water management plan.

The extensive document, which was last updated in 2012, describes the merits of using Colorado River water instead of groundwater to maintain golf courses while also satisfying increased water demands in the eastern Coachella Valley.

CVWD staff is also working with golf courses to promote the use of more efficient irrigation techniques, such as improved sprinkler layouts, computer-based irrigation systems, weather sensitive irrigation controllers, soil moisture monitoring and irrigation system audits.

STEVE ROBBINS worked for Coachella Valley Water District for 25 years and spent nearly a decade of that time as the district's general manager and chief engineer.

Robbins led the district through the final stages of the Quantification Settlement Agreement, signed in 2003, which resolved longstanding disagreements between water agencies regarding allocations and uses of Colorado River water, including rural to urban water transfers.

He also led the district during the post-QSA years and was responsible for implementing many of the projects that came out of the QSA, such as lining the middle section of the Coachella Branch of the All-American Canal, constructing the Mid-Valley Pipeline to deliver canal water to the Palm Desert area and constructing groundwater replenishment facilities in the East Valley. He also led the expansion of the district's water conservation efforts.

Robbins is credited with guiding CVWD though difficult economic times without layoffs, furloughs or salary cuts, while keeping rate hikes to a minimum. He also served productive terms as president of State Water Contractors, a group that oversees the management of State Water Project water, and as a regional board chairman of the Association of California Water Agencies (ACWA).

Originally from Port Hueneme, Robbins earned a bachelor's degree from the University of California, Los Angeles before coming to the Coachella Valley.

A longtime resident of La Quinta, Robbins was active in his community and served as a La Quinta planning commissioner and president of the La Quinta chapter of Rotary International. His contributions in La Quinta were recognized by the city when he was named as a Pillar of the Community.

After his death from cancer in 2012, CVWD named its administrative center in Palm Desert in his honor.

CVWD RAMPS UP CONSERVATION EFFORTS ACROSS THE VALLEY

The district's educational outreach efforts targeted everyone from school students to home and business owners, homeowners associations, landscapers, golf courses and growers.

Through its educational outreach programs and initiatives, Coachella Valley Water District is promoting the use of attractive, water efficient landscapes for homes and businesses across the valley. *CVWD archive photo*

While water conservation has been a focus of public outreach since the late 1960s, Coachella Valley Water District has implemented a series of water conservation initiatives that collectively reduced domestic water use by 38 percent from 2010 to 2015.

A new landscape ordinance

The most significant water conservation initiative was launched in 2002, when CVWD adopted a new landscape ordinance that placed limits on the amount of grass that could be planted in new homes while also mandating the use of desert friendly landscaping.

"At one point, our landscaping ordinance was the strictest in the state," said Heather Engel, CVWD's former director of communication & conservation.

In addition to promoting the use of water efficient plants and water efficient irrigation systems, the landscape ordinance establishes water allowances for each property.

Katie Evans, CVWD conservation manager, said the water allowances invariably restrict the types of plants as well as the amount of turf that can be grown around each home or business.

Golf courses also fall under the jurisdiction of the landscape ordinance, which limits turf on new golf courses to 4 acres per hole plus 10 acres for practice areas, such as driving ranges and putting greens.

The 2002 ordinance has since been updated and is widely used and enforced across the Coachella Valley.

> **"At one point, our landscaping ordinance was the strictest in the state," said Heather Engel, CVWD's former director of communication & conservation.**

The demonstration garden at the Coachella office of CVWD features desert-friendly plants. *CVWD archive photo*

CVWD offers various types of rebates to promote conservation

Between 2006 and 2017, CVWD installed more than 4,000 smart irrigation controllers and more than 1,500 large landscape controllers for commercial customers and homeowners associations.

The rebate programs CVWD offered to promote widespread use of these water saving devices produced 70,527 acre-feet in commulative water savings. This includes 3,001 acre-feet of water savings through residential smart water controllers; 67,431 acre-feet of water through large landscape controllers for businesses and homeowners associations and 95 acre-feet of savings through water efficient toilet rebates.

This is in addition to an estimated 7,373 acre-feet of water saved through CVWD's turf replacement programs, which, as of summer 2017, had eliminated 13,989,817 square-feet of turf across the district's service area since 2009.

Expanded public outreach

CVWD has stepped up its community education and outreach efforts with water conservation messages and targets everyone from elementary school children to college students and the general public with tours, media outreach and speaking engagements with clubs and other community organizations.

"We provide water conservation education to about 20,000 students a year," Engel said, adding that the district has two full-time teachers on staff to provide water conservation and canal safety education.

"Our educational outreach used to primarily involve elementary school students, but now it's pre-kindergarten through college," she said.

An employee helping a customer conserve water. *CVWD archive photo*

A mandatory landscaper certification program

In 2017, CVWD launched a landscaper certification program in cooperation with the State Water Resources Control Board, the state Department of Rehabilitation, College of the Desert and the Coachella Valley Association of Governments.

Landscapers must complete two free courses every year to renew their business licenses. Information is available at www.cvwd.org.

Engel said education is critical to ensure that landscapers raise awareness among staff to irrigate landscapes appropriately and to check and replace broken or malfunctioning sprinklers.

CVWD's programs for agricultural water conservation

The district continues to help growers reduce their water consumption by providing them with education and training in water efficient practices; providing growers with scientific irrigation scheduling, scientific salinity management and moisture monitoring; helping growers make irrigation system upgrades and retrofits; and providing growers with financial support to help them convert from flood or sprinkler systems to micro sprinklers and drip irrigation systems.

As of 2017, growers across the Coachella Valley had slightly exceeded the goal set forth in the district's 2010 Water Management Plan, having reduced their consumption from 4.2 acre-feet of water per acre in 2010 to 3.56 acre-feet per acre in 2015, a savings of 15 percent.

Desert-friendly landscaping can be colorful and beautiful while saving water. *CVWD archive photo*

THE GOOD NEWS

Coachella Valley's groundwater basins are on target to be stabilized again by 2021 or 2022.

"CVWD has always been focused on groundwater management," said Steve Bigley, CVWD director of environmental services.

Throughout the past century, groundwater levels beneath the Coachella Valley have risen and fallen, depending on the amount of pumping and replenishment by Coachella Valley Water District and other agencies at any given time.

"CVWD has always been focused on groundwater management," said Steve Bigley, CVWD director of environmental services.

He noted that CVWD's first actions were to look at ways to capture stormwater from the Whitewater River for groundwater replenishment as the valley's agricultural economy grew. The district's subsequent efforts to bring Colorado River and State Water Project water supplies into the valley were also driven by the need to maintain the integrity of the local groundwater basin as the valley's population grew and as its economy became more diversified.

Even though the valley has experienced considerable growth and development during the past three decades, the good news in 2018 is that CVWD's conservation efforts are bearing fruit and the valley's groundwater basin is on target to stabilize by 2021 or 2022, according to Jim Barrett, CVWD general manager.

Stabilization of the valley's groundwater basin has been achieved by a combination of groundwater replenishment, transitioning golf courses to canal water and recycled water, combined with significant water conservation efforts by Coachella Valley residents and businesses.

The net result of these efforts is a stabilizing groundwater basin and a decrease in subsidence.

Michelle Sneed, a hydrologist and land subsidence specialist with the U.S. Geological Survey, told *The Desert Sun* in a March 31, 2017 interview that since 2010, groundwater levels have either stabilized or risen in many parts of the valley as a result of groundwater recharge efforts.

"Every well I've looked at," she said, "this is the story: Either water levels are coming back up or the water level declines have slowed."

Continuing conservation challenges

But while CVWD's conservation initiatives have significantly reduced consumption of water by 38 percent from 2010 levels, the district still faces challenges persuading both permanent and part-time residents to use water more efficiently.

"We still have a big problem with people from other areas coming to the desert and overwatering their grass and not understanding how to irrigate in the desert," Engel said, adding, "There are also people in the valley who resist desert landscaping."

Engel said CVWD is not asking residents to eliminate all of their grass. But residents should ask themselves whether the grass they have is really necessary and, if they do have grass, if they are watering it appropriately.

"We still have a big problem with people from other areas coming to the desert and overwatering their grass and not understanding how to irrigate in the desert," Engel said, adding, "There are also people in the valley who resist desert landscaping."

Desert friendly landscaping has become increasingly popular in the Coachella Valley. *CVWD archive photo*

THE COACHELLA VALLEY TODAY

Tourism continues to grow, while agriculture faces new challenges.

As Coachella Valley Water District works to bring its newest groundwater replenishment facility online, the valley's tourism industry is showing signs of growth and renewal.

As of 2017, more than 2,000 additional hotel rooms were expected to be added to the valley's existing 18,000 room inventory over the next two years.

These new facilities include Hotel Paseo, a 150-room boutique hotel on Larkspur Lane at El Paseo, the first hotel in Palm Desert's famed high-end shopping district.

Further to the east, Montage International has announced plans to build two luxury hotels in La Quinta's SilverRock Resort, including a 140-room Montage Hotel and a 200-room Pendry Hotel.

Coachella is also now tapping into the valley's tourism business. Stuart Rubin of Glenroy Coachella LLC broke ground in the summer of 2017 on the first 68 units of a 130-unit horizontal casita style hotel on a 24-acre site next to Rancho Las Flores Park. A grand opening was set for April 9, which is just in time for the city to generate revenue from the lucrative Coachella and Stagecoach music festivals.

Meanwhile, major hotel chains are spending millions of dollars to update several of the valley's existing hotels, including JW Marriott, which is investing $60 million in improvements and upgrades at JW Marriott Desert Springs Resort & Spa in Palm Desert.

"When this place was built 30 years ago, it was by far the most iconic resort Marriott had in its portfolio," said Tom Tabler, general manager of the 884-room hotel on the corner of Cook Street and Country Club Drive.

But new investors are turning Marriott into more of a luxury brand and are working to keep the hotel competitive.

So far, their efforts are working.

> **"You can't replicate what we have here," he said. "The mountains, the greenery, the flora. This is not your typical desert."**
>
> *— Tom Tabler, general manager of JW Marriott Desert Springs Resort & Spa in Palm Desert*

A farmworker plants bell peppers in the Coachella Valley using water efficient irrigation methods. *CVWD archive photo*

"Most of our summer weekends are sold out," Tabler said.

"You can't replicate what we have here," he said. "The mountains, the greenery, the flora. This is not your typical desert."

Indeed, instead of looking like barren desert, the Coachella Valley is green with golf courses and lush landscaping, and that's appealing to visitors, particularly when it's set against a backdrop of the San Jacinto, Santa Rosa and San Bernardino mountains.

Looking to the future, Tabler said water remains a critical enticement. "To get people to come out from the coast, a pool doesn't always cut it," he said. "You need moving water."

More money is also being spent to promote the valley, and cities are increasingly working together through the Greater Palm Springs Convention & Visitors Bureau to market the entire valley as a destination, said Scott White, the organization's president and CEO.

Thirteen million people visited the valley in 2015 and pumped $5 billion into the local economy, according the CVB statistics, an increase of 6.1 percent in visitors and 10.9 percent in spending from 2013.

"One in four jobs is in tourism here in the desert," said Joyce Kiehl, CVB director of communications.

But while the tourism industry is poised for continued expansion, the Coachella Valley's agriculture industry is going through a period of change.

Dates remain in high demand and command high prices.

"Growers can't keep up with the demand for dates for baking," said Peter Nelson, a CVWD board member since 2000 who grows dates, citrus and table grapes in the valley. "They are using dates as a healthy source of sugar in the baking industry."

But the table grape crop, which has been the mainstay of the valley's agriculture business during the past century, faces increasing competition from Mexico.

“Things are changing,” said John Powell Jr., a CVWD board member since 2010 who is president and CEO of Peter Rabbit Farms in Coachella.

The North American Free Trade Agreement changed the dynamic and put Coachella Valley growers at a strategic disadvantage with Mexico and Chile. Increases in the minimum wage are also eroding Coachella’s market window.

“Chile overlaps with Mexico whose production timeline is exactly the same as ours,” Powell said.

Anthony Bianco Jr., a CVWD board member since 2016 and farm manager for Anthony Vineyards in Coachella, said there has been a significant decline in table grape production across the valley.

“To put it in perspective,” he said, “25 years ago, there were close to 25 million boxes of grapes produced out here and there were three or four million out of Mexico. Today, it’s the opposite.”

Carrots are one of the valley’s most lucrative crops. *CVWD archive photo*

Bianco added that table grapes require about 600 man hours of labor for every acre per year, but it is increasingly difficult to compete with Mexican labor. “It’s getting to the point where the gap is so large that supermarkets are choosing to buy from Mexican suppliers,” he said.

“Some folks are betting on new varieties of grapes to help us close the gap, varieties that produce higher yields and require less labor,” Powell said. But it remains to be seen what will happen.

“A lot of grapes have been pulled from this valley,” Powell said. “Pretty soon, it will be kind of a boutique thing.”

Coachella Valley’s lemon growers also now face increasing competition from Argentine lemons.

One saving grace for Coachella Valley farmers, however, is their relatively low price of water, which enables them to remain competitive with many different types of fruits and vegetables.

In fact, despite concerns involving competition from Mexico, Coachella Valley growers produced $649.7 million worth of fruits and vegetables in 2015, according to the Riverside County Agricultural Commissioner’s Office, the highest sales figures to date.

That year, the Coachella Valley produced nearly $144 million worth of table grapes, the county’s third most lucrative crop, and $67.7 million worth of bell peppers, the county’s seventh most lucrative crop.

Dates and carrots were Riverside County’s 8th and 9th most lucrative crops, generating nearly $41 million and $27.1 million, respectively. Acreage devoted to artichokes was also on the rise, with 884 acres producing $9.6 million in sales in 2015, compared to 642 acres producing $6.5 million in sales the previous year.

The Salton Sea is an important migration flyway stop for many birds. *CVWD archive photo*

THE SALTON SEA

Water agencies have already paid more than $30 million toward the restoration of the Salton Sea and consider the balance of mitigation and restoration costs to be a state responsibility.

Geologists and historians describe the Salton Sea as merely the latest of a series of lakes that have intermittently occupied the Salton basin over thousands of years.

The current lake known as the Salton Sea was created between 1905 and 1907, when a raging Colorado River overwhelmed the head gate of the Alamo Canal, which had been constructed to divert Colorado River water westward to the Imperial Valley for irrigation.

The Salton Sea has become a recreational area for fishing and boating enthusiasts while providing habitat for a wide range of bird species, including migratory waterfowl on the Pacific Flyway.

In the 1950s and 1960s, the Salton Sea was a popular recreation area. During the past half century, however, the environmental health of the Salton Sea has been a focus of numerous studies, each attempting to find a way to preserve the sea while warning of increasing salinity without intervention.

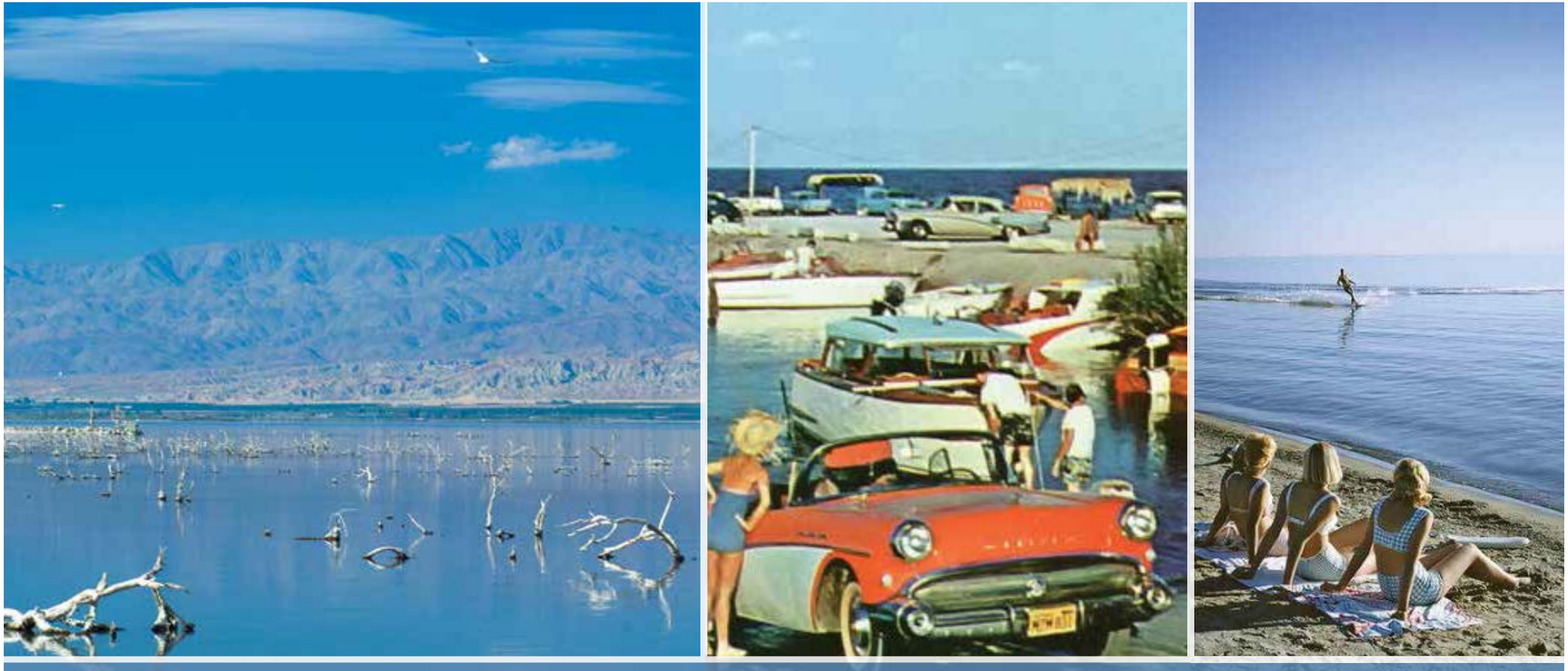
Today we can see that the predictions of the early studies have come true.

The salinity levels have increased to the point where they are now more than 50 percent saltier than the waters of the Pacific Ocean. Fish are dying. Only tilapia survive and their days may be numbered.

The Salton Sea has historically been fed by runoff from farms in the Imperial and Coachella valleys. However, the amount of runoff flowing into the sea has declined since 2003 as a result of increased water conservation efforts. In addition, water transfers from Imperial Irrigation District to water agencies in San Diego and Los Angeles will begin to impact the sea starting in 2018.

Mexico is also diverting substantial amounts of water from the New River for reuse south of the international border, which lessens the amount of water flowing northward from Mexico into the Salton Sea.

Water agencies, however, view restoring the Salton Sea as a state issue.



The Salton Sea once drew many people to its shores. New proposals hope to preserve what is left of the sea and restore its status as a recreation mecca.

When water agencies finalized the Quantification Settlement Agreement in 2003, they agreed to contribute $30 million toward the restoration of the Salton Sea as a way to prod the state to take action.

Water agencies also agreed to provide $133 million more to support a QSA Joint Powers Authority to fund mitigation activities resulting from the QSA water transfers from agricultural to urban areas.

Since 2003, water agencies have collaborated to ensure the QSA Joint Powers Authority delivered 165,000 acre-feet of water to the Salton Sea to offset the loss of agricultural drainage stemming from conservation programs related to the QSA water transfers from agricultural to urban areas along the coast.

The agencies also have supported the installation of five air quality monitoring stations and the creation of 365 acres of new wildlife habitat.

But water agencies have also assumed the actual restoration work would be the responsibility of the State of California.

Legislation passed by the California State Legislature, Senate Bill 654, absolves CVWD, Imperial Irrigation District and San Diego County Water Authority of paying more than $30 million they collectively already have paid toward the restoration of the Salton Sea. The balance of the restoration and mitigation costs is a state responsibility.

CHALLENGES OF THE FUTURE

Population Growth and Climate Change.

Always mindful of the future, CVWD has worked to secure additional water supplies, not only from the Colorado River, but from the State Water Project, in an effort to strengthen the valley's water security and to ensure that the district can continue to support the valley's economy and the needs of cities and unincorporated areas within its 1,000 square mile service area.

Coachella Valley Water District has always been a forward thinking agency.

CVWD's success in building the Coachella Branch of the All-American Canal is what has enabled local growers to transform their land into some of the most lucrative cropland in the world, while also building this desert oasis into one of the most sought after vacation destinations in the Sunbelt.

Always mindful of the future, CVWD has worked to secure additional water supplies, not only from the Colorado River, but from the State Water Project, in an effort to strengthen the valley's water security and to ensure that the district can continue to support the valley's economy and the needs of cities and unincorporated areas within its 1,000 square mile service area.

CVWD's most forward thinking ideas and projections are outlined in its Urban Water Management Plans, which it submits to the State Department of Water Resources every five years. These planning documents, which the state requires from all urban water providers, are critical because they not only contain water agencies' best estimates on future population growth and water needs within their service areas, but they identify factors that could negatively affect water supplies, such as droughts and climate change. These planning documents, which are available on the district's website, also spell out how CVWD plans to address future water needs.

CVWD's latest Urban Water Management Plan was prepared in 2015 and updated in 2016. Using the latest population forecasts from the Southern California Association of Governments, the plan estimates that the population within CVWD's service area could increase from 216,900 in 2015 to 527,100 by 2040. Based on these estimates, urban water needs are expected to double within CVWD's service area by 2040.

The biggest threats facing CVWD's water supplies are climate change, drought, increasing regulations and litigation. Here is a closer look at some of these issues and CVWD's plans to address them:

The effects of climate change on CVWD water supplies

CVWD believes that Coachella Valley's water supplies will initially be protected from the impacts of climate change because California has a right of first priority for Colorado River water supplies in the lower Colorado River basin and CVWD has a high priority for Colorado River supplies among California's users of Colorado River Water.

A crane with a boom is needed for repair work along the Whitewater River Channel after a storm. *CVWD archive photo*

Long term, however, the effects of drought and climate change on the Colorado River are much harder to ascertain, according to a 2012 study by the U.S. Bureau of Reclamation.

"With regard to climate change, the study indicated the median of the mean natural flow at Lee's Ferry over the next 50 years is projected to decrease by approximately nine percent, along with a projected increase in both drought frequency and duration," CVWD stated in its summation of the study contained in its latest Urban Water Management Plan. "The potential effect of climate change on deliveries is uncertain based on the current Law of the River."

Supplies from the State Water Project are considered to be much less reliable.

CVWD references state Department of Water Resources analyses using six different global climate models in 2009, which forecast significant declines in State Water Project reliability.

"The analysis shows a 7 to 10 percent reduction in Delta exports by mid-century and up to a 25 percent reduction by the end of the century," CVWD states in the 2016 update of its Urban Water Management Plan.

"Reservoir carryover storage is projected to decrease by 15 percent to 19 percent by mid-century and up to 38 percent by the end of the century. The models also projected a change in the timing of runoff from the Sierra Nevada and the southern end of the Cascades. More runoff will occur in the winter and less in the spring and summer, making it more difficult for the SWP to capture water and deliver it to contractors."

Uncertainties involving the State Water Project

Coachella Valley Water District's 1963 contract to receive State Water Project water from Northern California has helped to strengthen and diversify the valley's water portfolio, while supporting the continued growth of its economy. CVWD negotiated a separate exchange agreement with The Metropolitan Water District of Southern California to swap its respective State Water Project entitlements for an equal amount of Colorado River water, a strategy that helped the agency avoid the cost of building an aqueduct through the San Gorgonio Pass.

Grapes with drip irrigation. *CVWD archive photo*

But while the State Water Project has delivered more than 3 million acre-feet of water to the Coachella Valley since 1973, it faces a variety of threats, not only from climate change, but as a result of recent court judgments to protect the Delta smelt and other endangered species.

These judgments prevent water agencies from capturing and diverting as much water to Southern California as they had in the past.

Another problem involves the aging levies of the Sacramento-San Joaquin Delta, the transit point through which water from Northern California is diverted through aqueducts to the Central Valley and Southern California.

Water agencies fear the aging levies could fail at any time, particularly during an earthquake or during major flood events or as a result of climate change, which is causing the waters of the Pacific Ocean to rise and push farther inland. If the levies fail, the resulting salt water incursions would contaminate critical State Water Project supplies, which would ultimately have a ripple effect on the amount of water available to CVWD and other agencies.

In an effort to counter these threats and increase the reliability of the State Water Project, CVWD and other water agencies support the California WaterFix, a $15 billion plan to provide safe and reliable water supplies with construction of a new reservoir and earthquake proof tunnels to convey State Water Project water under the Delta, thus minimizing the effects on fish and other wildlife.

As of late July 2017, 28 water agencies had agreed to provide funding to build a new 1.8 million-acre-foot reservoir called the Sites Reservoir near the Sacramento Valley town of Maxwell. The $4.7 billion reservoir would be about half the size of Lake Oroville, California's largest reservoir, and would be used to store water pumped from the Sacramento River during periods of high flows and saved for use during dry periods. Engineering design work and environmental approvals are needed before the project can go forward, but construction was expected to begin in 2022 and be completed by 2029.

As of 2017, final design of the Delta tunnel project was expected to take up to four years with completion of the tunnels anticipated in the mid-2030s. The state has issued revenue bonds to fund the project.

More stringent drinking water regulations

Coachella Valley groundwater contains naturally occurring minerals common in desert aquifers. As regulators develop more stringent drinking water regulations for some of these naturally occurring minerals, like those containing arsenic and chromium, CVWD has responded by leading efforts to test water treatment technologies used to meet these new standards. In 2006, CVWD began operating the two largest ion-exchange treatment systems designed to reduce the levels of arsenic and chromium found in wells located near Mecca and Thermal.

While California regulators worked to implement the first ever regulation to control chromium-6 levels in drinking water, CVWD continued its water treatment research and in 2016 began testing a promising alternative treatment technology that targets the reduction of chromium-6 in groundwater supplies. This cost-effective, environmentally friendly option uses stannous chloride, an approved drinking water and food additive. Stannous chloride works by converting chromium-6 to chromium-3, an important nutrient the body needs to regulate blood sugar levels.

A CVWD water quality analyst tests drinking water to ensure it meets federal and state standards. *CVWD archive photo*

The State approved CVWD's plan for the first full-scale demonstration test using this alternative treatment for a water system serving more than 3,000 residents located in Indio Hills, Sky Valley and some areas in and around Desert Hot Springs. Work to install equipment for the demonstration project began in August 2017 and results are expected to be available early in 2018.

If this alternative treatment proves viable, CVWD expects to meet an anticipated new chromium-6 drinking water standard under development by the State Water Resources Control Board. This chromium-6 reduction process will be substantially less expensive and have less impact on the community and the environment than other conventional methods previously under consideration.

Water rights litigation involving the Agua Caliente Band of Cahuilla Indians

The Agua Caliente Band of Cahuilla Indians filed suit against Coachella Valley Water District and Desert Water Agency on May 14, 2013, claiming aboriginal and senior water rights and seeking to permanently stop the agencies from extracting groundwater from the aquifer in the western Coachella Valley.

The tribe is also fighting to prevent water agencies from replenishing the aquifer without treating the water first. The tribe has not said how much water it wants or what it would do with that water.

It has no pipes, pumps or other infrastructure to deliver the water to customers nor does it have expertise in water management.

The United States, which owns the reservation lands in trust status, intervened in the case in 2014. The U.S. District Court hearing the case issued a ruling in the first phase of the case in 2015 that while the tribe had no aboriginal rights to groundwater, the federal reserved water rights doctrine may extend to groundwater.
The water agencies appealed the latter ruling to the United States Court of Appeal for the Ninth Circuit, which affirmed the trial court decision in March 2017.

The water agencies petitioned the U.S. Supreme Court to hear the case but the Court announced on November 27, 2017 that it would not. This means that the decision from the Ninth Circuit Court of Appeals granting superior rights to groundwater to the tribe will remain in effect. Meanwhile, CVWD continues the important work needed to implement local water management plans including the Integrated Regional Water Management Plan, developed by the Coachella Valley Regional Water Management Group comprised of the valley's public water and wastewater agencies who work with all valley tribes and other planning partners and stakeholders to ensure that the valley continues to have a safe, affordable and reliable water supply.

Outreach to disadvantaged communities

CVWD board member Cástulo Estrada spearheads the district's outreach and support for disadvantaged communities in remote areas of the eastern Coachella Valley, several of which are not connected to CVWD's water, sewer or flood control infrastructure.

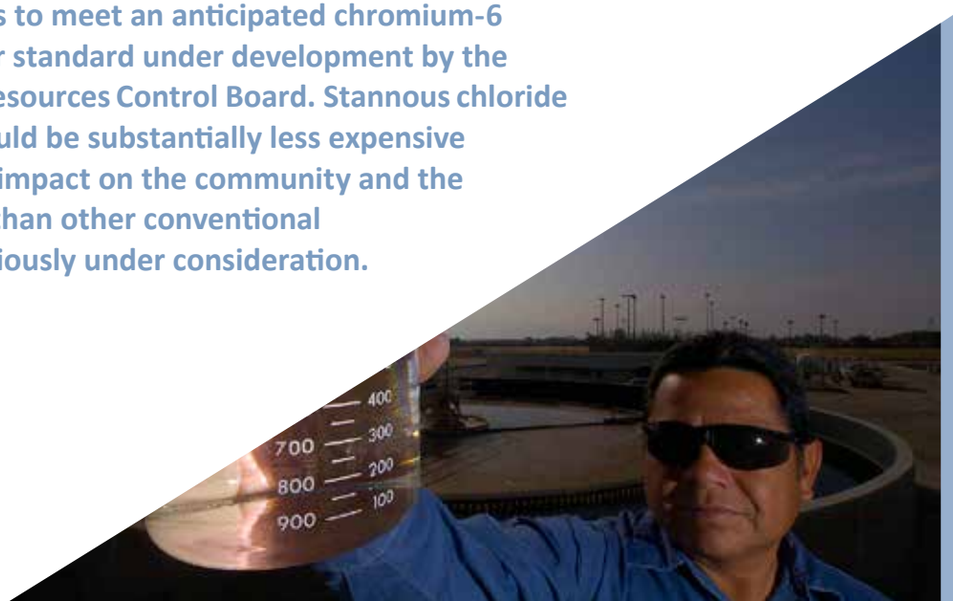
"In the past," Estrada said, "we have been very friendly to the desires and wishes of the western cities — Palm Desert, Indian Wells, Rancho Mirage — to help them plan for the future. I would like to ensure that that continues in the future as we expand on the east side."

Estrada noted that CVWD cannot use ratepayer funds to bring in new customers. "New customers have to pay their own way," he said.

However, CVWD can support efforts of remote communities by serving as a lead agency to identify and apply for grants that can aid the development of their water and sewer infrastructure.

As part of this effort, Estrada serves on the Disadvantaged Communities Infrastructure Task Force, which includes representatives from the offices of Riverside County Supervisor V. Manuel Perez and Assemblyman Eduardo Garcia and Pueblo Unido Community Development Corporation, Building Healthy Communities, the Leadership Counsel for Justice and Accountability, the Riverside County Transportation and Land Management Agency, and the Coachella Valley Housing Coalition.

CVWD expects to meet an anticipated chromium-6 drinking water standard under development by the State Water Resources Control Board. Stannous chloride treatment would be substantially less expensive and have less impact on the community and the environment than other conventional methods previously under consideration.



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JIM BARRETT has been Coachella Valley Water District's general manager since March 2013 after serving as acting general manager and assistant general manager.

Before joining CVWD in 2010, Barrett was director of public utilities for the City of San Diego where he oversaw domestic water, wastewater and recycled water operations for more than 1.3 million customers. He also served on the board of directors of The Metropolitan Water District of Southern California and the San Diego County Water Authority.

Prior to his tenure in San Diego, Barrett was vice president of Earth Tech, Inc. in San Diego. He retired from the U.S. Navy in 2004 as commanding officer of Navy Public Works in San Diego. Barrett is a registered professional civil engineer in California.

Barrett graduated from Stanford University with a master of science degree in civil engineering.

Whitewater Flood Control Channel at Point Happy in La Quinta. *CVWD archive photo*

EPILOGUE

Coachella Valley Water District continues to support a vibrant, yet changing Coachella Valley economy.

Coachella Valley Water District's challenges go beyond obtaining sufficient water from outside sources to support the valley's economy and maintaining the health of its groundwater basin.

During the past century, CVWD's responsibilities have increased. The agency is now responsible for most of the valley's water supplies, water for irrigation, wastewater collection and recycling, flood control and water education.

CVWD is also faced with some of the most vexing challenges, from water rights to treating chromium-6 to supporting rights of underserved communities.

These are responsibilities CVWD staff and board members take very seriously, not only because it's their job to do so, but because they feel the legacy of their forefathers.

They also know the local economy is not immune to economic conditions elsewhere in California and across the country, and that there will be ups and downs.

"Change is the only constant," said G. Patrick O'Dowd, a CVWD board member. "Our real challenge is planning for the next 50 or 100 years."

CVWD is well positioned to do just that, largely because of the efforts of the district's management and staff during the past century.

"This valley is going to continue to grow," he said, adding, "This is a logical, affordable place to build houses. So unless the politics of water changes fundamentally, we are well positioned to serve the needs of our children and grandchildren."

"The return of flowing artesian wells shows that, with proper management, it is possible to maintain the integrity of groundwater, and ensure not only our future water supplies, but the continued growth of our economy," Barrett said.

"Change is the only constant," said G. Patrick O'Dowd, a CVWD board member. "Our real challenge is planning for the next 50 or 100 years."

In 2017, the groundwater spreading ponds at the west end of the Coachella Valley were expected to be replenished with more than 300,000-acre-feet of Colorado River water, courtesy of The Metropolitan Water District of Southern California. CVWD was taking advance delivery of several years' entitlement of State Water Project water because MWD already had enough water to satisfy its needs in 2017.

"MET can satisfy most of its needs right now, so they are delivering that extra water into our aquifer," said Jim Barrett, CVWD general manager, noting that Metropolitan will then have a right to use more Colorado River water in future years.

In the meantime, the extra deliveries will help insulate the Coachella Valley from the effects of the next drought.

Due to the successful implementation of water management plans, natural artesian groundwater conditions have returned in the lowest areas of the valley between Thermal and the Salton Sea. These artesian wells have enough pressure to shoot water several feet above the ground, although these wells do not have the geyser-like appearance of the artesian wells that were common in the valley a century ago. CVWD sees the rising underground water pressure as a good sign.

"The return of flowing artesian wells shows that, with proper management, it is possible to maintain the integrity of groundwater, and ensure not only our future water supplies, but the continued growth of our economy," Barrett said.

Coachella Valley Board of Directors December 2017

John Powell, Jr.

Patrick O'Dowd

Cástulo R. Estrada

Anthony Bianco

Peter Nelson

Coachella Valley Water District Presidents

Dr. S.S.M. Jennings	1918 — 1928
R.W. Blackburn	1928 — 1932
Dr. Harry W. Forbes	1932 — 1945
Ted C. Buck	1945 — 1947
E. Keith Farrar	1947 — 1950
Lee J. Anderson	1951 — 1952
Ted. C. Buck	1952 — 1954
Leon Kennedy	1954 — 1976
Raymond R. Rummonds	1976 — 1988
Tellis Codekas	1988 — 2000
John McFadden	2000 — 2004
Peter Nelson	2004 — 2008
Corky Larson	2008 — 2010
Peter Nelson	2010 — 2012
John P. Powell Jr.	2012 to Present

Leadership of the Coachella Valley Water District

Harry Isbell, Secretary, June 5, 1918 – March 24, 1919

Edna M. Cardwell, Secretary, April 3, 1919 – March 1, 1921

Cora M. Long, Secretary and Manager, April 7, 1921 – May 25, 1922

V. E. Skiles, Secretary-Manager, June 7, 1922 – August 1, 1922

Fred W. Zabler, Secretary-Manager, August 5, 1922

V. E. Skiles, Secretary and Manager, August 18, 1922 – October 2, 1923

Mina Welcome, Secretary of the Board, October 2, 1923 – July 15, 1925

Margaret Kessler, Secretary, July 15, 1925 – October 8, 1925

Mabel E. Craig, Secretary, October 8, 1925 – April 24, 1930

Miss Frick, June 3, 1929, appointed to act as Secretary and General Manager until Mabel Craig's return in September.

W.P. Britton, Secretary-Manager and Field Man of the District April 24, 1930 – August 24, 1932

October 31, 1932 fired everyone, except Auditor Westerfield

Helen F. Runyen , General Manager and Secretary, November 5, 1932 –August 1, 1934

Eleanor Caswell, Secretary-General Manager, August 1, 1934 – October 6, 1934

Thelma Schisler, Secretary and General Manager, October 6, 1934 – February 9, 1935

John G. Heinz, General Manager and Secretary, February 9, 1935 (died May 6, 1935)

Thelma Schisler, General Manager and Secretary, May 11, 1935 – April 30, 1936

Percy L. Day, General Manager and Secretary of the District, May 16, 1936 – May 8, 1937

E. R. Romberg, General Manager and Secretary of the Board, May 8, 1937 – December 4, 1937

E. R. Romberg, General Manager and Chief Engineer, December 4, 1937 – May 31, 1942

A. T. Van Ornum, Secretary, December 4, 1937 -- May 11. 1942

Helen D. Garrison, Acting General Manager and Acting Secretary of the District, May 25, 1942 -- May 31, 1942

Leadership of the Coachella Valley Water District

Helen D. Garrison resigned as Secretary of Coachella Valley County Water District as of June 8, 1942; Resigned as General Manager, July 15, 1942

Lucilee K. DeuPree, Secretary – June 1, 1942 – August 9, 1943

Joseph H. Snyder, General Manager and Chief Engineer, August 1, 1942 – January 9, 1951

Hugh M. Gallaher, General Manager-Chief Engineer, January 23, 1951 – October 28, 1952

C. S. Hale, General Manager-Chief Engineer, November 1, 1952 – May 15, 1956

Lowell O. Weeks – Acting General Manager and Acting Chief Engineer, May 12, 1955 – June 14, 1955

Lowell O. Weeks – Acting General Manager and Acting Chief Engineer, May 16, 1956 – October 31, 1956

Lowell O. Weeks – General Manager-Chief Engineer, November 1, 1956 – February 1986

Tom Levy – General Manager-Chief Engineer, March 1986 – December 2002

Steve Robbins – General Manager-Chief Engineer, April 14, 2003 – September 27, 2012

Jim Barrett– Acting General Manager, September 2012-March 2013; General Manager, March 2013 – Present

About The Author

Jeff Crider is a former *Desert Sun* and *Press-Enterprise* reporter who has lived in the Coachella Valley for nearly 20 years. He now specializes in researching and writing history books for water agencies, drawing from his prior experience as a business and agricultural reporter in the Coachella and Imperial valleys and his two decade career working as a writer and publicist for several Southern California water agencies. His great grandfather, Andrew Matus, was a dynamiter who was involved in the construction of Hoover Dam. ~

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Coachella Valley Water District is a public, non-profit agency serving domestic water, irrigation water, wastewater collection and reclamation services, regional stormwater protection and groundwater replenishment over a 1,000-square-mile area, including parts of Cathedral City to the Salton Sea communities. CVWD is a State Water Contractor and operates the 123-mile Coachella Canal to import Colorado River water to the region. An elected five-member board sets policy and represents the ratepayers. For more information, please visit www.cvwd.org.

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