A CENTURY OF EXCELLENCE

FRESNO IRRIGATION DISTRICT

FRESNO IRRIGATION DISTRICT
1920 100 2020
YEARS

A CENTURY OF COMMITMENT,
CONVEYANCE & CUSTOMER SERVICE

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A Letter From The General Manager

It is not often a chance comes to take a step back as an organization to recognize, appreciate, and better understand how the previous 100+ years have shaped us to be where we are today; how it has shaped the Fresno Irrigation District (FID), but also how it has shaped our agricultural industry and the local communities of Fresno, Clovis, Kerman, Easton, Biola, Fresno County and beyond.

This publication is a compilation of critical figures that impacted FID's formation, but it also highlights moments of critical importance in our first century. This effort does not fully capture the complete history of FID because there's been an entire century's worth of board members, management, and staff working tirelessly over the decades to become and remain a prestigious irrigation district in our region. We owe those men and women our gratitude and acknowledgment. Today, we are standing on the shoulders of the work done by thousands of men and women who built and maintained our conveyance systems. Our constituents have financially invested in FID for 100 years, paying for our extensive water rights, facilities and infrastructure to grow bountiful crops, provide jobs, and grow the communities within FID.

This publication is also in part a recognition of where FID is today and, in the context of its history, what the next century is believed to have in store.

It is my sincere hope that this publication will be a resource used for years to come, as more and more people come to learn the story of the Fresno Irrigation District and its contribution to our region's farms, communities, and way of life.

It is my honor to be your General Manager at this pivotal moment in time as we look forward to the next 100 years of conveyance, commitment and excellent customer service to our growers and partners throughout the region.

Sincerely,

William R. Stretch

Bill Stretch
General Manager

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A Century of Leadership and Distinguished Contributions

Those Who Have Served As FID Directors

When the Fresno Irrigation District had its start in 1920, those who took the lead were the first members of the Board of Directors. There since have been 46 Fresno County residents who have served. Today, a century later, FID's Board of Directors remains every bit as vital as it has always been, making decisions and overseeing how funds are handled in ways that reflect the interests of the hundreds of thousands of users who depend upon the water FID delivers.

Charter Board of Directors members were elected on June 15, 1920, during the same balloting in which 1,438 voted to establish FID. Only 184 were opposed. Directors named were E.J. Bullard, Michael F. Tarpey, Herbert E. Vogel, Phillip B. Thornton and W.A. Groves. During the Board's first meeting on June 29, 1920 — only a day after county supervisors certified the District's formation — Tarpey was elected FID's first president.

Tarpey, Bullard and Vogel served only five years but Thornton remained a director 14 years and Groves served 17 years, establishing trends in tenure longevity many other board members would emulate.

F.A. Preuss has been the longest-serving director at 27 years (1963-90). George N. Skoegard was on the board 26 years (1934-36 and 1939-69). Two board members — Karl W. Shattuck (1939-63) and Winston C. Strong (1963-87) had service extending two dozen years. Jacob C. Andresen (1987-2006) had a 19-year board career. Alvin J. Quist (1967-1985) was a director for 18 years.

The 46 individuals who served as directors during the Fresno Irrigation District's first 100 years possessed many skills and talents but none may have made such a practical contribution as Ernest V. Briscoe. He invented equipment for sloping and cleaning canals, tasks that previously required mostly hand labor.

Along with Groves, John Ventura Jr. (1950-67 and later a county supervisor), and Garvin H. White (1965-82) each served 17 years; Roland C. Nale (1975-87 and 1992-96) had 16 years to his credit, as did Philip A. Gordon (1933-49). Thornton's 14 years of service was matched by Ryan Jacobsen (2008-22), FID's current Board president. They were followed by William W. Hansen (1937-50), Jeffery H. Neely (2001-14) and Eddie Niederfrank (1991-94 and 1998-2008) at 13 years; and Arthur B. Tarpey (1925-37), James O'Donnel (1937-45), Ernest A. Forthcamp (1945-57) and George Porter (2008-20) with 12 years. Robert C. Caldwell (1954-65), Jeffrey Boswell (2000-12) and later general counsel), and Steven G. Balls (2004-15) both served 11 years.

Ernest V. Briscoe (1934-39) served only five years but invented equipment for sloping. Briscoe-built equipment solved one of the biggest annual maintenance headaches FID had faced in maintaining its canals by cleaning and ridging ditches. Another FID history-making director was Sayre McFarlane Miller (1991-94 and 2000-01), the only woman who served on the board during FID's first century.

Other directors have been William B. Bacon (1925-29), Peter L. Swenson (1929-34), Raymond W. Lambrecht (1963-71), Craig P. Noe (1971-75), Patrick H. McGarry (1935-39), Fred H. Diel (1949-53), J. Russell Konkel (1953-54), William W. Jasper (1957-63), William D. Magnoson (1985 - 90 and 1994-98), James Hacker (1994-2000), Gildo J. Nonini (1988-92 and 1996-2000), Edgar Waldron (1998-2003), Ronald D. Dangaran (2003-04), Tom Steffen (2007-08), Jerry Rebensdorf (2011-12), Jerry Prieto Jr. (2014-20), Christopher Woolf (2015-20) and Gregory Beberian (2012-20). Both Directors Woolf and Beberian will be serving another term lasting through 2024 based on the 2020 election.

The Author and Researcher

J. Randall McFarland is a public information consultant to the Fresno Irrigation District and Kings River Water Association as well as a former newspaper editor and central San Joaquin Valley historian. This is the 12th major special publication or history book he has authored, co-authored or edited. He frequently speaks on local and regional history. McFarland is a graduate of Fresno State University and Fowler High School. He lives in Kingsburg.

The Eight Who Have Managed FID

Only eight general managers have headed the Fresno Irrigation District in its first century. George L. Swendsen, a well-known early-day California water engineer, was FID's first administrator.

He was named on August 6, 1920, soon after the District was formed and was in the process of purchasing the old Fresno Canal and Land Corporation. Swendsen headed studies that established an acceptable system value that was paid through a $1,750,000 bond measure. He also planned the District's initial operations and major maintenance. In 1926, Swendsen was one of three water engineers who framed the Kings River's first broadly-based water entitlement schedule that was adopted in 1927 as the Kings River Water Association was being formed. In 1930-31, Swendsen helped create a California Water Plan. It included what several years later became the federal Central Valley Project's initial features. He headed FID's staff until 1937.

The longest term was by Paul H. Willison, who led FID from 1956-1979. During his tenure, the District put extra emphasis on groundwater resource management and infrastructure improvements. Willison's most lasting achievement was research and writing of a 295-page general history on Fresno's water history and FID's founding and development.

Another who placed a big personal stamp on FID was Robert E. Leake Jr., who was general manager from 1979-95. He had served as Kings River watermaster from 1960-79. Leake became a leader on regional and state water issues and took advantage of FID's strategic geographical location and Central Valley Project supply contract to make the District a significant participant in water transfers and exchanges.

Gary Serrato, FID's General Manager from 2000-2019, had a vision"that ultimately we are all in this together," Board President Ryan Jacobsen said. Serrato boosted FID into a regional water industry force. As a visionary water leader, Gary created more water supply for FID growers through practices that improved and sustained groundwater levels. This effort includes constructing large water banking projects and encouraging growers to take surplus water during wet years to recharge groundwater supplies using their own fields. These water storage practices provided a plan for supplemental resources during drought years, ultimately keeping water flowing to the crops produced in Fresno County.

Serrato helped frame important Kings River Water Association policies, including for water importation that has increased water management efficiency.

Gary Serrato, who served 19 years as general manager during his 33 years as a Fresno Irrigation District staff member.

People often look to Gary to help lead discussions in the water world. He has been a tremendous advocate of agricultural and urban water supply in this region. Serrato was named Fresno County's 2018 Agriculturalist of the Year, led the formation of the North Kings Groundwater Sustainability Agency, and was key in working to develop important water pumping and transfer facilities now known as the Gary R. Serrato Intertie Facility (pictured below in second column).

Bill Stretch became General Manager in January 2019 and is honored to be leading FID into its second century of existence, following a great lineup of previous General Managers.

Other FID general managers have included Anson J. Gerner (1937-47), Henry Karrer (1947-56) and Robert B. Mount (1995-2000).

USBR Director's Award

Generations of Fresno Irrigation District directors and general managers have made innovative system improvement decisions. In 2019, the U.S. Bureau of Reclamation honored FID for "innovation and dedication to water conservation and management through conveyance and groundwater replenishment projects." Directors Greg Beberian (far left) and George Porter (far right) join as Mid-Pacific Regional Reclamation Director Ernest Conant (second from left) presents a plaque to FID General Manager Bill Stretch.

Introduction

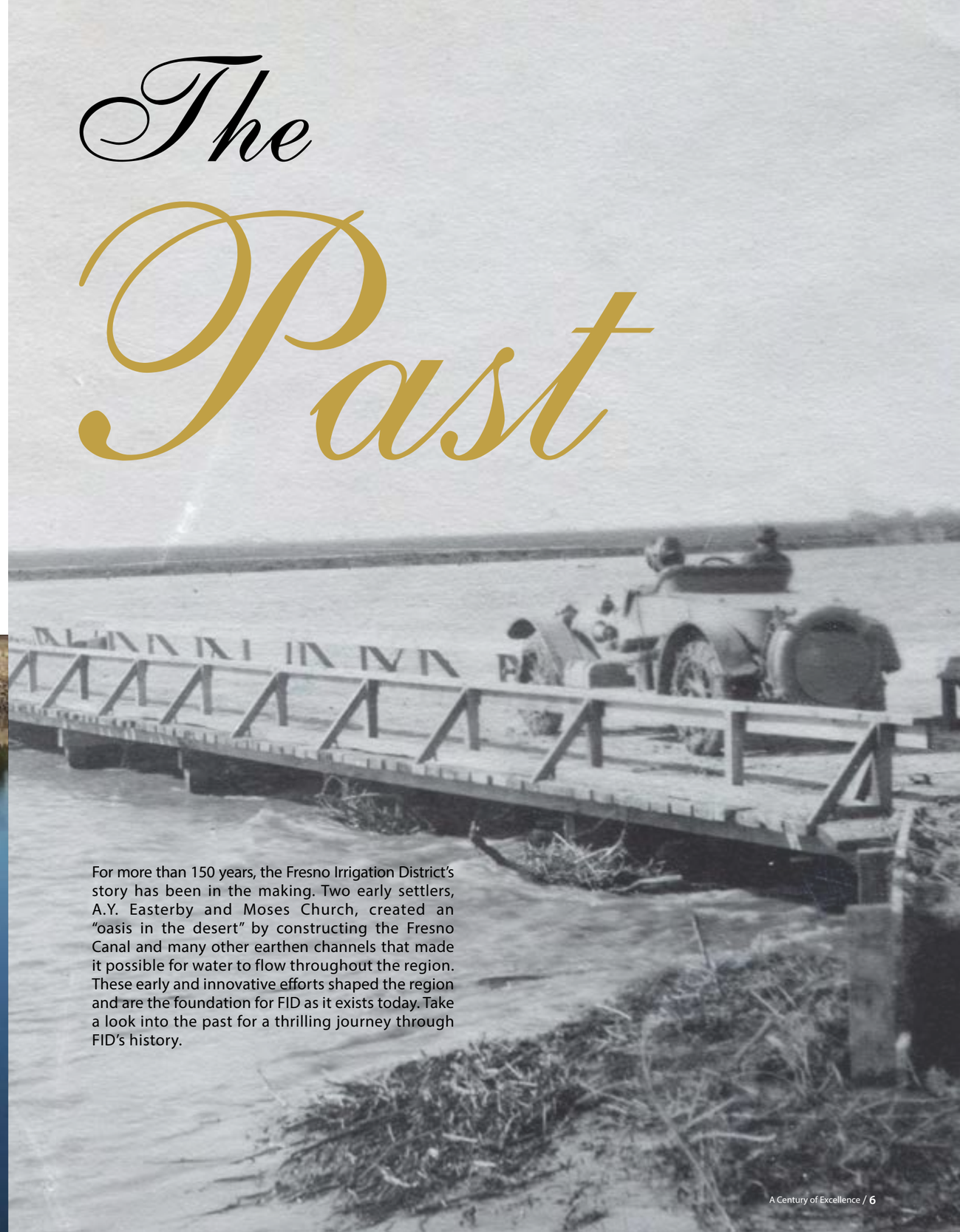
Between the San Joaquin and Kings rivers, stretching west from the Sierra Nevada's lowest foothills, is a land of incredible change. Today it is the heart of the nation's greatest agriculture industry, and so much more. Within 250,000 acres of this land has risen one of California's greatest young urban centers, with pulsing commerce and culture, and perpetually growing populations.

These farms and cities, so fortunately sited, are the product of not only generations of determined human motivation and struggle, they are matched and paralleled by the development, management and availability of the most crucial of the region's vital natural resources – water. This chosen land was favored with incredible fertility and perfect climate. Water under native conditions was limited to channels of the Kings and San Joaquin rivers. It was the region's missing ingredient.

When water's availability became a certainty, the country began to advance, fueled by determined, often challenging but ultimately successful efforts, to create networks of canals across the plains. This work was mostly undertaken by canal companies against a backdrop of costly, contentious and frustrating struggles over water rights. Progress emerged the winner and represents an onward march that has continued to this day.

For 100 years, management and deliveries of these life-giving supplies of water – for the support and survival of people, farms, businesses, industry, and cities and towns – have been the responsibilities of an important and remarkable public agency that has evolved through the years but continues to make advances in achieving its mission. This is the Fresno Irrigation District and its story.

The Past



For more than 150 years, the Fresno Irrigation District's story has been in the making. Two early settlers, A.Y. Easterby and Moses Church, created an "oasis in the desert" by constructing the Fresno Canal and many other earthen channels that made it possible for water to flow throughout the region. These early and innovative efforts shaped the region and are the foundation for FID as it exists today. Take a look into the past for a thrilling journey through FID's history.

Flooding was a common occurrence in downtown Fresno's early days as viewed in 1884 along J Street (now Fulton Street), north from Fresno Street.

Beginnings

Long before there were canals or irrigation districts crisscrossing what is now Fresno County, there was the land but little more.

It seemed to be a stark, endless prairie, populated only by antelope, wild horses, occasional tule elk and other creatures.

The region's original human inhabitants spurned the empty plains. These Native Americans – the Yokuts – resided along the wooded banks of what became known as the Kings and San Joaquin rivers, or in the foothills and more distant Sierra ranges. The valley floor between the rivers offered little more than hunting opportunities or pathways for travel to visit other tribes.

The prairie's flora was hardly enticing. "So desolate was the plain, that one could journey 20 miles in any direction without so much as finding a bush large enough to cut a horse switch," a pioneer wrote in later years about this land as travelers found it in 1870 and earlier.

The area now included within the Fresno Irrigation District would become known as the Fresno Plains, and plain it was. It was, for the most part, flat with exception of an occasional "hog wallow" of 1 - 5 feet in depth. Soil was sandy loam with some hardpan. *Fresno* took its name from the Spanish for *ash tree.*

It was derisively, but inaccurately, referred to as a desert. The surface was graced by types of native grasses that thrived on winter and spring rains, only to wilt and often vanish into bare earth under summer's intense sunshine. Strong winds regularly stirred large and blinding clouds of dust.

Only where a few small foothill-spawned seasonal streams came together at lower points within what would become FID (particularly in and near the future downtown Fresno), was there ever any significant wet relief. After larger storms, runoff would pool in what later became known as "Sinks of the Dry Creek." Like the grassland, these shallow and short-lived ponds were no match for summer's dry heat.

It was a place that, at best, harshly greeted newcomers with irreducibly minimal prospects of any future potential.

Early Settlement

"Antelope were daily seen and coyotes nightly filled the hours with their dismal howlings. Bands of sheep, a herder and a dog with each, were the only symptoms of a coming civilization. A hot, dry, dusty plain so barren and uncompromising as to cause the heart to ache at the thought of trying to make a home on it."

– AUTHOR UNKNOWN

So wrote one of the Fresno Plains' earliest settlers in looking back on an era in which all of life's experiences shaped by the prairie south of the San Joaquin River were pioneering.

And yet, families were to make homes on it. And ranches. And schools, businesses and towns. And in the process, they carved out new ways of life.

Prior to 1835, the Fresno Plains had been known only to Native Americans and a handful of explorers, fur trappers and other traders. Little changed after the American flag was raised over Monterey in 1847 and California statehood was achieved in 1850.

California's Gold Rush, however, would eventually be the catalyst for initial American settlement in the Fresno area. Modest San Joaquin River gold discoveries led to establishment of Rootville in 1851. This riverside village would soon be renamed Millerton, to become county seat when Fresno County was organized in 1856.

Gold fever only modestly touched the Kings River region but a small amount of settlement related to agriculture and transportation (such as ferryboat crossings) began downstream from the foothills in the early 1850s.

Within what became known as the Centerville Bottoms occurred the first small Kings River diversions for irrigation, starting with Byrd Slough in 1858.

Further downstream and stretching 26 miles along the river's north bank was an 1846 Mexican land grant, Rancho Laguna de Tache. This rancho some four decades later would play a complicated but crucial role in shaping the Fresno Plains' water rights.

The Fresno Plains remained unsettled well into the 1860s. That was soon to forever change as courses of water were created to moisten the thirsty soil.

Early settlers to the Fresno area encountered the empty valley dominated by fields filled with cattle.

Water and Rails

Throughout the 1850's and 60's, the Fresno Plains lacked commerce and showed no sign of community life. Gradually, however, the barren land began to be noticed. Its potential was not easily imagined.

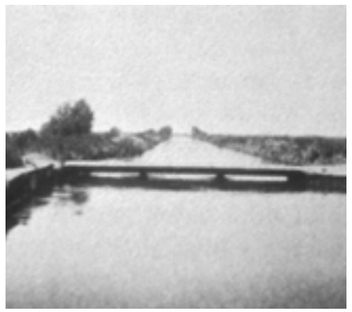
Those who arrived after the Gold Rush peaked were from far flung places but shared a desire to make a new life in California. A few went to work attempting to tame the Fresno Plains. A cattle industry was born and grew. Sheep were herded. Hogs were produced. Substantial but undeveloped land holdings were established.

There were several small farming experiments, particularly near the rivers. The first significant Fresno Plains agricultural undertaking was made possible by the 1868 purchase of 5,000 acres [east of what was soon to become the new town of Fresno] by Captain A.Y. Easterby.

Easterby was an unlikely candidate to be a Fresno pioneer. Born in England in 1818, he had taken to sea life as a boy of 14, visiting the Mediterranean and India, and making many trans-Atlantic voyages. He ultimately became a ship captain. In November 1848, Easterby arrived in San Francisco with a load of merchandise. It was his final sea command.

Easterby followed the lure of gold for a time but from 1850-54 owned commercial interests in gold-crazed San Francisco. He and his new wife sold the city businesses in 1854 and moved to Napa where he became a prominent banker and merchant. In 1864, Easterby became one of the Napa Valley Railroad's founders.

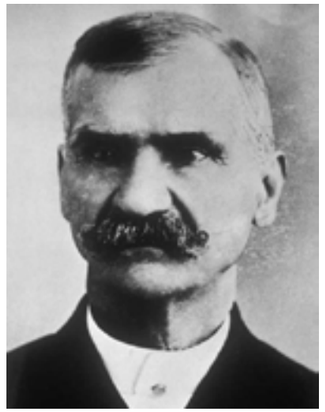
In 1868, Easterby joined San Joaquin Valley Land Association investors who were purchasing 80,000 acres of land in Fresno County. Easterby subscribed to buy 5,000 acres. He paid $1.80 per acre, sight unseen, hoping to eventually sell the land for perhaps $5 per acre.



Construction of the Fresno Canal, between the Kings River and Fancher Creek, started in 1871. By 1872, the canal (pictured) was delivering water to Easterby's ranch to irrigate the wheat fields.

A Napa County acquaintance, Moses J. Church, was desperate for better pasture on which to relocate his starving sheep. Easterby gave Church permission to drive his flock to Easterby's Fresno Plains land.

Easterby struggled over how to use the Fresno land. With great difficulty, he traveled to see his remote purchase. At Church's camp, Easterby found knee-deep grass and sunflowers 10 feet high. He concluded that, rather than being worthless desert, the land was so fertile that it would surely grow wheat. Easterby hoped his initial harvest would take place in 1869. His first crops failed for lack of water as well as damage from cattle and wild horses.



Moses Church, known as the Father of Fresno Irrigation, is credited with forming the Fresno Canal and Irrigation Co. in February 1871.

Easterby knew about irrigation. He'd seen such projects in the Mediterranean and was aware of similar plans elsewhere in California. Easterby hired Church to begin working on a plan to irrigate Easterby's farm. Both men shared another determined reason to succeed. Each had been threatened by cattlemen in the Centerville area who, were equally resolute to drive farmers' crops from their cattle country.

A survey began in 1870. Two small canals, the Sweem and Centerville ditches, were purchased along the Kings River northeast of Centerville to convey water to the projected canal route. In February 1871, the Fresno Canal and Irrigation Company was incorporated by Church. Its Fresno Canal soon began to take shape between the Kings, where a headworks structure was to be located (near a brush and rock dam Church sited in the river channel), to the usually dry bed of Fancher Creek, several miles to the west. The creek, in turn, would soon deliver water to Easterby's ranch. There, 2,000 acres of wheat were planted.

Along with water, rail transportation was arriving on the Fresno Plains.

Late in 1871, with Easterby's newly-irrigated young wheat having germinated into a sea of green, a Central Pacific Railroad inspection party reached Fresno County. Company President and former California Governor Leland Stanford and his group were inspecting the railroad's chosen San Joaquin Valley route. A major town and station were then planned on four sections of land (2,560 acres) where the railroad was to bridge the San Joaquin River [the present site of Herndon].

Visiting Easterby's farm and seeing the thriving young wheat and new irrigation works impressed Stanford. He recognized the land's potential as an irrigated region and ordered a major townsite called Fresno to be plotted on the plains nearby when the rails arrived from the north the next spring.

In the early days of the Fresno Canal and Irrigation Company, the primary crop was wheat and harvesting was accomplished by horse-drawn equipment and manual labor.

Governor Leland Stanford saw great value in establishing what he determined should become Fresno's townsite after viewing A.Y. Easterby's nearby wheat field in 1871.

A.Y. Easterby had a vision upon arrival to Fresno's plains and later became known as the Fresno pioneer by creating a means to turn desert into an oasis using water.

The Day Stanford, Easterby and Water Founded Fresno

Condensed from the Pacific Rural Press dated July 15, 1893. This originally appeared in the San Francisco Chronicle.

"When the sprouting grain was spreading a green carpet in the midst of the desert," said Captain Easterby, "Governor Stanford, Colonel Gray and Mr. Towne met me on the ranch, It was a revelation to them – the first green spot they had seen since leaving Stockton on their railroad route, which they were then traversing… .

"They called it an oasis in the desert. The place looked very pretty with the water running through it. 'Here,' exclaimed Mr. Stanford, 'we must have the town located.' They had already purchased four sections of land at Sycamore Bend [contemporary Herndon] for a townsite but the fine appearance of my place with its water supply caused them to change their minds. I explained to the Governor that doubtless he could purchase all the land he required for the townsite from the association… [from which] he soon after procured the present townsite of Fresno. The City of Fresno is therefore indebted to me for its present location."

The Central Pacific reached Fresno on April 19, 1872. Easterby received the first freight shipment – 18 carloads of wood with which to fence his property. After harvest, Easterby shipped Fresno's first freight, moving 20,000 sacks of wheat to San Francisco.

Moses J. Church: Fresno's 'Father of Irrigation'

The Central Pacific Railroad, the valley's new and much-improved transportation link, in the 1870s was moving people and goods. It was obvious to Fresno's first residents that canals from the Kings River had truly ushered in the beginning of major development.

Moses J. Church, working with A.Y. Easterby and a few others, took the lead in planning the Fresno Canal and its use of a natural stream — Fancher Creek — to convey water onto the Fresno Plains. In February 1871, Church's Fresno Canal and Irrigation Company began developing and expanding direction of the Fresno Plains' irrigation system and management, as it did for nearly a half century. Church became known as the "Father of Fresno Irrigation."

Church, like virtually all Fresno area pioneers, was a native of somewhere else. He was born in New York state in 1819. Church came to California as a blacksmith in 1852 and the following year helped construct a canal along the Cosumnes River. He eventually entered the sheep business in Napa County before arriving on the Fresno Plains at Easterby's invitation in 1868.

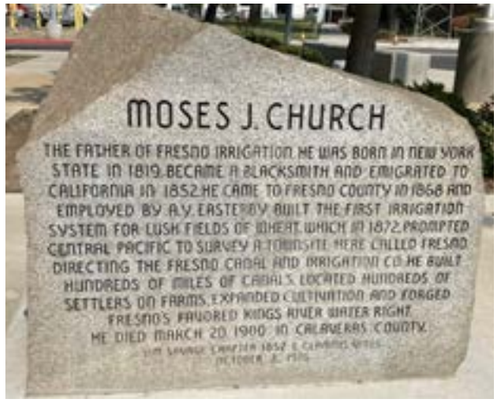
The Fresno Canal lured would-be farmers and inspired the new town of Fresno. Land was soon selling quickly.

Establishment of so-called colonies — essentially agricultural subdivisions on which parcels were sold along with water rights — fueled this growth. The first of these, proposed in 1875, was the 4,000-acre Central California Colony, plotted for family farms south of downtown Fresno with lots of 20 acres by Bernard Marks and William D. Chapman.

Canals and colonies soon transformed the barren Fresno Plains into highly productive farmland, enabling extensive wheat cultivation and, within little more than a decade, introduction of grape and tree fruit crops.

This, coupled with the railroad's initiation of fairly rapid and reliable — although expensive — transportation, plus arrival of aggressive and promotion-minded land speculators, led to rapid Fresno growth. By 1874, the county seat of Fresno County had been transferred to the new settlement from Millerton.

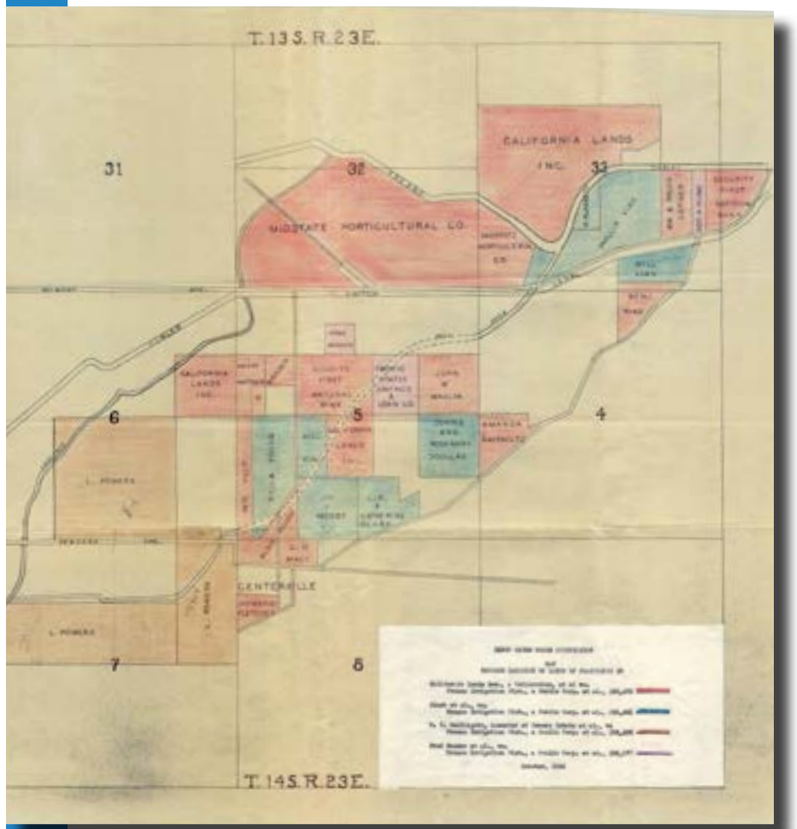
Moses Church would have to contend with many dilemmas in the years ahead, but his grand irrigation system scheme succeeded. By the late 1880s, the artificial streams Church pioneered had brought life throughout the Fresno Plains.



Moses J. Church, who pioneered what in 1920 became the Fresno Irrigation District's water conveyance system, is honored and recalled in this historical monument a few steps from the FID office's front door.

This colorful map advertised Perrin Colony, a large agricultural subdivision southwest of Fresno. Such promotions attracted large numbers of settlers who developed farms on the plains.

The Freewater Arrangement



This map shows the Freewater service area and its land ownership as it existed in 1934 during a period of litigation. The town of Centerville is on the left (western) edge of Section 8. The Fresno Canal is in the map's upper portion as it passed through Section 33 and 32. The area has been served by the Freewater County Water District since 1955.

Before the Fresno Canal's builders tapped into the Kings River northeast of Centerville, they found two strategic portions of other canals in the way. This predicament was resolved by Moses J. Church with a unique solution that exists to this day.

These small, slightly older canals were the Sweem and Centerville ditches. In a complex series of deals, Church first gained a controlling interest in the Sweem ditch. Through the Sweem and other nearby creeks and sloughs, the first Fresno Canal diversions were made in 1871.

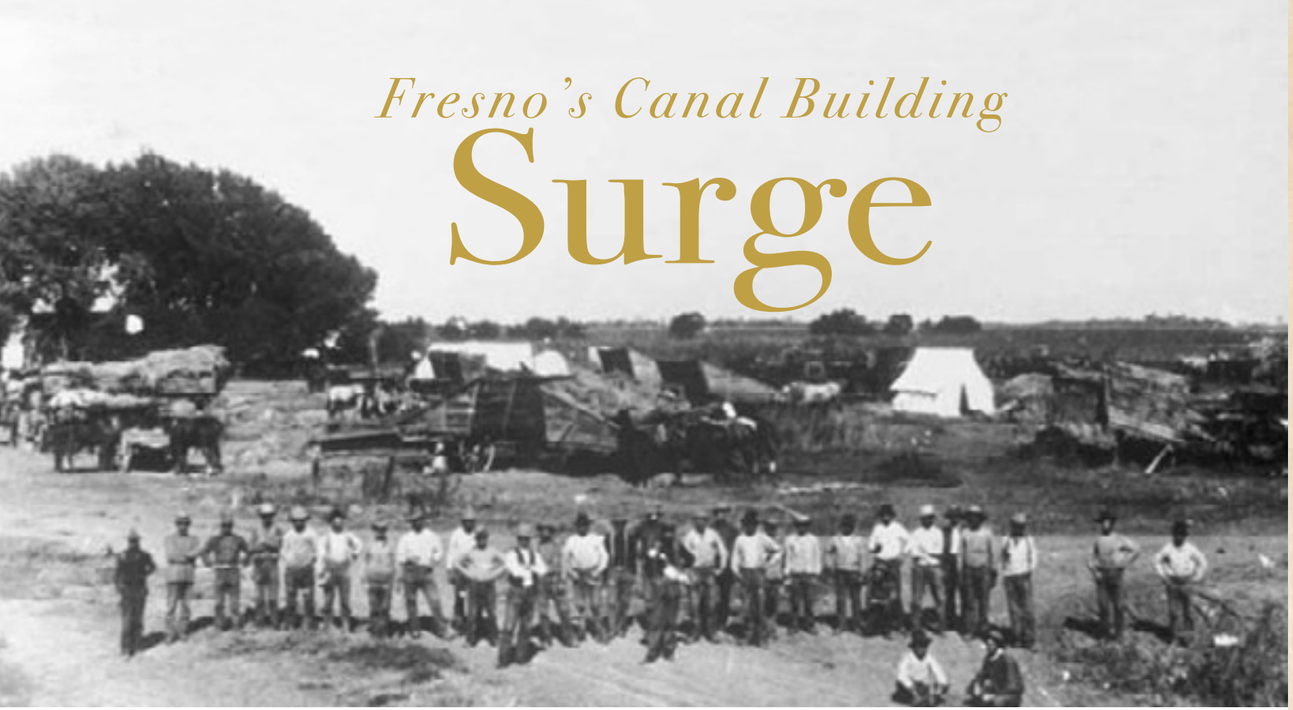
Then came realization that far more efficient would be locating of the Fresno Canal's upper reach within the Centerville Ditch's alignment. For this, the Fresno Canal and Irrigation Company in 1874 purchased the Centerville Ditch from its stockholders for $10,000.

Actual water, however, was more essential than revenue to those whose total of 2,000 acres were irrigated from the Centerville Ditch. They emphatically demanded firm water rights from the Fresno Canal. Church ultimately agreed to pay for the older canal's construction cost and, in perpetuity, deliver the same amounts of water to the Centerville lands free of any charges.

Thus, the Freewater area was fashioned. For decades, its growers enjoyed distinct Kings River water rights. In 1938, in a court settlement, Freewater's rights were assumed by the Fresno Irrigation District in exchange for FID agreeing to provide water. In 1955, the Freewater County Water District was organized and has since owned, maintained and operated its own distribution system. Freewater can store up to 1,300 acre feet in FID Pine Flat Reservoir storage space.

Fresno's Canal Building

Surge



Workers standing in a Fresno Canal construction camp about 1871.

In a thirsty land that transitioned from frontier to valued farmland in 10 years or less, it was no surprise that other Fresno area canals and companies quickly became reality.

Moses Church's company, its water supplies and the nearly instant settlement boom with agricultural and commercial development, continued growing. Small farm lateral ditches and other primary canals were built.

So was a second major canal company system. Even before Church's construction had managed to coax water from the Kings River into the Fresno Canal and Fancher Creek in 1871, the Kings River and Fresno Canal Company was organized. Its project languished. By 1874, nurseryman L.A. Gould and other investors bought the company to bring water to lands north of Church's system, ultimately including the Gould and Enterprise canals.

A good deal of legal conflict existed between the Church and Gould systems until 1885. Then, a lengthy court case concluded. The Fresno Canal and Irrigation Company purchased the Gould Canal and, soon after, the Enterprise. With that, Church controlled essentially all the primary canal distribution system now serving the Fresno Irrigation District. In 1877, he sold the company to a bank, only to repurchase the firm a few years later.

The Fresno company sold water rights to landowners under contracts initiated on February 16, 1871, when Church incorporated the firm. These were to expire 50 years later. Annual charges for first-and second-class water were typically 62½ cents per acre, but occasionally as high as $1 per acre if the Church company maintained lateral canals or community ditches. There were frequent disputes over water deliveries and maintenance. Rights-of-way were also causes of friction.

Fresno's irrigation and farm development swiftly inspired similar interest along the Kings River. One of the earliest projects was made possible by Church. In 1875, Church granted water rights to pioneer settlers north of Kingsburg with water to be delivered from the Fresno Canal into the advantageously located Lone Tree Channel, a natural foothill stream. In return, the Kingsburg farmers spent months in 1875 and 1876 increasing capacity, digging and deepening the Fresno Canal.

The Fresno company in 1882 took over the Lone Tree and eventually expanded its service area to 8,000 acres. Although the Lone Tree's right has remained tied to Fresno's, the canal was transferred to the Consolidated Canal Company in 1921.

An early-day Fresno Canal and Irrigation Company control structure.

Water Claims and Conflict

Those desiring to build a canal onto the thirsty prairie from the Kings River only had to make a simple posting of intent and, with equal ease, record a legal notice with the county clerk. Such filing notices, as required by an 1872 state law, were used for Fresno's incipient water system. They listed the type and size of the canal, the intended purpose and service area, and how much water was being claimed. The effective date was that of the original posting, although the action was not valid until water was actually being delivered. Theoretically at least, such postings and recordings established a more senior right for the filer as opposed to any subsequent applicants.

This procedure had unfortunate flaws, the greatest being the lack of any meaningful official and technical oversight. That included keeping track of how much flow the river was supposedly compelled to give up.

By 1900, only a little more than four decades after its first water claims were made, there were 355 Kings River appropriative postings. Taken together, these claims would have required a full natural flow of 750,000 cubic feet per second (c.f.s.) to fulfill. This would have been nearly 6½ times greater than the Kings River's highest flow ever recorded. On the flow scale's other extreme, the river's late summer runoff has been known to drop below 100 c.f.s.

Such radical actual flow variability compared to the fantasy of those pioneering water claims insured conflict surrounded the earliest Kings River water uses and users. Chaos and court fights would rule the river's water rights for decades.

The Fresno Canal and Irrigation Company for years would be at the center of that storm.

Early-day Fresno County irrigators were a tough lot and many an acre-foot of disputed water was coaxed through head gates at the business end of shotguns.

APPROPRIATIVE AND RIPARIAN RIGHTS

As if California's 1850s procedure for claiming water wasn't defective enough, the young state managed to embrace two clashing water rights systems. One of those threatened to eliminate irrigation water from most new San Joaquin Valley farms, including those served by the Fresno Canal and Irrigation Company. Both systems competed for Kings River water.

Original Kings water claims were posted under the doctrine of prescriptive or appropriative right, dating from the water-use custom of Mexican California. It seemed simple enough — the first to file had the best right. The appropriative doctrine had been used in the Gold Rush and made a seemingly natural transition into the young state's broader water diversions and developments.

In 1851, the new state Legislature adopted a fairly vague law that sanctioned miners' first-come, first-served appropriative water customs.

That action conflicted with a state water law enacted more than a year earlier. California's first Legislature, meeting in San Jose in 1849-50, faced many unresolved issues. To cover such situations, law makers simply adopted English common law. Common law included the riparian doctrine, which entitled riverside properties to all the water flowing past their shorelines.

In wet years, there was enough water to meet the growing list of demands. Dry years were a much different matter. By the mid 1870s, these inconsistent water rights and their inevitable disputes were heading for court.

Riparian Fights *And* Canal Closures

Riparian claims first bothered operators such as the Fresno Canal and Irrigation Company during a dry 1876-77 water year. Owners of two substantial downstream riparian ranches took legal action in the spring of 1877, accusing the Fresno company of drying up the lower river. Courts were asked to bar such diversions on the Kings and other streams. When wetter conditions returned with ample water for all demands the legal fights were set aside.

California's largest cattle firm, Miller & Lux, kept the riparian dispute simmering. Miller & Lux had acquired massive amounts of land along rivers to claim riparian rights. The company filed what would become California's most important riparian court case, Lux v. Haggin. This Kern River case commanded attention of water conveyors and users alike who feared ultimate victory by riparian landowners. Then, when the 1886-87 period turned up critically dry, riparian cases decided in lower courts began going against "irrigationists." A May 1888 State Supreme Court ruling upheld riparian claims.

On the Kings River, many canal operators — Fresno's included — were ordered by courts to reduce or stop deliveries. The Fresno Canal and Irrigation Company was permitted a token diversion of 100 cubic feet per second, far less than the water rights Moses J. Church had sold to Fresno growers.

During that era it was not unusual for desperate, water-short farmers to arm themselves and seize headgates to keep water flowing, completely illegally. Long, complex legal battles stretched into decades.

The Fresno Canal and Irrigation Company, through a most unlikely scenario, would soon play a key role in resolving these water rights disputes.

← Charles Lux

Henry Miller →

Fresno's Riparian Manifesto

Condensed from a Fresno Caucus of the Anti-Riparian League manifesto, adopted at a Fresno convention in 1886. It well defines what farmers and canal operators thought of riparian water claims.

"The streams which traverse these valleys have had their heads in perpetual snow. Riparian ownership denies their flow to the thirsty earth and condemns it to evaporation in the thankless sea… The English common law doctrine of riparian ownership is repugnant and inapplicable to the physical conditions of this state… ."

Blowing Up a Fresno Water Claim

As water rights disputes rumbled through San Joaquin Valley courts, the next dry year — 1883 — came along, proving battle lines were not always based on riparian claims.

By 1883, many more new Fresno County farms were depending on water delivered from recently-built canals. The Fresno Canal and Irrigation Company's river diversion was, however, taking nearly all the Kings River's drought-reduced spring runoff, leaving downstream canals and farmland dry.

William H. Shafer, Centerville and Kingsburg Canal superintendent and engineer, acted on behalf of Kingsburg and Selma area farmers who had been denied water for their C&K Canal. Shafer obtained dynamite from a Visalia dealer and made his way to the Fresno Canal's rock and brush weir above Centerville.

There, to the chagrin of the Fresno company, Shafer blew the dam out of the river, letting water flow to the thirsty south county.

Water rights issues and riparian disputes were frequent subjects in early publications, including Pacific Rural Press. The periodical, published between 1871-1940, frequently covered Kings River developments such as the lawsuit reported in this article.

PACIFIC RURAL PRESS.

THE IRRIGATOR.

Another Riparian Rights Decision.

The recent decision by the Supreme Court seems to make more certain that it is only riparian law and precedents which our judges can accept. The Tulare *Times* reviews the decision and comments upon its effects as follows:

The decision of the Supreme Court of the State in the case of Hielbron et als. vs. the Fowler Switch Canal Co., strikes us as being most disastrous to the appropriators. Instead of being, as we had hoped, more liberal toward irrigation than former decisions, it is more ultra riparian than the famous decisions of Lux vs. Haggin, rendered four years ago.

The Fowler Switch Canal Co. several years ago appropriated 1500 feet of water from Kings river, built a canal having a capacity of 1500 feet, at a cost of $110,000, and have, usually, diverted less than 300 feet, but none of the canal-owners, nor the lands watered, are riparian, and no part of the water can get back into the river again. The issue is, therefore, squarely defined between riparian owners and the appropriators who are not riparian owners. The canal company did not and could not plead the statute of limitations so that was eliminated from the case.

The defense the canal company sought to make was, that it does not propose to divert and has not diverted water from Kings river when such diversion would materially injure the riparian owners below, or when it would cause an appreciable diminution of the volume of water flowing in the river, thus relying upon the doctrine that when enough water was left in the river to supply the reasonable wants of all the riparian proprietors, the appropriators might have the rest.

Surely it was not too much to expect of the Supreme Court that it would accord the appropriators the right to use water that the riparian owners did not need, but not so. According to this decision, the only time when an appropriator, who is not a riparian owner also, can take water from a stream is when such a flood exists as would actually damage the riparian owner were the water not taken out. The appropriator can not divert the water even when the river is bank full, nor yet when it overflows its banks, if the riparian owner prefers to have it overflow. He may venture to take water only when he sees the riparian owner's cattle drowning and his buildings floating away. Upon this the court said: "But the rights of the riparian proprietor do not depend upon the quantity of water flowing in the stream, nor can that flow be said to be an extraordinary flood which can be counted upon as certain to occur annually and to continue for months." Further on the court plainly implies that the only water an appropriator may take is that of "casual and unusual freshets." The opinion in this case was written by Jackson Temple and signed by McKinstry, McFarland, Thornton and Sharpstein.

Now, appropriator, look this matter squarely in the face, and where do you stand? The fact of the business is you can have no standing at all in any court in this State. The statute of limitations is your only hope. If you have diverted water for five years, uninterruptedly and adversely, and not a single riparian owner below you has objected during that period, and no one of the riparian owners below you has been under any legal disability during that time that would prevent his objecting, you are safe in your right to divert water, otherwise you have not a shadow of right, and can not acquire it by appropriation. The riparian owners of California have the right to the full flow of the streams of California, "undiminished in quantity and unpolluted in quality by any appropriator, who is not also a riparian owner," to everything except "casual and unusual freshets."

Beginnings
of a Kings River Solution

Riparian rights conflicts were to lead to major changes. Few in early Fresno, however, realized what was about to happen.

In 1887, months before the California Supreme Court upheld the riparian doctrine, the "father of Fresno irrigation," Moses J. Church, sold the Fresno Canal and Irrigation Company. An agricultural speculator and developer, Dr. E.B. Perrin, purchased the firm for $200,000, even though the company was involved in several dozen court cases. Church lamented that litigation had cost more than building the canals.

Litigation had been brought against many canal companies, including Fresno's, by operators of Rancho Laguna de Tache, originally a 48,800-acre Mexican land grant. The Grant, as it was commonly known, extended along the river's north bank from just west of modern Highway 99 to southwest of what became Riverdale. Subsequent deals expanded it to about 68,000 acres.

In 1885, a large cattle firm that leased and controlled the Grant, Poly Heilbron and Company, went to court. Injunctions were won against Church's Fresno system and most other Kings River canals. The court ordered nearly all water diversions ended. Farmers ignored court orders as litigation dragged on.

Perrin spotted a solution down river within the Laguna Grant itself. On May 13, 1891, Perrin's Fresno Canal and Irrigation Company, supported by $1 million in financing by English and Canadian investors, purchased the Laguna de Tache Grant.

Pieces of the overall solution were now mostly in place. Implementation soon followed.

Dr. Edward B. Perrin, whose 1891 purchase of the Laguna de Tache Grant led a year later to the Fresno Canal and Irrigation Company gaining much of the Kings River's low-flow water rights.

Dr. E.B. Perrin

Dr. Edward B. Perrin was a symbol of great progress and considerable controversy in 19th century Fresno area farming and irrigation issues.

A native of Alabama, he served as a Confederate Civil War physician. After the war, Perrin took up a new career in Western land development, first in Arizona and later in Fresno County. Some historians say he purchased as many as 500,000 acres beginning in the late 1860's. Perrin subdivided six agricultural colonies bearing his name. The first was a few miles west of Easton. His other land stretched from north to west of downtown Fresno, and included the Herndon townsite. Property sales created capital with which Perrin entered the canal business.

Perrin purchased the Fresno Canal Irrigation Company and only then was able to fully provide irrigation water to his properties. The canal company, under Perrin, went on to buy the Laguna de Tache Grant and other Kings River property to gain control of water but financial losses added up. Perrin lost ownership in a foreclosure that would have long-term regional repercussions.

An 1870s camp on the future Laton townsite shows the wild character of Rancho Laguna de Tache in the years before most of this large but lonely Mexican land grant's riparian water rights were transferred as part of a historic 1892 sale to the Fresno Canal and Irrigation Company.

When the Riparian Puzzle Pieces Fell Into Place

Most important of all the complicated formalities accompanying Dr. E.B. Perrin's costly purchase of the Laguna de Tache Grant to gain control of its riparian rights took place on May 4, 1892.

Two deeds were recorded in Fresno under which Perrin and associate George Clerk Cheape separately transferred title to a total of 2,500 cubic feet per second (c.f.s.) of Kings River flow — representing the Laguna Grant's riparian right claim — to the Fresno Canal and Irrigation Company. These deeds presented Fresno with the right to divert 1,400 c.f.s. plus, under certain circumstances, another 1,100 c.f.s. The price paid for these fundamental water transfers was $1.

Eleven months later, Perrin and Cheape conveyed the Grant property to the Fresno Canal and Irrigation Company. Firm and ample supplies of water provided by these transactions sent Fresno land values soaring.

For Perrin, the good times didn't last long. By the close of 1894, a national depression had begun. Perrin's English and Canadian investors foreclosed. L.A. Nares, one of the English capitalists, took over the Fresno Canal and Irrigation Company's management as well as that of the Grant. These ownerships and the Grant's old riparian rights essentially gave the English and Canadian investors full Kings River control for more than 25 years.

Nares sought more Kings River legal stability. In 1897, he brought the senior Kings River diverters together to frame and adopt the river's first water flow entitlement schedule. This agreement included only the Fresno company and three lower river firms in Kings County, Peoples Ditch Company, Last Chance Water Ditch Company and Lower Kings River Ditch [now Lemoore] Company, as well as a small but constant Laguna Grant supply.

Only the river's low flows below 1,900 c.f.s. were included but it was a start. Many lawsuits were dismissed or settled. The agreement was generally recognized by other river users. The original schedule's numbers were included in later agreements and remain in use today.

How the Kings' First Water Schedule Became Reality

Condensed from the writings of I. Teilman, Fresno Canal and Irrigation Company engineer, in The Historical Story of Irrigation in Central California, by Teilman and W.H. Shafer.

"Mr. Nares did not like this idea of being a whole hog and preventing the farmers from taking the water when he could not use it himself and let it run…without doing anybody any good. He… set out to see if he could make a permanent agreement about the division of the water in the Kings River according to the prior appropriation of the several canal companies. He was told that it could not be done for the attorneys of the different companies would not allow it. (We need not state the reason why.) To this he replied. 'We will sit around the table without attorneys.' "

Fresno's GROWING

Canal Interests

Its frenzied formative years were concluding for the Fresno Canal and Irrigation Company. As the 19th century drew to a close, a number of business deals occurred that would eventually shape the public irrigation system organization and development that endures today.

First of these moves was a mid-1890s decision by the L.A. Nares group to take steps aimed at fairly quickly increasing value of the Laguna de Tache Grant properties. Nearly all Grant lands had been previously utilized for cattle ranching, if used at all. Economic activity was minimal. The investors' plan was to subdivide the Grant into parcels upon which modest farms could be platted, not unlike the previous "colony" system around Fresno.

Water for irrigation was not a problem. The Fresno Canal and Irrigation Company, like the Grant and its old riparian rights, was owned and operated by the investor capitalists. By 1899, as land marketing and sales were getting under way, the town of Laton was founded. In 1902, Nares and colleague Charles A. Laton — for whom the town was named — jointlyformed a land company to lead the development. Nares and Laton took title to the Grant, although Fresno's canal company continued to own the Grant irrigation system.

Nares retained management control of the Fresno Canal and Irrigation Company. The 1890s had witnessed much dissatisfaction among farmers and water agencies not protected by Fresno's riparian rights acquisition. Tense disputes led to violent incidents.

Nares again extended strategic olive branches. One was successfully dangled over the Centerville and Kingsburg Irrigation Ditch Company, which expanded its capacity to move water onto a Laguna Grant area on high ground south of Kingsburg. In return, Nares allowed the old riparian injunction against the C&K Canal to be nullified. In 1902, after the C&K and Fowler Switch canals were merged, the new Consolidated Canal Company around Selma was acquired fully by Nares' Fresno company.

Next, Nares negotiated a non-aggression and water accord with the only agency diverting Kings River water from upstream of Fresno's headworks — the Alta Irrigation District in the Reedley, Dinuba and Traver areas. With that action, the Fresno company controlled most of eastern Fresno County's valley floor water supply and much of the Kings River's flow.

Llewelyn Arthur Nares -- who guided the Fresno Canal and Irrigation Company through its greatest growth steps leading to the 1920 establishment of the Fresno Irrigation District.

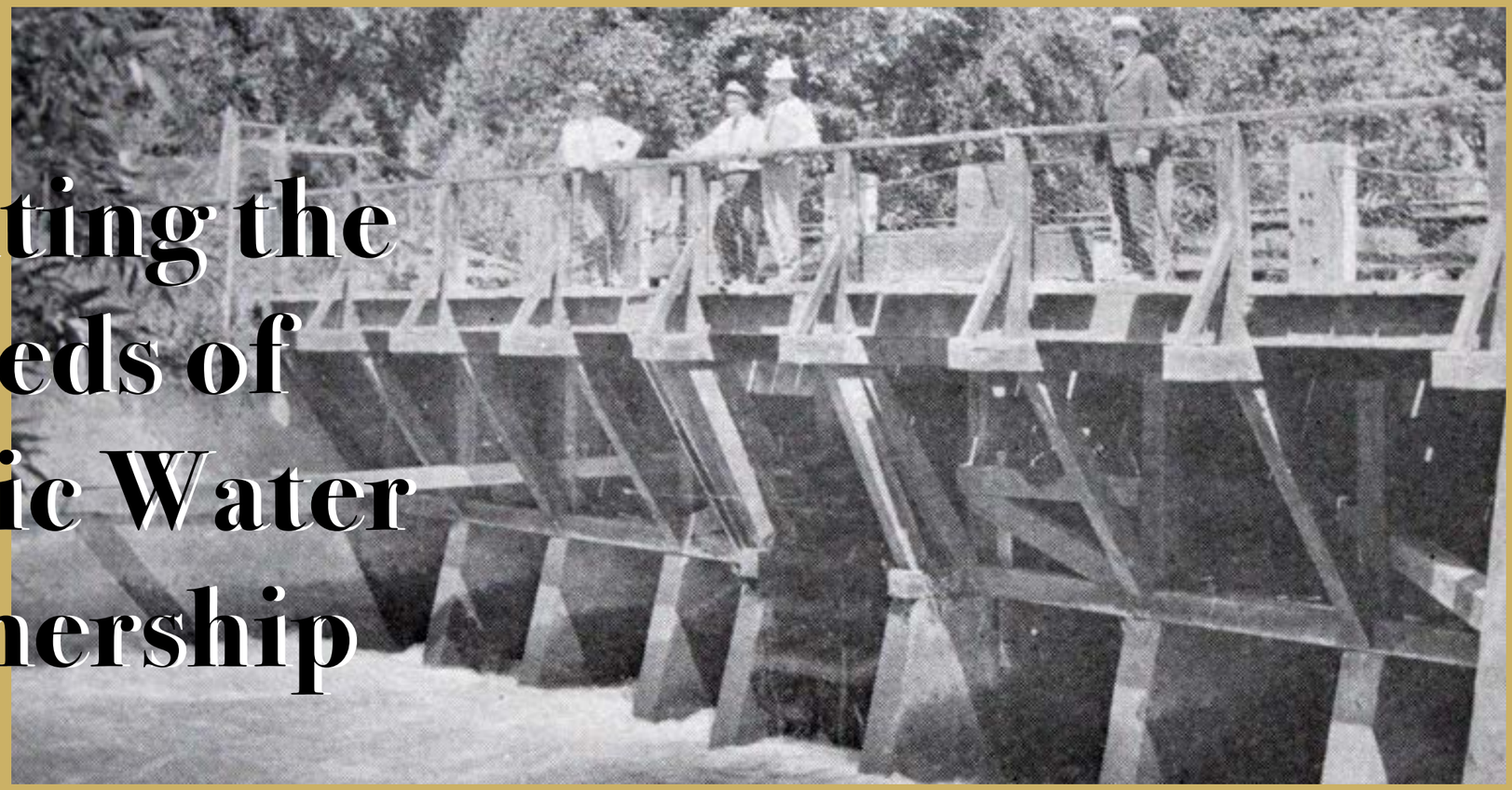
An ornate Fresno area country home in 1890.

A postcard view of Mariposa Street toward the Fresno County Courthouse illustrates Fresno's growing commerce and business expansion in the 20th century's earliest years.

Simply built schoolhouses such as Fort Washington School dotted the countryside brought to life by Fresno's early-day canal system. Many of these schools were later surrounded by urban growth in Fresno and Clovis.

Harvesting grapes to make raisins near Fresno in 1913.

Planting the Seeds of Public Water Ownership



↑ Fresno Canal and Irrigation Company executives look over the Fresno Canal from atop Pine Flat Dam and Reservoir, and for public ownership and management of the Fresno Weir in 1918 as Kings River regional support was growing for development of Fresno canal system itself.

Fresno's water development had been founded by building monopolies in conveyance, distribution and, most importantly, control. Dr. E.B. Perrin's successful effort to wrest away the Kings River's riparian straitjacket by buying the Laguna de Tache Grant, followed by L.A. Nares' water rights compromise of 1897, were initially cheered by that era's Fresno County farmers who believed the Kings River's monopolization had been broken. It had not.

Nares' administration of an insurance syndicate's new ownership resulted in his leadership of the Fresno Canal and Irrigation Company around Fresno; Laguna Lands Limited, Summit Lake Investment Company, and Laton and Western Railroad on the Grant; and the Consolidated Canal Company around Selma. He and his investor colleagues controlled Kings River water used on more than 400,000 acres.

Farmers had to enter into contracts spanning 50 years in order to receive water. Many were not pleased. Most, however, remained primarily interested in developing their own farms, homes and communities in the land they'd pioneered. Except to voice complaints, few took part in company water business, operations and projects overseen by I. Teilman, the water engineer and superintendent for Nares.

As a result, the region's earlier anti-monopolistic fervor and campaign failed. Nares held all the cards, but offered the Fresno area's first significant water-related peace, progress and stability.

Moving into and through the 20th century's first generation, Fresno's agricultural water systems and land values joined the greater community in steady advancement. This growing maturity helped the region cast off its pioneer era trappings and germinated public interest in water resources and ownership.

Among those were the Sierra Nevada water supplies that had enabled the Fresno area to overcome being known as a desert. Water made the once-empty plains blossom into agricultural gardens filled with productivity. That vital resource began to be directed into meeting contemporary needs and desires.

Three unresolved Fresno area water concerns needed addressing. These included still-unsettled regional water rights, monopolistic water company practices, and planning and developing water storage projects. All three were ideas hatched late in the 19th century. By 1920, they were being coaxed toward outcomes enduring today.

Taking longest to become reality — more than 70 years — were Pine Flat Dam and Reservoir. Storage correctly came to be viewed as a means of harvesting and conserving winter and spring runoff for irrigation use during the valley's hot, dry summers when river flows were usually too low to meet needs. Major 1906 flooding raised public interest in controlling high flows.

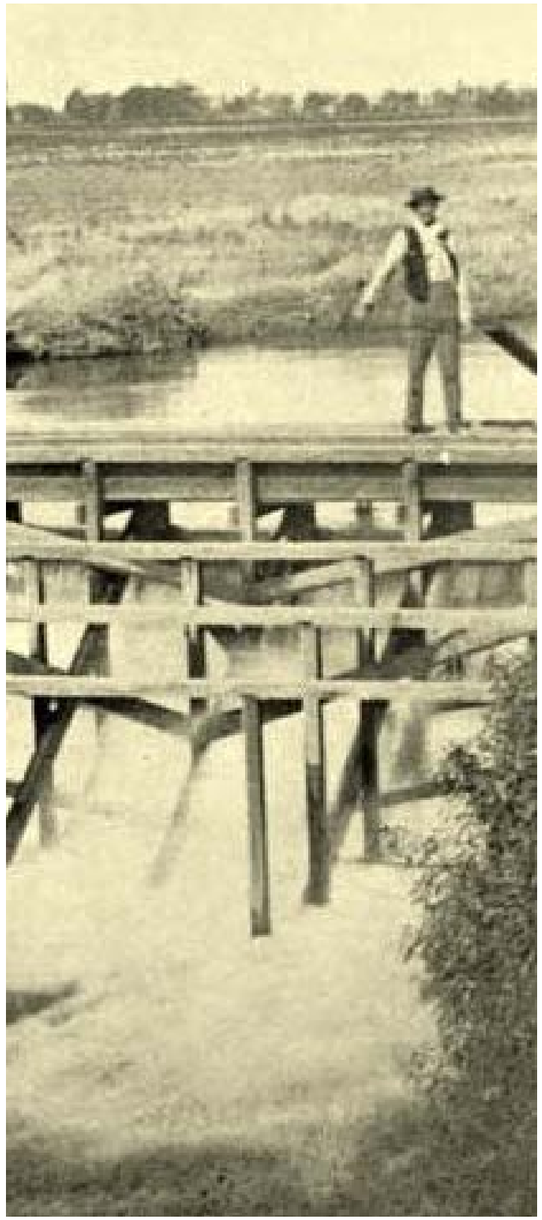
In 1909, Fresno Canal and Irrigation Company President L.A. Nares and Superintendent-Engineer I. Teilman filed what was called the "Pine Flat Notice" to appropriate some surplus and flood runoff water. Five years later, M.F. Tarpey applied with the California Water Commission for Kings River storage rights as part of a growing movement, started in 1913, to build Pine Flat Dam. Proponents went so far to propose regional public districts that could sponsor and arrange project financing and construction.

Interest in Pine Flat would lead directly to transitioning irrigation system control from private hands into public responsibility. A longer process, but one also ultimately successful, sought to resolve Kings River water rights.

Water rights had been the Kings River's first great issue. The riparian dispute and its court-ordered bans on most canal deliveries were set aside, but not resolved, by Fresno's Laguna de Tache Grant acquisition and low flow entitlement compromise agreement leadership. Pine Flat Project proponents realized that remaining water right lawsuits and related disputes would block any hopes of financing and building a dam. In 1913, efforts were started to settle the river's remaining water right controversies.

A big step forward was taken in 1917 when Kings River water users asked the state to provide an impartial water engineer. Charles L. Kaupke was named. He quickly went to work to gather data on river flows, diversions, canal capacities and historical uses, information that would be required to prepare an entitlement schedule for the river's "units," as they became known. During a dry 1919 season, these agencies unanimously asked that state officials designate Kaupke as Watermaster to arbitrate diversion disputes.

Also during 1919, a separate movement was taking shape to bring public ownership to Fresno's canal system. As it turned out, what by then had been renamed the Fresno Canal and Land Corporation, was in its final months as Fresno's privately-owned canal operator.



Paving The Way Toward An Irrigation District

As momentum promoting the Pine Flat Dam's development increased during the World War I years, Fresno Canal and Land Corporation customers found themselves unsettled over a crucial irrigation contract situation. Growers feared their annual water costs would increase substantially. Fresno's original 50-year farm-water rights contracts were due to expire in 1921. The canal company had made known its intent to boost annual charges of 62.5 cents per acre.

At the same time, Pine Flat proponents believed the Kings River water storage project would have a much greater chance of success if farm water customers were represented and served by publicly-owned irrigation districts.

Irrigation districts were not a new concept. California's Legislature in 1887 approved the Wright Act, a law permitting an area's residents to form a public irrigation district and bond their property. Modesto's was first. Along the Kings River, in an area served by the '76 Land and Water Company, the Alta Irrigation District was formed in 1888 and soon became California's first public district to deliver water through canals it had purchased east of the river.

Also in 1888, growers south of Fresno who had lost all legal rights to divert Kings River water because of the riparian rights dispute, took similar action. They petitioned the Fresno County Board of Supervisors to authorize the Selma Irrigation District. Supervisors turned down the plan but the next year support mushroomed for a similar proposal. Early in 1890, the Fresno area entered the public district debate. What was termed "the big irrigation scheme" was to create a 600,000-acre district, including the Fresno company's service area. Selma district proponents embraced the larger plan but it was bitterly opposed by the Fresno Canal and Irrigation Company.

County supervisors rejected the "big" proposal but authorized formation of the Selma Irrigation District, which was approved in an April 1890 election, only to lose three bond elections aimed at acquiring the private canal companies. By 1907, Selma's district was on its way to dissolution.

This and other public district failures severely dampened Fresno's appetite for organizing such a public agency until the Pine Flat Project began taking root.

The Fresno Irrigation District Becomes Reality

In 1920, with interest growing quickly in creating what would become the Fresno Irrigation District, solutions to key issues were falling into place.

One involved operational and legal structures that had often plagued the first irrigation districts. Those included poor planning, insufficient financial supervision and endless litigation challenging the enabling legislation, the Wright Act. Irrigation bonds offered by many early districts simply could not be sold.

By 1915, the concept of public water had advanced sufficiently for irrigation districts to become viable alternatives to commercial and stockholder-owned water companies. Public agitation for a public system grew. The California Railroad Commission [predecessor of the Public Utilities Commission] regulated the canal company and had long been hearing complaints from Fresno landowners.

Fresno County voters approve FID formation

In August 1919, petitions requesting the Fresno Irrigation District's formation began to be circulated. Citizen committees went to work to deal with organizational issues, not the least of which was the necessity of determining whether such a district could provide landowners with water at a reasonable cost.

At the same time, the Fresno Canal and Land Corporation asked the Railroad Commission to authorize increasing annual per-acre irrigation charges from 62.5 cents to $3.40 when its original water rights contracts expired February 16, 1921. Much controversy followed.

Then it was learned that L.A. Nares, canal company president, actually supported establishment of an irrigation district. So did the company's English and Canadian investors who, it turned out, were seeking a way to shed their Central California water and land interests. Nares and Engineer I. Teilman became listed as active FID supporters.

FID's organizational petition signed by 788 landowners went before the Fresno County Board of Supervisors on March 1, 1920 and several weeks later was set for election.

On June 15, 1920, by a vote of 1,438-184, the Fresno Irrigation District gained approval. Its organization was made official by county supervisors on June 28. A day later, newly elected charter FID Directors M.F. Tarpey, E.J. Bullard. W.A. Groves. Herbert E. Vogel and P.B. Thornton met for the first time. Tarpey was elected president.

The Fresno Irrigation District was reality. Private company control of Fresno's canals would soon be at an end.

FID's Original Board of Directors

Michael F. Tarpey
1920-1925

Herbert E. Vogel
1920-1925

E.J. Bullard
1920-1925

W.A. Groves
1920-1937

Philip B. Thornton
1920-1934

From the Fresno Irrigation District's earliest days in 1920, there was no shortage of maintenance requiring attention.

HOW FID GEARED UP FOR BUSINESS

As the Fresno Irrigation District opened up shop in the summer of 1920, for the Fresno Canal and Land Corporation it was pretty much business as usual. Not only did the canal company still own the Fresno canal system, the firm continued operations and water deliveries since FID essentially began with an empty treasury and no canals.

An irrigation assessment roll had to be created, water charges levied and, to purchase the canal company's property, bonding had to take place. FID directors solved their immediate funding needs by borrowing $20,000, which was to be repaid by January 1, 1922. These borrowed funds were used to administer FID, compensate the canal company for operating the system and pay early costs of property acquisition.

The District scheduled an election for February 8, 1921 to consider two bond measures — one for $1,725,000 to pay for the canals and property and the other for $250,000, with proceeds to be used for system improvements. Both measures passed overwhelmingly, the first by 1,568-74 and the second, 1,501-78. Only eight days later, on February 16, 1921, FID assumed canal operation and maintenance. Bonds were sold in late April, and the title and water rights were transferred to FID on May 16, 1921.

Maintenance work is performed on an early-day Fresno Irrigation District facility by an FID worker operating a horse-drawn Fresno scraper. Invented in Fresno County, such scrapers were used until mechanized bulldozers were developed.

The district wasted no time in planning system improvements. Work was started in the fall of 1921 to improve a canal system filled with old wooden structures. Hundreds were considered unsafe. Most, including headworks of the Fresno and Gould canals, were inadequate. Top priority was given to replacing the dilapidated wooden structures with concrete construction.

Work continued for five years as assessment revenue became available, adding up to $438,817 worth of projects. The two system headgates were replaced. More than 5,000 grower turnouts from canals and laterals were built. Later efforts were aimed at resolving seepage problems.

The young district was off to a good, satisfying and productive start.

Early District Operations

Canal improvements were every bit as important as assuming management and paying for the old Fresno Canal and Land Corporation system. This construction crew is at work on one of the many Fresno Irrigation District projects undertaken in the 1920s to replace many facilities that in FID's first decade were a half-century old.

Governing one of California's largest irrigation districts was, from the start, a challenge. Right away, FID directors and their assessor began grappling with water distribution and various state requirements.

To address such concerns, FID quickly adopted rules and regulations, and defined service classes. The new rules provided water apportionments would be one cubic foot per second for each 10 acres in a 24-hour period. All deliveries were to be on a rotational basis. Many other details were included, including provisions for establishing service to unwatered lands. Other conditions addressed river flow variations. That process continued with deliveries made on a run-of-the-natural-river entitlement basis that lasted until Pine Flat Dam's 1954 completion made possible deliveries from reservoir storage.

Canal bank maintenance was a problem recognized in FID's early years. From the Fresno Canal and Irrigation Company's beginnings, trees, brush, weeds, fences, corrals, advertising signs and other obstructions hampered maintenance. Some farmers gave little care to how their planting, cultivation and harvest work affected canals. FID rights-of-way were frequently ignored. Some growers who owned private ditches blocked neighbors' canal uses. Beginnings of hard economic times in 1924 that led into the Great Depression years made resolution of such problems difficult.

Aquatic weeds were a stubborn issue. At first, the Fresno Canal and Land Corporation's tried and true control tools — horses, mules, plows, scrapers, mowing machines and exhaustive hand labor — sufficed. Better equipment availability led to use of tractors, graders, bulldozers, slopers, draglines and backhoes, greatly reducing hand labor. Chemical control eventually was found to be even more economical.

In later decades, development of sloper devices for cleaning canal banks proved to be a significant Fresno Irrigation District maintenance aid.

Financially and in terms of service, FID quickly grew into a success. In its first four years, the District doubled the old company's holdings and boosted its customer total to more than 8,000. Deputy State Engineer Paul Bailey in 1925 congratulated FID for "reconditioning of a system that was unfit for satisfactory service but a short time ago."

A Fresno water historian, Todd A. Shallat, later wrote, "So healthy was the new District that it survived severe drought and national depression which, after 1929, felled irrigation districts across the state."

FID's bonds for the system's purchase were retired as scheduled on January 1, 1932. Landowner per-acre water charges were dropped 64% within two years. By 1934, FID had become the San Joaquin Valley's second largest water purveyor.

Flooding Woes and Controls

A 1938 flood inundated much of the then-new Fig Garden neighborhood, as viewed in a newspaper's aerial photo.

A recurring Fresno area problem, experienced since the new town's 1872 founding, was flooding from heavy winter and spring rains that occasionally transformed the sparse desert grassland into lakes and swamp. Some early settlers had experienced one or both of the valley's two greatest floods ever observed, in 1861-62 and 1867-68. In most such events, the Fresno region's major rivers — the Kings and San Joaquin — were not the culprits. Small streams were to blame.

Fresno's chosen location on the Central Pacific Railroad 10 miles southeast of the San Joaquin River was unfortunate. It was in the midst of a nondescript Fresno Plains area known as "Sinks of the Dry Creek." This modest depression was the confluence of several usually dry streams originating in the Sierra foothills.

Foothill runoff could turn streams such as Big Dry, Little Dry, Redbanks, Dog, Pup and Fancher creeks into raging torrents that came to rest only by spreading across the "Sinks." Railroad construction in 1872 worsened matters. The new railroad bed effectively acted as a dam, causing water to back up across muddy downtown Fresno streets and into homes and businesses.

Such floodwaters from the Fresno Stream Group caused major Fresno inundations in many later wet seasons. The most serious events occurred in 1925, 1938, 1955-56 and 1969. The March 1938 flood covered several hundred acres of farmland as well as 'northwest Fresno's Fig Garden area.

The Fresno Irrigation District helped find solutions. The first of these in 1941 was Congressional authorization of the Big Dry Creek Reservoir and Diversion Project northeast of Clovis. The dam was completed in 1948. Its reservoir's capacity was ultimately increased to more than 30,000 acre-feet, although storage has never exceeded 15,000 acre-feet. Under a 1946 cost-sharing agreement with Fresno County and the cities of Fresno and Clovis, FID assumed operation and maintenance responsibilities.

Despite Big Dry Creek Reservoir's storage, the 1955-56 flood caused severe Fresno County damage but prompted, with FID's full support, establishment in 1956 of the Fresno Metropolitan Flood Control District (FMFCD). The new district by 1961 constructed Redbank Dam and Reservoir north of Shaw Avenue. In 1993, its Redbank-Fancher Creek Flood Control Project, with five dams and reservoirs, was completed by the FMFCD and U.S. Army Corps of Engineers. Many urban storm drainage basins were also built.

Downtown Fresno flooding such as this in the 1950s motivated formation of the Fresno Metropolitan Flood Control District, long one of the Fresno Irrigation District's water management partners.

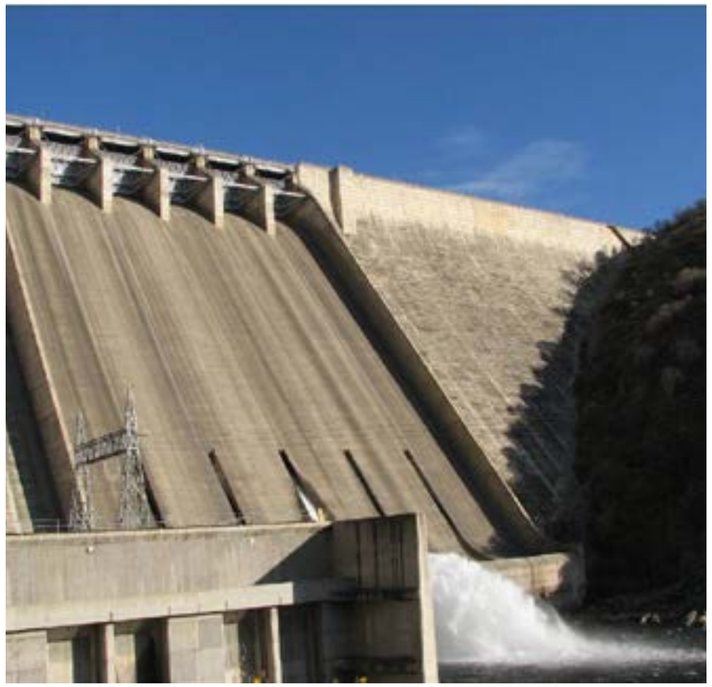
A Pine Flat Dam spillway release in June 1996 creates a dramatic perspective for the long-sought project's Kings River flood management and water conservation benefits.

The Pine Flat Project

Origins of the Fresno Irrigation District during the 20th century's first two decades paralleled early efforts to develop the Pine Flat Dam and Reservoir Project. FID and other area public irrigation districts organized by the early 1920s were founded in public belief that such agencies would help make Pine Flat a reality. Hopes for gaining water storage to better meet effective irrigation needs while providing Kings River flood control were enormous motivations.

Not that Pine Flat was a new idea. By 1900, a Kings River dam had been talked about by state engineers for some 50 years. Pine Flat Dam's exact site was picked out in the early 1880s. A flurry of public water storage development support was sparked and grew as a result of surveys made in 1901 by a well-known California water engineer, J.B. Lippincott. He also suggested several other reservoir sites and recognized upstream Kings River hydroelectric power development potential. In 1913-14, Pine Flat support seemed to ignite, buoyed by the Fresno region's economic and social growth. A group of Kings River irrigation leaders in 1916 proposed a regional public agency, the Kings River Water Control and Conservation District, which in three tries never became reality. Instead, efforts succeeded in organizing FID and several other irrigation districts. Irrigation district formation, coupled with concurrent and ultimately successful attempts to resolve the Kings River water rights disputes, demonstrated a new regional sophistication that endured with the FID in full support. There was recognition that continuing old ways of dealing with water disputes — including endless litigation — could block Pine Flat.

Still, Pine Flat Dam was an elusive goal. Collapse of the central San Joaquin Valley economy after 1922-23 agricultural price failures slowed project momentum. The Great Depression's onset halted the project. Resources to pay



Pine Flat Dam, an imposing concrete gravity structure completed in 1954, spans the Kings River behind the Kings River Conservation District's Jeff L. Taylor Power House.

Pine Flat Dam beginning to rise from the Kings River in a 1952 construction view.

Controlling major Kings River flood events, such as this in 1906 that nearly inundated the highway bridge just south of Kingsburg, was a major Pine Flat Dam development motivation.

locally for Pine Flat moved beyond local financial capability.

FID and other agencies, including the Kings River Water Association (KRWA), changed course. They reached out to the federal government, which in the 1930s was gearing up to fund job-creating public works projects. Two federal resource agencies — the U.S. Army Corps of Engineers and U.S. Bureau of Reclamation — were interested. In 1937, each mounted a bureaucratic battle to gain project development authorization.

FID and its Kings River colleagues, working hard to resolve Kings River water rights, solidly backed the Corps of Engineers' plan for what would primarily be a flood management project. At the same time, on grounds Kings River water delivery facilities had long before been built and paid for by local agencies, Kings interests vigorously opposed the Bureau of Reclamation. Its scheme was to force Pine Flat, the Kings River and upstream hydroelectric sites into the new Central Valley Project.

By passing the Flood Control Act of 1944, Congress sided with the Corps of Engineers to construct Pine Flat Dam. FID and other KRWA member agencies were to pay for storage space determined to be the project's "irrigation benefit." However, for that task and local water storage contracts, President Truman in 1946 assigned the Bureau of Reclamation as lead agency.

Things did not go well as the KRWA tried to block the Bureau from classifying the Kings as a Reclamation project, even after the dam's groundbreaking in May 1947. The issue continued after the dam's 1954 completion and dedication, and during Pine Flat's first role preventing multi-million dollar flood damage in 1955. For 36 years, the Bureau attempted to impose Reclamation Law on Kings River users. That dispute did not end until enactment by Congress of the Reclamation Reform Act of 1982.

Reservoir irrigation storage began in 1954 when the dam was new under interim annual contracts. FID agreed to its permanent Pine Flat storage contract, as did the other 27 KRWA member agencies, in 1963 when a new Kings River operating agreement was adopted to cover storage conditions.

The last local Pine Flat repayment obligations were retired in April 2016. Ever since, Pine Flat Dam has remained every bit as important as it was when completed in 1954, conserving water for beneficial use when it is most needed.

The Big Push for Kings River Water Rights

Collapse of the San Joaquin Valley's agricultural economy in the early 1920s may have put the brakes on Pine Flat Project development but impetus toward finding a solution to the Kings River's half-century old water rights issues gained rapid momentum in the same era.

Struggles over who was entitled to divert Kings River water, and how much, had plagued the river's one million acre service area practically since the region's settlement began in the 1850s. The old Fresno Canal and Irrigation Company had been a central force in moderating these disputes and achieving considerable, but hardly complete, water rights stability through its Rancho Laguna de Tache acquisition, which included a big part of the river's troublesome riparian rights.

Still, old water rights animosities flared anew between 1911-13 when consecutive water years were critically dry. In 1914, they bumped up against the new public movements to build Pine Flat Dam and organize public irrigation districts. Debate by a committee, one that included no Kings River water managers or directors, resulted in a broader public decision to pursue a unified and cooperative course in search of water rights settlement. Many of those supporting an agreement recognized the Pine Flat Project otherwise might be brought to a permanent halt.

By 1916, canal companies had accepted the public's escalating desire for negotiated Kings River peace. Within a year, most companies were submitting water diversion entitlement schedule ideas.

Also understood was a need for a neutral third party to assist the long-polarized Kings water companies in making studies. The state made available a water engineer, Charles L. Kaupke, who arrived in Fresno in December 1917 to help. Equipment was installed. Flow measurements were made. Data was recorded and analyzed.

His work gained so much regional respect that Kaupke was designated the river's first Watermaster in1919. That led to engineering efforts to devise a river-wide administrative structure, water apportionments and a trial entitlement diversion schedule. The first trial schedule, built upon the original 1897 low-flow agreement for which the Fresno company had played a leading role, was in place by 1922. It soon proved successful.

These advances not only effectively ended most Kings River water rights bickering but set the stage for a broader permanent agreement and water rights indenture. There were two key features included when 19 Kings River units gave approval on May 3, 1927:

• A comprehensive water schedule. In 1925-26, a panel of engineers reviewed suggestions and all available flow and diversion data before proposing a dozen entitlement schedules — one for each month — based and blended upon the river's mean daily flow at Piedra in the Sierra foothills, historic agency seniority, earlier agreements, terms of court judgments, the 1897 low-flow agreements, Kaupke's trial schedules, records of monthly variations in water use, and capacities of canal headworks. There was much compromise involved.

• A new organization. The Kings River Water Association, was formed in 1927 as an administrative agency, to be headed by a Watermaster. Kaupke was named to the position and served until his 1957 retirement.

The Kings River Agreement took effect January 1, 1928. Given the Kings River's litigious past, it was a remarkable and decisive achievement.

The old lumber flume to Sanger from Millwood and, later, Hume Lake in the higher Sierra Nevada stands along the Kings River's north bank through the future site of Pine Flat Dam as an early-day group looks over the location.

Charles L. Kaupke, the first Kings River Watermaster.

Fresno
and the
San Joaquin River

From their beginnings in the early 1870s, Fresno's irrigation system and what became the City of Fresno were products of farsighted individuals who recognized the importance of Kings River water. It hadn't mattered that the Kings River's pathway onto and across the central San Joaquin Valley was some distance from where its vital waters were to be put to use. The Kings River-Fresno connection was established, as were the Fresno Canal and Irrigation Company, Fresno's townsite, homes, farms and business services, all supporting what would soon be thousands of residents.

Even closer to Fresno and its canal network was another promising source of surface water — the San Joaquin River. It flowed across the valley only a few miles north of where the City of Fresno was rapidly growing. The San Joaquin virtually bordered the Fresno Irrigation District once FID became reality in 1920.

For a perpetually thirsty land such as that around Fresno, the San Joaquin River from establishment of Fresno County in 1856 was attractive to the region's pioneers. The San Joaquin was essentially the Gold Rush's southern limit. The river's most important mining era town, in a little riverside valley at the Sierra foothills' base, was Millerton, Fresno County's first county seat.

Never in the Fresno area's first 75 years, however, was any beneficial use of San Joaquin River water made.

E.B. Perrin, who for several years owned Fresno's canal company, began his irrigation career by building a 16-mile canal from the San Joaquin River near modern Lost Lake Park to the plains northwest of downtown Fresno. Perrin hoped to irrigate 70,000 acres. The project flopped. The canal's water leaked back into the river bottom as the canal made its way along steep bluffs. The ditch was abandoned in 1887.

Those same bluffs were among two fatal flaws in San Joaquin River water use around Fresno. The other involved water rights, all of which were controlled by the West's largest cattle company, Miller & Lux, through its massive West Side ownership of riparian lands.

Thus, unlike all other San Joaquin Valley river systems where East Side water development began at an early date, the San Joaquin's natural flow would not be tapped for irrigation along the Sierra foothills for many more decades.

Flows down the San Joaquin River below Friant Dam often appear placid but historically have been made turbulent by controversy.

The Central Valley Project *and* Federal Reclamation Water

What finally brought San Joaquin River water into the Fresno Irrigation District and City of Fresno was the nation's largest water development ever undertaken — the U.S. Bureau of Reclamation's Central Valley Project (CVP). It did not arrive without great difficulty.

The CVP was created in response to California's primary resource problem. Despite local water sources and projects (such as along the Kings River), many valley areas lacked surface water and overused groundwater. It was a widespread problem. Two-thirds of California's rainfall occurs in the state's northern third.

Various schemes to move water south for regional benefits had been contemplated since California's 1850 statehood. In 1921, state studies began. Areas along the San Joaquin Valley's East Side by then were exhausting local groundwater. A 1931 state water plan proposed a solution, a comprehensive Central Valley Project. It was to include San Joaquin River water storage and uses. Interest grew around Fresno.

California's Legislature in 1933 authorized and voters narrowly agreed to provide up to $170 million in funding. In the depths of the Great Depression, the state could not find a buyer for CVP bonds.

Meanwhile, the federal government under President Roosevelt's "New Deal" had embarked upon a Depression-fighting program of public works such as water projects. California's CVP became a U.S. Bureau of Reclamation project when Congress authorized the CVP in 1935.

The Fresno area was to be included in the CVP's Friant Division and served by a large San Joaquin River dam and reservoir at Friant, northeast of Fresno and Clovis. There would also be a pair of conveyance canals — the Friant-Kern to the south and Madera Canal to the north.

To use San Joaquin River water, the Bureau of Reclamation had to acquire the river's old Miller & Lux water rights, which had become the property of four western San Joaquin Valley canal companies. In 1939, Reclamation struck a deal to buy and exchange the Miller & Lux rights and provide substitute Northern California water at Mendota Pool, west of Fresno, from the CVP's new 113-mile Delta-Mendota Canal. The four canal companies became known as the San Joaquin River Exchange Contractors.

Thus, Friant Division development was made possible. Ground was broken on Friant Dam late in 1939 and continued through World War II. The dam was essentially completed by 1945, just as the CVP's larger Shasta Dam, in the north state, was being finished. Friant's two canals overcame the old problem of river bluffs blocking Fresno area San Joaquin River uses by beginning diversions in gates halfway up Friant Dam's front side. All canal deliveries were to be by gravity. Releases into the Madera Canal began in 1944 and the Frant-Kern five years later. Distribution of CVP water to individual users was to be by local agency contractors, eventually including the Fresno Irrigation District.

The road toward actual Fresno area CVP deliveries was not so smooth. Complications resulted from water claims made by FID, Madera Irrigation District, the City of Fresno and riverside (riparian) property owners along the San Joaquin.

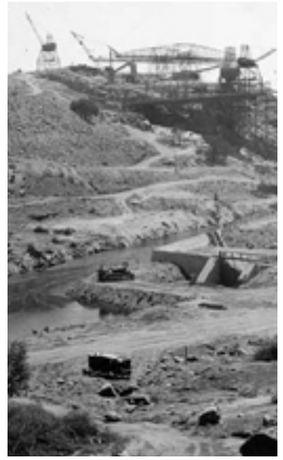
A Madera plan in the early 1920s prompted that district to purchase land for Friant Dam and the future Millerton Lake. FID also was an interested party but it was Madera that made its Friant properties available to the Bureau of Reclamation when Friant Dam plans were firmed up in the late 1930s.

The City of Fresno, meanwhile, viewed the nearby San Joaquin as a potential municipal water source. In 1930-31, the city sought state permission to annually divert 175,000 acre-feet of San Joaquin River water at Friant. The city claim went dormant. It would resurface decades later.

The new dam infuriated a third group — riverside property owners. As Reclamation project planning and design began in 1936, these landowners realized Friant Dam would routinely and totally dry up the San Joaquin River between the dam and Mendota Pool on the West Side. There, substitute CVP water was to be delivered through the Delta-Mendota Canal to the Exchange Contractors. Growers claimed riparian water rights but their protests failed to block the Friant project. For all the local parties, gaining CVP water deliveries required years more effort.

In 1947, with a mostly-dry San Joaquin River running past their farms and local groundwater levels plunging, the riparian landowners filed suit against the federal government.

Also declining rapidly was City of Fresno's water table. The city was anxious to gain a contract for Friant-CVP water but, after being told the municipality's water price would be $10 per acre-foot instead of the CVP's agricultural rate of $3.50, the city early in 1952 filed a companion suit against the federal government. The city claimed its groundwater source had been cut off by Friant Dam's San Joaquin River diversions.



Early in construction in 1939, Friant Dam's site and structural preparations are beginning to take shape.

By 1947, Friant Dam is completed and the Friant-Kern Canal (foreground) is nearly ready to make water deliveries.

Friant Dam spans the San Joaquin River to form Millerton Lake. The Madera County foothills are in the background.

The city and landowners won several court battles but their claims were rejected in a Ninth Circuit Court of Appeals ruling in 1961. Fresno and the riverside farmers finally lost the war two years later when the U.S. Supreme Court affirmed Reclamation's right to move San Joaquin River water into other basins.

In the end, the city did gain a CVP contract (as did FID), and Reclamation agreed to provide downstream landowners with continuous river flows to Gravelly Ford, northwest of Kerman.

San Joaquin Water Settlements

It took some time but all disputes over San Joaquin River water — including a considerably broader environmental controversy in much more recent years — were finally settled.

The City of Fresno in 1961 signed a contract with the U.S. Bureau of Reclamation to purchase 60,000 acre-feet of Class 1 (firm supply) Central Valley Project-Friant Division water annually. Until 2018 when a new conveyance pipeline was completed, all of the city's Friant water was delivered by the Fresno Irrigation District through its canals.

In 1964, FID contracted with the Bureau for 75,000 acre feet of Class 2 CVP water from the Friant Division. FID is the only Kings River Water Association member unit with a long term Friant contract.

For the riverside (riparian) landowners, settlement was achieved in the 1950s. The Bureau agreed to San Joaquin River "holding" contracts under which limited water would be provided downstream from Friant Dam with a minimum flow of 5 cubic feet per second reaching Gravelly Ford (northwest of Kerman).

The San Joaquin River was the subject of a later drawn-out environmental legal battle. In 1988, 15 environmental and fishing organizations filed a lawsuit focused on Friant contract renewals and the lack of flows below Friant Dam. Restoration of historic salmon runs was a primary goal. In 2006, FID and all other Friant-CVP contractors settled the case, agreeing to restore flows and salmon populations. Under the settlement and 2009 legislation passed by Congress, continuous flows downstream of Friant Dam were restored. Some water supply certainty for Friant growers was achieved. Projects to revive the salmon run have progressed but slowly.

FID's 20th Century

March Forward

The Fresno Irrigation District's current headquarters building was completed in 2012.

If two words describe how the Fresno Irrigation District progressed toward the 21st century, they might well be advancement and improvement. From the time in the World War I era that FID's formation was proposed to succeed the old Fresno Canal and Land Corporation, the District has been constantly stepping forward.

The District's early years were devoted to taking formative administrative and water management steps, all aimed at achieving a suitable level of modern improvements after taking over the old and outmoded canal company. FID became a leader in resolving Kings River water rights, and ultimately making Pine Flat Dam a reality.

FID sloshed through a pair of damaging 1937 natural disasters, major Kings River flood events, and another flood in 1951. The District campaigned successfully for development, by 1944, of Friant Dam, and framing a new and more inclusive Kings River agreement in 1949. Then, in 1951, FID supported formation of a new Kings River-wide public agency, the Kings River Conservation District. Along the way were scores of projects improving District canals as well as other facilities and equipment.

Completion of Pine Flat Dam in 1954 made one of FID's original goals a welcomed reality. No longer did the District and its users have to rely on naturally flowing water as it reached Fresno's two points of diversion. Pine Flat Reservoir captured winter and spring runoff, preventing downstream flooding while permitting more water to be used for irrigation during the hot, dry summer months.

FID in 1963 signed a 40-year agreement to pay the federal government for 119,000 acre-feet of storage space in 40 annual contracts without interest. FID and other Kings River units also agreed to pay 37.4% of Pine Flat's operation and maintenance costs. Another contract, in 1972 with Pacific Gas and Electric Company, provided FID with 22,937 acre-feet more storage in PG&E's upstream reservoirs. All of those original storage cost obligations have been paid.

All of this good news was countered frequently during the 1950s with differences between FID and other public agencies. Most significant were FID disputes with the City of Fresno and Bureau of Reclamation. The latter involved long-standing federal government efforts (which stretched into the 1980s) to apply Reclamation law and landowner acreage limitations to the Kings River service area, even though Pine Flat was basically a flood control project with conservation benefits for a region developed fully many decades earlier.

Differences with the City of Fresno and Bureau of Reclamation were eventually worked out, leading to a 1959 State Water Rights Board decision that in part approved a federal government application for San Joaquin River water. The state action cleared the way for Reclamation to enter into long-term Central Valley Project water supply contracts with the City (in 1961, for 60,000 acre-feet annually of Class 1 Friant Division water) and FID (in 1964, for 75,000 acre-feet of Class 2 Friant water). FID's contract gave the District access to any unused City of Fresno Class 1 water.

With these and many other advances, the Fresno Irrigation District stood ready to march confidently toward the dawn of the 21st century.

Where Has FID Been Headquartered?

Eleven offices around Fresno have been the Fresno Irrigation District's administrative home in FID's first century. They include:

1920's

Harris & Harris Attorneys Law Office

Chamber of Commerce Building

Director Thornton's office (for FID engineer)

Ewing-Hughes Real Estate Office

Bank of Italy Building, Room 607

Griffith McKenzie Building

1930's

Helm Building

1940's

757 L Street

1950's

1568 North Millbrook Avenue

1990's To Present

2907 South Maple Avenue (two locations on same property)

THE PRESENT

The Kings River courses from the Sierra Nevada foothills onto the San Joaquin Valley floor northeast of Centerville in Fresno County, ready to go to work in Fresno Irrigation District canals. The Kings and FID's canal system supply farms with irrigation water, urban dwellers in Fresno and Clovis with urban-use water, and the aquifer beneath the 245,000-acre district with groundwater replenishment.

THE FRESNO IRRIGATION

DISTRICT OF TODAY

From its beginnings a century ago and through its canal-company predecessors 50 years before that, the Fresno Irrigation District has been a leader amongst irrigation agencies.

Its Fresno Canal from 1870-72 opened up the Fresno Plains to agriculture and led directly to the establishment of Fresno, now the San Joaquin Valley's largest city.

The old Fresno canal company pioneered what evolved into the Kings River's stable system of water rights. FID's 1920 establishment placed the Fresno area's overall water supply in public hands, and proved to be a significantly positive tool in fashioning the eventual development of Pine Flat Dam.

Water conveyed and delivered by FID fuels a major part of Fresno County's farm production, the most valuable agricultural output the world has ever known. Plus, those flows sustain life and commerce within Fresno and Clovis, which comprise one of California's important metropolitan areas.

Yet, the Fresno Irrigation District's mission is simple. Its aim is to protect and manage surface and groundwater resources for present and future use by the region's people and on lands within District boundaries, always focusing on efficient and economical surface water delivery for agricultural, municipal, industrial and environmental uses and replenishing the underground aquifer via recharge as a priority.

The Fresno Irrigation District is a leader in California's water world, and this is how we serve.

A dramatic panorama including the Sierra foothills, the Kings River and its riparian woodlands, and lush eastern Fresno County farmland frames a major water management location northeast of Centerville. The Fresno Canal, controlled by a large headgate (left), veers toward its namesake city and other southerly areas within the Fresno Irrigation District. Nearby (above right) the Consolidated Canal's concrete-lined banks guide water destined for delivery within the Consolidated Irrigation District. Fresno Weir spans the river channel to pool water to enable diversion into the two canals. The Friant-Kern Canal crosses under the Kings a quarter-mile upstream through a 3,200 foot siphon.

Debris being removed from one of FID's long-crested weirs used in regulating canal deliveries.

At Gould Weir two miles upstream from Fresno Weir, this headgate structure diverts FID water into the Gould and Enterprise canals to serve northern and eastern portions of the District.

HOW FID OPERATES ITS WATER SYSTEM

Water and its deliverance have been the Fresno Irrigation District's primary and unchanging business since FID was established in 1920.

It's a process that, to the uninitiated, may seem simple. Much of FID's water is released through delivery gates on the Kings River into either the Fresno Canal (1,500 c.f.s.) or Gould-Enterprise Canal (500 c.f.s.) systems and then flows through the District to its intended users. Additionally, FID has a turnout from the Friant-Kern Canal on the Gould/Enterprise system and uses the Friant-Kern's Kings River wasteway, immediately upstream of the Fresno Canal's headgate.

Reality is much different. It involves other surface water sources; accurate operational planning, scheduling and staffing; crucial agency cooperation and coordination; vital construction, operation and maintenance; and mandatory adherence to rules and regulations. Serving two large cities — Fresno and Clovis — along with thousands of farm customers is complex and often challenging.

FID has its own Water Department. A Water System Operator (WSO) is assigned to each of 12 areas serviced during the water delivery season. There are two shifts of WSOs serving each of the 12 service areas and split into the northside and southside groups with one supervisor assigned to the northside and one assigned to the southside. There are three WSOs covering the overnight hours. One Supervisory Control and Data Acquisition Supervisor (SCADA) and FID's Watermaster round out the Water Department, making it possible to convey water from the Kings River to individual customers.

The irrigation season can be as short as six weeks (as in 2015) or as long as 8.5 months (as in 2019). On average, FID water seasons extend six months (from March through August). Irrigation water is distributed to growers on scheduled systems. Each parcel is assigned days of the month to take delivery under FID's rules. Those provide that each acre receiving water service is entitled to a monthly minimum water allocation of 0.39 acre-feet. The rules specify rates of delivery and permit the District to vary times and flow rates while affording the water user a reasonable opportunity to utilize the parcel's monthly allotment. Delivery frequencies vary among canal systems. These procedures date to FID's earliest years. FID provides water service to over 4,000 customers through turnouts/gate valves. These turnouts/gate valves are typically operated by the customer who coordinates their water deliveries with their area's WSO.

FID's conveyance system was constructed during the late 1800s and early 1900s stemming from an initial desire to deliver water to grain crops, then row crops, then vineyards. However, with the massive shift toward nut crops, FID cannot always meet the needs of its customers due to higher demands and a need for more frequent deliveries. These customers use groundwater from their agricultural wells to supplement the surface water delivered by FID. Changes in irrigation methods, primarily a conversion from flood irrigation to drip irrigation, has resulted in FID policy and guideline changes that allow growers to use water differently than under traditional schedules.

FID Water System Operators operate valves to deliver water into customer pipelines.

Overnight, three WSOs travel around the District checking the busiest areas. These overnight operators coordinate with the daytime WSOs in the various areas prior to the start of their shifts to be aware of system areas needing close attention. Each overnight WSO is responsible for four areas.

Instructions from the Watermaster regarding locations and timing of flow changes to occur overnight are received to ensure proper canal conditions when the subsequent day shift begins. Necessary adjustments must be made at designated times.

Overnight WSO's patrol canals and report issues and problems, and report conditions to day shift WSOs.

FID's water staff is also working constantly to meet municipal needs in Clovis and Fresno. New conveyance agreements with each city permit FID to deliver water to specific points where municipal contractual allotments are desired. These locations include the two City of Fresno surface water treatment plants along with a treatment facility in Clovis. To allow for reliable deliveries, the City of Fresno has constructed two pipelines to convey water directly to its surface water treatment facilities. One pipeline was constructed from the Friant-Kern Canal to Fresno's Northeast Surface Water Treatment Facility. The other was constructed downstream from the Fresno Canal's headgate. It extends to Fresno's Southeast Surface Water Treatment Facility. Other deliveries may be made at the cities' request for summertime groundwater recharge in Fresno Metropolitan Flood Control District and City-owned basins.

Each day's water demands are determined through detailed processing of water-delivery schedules, orders and related needs. At any given time, the two water supervisors (one for the northside and one for the southside) oversee the WSOs. These supervisors work with FID's Watermaster to balance needs and detail the day's water plan.

The Watermaster takes a big-picture view and is the individual who makes Kings River headgate diversion orders with the Kings River Water Association (KRWA). KRWA's Watermaster and staff calculate FID's water orders and all others from KRWA member units. Changes in releases from Pine Flat Dam are then scheduled with U.S. Army Corps of Engineers and Kings River Conservation District (KRCD) power plant operators.

Aiding FID's internal water delivery operations are 112 SCADA control system sites. Fifty-seven SCADA sites monitor system water conditions while 55 others are capable of adjusting and controlling flows into channels. Most lateral headgates have some sort of flow measurement and a number are automated. SCADA sites all report automatically to FID's control center. There, instantaneous data permits a single operator to see where water is flowing, or make and subsequently see changes.

Control structures are another important tool in making sure the correct amount of water flows in the right direction. Long crested weirs are an advance that has greatly improved FID's service to customers, by making deliveries at grower turnouts more reliable. Development of additional long-crested weirs is projected to continue. Other improvements such as flap gates, automated gates and regulating ponds has helped to improve deliveries of surface water during the irrigation season.

Improved delivery service has also resulted from FID's network of recharge and regulation basins, many of which are small but are capable of returning temporarily-stored water to canals for irrigation use. The result is that nearly all water entering the District from the Kings River, Friant-Kern Canal, foothill streams, urban flood control facilities, or the City of Fresno Wastewater Treatment Plant can be used beneficially within FID without spilling.

SCADA equipment stands alongside an FID canal as part of a District-wide control system including computers, data communications networking and related conveniences to process water system operational orders.

IMPROVEMENTS and MAINTENANCE

The working space is tight for an FID staff member making repairs inside a water conveyance pipeline.

Fresno Irrigation District canals, pipelines and control structures are typically kept busy for months each year delivering large amounts of water to agricultural, municipal and industrial users through 355 miles of pipelines and 325 miles of canals. Such intense use demands that FID's board and staff members observe high priorities for system improvement and maintenance projects.

For FID, each year is divided into two operational periods — water season and maintenance season. The latter is the District's so-called "off" season, typically beginning in the late summer or early fall and continuing until farm water deliveries are resumed in late winter or spring.

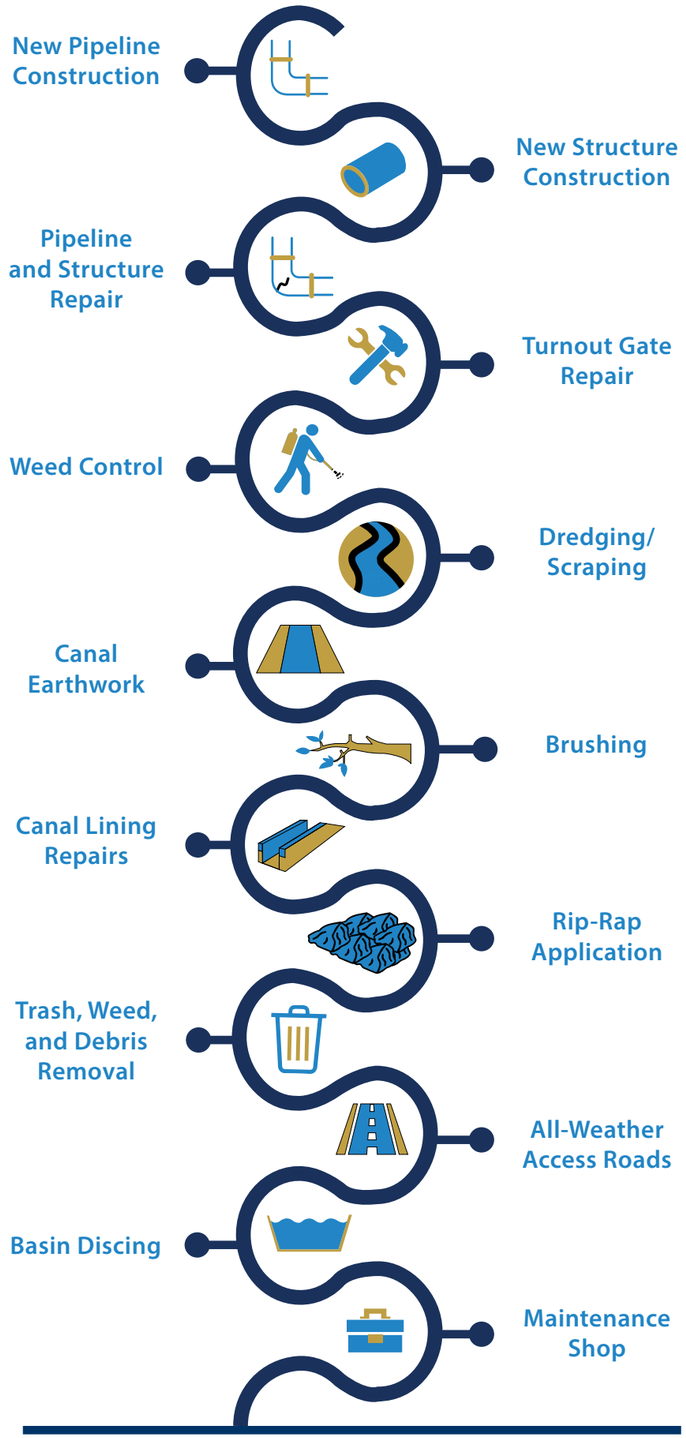
Some 30 FID maintenance crew members handle pipeline, structural and gate repairs. Heavy Equipment Operators are assigned to running the large equipment that dredges and shapes canals and their banks as well as other necessary construction. Weed spraying is an all-year task. Trash crews keep canals flowing freely and cleanly during the water season.

A skeleton crew of off-season WSOs maintains water deliveries to the cities of Fresno and Clovis. Those operators also manage the canal system as it transports urban storm drainage as well as foothill-spawned runoff generated in storms by several streams. The urban area depends upon FID to convey such water out of the urban area to prevent local flooding.

FID maintains canal capacity through the metropolitan area during storm events in coordination with the Fresno Metropolitan Flood Control District (FMFCD) to direct flood water away from urban areas. FID now manages its water supply and storage to divert the maximum amount of flood water when available. Then, FID joins in accepting delivery of river flood release flows, a major supply source for groundwater recharge and banking.

Improvement projects are a year-round consideration. Each spring, District department leaders and the chief engineer begin planning meetings to develop a multi-project list for the next off-season's construction and maintenance activities as FID keeps up with aging infrastructure repairs and replacement. These range from major construction planning, and inspecting pipelines, canal lining and control structures for leaks or other problems. Typical general maintenance activities focus upon open channels and their dredging, brushing and cleaning; pipelines, siphons and roadway culverts; structures used for controlling water levels and measurement; equipment and installations such as gate and automated valves as well as lift pumps and weirs; metal fabrication; and FID facility improvements. Telemetry upgrades and maintenance continue throughout the year. District ponding basins require periodic annual discing and ripping to improve percolation.

Maintenance Activities



These annual construction and maintenance activities include a wide variety of projects aimed at ensuring the water delivery system is capable of making necessary water system deliveries. Some specific construction and maintenance include:

- The replacement of cast in place (CIP) pipelines with rubber gasket reinforced concrete pipe (RGRCP) or PVC pipe. CIP was previously the industry standard for irrigation pipelines. It became apparent starting in the late 1990s a better option was to use RGRCP or PVC pipelines. Significant efforts have been made to replace failing CIP pipelines with the more durable RGRCP or PVC materials.
- Weed abatement activities. These consume a huge amount of time and resources but are essential to controlling terrestrial and aquatic weed growth which can limit canal water flows.
- Repairing pipelines, gate valves, and structures. This work is carried out to minimize leaks and flooding while ensuring proper water deliveries.
- Construction of all-weather roads. Located along the major conveyance systems, these allow critical year-round access.
- Trash and debris cleanup. This task is a year-round operation but is most necessary prior to the irrigation season's start to remove canal blockages.
- Canal sloping and grading. This work helps restore the canal channel to its original design to prepare for high water season flows.
- SCADA repair and maintenance. Keeping remote monitoring and control sites in good working order ensures proper transmission of data to the District control center. This enables proper water delivery routing and scheduling to take place.

Many additional activities are crucial to the District's operational success. These include brushing, rip-rap applications, basin discing, and maintenance on heavy equipment and fleet vehicles.

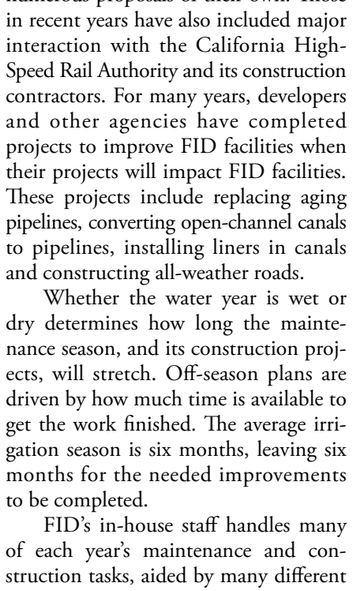
Along with the District's own plans and projects, the rapidly-growing urban area's developers and agencies along with FID agricultural landowners submit

numerous proposals of their own. Those in recent years have also included major interaction with the California High-Speed Rail Authority and its construction contractors. For many years, developers and other agencies have completed projects to improve FID facilities when their projects will impact FID facilities. These projects include replacing aging pipelines, converting open-channel canals to pipelines, installing liners in canals and constructing all-weather roads.

Whether the water year is wet or dry determines how long the maintenance season, and its construction projects, will stretch. Off-season plans are driven by how much time is available to get the work finished. The average irrigation season is six months, leaving six months for the needed improvements to be completed.

FID's in-house staff handles many of each year's maintenance and construction tasks, aided by many different skills that have been learned over the years. Contractors are also utilized.

Staff members operate FID's outstanding shop facilities, which handle everything from routine work on vehicles to heavy equipment repairs. District staff members fabricate metals for structures and other purposes. Technical staff members install and wire meters and actuators, and controllers.



Concrete lining is installed along an FID canal section.

FID worker operating the sloper, used in re-sloping the canal banks.

How Projects Are Funded

There are, of necessity, costs to be paid for the Fresno Irrigation District's consistently improving facilities along with the regional water industry leadership and services provided to agricultural and urban users.

FID's objectives are all aimed at developing and implementing a fair and objective fiscal program, which keeps charges and fees commensurate with the level of water service the District provides.

The District's general fund budget funds much of FID's staffing, operation and maintenance, while grants, water sales, and payments from other agencies and users finance other work. Typical projects include pipeline replacements, canal lining, basin property acquisition, basin construction, and other critical infrastructure projects.

Like all public and privately-owned entities, FID deals with what seem to be ever-increasing costs of doing business. That's caused not only by general inflationary economic pressure but also on the increasing demands of water. Other uncontrollable but vitally-important factors include water rights fees; higher Friant-Kern Canal operation and maintenance costs; air pollution control board restrictions and regulations, plus equipment and vehicle requirements; San Joaquin River Settlement and water costs; aging infrastructure repair and replacement needs; and Sustainable Groundwater Management Act compliance.

FID continues to explore all available options for funding necessary infrastructure improvement projects, system upgrades, and all necessary maintenance activities to continue successful District operations. These alternative funding sources include having projects completed by developers and taking advantage of grant opportunities all aimed at keeping District assessment rates as low as possible, but continuing to provide an exceptional level of customer service.

The District has also strategically employed cost-cutting measures. Among these were transfers of FID's assessment and collection obligations to Fresno County. Staff health care coverage has been revamped and FID has benefited from shopping for new insurance carriers. There have been increases in engineering and related fees paid by developers' projects. Adjustments in staffing and hiring are made to keep pace with these changing conditions. FID has and continues to explore more efficient means of managing the district by utilizing cost-cutting measures where applicable.

While FID's construction and maintenance crews are capable of completing large construction projects, FID typically contracts out larger projects while smaller projects and general maintenance are completed in-house.

District Staffing in This

CENTENNIAL YEAR

All flourishing businesses and public agencies are well aware that a key to their successes is found in the people who staff the organization and make it function efficiently and productively.

The Fresno Irrigation District is no exception. Its broadly skilled and talented staff members are widely recognized as outstanding professionals in their respective fields.

Each FID employee carries out the District's mission, to protect and manage the surface and groundwater resources within its central San Joaquin Valley boundaries, with their focus on the delivery of surface water to customers in FID's agricultural, municipal, industrial, and environmental sectors. Policy is set by an elected Board of Directors which during its centennial year consists of Ryan Jacobsen, Jerry Prieto Jr., George Porter, Christopher Woolf, and Greg Beberian. Director Jacobsen is the current Board President and has served in that capacity since 2008.

Leading the staff is General Manager Bill Stretch, who joined FID in 1998 and was promoted into the top spot in 2019.

Assistant General Managers are September Singh for Administration and Adam Claes for Operations. The next supervisory organizational chart level includes Chief Engineer Laurence Kimura, Watermaster Jim Irwin, Construction and Maintenance Superintendent Michael Prestridge, and Controller DeAnn Hailey. Also in upper administrative ranks are General Counsel Jeff Boswell, Special Project Manager Kassy Chauhan, and Water Resources Manager (and former General Manager) Gary Serrato.

Serving the District in a wide variety of administrative, financial, water-related, and construction and maintenance positions are 88 employees, including the five FID Board members.

The entire Fresno Irrigation District team during FID's Centennial. FID prides itself on maintaining a diversified staff of unique individuals all needed to achieve FID's mission.

Water Entitlements

And How They Work

Jim Irwin has served as FID's Watermaster since 2000 and works tirelessly with the various entities to ensure proper management of all available water. Jim's commitment to ensuring the water is properly managed and delivered contributes to the overall success of FID.

Rights to use natural surface water supplies typically come down to historic agreement on how much water a district or company is entitled to divert on behalf of its users. Most Fresno Irrigation District water supply sources — the Kings and San Joaquin rivers, wastewater treatment plants in Fresno and Clovis, and Fresno Metropolitan Flood Control District-managed stormwater— are covered by long-established water rights or long-term agreements. (An exception is the "Fresno Stream Group" and the seasonal foothill runoff it produces.)

San Joaquin River water is supplied under Central Valley Project-Friant Division contracts FID and the City of Fresno hold with the U.S. Bureau of Reclamation, which operates Friant Dam. This water is released at Friant and conveyed to FID's system through the federally-developed Friant-Kern Canal, now operated by the Friant Water Authority.

Each March, Reclamation begins making periodic water supply declarations to FID, the City of Fresno, and other Friant contractors. Since the Friant Division supports conjunctive use of CVP surface water and groundwater along the San Joaquin Valley's East Side, there are two classes of Friant water allocation.

The Class 1 supply is considered "firm." It totals up to 800,000 acre-feet annually and is mostly assigned to municipal and industrial users — including the City of Fresno, which has a Class 1 contract for 60,000 acre-feet. Agricultural water users with limited access to good quality groundwater also receive Class 1 water. Under another agreement, FID manages the City of Fresno's CVP water supply as well as the District's own Reclamation contract for up to 75,000 acre-feet of Class 2 Friant water, of which up to 1,400,000 acre-feet can be made available in a wet year. Class 1 and Class 2 waters are allocated only after downstream water rights holders and the San Joaquin River Restoration Program (SJRRP) are allocated their supplies. A third Friant classification is Section 215 water, which is considered "unstorable" under above-average runoff conditions. It is mostly used for groundwater recharge and would otherwise be lost to contractors in flood releases. The San Joaquin River Restoration Program's establishment has resulted in two additional Friant Division water supply "colorings." These are unreleased restoration flows and restoration recirculation flows.

A springtime view of the Central Valley Project's Friant Dam stretching across the San Joaquin River.

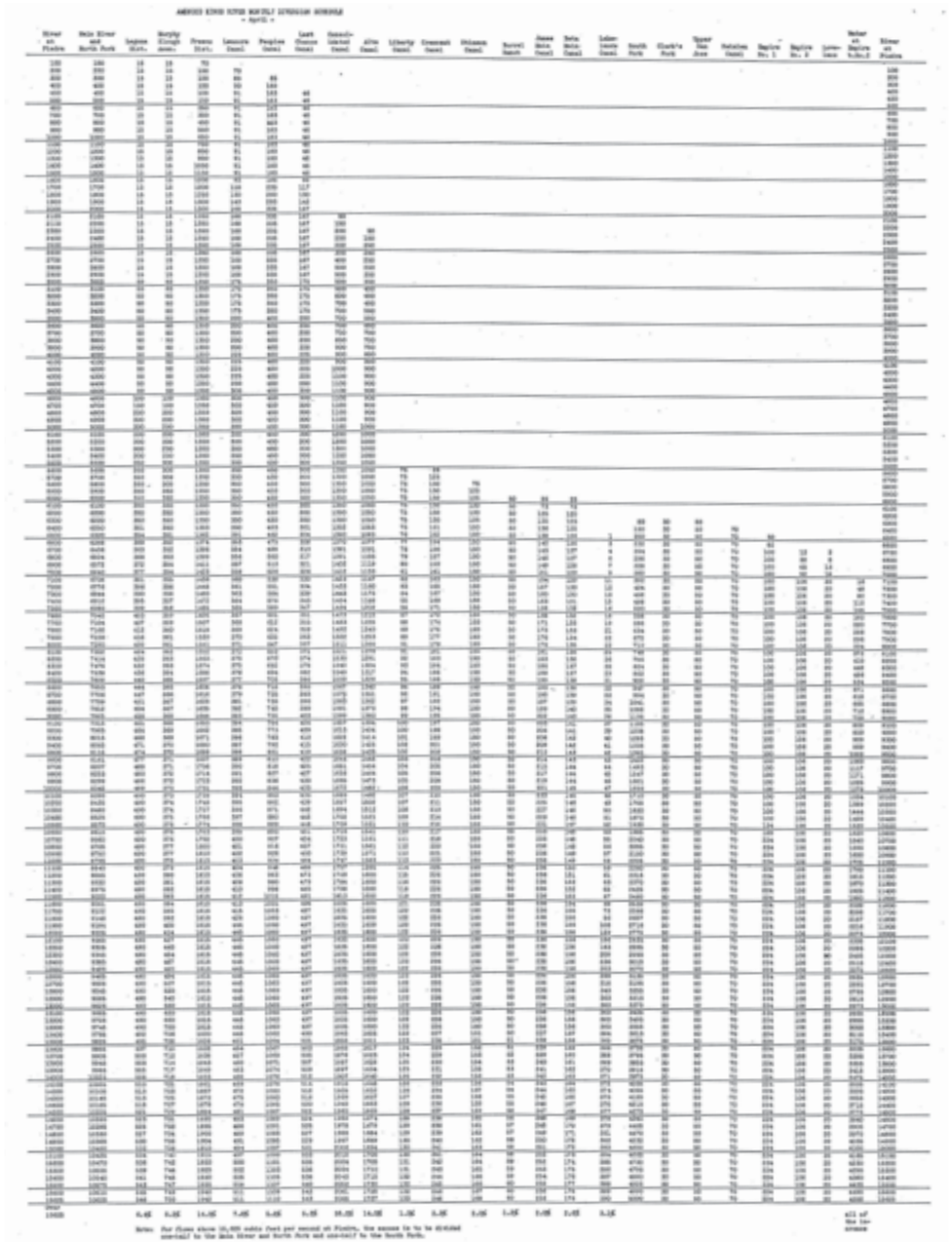
FID's Kings River water rights are among the valley's oldest and best. Kings River water is what originally made Fresno area settlement feasible in 1872. Kings River rights are based on a water schedule, roots of which were nurtured by the old Fresno Canal and Irrigation Company. These date back to events that led to an 1897 agreement among a few of the river's oldest water companies. FID in 1927 joined in adopting and implementing the Kings' first broadly-based Kings River Water Association (KRWA) entitlement schedule, which has since been twice revised and broadened.

There are actually 12 entitlement schedules, one for each month, governing FID and the 27 other Kings River units. These differ from one another, based on the 1927 schedule's original negotiations and their numerous compromises. The schedule sheet begins with a column listing the river's mean daily natural flow levels (increasing in increments of 100 cubic feet per second). Across the chart are columns covering all KRWA member units. These list how much water each unit is entitled to divert for each flow level.

FID and other Kings River districts and water companies in 1963 each purchased a share of water storage capacity within Pine Flat Reservoir, nine years after its foothill dam was completed. (FID's portion totals 11.8232%.) Except during flood releases — which are determined and managed by the U.S. Army Corps of Engineers — it is up to each unit to decide whether to store its water or order it released for diversion. Water release demands are supplied, at each unit's discretion, from its reservoir storage or from the naturally occurring run of the river. This effectively means, from a water management viewpoint, that Pine Flat storage is determined by each individual agency (unless a flood release is occurring).

Another means of measuring Kings River flows is utilized by a hydrologist riding a cable car and using this tool, dipped into the stream at various points, to calculate the volume of passing water.

All river flow, storage, releases, diversions and other related data and information is accounted for and retained by the KRWA and its Watermaster. Each water order is placed with the KRWA staff, which in turn notifies those at Pine Flat who implement the necessary increase or decrease in reservoir releases.



This water schedule page for April and 11 others—one for each month—represent entitlement for Kings River water diversions depended upon by the Fresno Irrigation District and every other public district and canal company with agreed-upon water rights. The column along the left edge lists "River at Piedra," which represents the mean daily calculated full natural flow rate at the foothill town of Piedra as it would exist if there were no dams or reservoir storage. Columns across the page show entitlement for each agency based on increasing flow amounts. In most months, FID is one of six agencies with rights to divert from the river's lowest natural flows.

WATER RIGHTS ISSUES AND FID

The realities of California water use, which can sometimes seem mystifying, are occasional attempts made by those without water rights to stake a claim to some amount of water flows belonging to those with long-established rights. That is especially true even when a river's water in question has been found to be totally spoken for. The Kings River and Fresno Irrigation District continue to face such issues.

In pioneering years, central San Joaquin Valley water rights disputes reflected the region's wild-West character. FID's early-day predecessor canal company managed to gain entitlements that today remain the basis of the District's Kings River rights. FID, after its 1920 formation, was instrumental in working with other users to establish mutually acceptable water diversion rights and schedules which have remained intact for a century and have long been recognized as permanent water entitlements.

Kings River Water Association agreements, to which FID has always been a party along with 27 other member units, now govern how the KRWA administers those water right entitlements. Under KRWA's member agreements and normal conditions, all Kings River water is allocated for use within and required to remain within the KRWA's designated service area and watershed.

Efforts to gain final and formal Kings River water rights approval took years to accomplish. In 1967, the State Water Rights Board — in its Decision No. 1290 — approved and issued six Kings River water rights permits to FID to administer as trustee for the benefit of the 28 member units comprising the KRWA. Two years later, the river's use was declared by the State Water Resources Control Board to be fully appropriated for the benefit of and among the KRWA members. On May 18, 1984, the state issued final water rights licenses. FID for some time acted as trustee in these matters for all Kings River units but, after licensing, the KRWA in 1988 became the trustee licenses for the benefit of its 28 member units, including FID.

FID, the KRWA and other agencies are constantly on guard, striving to protect and preserve these hard-won water entitlements. New mandates under the state's Sustainable Groundwater Management Act, coupled with regional and statewide supply pressures and shortages are leading to efforts by some interests outside of the KRWA to attempt to gain access to Kings River flood flows and also attacking even the river's licensed rights. FID is out front in this struggle, recognizing it is vital to protect the Kings' water rights and ensure the river's service area will retain all of its locally originated safe, clean water. Retaining Kings River waters in its watershed is critical to make the region's overall surface and underground water supplies truly sustainable.

PARTNERSHIPS WITH OTHER AGENCIES

FID water pours through the Mill Ditch Headgates structure at the Fresno Metropolitan Flood Control District's Fancher Creek Detention Basin. The basin is one of many facilities that helps protect the Fresno-Clovis Metropolitan Area from flood events.

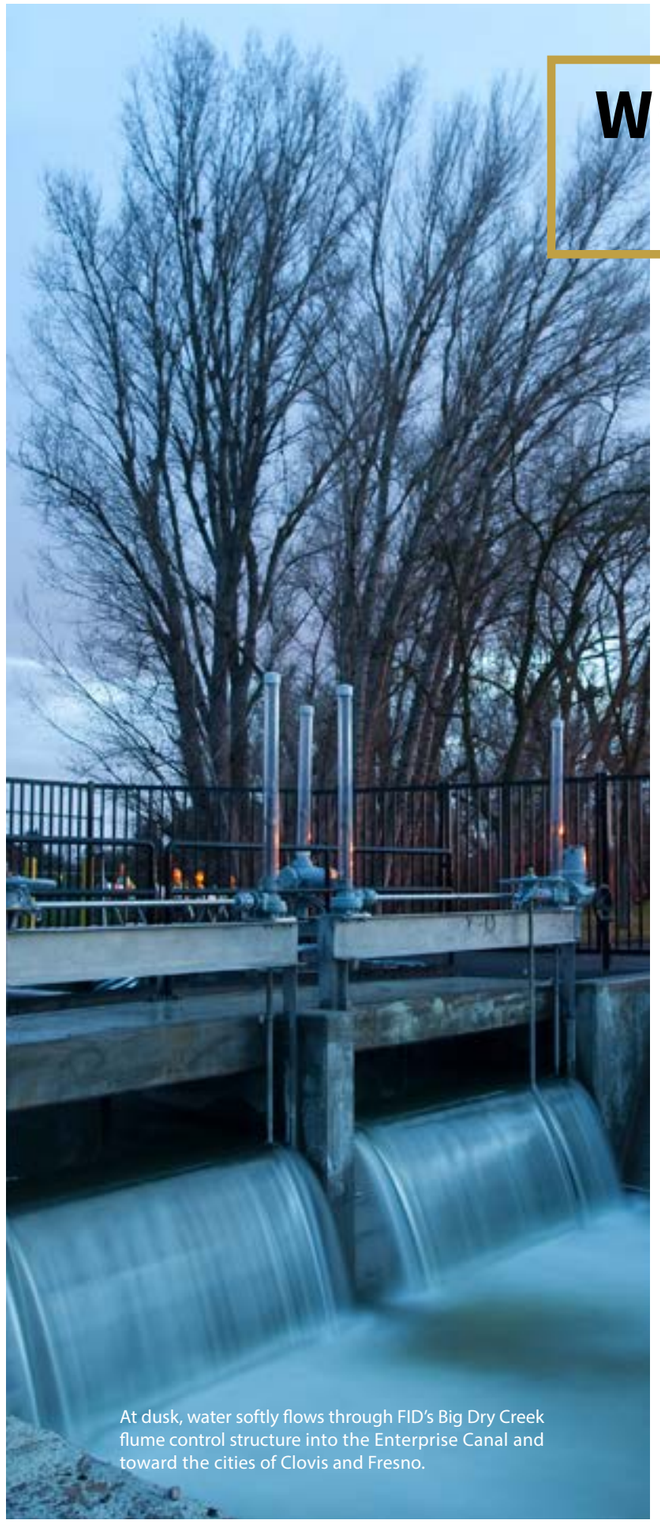
The Fresno Irrigation District long ago found that partnering with other agencies benefits the public interest. That has continued in recent years in a number of collaborative ways that have built upon FID's historic organizational links.

Those include relationships with the Kings River Water Association, Kings River Conservation District, California's Department of Water Resources and Department of Fish and Wildlife, U.S. Army Corps of Engineers, cities of Fresno and Clovis, Fresno County, Fresno Metropolitan Flood Control District, U.S. Bureau of Reclamation and the Central Valley Project, Friant Water Authority (plus its predecessor agencies) and the Association of California Water Agencies (ACWA). FID has plans to expand those relationships with other smaller communities within the FID service area.

Of late, FID has taken a leadership role in the North Kings Groundwater Sustainability Agency, to create a groundwater sustainability plan under a state mandate.

FID has also been a participant in the Kings Basin Water Authority and its integrated regional water management planning activities that seek broadly-based cooperative regional solutions to long-term water supply and quality issues, and environmental stewardship. Formally organized in 2011 as the Upper Kings Basin Integrated Regional Water Management Authority with FID as a charter member, the agency quickly became the most broadly-based public Kings River water organization. It includes representatives of agriculture, urban, and environmental interests working together in search of ways to provide sustainable supplies of the region's surface and groundwater resources. The Authority has received more than $55 million in state financial support for planning and development of projects involving groundwater, water conservation, and use efficiency and quality along with riparian habitat, flood corridors, and disadvantaged communities. Many future projects are being mapped by partnering agencies, which include other irrigation and water districts, water companies, counties, cities, special districts serving communities of all sizes, and environmental and resources organizations.

Some of FID's most productive partnerships are with fellow Kings River units and Central Valley Project-Friant Division water contractors. The District has a long record of effecting water exchanges, transfers, sales, and storage agreements, which enhance regional flexibility, water use and allocation. Viewed broadly, these cooperative efforts have often helped meet water needs and improved management along the Kings River and within the CVP.



At dusk, water softly flows through FID's Big Dry Creek flume control structure into the Enterprise Canal and toward the cities of Clovis and Fresno.

WORKING WITH THE CITIES

It was natural that the Fresno Irrigation District should become a vital water resource partner with the cities of Fresno and Clovis as each municipality grew steadily to form a California urban metropolis. FID's relationship with its partnering cities has become unique among irrigation districts.

From its founding in 1872, Fresno was destined to become a major city but the urban area's water supply for decades was limited to what could be pumped from the aquifer. The groundwater's replenishment source was percolation of Kings River surface water delivered to irrigated fields and conveyed in unlined canals.

The new Fresno Irrigation District's boundaries in 1920 surrounded the then-diminutive urban areas of the City of Fresno and the City of Clovis. Each city remained a public agency island, independent from FID jurisdiction. As Clovis and Fresno grew, particularly after World War II, each city's annexations included irrigation district territory in order to grow homes and businesses rather than crops as in the past. Many issues arose between the cities and FID during the 1950s and 1960s. Both cities' total reliance on groundwater, levels of which kept declining, were of concern.

A new era of FID-city cooperation dawned in the early 1970s through negotiations resulting in water conveyance agreements. Fresno and Clovis gained water supply certainty through contractual allotments based upon irrigation district acreage within each city's limits. These pacts with the City of Fresno and the City of Clovis amount to approximately 30% of FID's Kings River water entitlement today.

In 1971, FID began delivering Central Valley Project water to the City of Fresno under the City's U.S. Bureau of Reclamation contract for CVP-Friant Division water impounded in Millerton Lake behind Friant Dam on the San Joaquin River.

Another agreement, in 1972, extended City of Fresno-FID cooperation to the other end of Fresno's system. FID began taking delivery of reclaimed water treated in Fresno's Wastewater Treatment Plant southwest of the city. Highly treated wastewater in turn began to be delivered to FID agricultural water users in the District's southwestern area.

After more than three decades, FID and the cities began negotiations to update and revise their original conveyance agreements. Both of these agreements continued each city's practice of receiving a proportionate share of the District's water entitlement in exchange for lump sum payments of water service charges.

FID's Enterprise Canal's turnout to the City of Clovis' Surface Water Treatment Plant, a state-of-the-art facility. It treats raw surface water to drinking water standards for Clovis residents. Control gates regulate the City's diversions. Trash racks remove large debris. FID has been conveying water to this plant since it came online in 2004.

Fresno's agreement was the first to be enacted in 2016. It defined the amount of FID water that can be allocated based upon the District's acreage within the city. The agreement also allows FID to manage all water supplies with the coordination of the Cities to the benefit of the region.

The City bolstered its water conveyance abilities and public health safety by constructing a pipeline from the Friant-Kern Canal to its Northeast Surface Water Treatment Facility. This conveys water from Millerton Lake directly to the treatment plant at Chestnut and Beyhmer avenues. Additionally, a Fresno pipeline was built from just downstream of the Fresno Canal's headgate northeast of Centerville to the City's new Southeast Surface Water Treatment Facility, Olive and Armstrong avenues. This plant, completed in 2018, demonstrated Fresno's commitment to further maximizing its use of available surface water. In 2015, Fresno voters approved a Proposition 218 election to allow nearly $500 million for the plant's construction and other capital improvement projects. Those funds were also used for surface water conveyance facilities and expansion of the City's recycled water program.

In 2019, a new City of Clovis agreement with FID was approved. Its terms provide Clovis residents with a firm, secure and reliable water supply not tied to how wet or dry the water year turns out to be, ultimately increasing to 7,000 acre-feet annually after 25 years.

In addition to FID's basins, the Cities of Fresno and Clovis also have recharge sites that receive surface water for groundwater recharge. Leaky Acres, located at Ashlan Avenue and Freeway 168, is a 240-acre site owned by the City of Fresno. The City of Fresno and FID jointly own two year-round recharge basins. One covers 25 acres on Chestnut Avenue between Church and Jensen avenues. The other is a 38-acre basin located at Kearney Boulevard and Marks Avenue.

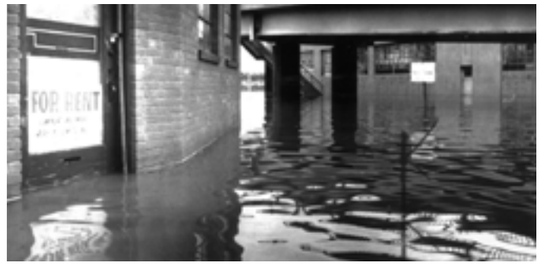
The City of Clovis owns and operates the Clovis Groundwater Recharge Facility at Alluvial and Sunnyside avenues. This 85-acre facility also receives deliveries for groundwater recharge purposes.

FID also has an agreement with a metropolitan Fresno-Clovis water firm, the Bakman Water Company. This privately-owned provider, regulated by the California Public Utilities Commission, uses water conveyed by FID for recharge within its southeastern Fresno service area.

FID has plans to outreach to smaller communities within its service area to help develop water supplies for those areas as it has with the two major cities. This effort will assist those communities making water supplies sustainable under SGMA.

The City of Fresno's expansive Leaky Acres—near Fresno-Yosemite International Airport, Ashlan Avenue and Freeway 168 — recharges groundwater with surface water year round on 240 acres.

Only rarely does Big Dry Creek Reservoir northeast of Clovis get to truly perform its flood control duties but the reservoir's role in protecting the Fresno-Clovis Metropolitan Area is evident in this image.



Would-be renters in the past were probably not very interested if they saw this downtown Fresno flood. The city's core area naturally has been prone to flooding since Fresno's 1872 founding. The entire urban area has benefited from projects and cooperation by the City, FID, and Fresno Metropolitan Flood Control District.

Fresno flooding in 1969 near Fulton Street and Belmont Avenue.

COOPERATIVE FLOOD MANAGEMENT

When the earliest Fresno area canals were constructed in the 1870s, their builders and pioneers served by the new system learned quickly they were going to have to find ways to tame a land prone to occasionally flooding.

Causing this periodic Fresno Plains problem were neither of the region's two major rivers — the San Joaquin and Kings — but a group of streams that emerged from the Sierra Nevada foothills to the east and northeast. Each terminated in a moderately low-lying area known to the area's pioneers as Sinks of the Dry Creek. At most times, the Sinks were a dry, dusty extension of the surrounding Fresno Plains. Each creek typically dried up during the stifling and rainless summer months.

This all changed when soaking winter rains drenched the foothills and mountains below the snowline. As hills became saturated, the seemingly insignificant streams became torrents, their discharges flooding the Sinks. Central Pacific Railroad construction in 1872 formed earthworks that effectively raised floodwater levels into the new downtown streets of Fresno. Local drainage from smaller storms contributed to the problem, which beleaguered Fresno for decades.

The Fresno Irrigation District has long been a key participant in efforts to control and manage flooding. That was only natural since some District canals were originally natural streambeds. FID supported the Fresno Metropolitan Flood Control District's (FMFCD) formation in 1955-56. FMFCD's storm drainage master plan was among the nation's first. It led to a highly-effective system in which FID's canals — under a master discharge agreement with participating agencies — plays a vital role in routing storm water out of harm's way in Clovis and Fresno.

There are several rural/eastside flood detention reservoirs such as Big Dry Creek Reservoir, Pup Creek and Fancher Creek detention basins, and Fancher Creek Reservoir which are designed to handle large flood events (200 year flood events). For the smaller flood events, FMFCD has constructed 91 basins within the metropolitan recharge. These 91 FMFCD recharge basins are interconnected with FID's canals and pipelines. Advance operational coordination is considered vital. When flood control basins fill or are anticipated to reach capacity in a storm, FMFCD and FID work together to permit excess water to be pumped into FID's system. This water usually flows to rural groundwater banking or recharge ponds. Such operations are coordinated so that flood control basin capacity is never exceeded. On average, 90% of all Fresno and Clovis urban runoff is captured and recharged. With the FMFCD rural reservoirs built over the past 40 years, FID's conveyance system, and newer recharge basins that have been constructed, very little storm water leaves the area. Instead, it is captured locally and is vital for reaching sustainable groundwater conditions required by the Sustainable Groundwater Management Act.

FID's well-connected system allows the District to be creative in directing water in ways to maximize capture and groundwater recharge. That's particularly evident in the dry summer season. Without storm water to control, FMFCD authorizes many of its basins to be utilized for urban groundwater recharge (typically between April and October of each year). This is accomplished by FID's conveyance of surface-water entitlements to FMFCD basins for percolation into the aquifer, from which it can later be pumped into the cities' domestic delivery systems.

A pleasing design matches a City of Clovis canal-side trail with a new bridge and control structure at the junction of FID's Enterprise Canal and Big Dry Creek.

URBAN TRAILS ALONG FID'S CANALS

FID's canals have been a familiar part of the local landscape since 1872. As the City of Fresno has transitioned from a small town into today's major Central California city, civic interest has grown in making at least some of the many canal banks part of the community's outdoor recreation enjoyment and culture. FID has historically worked with the cities of Fresno and Clovis to allow trails along its rights-of-way for pipeline systems but has not allowed trails along open channel systems.

FID negotiated its urban trails agreement with the City of Fresno for many years. The negotiations were long and contentious as FID opposed using its canals as urban trails for many reasons, including liability, maintenance, and public safety. The two agencies were finally able to come to agreement in 2018 for using canals for urban trail purposes. As part of that agreement, trails within new development areas will be located outside of FID's canal right-of-way. However, many sections of the City of Fresno were constructed prior to the need for trails and there is little to no room available for trails except on top of the canal properties. For these areas, FID is allowing the City of Fresno to place trails on top of its canal banks.

Water in Big Dry Creek spills over a check structure along a new City of Clovis trail as a welcomed amenity in a Clovis neighborhood.

As part of the agreement, FID will be indemnified of any liability from the use of the canals as trails and the City will be responsible for cleaning trash and spraying weeds on the trail side. The City will also be responsible for addressing homelessness issues on both sides of those canals. FID will need full access to the canals from the bank opposite the trails to operate and maintain its water conveyance system. FID will also have access to the canal from the trail side, if necessary.

With the execution of the trail agreement with the City of Fresno in 2018, the City of Fresno initiated designs for a five and a half-mile-long trail on the banks of Mill Ditch and the Herndon Canal, two of FID's major urban canals. The trails will include an asphalt trailway, lighting, shrubs and, where possible, potentially small trees. Where necessary, fences will be constructed between the canal and the trail. These trails will help to connect various parts of the City by providing public access and use of the canal right-of-way while protecting FID's ability to safely and adequately access, operate, and maintain its waterways.

The first trial segment in this plan is located on the Herndon Canal's north bank, paralleling Shields Avenue between Fresno and First streets in the City's north-central area. The Herndon Canal trail is mapped to continue south to McKinley and Millbrook avenues. The McKinley Avenue trail will be on the Mill Ditch's north bank between Millbrook and Clovis avenues.

The long talked-about agreement defines each agency's roles and responsibilities and is viewed by both FID and the City as being a major achievement. The City is to fund the trail projects and their operation and maintenance.

FID is also working on a similar trails agreement with the City of Clovis, but it has not yet been completed. FID has a history of working with the City of Clovis on many projects, including banking facilities on the west side of FID, trails along FID's pipeline rights-of-way, and the construction of the Dry Creek Trailhead Park at Shepherd and Sunnyside avenues. FID allowed for its land at this intersection to be traded for another parcel so that the City of Clovis could construct its award-winning park. Both of the cities have active transportation plans showing many future trail and bike paths being located adjacent to or on top of FID facilities as shown in the table below.

Miles of Trails Adjacent to or On Top of FID Facilities

Facilities		Fresno	Clovis
Existing	Canals	3.0	4.4
	Pipelines	4.5	1.3
Proposed	Canals	58.9	6.5
	Pipelines	13.2	0.7
Totals		**79.6**	**12.9**

STORING WATER UNDERGROUND

A portion of Waldron Pond at Belmont and Bishop avenues northeast of Kerman is part of a complex that pioneered FID's groundwater banking program. The facility includes six basins and 160 acres.

Attention to the water supply beneath the Fresno Irrigation District has greatly increased during the 21st century's first two decades.

FID's formation was initially based upon establishing public ownership and operating surface water deliveries to farmers. Since 1920 when the District was organized and 1997, FID's interests in taking advantage of surplus surface water when available to recharge underground supplies have grown.

FID's aquifer is part of a massive San Joaquin Valley underground reservoir. In pioneering days, all valley homes and businesses utilized small house wells or simple and modest community pumping plants for water. After World War I, great advances in pump design were made. Groundwater was recognized as complementing surface deliveries, providing water at times and in places in which surface supplies were not available.

Heavy pumping demand resulted in falling groundwater levels. FID initially developed 11 fairly small percolation basins. The concept was simple. Ponding basins were put to work recharging groundwater supplies when excess surface water was available due to high mountain runoff, or from unused canal deliveries. FID's canals and on-farm surface irrigation were found to further recharge groundwater supplies.

These efforts all began long before statewide consideration and debate led to the September 2014 enactment of California's Sustainable Groundwater Management Act (SGMA). SGMA requires governments and water agencies to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge within two decades.

The District's system of 35 percolation and operational regulation basins (870 acres) has grown so much in recent years that FID now is capable of handling and storing nearly every drop of rainy-season runoff along with inadvertent operational water system conveyance in excess of real delivery-season demands. Cooperative arrangements with neighboring Consolidated Irrigation District and other Kings River Water Association agencies provide additional wintertime water management options. So do water season storage and recharge opportunities in urban floodwater basins.

This is all a far cry from past District operations when recharge capacity was much more limited and FID hurried to evacuate its canals of off-season flows in order to resume annual maintenance work. Today's Fresno Irrigation District landscape includes much greater groundwater recharge capability than in the past.

FID was striving to meet the requirements of the SGMA mandate with new groundwater enhancement facilities long before the law's enactment. The first basin constructed was a portion of what became FID's Waldron Banking Facilities — named for longtime FID Director Ed Waldron. The concept began to take shape in the early 1990s when a Kings River Conservation District study identified potential recharge sites.

A modest 20-acre basin near Belmont and Bishop avenues, northeast of Kerman, was developed by FID to recharge and regulate water. In 2002, FID began a feasibility study on an expanded facility for banking, a process in which water is percolated for underground storage to later be recovered for delivery by pumping. The District

Empire Pond at Shields and Jameson avenues west of Fresno contains only 32 acres but is one of FID's basins with an important groundwater banking function.

The Boswell Banking Facility, southwest of Fresno at North and Bishop avenues, is a 102-acre water banking project in which FID has partnered with the City of Clovis.

in 2005 was awarded a California Department of Water Resources grant. The project became functional in 2007 with completion a year later.

From that, the banking concept and facilities have expanded to include 252 acres at three locations. These include:

- Waldron Pond with 160 acres, six recharge basins and four recovery wells.
- Lambrecht Pond (Shaw and Goldenrod avenues, west of Biola) with 60 acres, four recharge cells and three recovery wells.
- Empire Pond (Shields and Jameson avenues, west of Fresno) with 32 acres, two recharge basins and one recovery well.

What truly has made the Waldron Banking Facilities unique is a partnership between FID and the City of Clovis. For rapidly growing Clovis, the Waldron project was a major step forward in achieving the city's own water supply reliability. In exchange for banked supplies, FID provides an equivalent amount of surface water to Clovis. Some 10% of the banked groundwater is left behind for local benefit. An average of more than 10,000 acre-feet of water can be recovered annually. Downstream irrigators also benefit.

The facilities' $10.5 million cost was shared by $4.6 million in DWR grant funds and a $4.6 million City of Clovis investment. FID paid the balance.

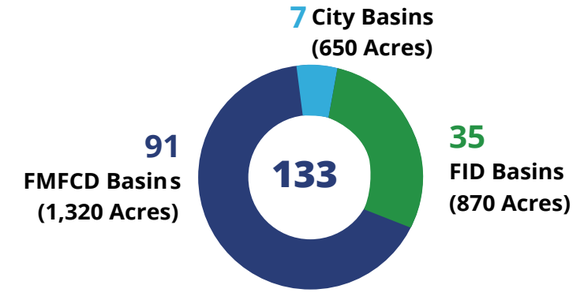
Clovis and FID are also partners in the District's Jeffrey G. Boswell Banking Facility, named for a former board president who later became FID general counsel. The 102-acre project, along North Avenue between Jameson and Bishop avenues, includes two recharge cells, three recovery wells and three monitoring wells in serving agricultural and urban users. This $5.4 million project was funded with $3.3 million in state grants as well as the City of Clovis and FID contributions.

Future plans for FID include expansions of the Central and Wagner Basins resulting in 150 acres of additional recharge basins. Construction on these expansion projects commenced in 2020 and will be completed and ready to receive water in 2022.

The Waldron and Boswell facilities each receive water from urban storm drainage, flood releases, rural stream runoff and surplus CVP-Friant Division supplies. Recovered water increases FID's overall water availability and provides a low-cost dry-year supplemental water supply for growers.

Many other ponds and operational facilities have been developed. FID banking facilities since 2005 have recharged 200,000 acre-feet of water. The 27 other District recharge basins have percolated 265,000 acre-feet. The program's recharge total of 465,000 acre-feet is equal to 46% of Pine Flat Reservoir's capacity. All of that water would have been lost to FID users had no projects existed.

Cooperative Recharge Efforts



SUSTAINING GROUNDWATER

Contemporary California laws, rules, regulations, policies, and official oversight until recent years have never been in short supply when it comes to water law — with one big exception.

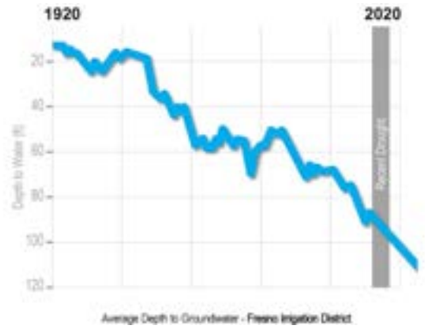
Groundwater, one of the Golden State's primary and most essential water sources, until September 2014, had mostly remained unregulated. California was the only western state lacking broad governance of pumping effects even though groundwater levels had continued a fairly steady decline in many regions, including Fresno.

In 2014 all of California was suffering from the third year of what turned out to be an extreme four-year drought intensified by years of environmental decisions that curtailed surface water deliveries in many valley areas. Depths to groundwater were plunging. Wells were running dry.

As drought conditions deepened, a state legislative push aimed at developing groundwater regulation bills was simmering. The Fresno Irrigation District and other valley water interests joined in the debate and put forward concepts to make local control and management a key of any proposed legislation. The result was the Sustainable Groundwater Management Act of 2014 (SGMA).

The new SGMA law established comprehensive groundwater management criteria. SGMA and its management provisions were intended to achieve groundwater basin sustainability while providing local management, a fundamental SGMA implementation principle. State intervention was limited to a "when-necessary" basis.

SGMA requires managing and using groundwater in ways that do not cause undesirable results such as chronic lowering of groundwater levels; groundwater storage reductions; seawater intrusion (not a central San Joaquin Valley concern); degraded water quality; land subsidence

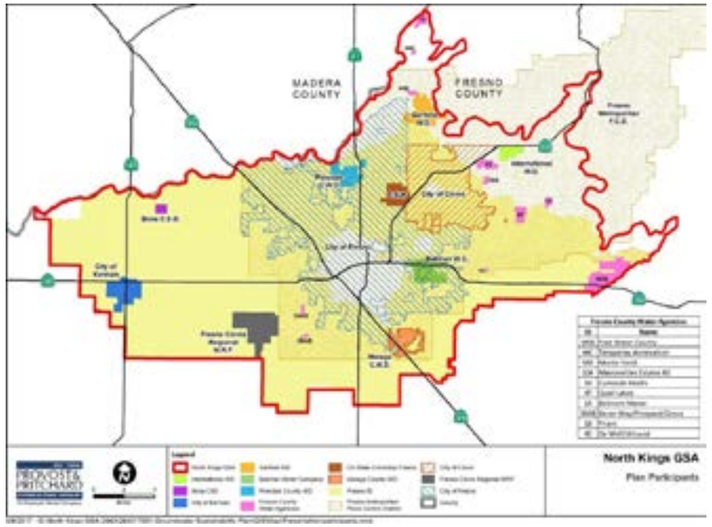


Groundwater's nearly constant downward depth trend within the Fresno Irrigation District.

(not an issue within FID or the Fresno-Clovis urban area); and surface water depletions adversely impacting beneficial uses.

To formulate a groundwater sustainability plan, FID and nine other local agencies became members of the North Kings Groundwater Sustainability Agency (GSA).

This is one of more than 260 such GSAs formed under SGMA with mandates to address groundwater issues in the state's high-and-medium-priority basins and subbasins. North Kings, formed in December 2016, serves the northern portion of the Kings Subbasin (a hydrologic region) and is a joint powers authority (JPA). Members are FID (the largest member agency spanning 248,000 acres of the approximately 312,000 acres in the GSA), Garfield and International Water Districts; Biola Community Services District; Bakman Water Company; Fresno Metropolitan Flood Control District; cities of Kerman, Clovis and Fresno; and Fresno County.

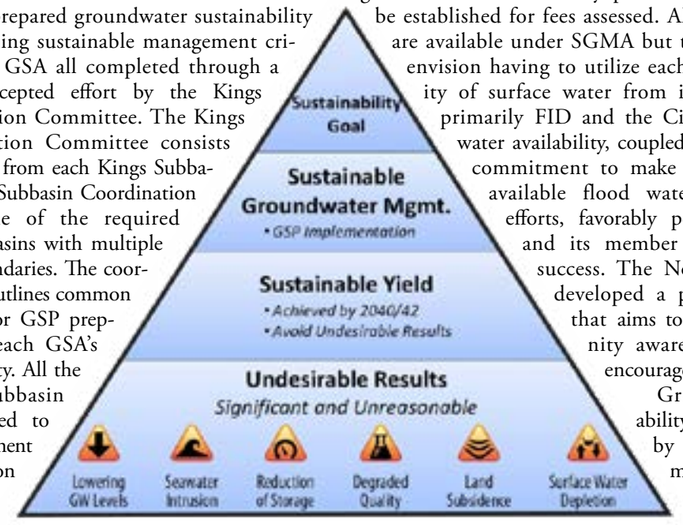


The Fresno Irrigation District is the largest member agency among cities, towns, and water purveyors on the North Kings Groundwater Sustainability Agency map. Fresno County is also a member of the NKGSA.

Kassy Chauhan has served as North Kings GSA Executive Officer since February 2020. She also is a Special Project Manager with FID.

Other Kings Subbasin GSAs include portions of Fresno, Tulare, and Kings counties. They include the Central Kings GSA, James Irrigation District GSA, Kings River East GSA, McMullin Area GSA, North Fork Kings GSA, and South Kings GSA.

Each GSA has prepared groundwater sustainability plans (GSPs), outlining sustainable management criteria for its specific GSA all completed through a coordinated and accepted effort by the Kings Subbasin Coordination Committee. The Kings Subbasin Coordination Committee consists of one representative from each Kings Subbasin GSA. The Kings Subbasin Coordination Agreement was one of the required deliverables for subbasins with multiple GSAs within its boundaries. The coordination agreement outlines common methodology used for GSP preparation as well as each GSA's overdraft responsibility. All the GSPs for Kings Subbasin GSAs were submitted to the California Department of Water Resources on January 28, 2020, along with the required coordination agreement.



North Kings and the other Kings Subbasin GSAs now have local regulatory authority and must implement their respective GSPs. SGMA regulations do not require groundwater conditions to return to conditions of a specific year but do mandate each basin to reach sustainability, which each GSA must determine how to achieve by 2040. GSA powers include investigating, measuring and, if necessary, limiting water extraction along with registering wells and imposing fees to enforce and administer the groundwater sustainability plan. A clear rationale must be established for fees assessed. All of these authorities are available under SGMA but the NKGSA does not envision having to utilize each, given the availability of surface water from its member agencies, primarily FID and the City of Fresno. Surface water availability, coupled with the established commitment to make beneficial use of all available flood water through recharge efforts, favorably positions the NKGSA and its member agencies to achieve success. The North Kings GSA has developed a public outreach plan that aims to build broad community awareness of SGMA and encourage active participation.

Groundwater sustainability must be achieved by 2040, with interim milestones for sustainability established for each five-year period leading up to 2040. Annually, the GSAs submit an annual report to the California Department of Water Resources, which includes reports on the GSAs progress toward meeting sustainability goals. If the sustainability goal is not met, the State Water Resources Control Board could intervene and establish an interim plan.

FISHERIES MANAGEMENT PROGRAMS

← Gravel is replenished in the Kings River channel to aid rainbow trout in spawning as part of a Fisheries Management Program project. Pine Flat Dam prevents the river from naturally washing gravel downstream from the Sierra Nevada.

↑ A Rainbow Trout swims through the Kings River downstream from Pine Flat Dam.

Among the Fresno area's most valued recreational and environmental assets are the nearby Kings River and its fishery. Each has long received attention, care and support from the Fresno Irrigation District and all other Kings River water agencies.

For recreation and sheer enjoyment, the conveniently-located Kings has been favored for recreational activities such as fishing, picnicking, swimming, and boating since the 19th century. In the lower foothills where the river flows onto the valley floor, Kings fishing became much more inviting and challenging following the 1954 completion of Pine Flat Dam and Reservoir above Piedra.

What this massive water storage project made possible was an all-year cold water fishery favoring trout in easily-accessible locations. The low foothill reach had been previously an opportunistic trout fishery, with significant numbers of trout finding their way downstream from higher-elevation river sections, seasonally at best, at times of high snow-melt-spawned runoff.

This in turn eventually led to ever-increasing attention and concern over fishery habitat and riparian environmental conditions. The public (particularly anglers) and what is now the California Department of Fish and Wildlife (CDFW) in the 1980s stepped up calls for fishery improvements. The river's primary water-agency managers — the Kings River Water Association and Kings River Conservation District — listened and on May 28, 1999 joined the CDFW in taking positive long-term action. They formed a governing board that requires unanimous consent on all decisions.

FID and every other Kings River agency supported establishing the Kings River Fisheries Management Program to enhance the river's fishery habitat and environment. It was an entirely voluntary agreement, calling for an adaptive management approach. The program by design has made use of the best science available while balancing fishery needs with other beneficial uses and adapting to changing needs, opportunities, and constraints. From its beginnings, the Fisheries Management Program has had an active Public Advisory Group to gain opinions and priorities of various public interest groups. FID cooperates in the program with CDFW, Pacific Gas and Electric Company, the U.S. Army Corps of Engineers, KRCD, other KRWA member units, and angler organizations.

A big program component has always been additional fishery water. FID and its fellow KRWA member units provided, from their Pine Flat storage rights, a 100,000 acre-foot temperature control pool (10% of the total reservoir storage) to help maintain a pool of cool water for use in reservoir and downstream fisheries. Minimum fishery water releases from the dam were approximately doubled from a 1964 fish and game agreement.

KRWA and KRCD have agreed to contribute a combined $100,000 annually and CDFW attempts to obtain an equal amount of funding from the state budget to finance habitat and fishery improvements.

Rainbow Trout eggs that will be hatched into fry for river rearing are prepared by the Kings River Fisheries Management Program.

The biggest project completed between 1999-2020 included a $5 million turbine bypass project in partnership with the Corps of Engineers, which operates and maintains Pine Flat Dam. That facility has since proven vital to maintaining cold water reserves for fish in the reservoir and river downstream from the dam. Another important fishery project, led by KRCD, was the Thorburn Spawning Channel downstream from Piedra. Improved habitat, fishing and recreational access, supplemental trout stocking, enhanced enforcement of existing regulations, construction of a trout incubator building, scientific study, data collection, and a monitoring program are among the many other fishery activities the program has undertaken. In 2019, a special Light Detection and Ranging (LiDar) study (known as the Cramer Study) was undertaken. That led in 2020 to consideration and discussion over how the Kings River fishery will be managed. This effort includes what projects will be constructed so the overall "fishing experience" can be enhanced.

KRWA and KRCD have contributed more than $2 million toward Fishery Management Program projects over the past 21 years. The CDFW has also been a major financial supporter of program projects and activities.

FID is also involved in a much more extensive and expensive fisheries program on the District's northern neighboring river, the San Joaquin. It aims to restore a large chinook salmon population that had largely vanished. Friant Division deliveries of Central Valley Project water to FID, the City of Fresno and other San Joaquin Valley agencies resulted in some 60 miles of riverbed being totally dry in most years. A 1988 lawsuit against the federal government by the Natural Resources Defense Council (NRDC) and a coalition of several other environmental groups began an 18-year legal battle.

The San Joaquin River Restoration Program is the direct result of a 2006 federal court settlement involving FID and other Friant contractors that depend upon water diverted from Millerton Lake into the Friant-Kern and Madera canals. Other litigants were the U.S. Interior and Commerce departments, NRDC's coalition, and the Friant Water Users Authority. Congress in 2009 approved the San Joaquin River Restoration Settlement Act, authorizing federal agencies to implement the agreement.

Program goals include restoring and maintaining fish populations in "good condition" in the San Joaquin's main stem between Friant Dam and the Merced River. Naturally reproducing and self-sustaining populations of salmon are the primary focus but other fish are involved. The settlement's other goal is to reduce or avoid adverse water supply impacts to all Friant Division long-term contractors.

Restoration flows began rewatering the dry river sections in 2009, leading to a return of salmon upstream to Friant Dam. Major design and construction issues and needs remain. Costs are expected to run into the hundreds of millions of dollars. Friant contractors now receive less water. Initial studies suggested Friant water users would lose 15% of their contracted water in average years. Some restoration flows are being recovered and recirculated through exchanges into the Friant Division.

THE FUTURE

Now, the Fresno Irrigation District has entered its second century but what about the future? The District's path will surely contain elements of great progress, achievements that will continue to be built upon foundations put in place during FID's first 100 years. Many of these can be predicted or anticipated. Others, naturally, remain unknown. They may well reflect changes in our valley's life and land that have yet to emerge. FID's new century remains very much a puzzle waiting to be put together, with the certainty of one constant. And that is water; for it is water that will always remain a fundamental constituent to life within this magnificent place served by the Fresno Irrigation District.

INTO FID'S SECOND CENTURY

A new century is beginning for the Fresno Irrigation District with one certainty. Just as the District's founders could never have imagined all that has transpired since 1920, undreamed-of FID needs, issues, challenges, and technological opportunities will doubtlessly emerge. Continuing to develop well-trained and highly-qualified staff members will remain as a top District priority.

Yet, lessons are to be learned from the past. FID's recently concluded first 100 years is filled with suggestions, solutions, and certainties of what may attract the District's attention between now and 2120 when its Bicentennial is commemorated.

Here are some of those imaginable future Fresno Irrigation District issues and needs:

WATER RIGHTS

Fundamental to providing, diverting, delivering and overseeing beneficial uses of water will continue to be protection of FID's water rights. Certainty of availability, amounts, and an unencumbered ability to ensure water deliveries to designated places of use is absolutely vital for FID's agricultural and urban users today, as it will continue to be in all future eras. So it has been for the District since long before FID's 1920 organization. Fortunately for FID's contemporary users, the Fresno area's water pioneers were imaginative. They conceived and carried out significant acquisitions of key properties and agreements, a process that acquired firm rights to Kings River water as well as federal contracts to utilize San Joaquin River water. Those rights and agreements have endured but periodic efforts by other water users, including some in contemporary times, have and are still being made to wrest rights to water away from FID and other long-time regional users.

AGING INFRASTRUCTURE

The Fresno Irrigation District has rebuilt and made major repairs through much of its vast system during the District's first century. Some FID canals are even older — nearly 150 years in a few cases. Any aging infrastructure that is not upgraded and modernized will eventually wear out. That is why much of the two decades leading up to FID's Centennial year have been dominated by major repair and reconstruction projects. Such ongoing upgrades of delivery systems, including major capital improvements and funding, will continue to be District priorities.

TECHNOLOGY

In this age in which skills, knowledge, expertise, and even equipment are tied to electronics and data processing, embracing technology has never been more important for FID. That will remain true and is likely to accelerate as the future unfolds thanks to technological innovations yet to come. Managing supplies and delivering water equitably using pioneering engineering and technology, will be a key technological opportunity. Vulnerabilities continue to be a challenge. Cyber security needs are already increasing to protect information networks, devices, programs and data from attack, damage, or unauthorized access. FID will continue to make improvements to ensure the highest level of customer service and satisfaction is received.

GROUNDWATER

Among the most significant issues that will continue to face FID is groundwater usage. For more than 30 years after the first canals began flowing into the Fresno area in the early 1870s, a lack of pumping technology limited groundwater use to small, shallow domestic wells. Heavy use of surface water — typically far more than was needed by plants — pushed up groundwater levels to or near the land's surface in some areas. That changed dramatically after larger groundwater pumps in the 1920s began supplying farms and cities, ultimately to the extent that much of the San Joaquin Valley today uses more groundwater each year than is replenished. Falling water table levels are now not only a problem but a major issue, one assured of deepening over the next few decades as local plans are implemented for California's new Sustainable Groundwater Management Act (SGMA). SGMA requires groundwater supplies within FID and most other valley areas to be made "sustainable" by 2040. The District and its regional SGMA partners are expected to step up plans and development of new and larger groundwater recharge and banking facilities to replenish much more water – mostly from high runoff events – than in the past while also increasing aquifer monitoring. Farming practices in areas with no surface water affect FID's ability to achieve its sustainability goals. Mitigation for these impacts greatly affect FID and is challenging to overcome. Failure to achieve success in some localities could curtail future groundwater pumping.

ALSO IN THE FUTURE

Other needs, potential problems, and issues likely to unfold in FID's future:

UNPREDICTABLE WEATHER PATTERNS: Moving forward, flood releases come sooner and are greater in volume than in past years.

MORE STORAGE: Additional development of dams and reservoirs to create additional water storage opportunities (and greater operational flexibility).

CAPTURE FLOOD WATERS: Construction of facilities for capturing water during flood events is vital to ensuring adequate supplies of water.

REGULATORY CHANGES: Necessary compliance with new laws and regulations for groundwater, water quality, volumetric measuring of surface and groundwater, and environmental demands.

URBANIZATION: Dealing with the Fresno-Clovis Metropolitan Area's growth and changing balances between urban and rural agricultural interests as well as water demands.

FARMING CHANGES: Responding to changing cropping patterns and water needs in agriculture.

AGENCY PARTNERSHIPS: Maintaining and enhancing strategic partnerships with other public agencies.

STAFFING: Preparing for FID's future management and operations through personnel succession planning and maintaining a high-quality work force. Staffing a highly diverse workforce to provide the highest level of service remains a priority to FID as we enter our second century of existence.

With all that is anticipated to frame FID's second century, the Board of Directors and staff are looking forward with eager confidence. As in the past, the District is facing the coming decades with a commitment to manage and protect surface water and groundwater resources in the very best interests of everyone we serve. So it will remain in every generation to come. For the Fresno Irrigation District, the future is now.

Mission

The Fresno Irrigation District's mission is to **PROTECT and MANAGE** the surface and groundwater resources of the District in order to meet the present and future water needs of the people and lands within the District.

How FID Celebrated Its Centennial

We believe FID's rich history ought to be shared with others. Throughout the centennial year, several efforts outside this publication were undertaken to do just that.

Centennial Video

The cornerstone of our centennial outreach was the development and public debut of FID's Centennial Video, created and produced by acclaimed producer, Jeff Aiello, with 18THIRTY Entertainment. This visually stunning nine-minute video chronicles the history of FID with a series of interviews along with narration by local historian and author of this book, J. Randall McFarland. Hosting a live panel and video premiere were FID Board President Ryan Jacobsen, FID General Manager Bill Stretch, and Producer Jeff Aiello, allowing for an insightful discussion about the Centennial, FID, and the production of the video.

View the centennial video and the live panel at:
www.fresnoirrigation.com/centennial-video

Centennial Website

FID created a page on its website to make the centennial celebration accessible to those who wish to learn more about us. It is complete with vintage photos, elaborating on a variety of topics covered throughout the year. As we have made each of the topics available on our website, we also utilized social media and created physical display banners to educate about water in our region.

View the centennial website at:
www.fresnoirrigation.com/centennial

Centennial Business

FID's first 100 years of existence and service has been recognized by the Fresno County Historical Landmarks and Records Commission.

Commissioners voted unanimously September 10, 2020 to recommend FID be designated and honored as a centennial business by the Fresno County Board of Supervisors.

"FID is extremely proud of its rich 100-year history and remains committed to sharing its story with the community and stakeholders," District officials told commissioners. "The creation of these materials and others will be beneficial in ensuring the 'century of commitment, conveyance and customer service' is not forgotten while providing educational outreach materials for years to come."

RESOLUTION NO. 2020-08
RESOLUTION OF THE BOARD OF DIRECTORS
IN RECOGNIZATION OF THE DISTRICT'S CENTENNIAL

WHEREAS, June 28, 2020, marks the Fresno Irrigation District's Centennial Anniversary (1920 to 2020) and the Board of Directors recognizes the efforts of the men and women who contributed to the success of 100 years of conveyance, commitment and customer service to its growers, municipal partners and stakeholders;

WHEREAS, an early founder of local irrigation, Moses Church, known as the "Father of Fresno Irrigation" organized the Fresno Canal and Irrigation Company in 1870 and began building earthen channels of distribution networks, and worked with A.Y. Easterby to develop the Fresno Canal to divert and convey Kings River water to irrigate his wheat fields which initiated the transformation of the region prior to 1920;

WHEREAS, the California Legislature passed the Wright Act of 1920 leading to the founding of the Fresno Irrigation District;

WHEREAS, the voters of Fresno County approved the formation of the Fresno Irrigation District in the election held on June 15, 1920, by an overwhelming majority vote (less than 12% opposition);

WHEREAS, the establishment of the Fresno Irrigation District led to the development of the region's agricultural economy and communities through the development of a reliable irrigation system;

WHEREAS, water is our most valuable resource, the leadership of the Fresno Irrigation District has soughtto manage, protect and convey water to its growers and partners for 100 years;

WHEREAS, the Fresno Irrigation District thanks and recognizes past and current employees, management, directors, municipal partners, growers and stakeholders;

WHEREAS, the Fresno Irrigation District pauses to reflect and recommit to its mission to secure, deliver and sustain our most precious water resources for today, tomorrow and future generations; and

THEREFORE, be it resolved, our heritage and legacy of success is because of the people who have dedicated their lives and careers for more than 100 years to building and maintaining a remarkable irrigation system that serves Fresno Irrigation District customers.

Board of Directors
Ryan Jacobsen, President
Jerry Pierce, Jr. Vice President
George Porter
Steve Wilson
Gregory Bakanas

Bill Stretch, General Manager
Aaron Chew, Assistant General Manager - Operations
September Singh, Assistant General Manager - Administration

FID's Board of Directors passed a Resolution 2020-08 at its June 15, 2020 meeting to commemorate FID's 100th Birthday. FID looks to the future with excitement but acknowledges the work our former leadership did to prepare FID for this special moment in its history.

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Fresno, CA 93725

Stay Connected!

Sign up for our e-newsletter, get access to grower resources, and obtain up-to-date and relevant information at our website: **www.fresnoirrigation.com**

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@fresnofid