

FROM GROWING CROPS TO GROWING CITIES: SRP'S TRANSITION FROM AG TO URBAN

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ABSTRACT

This presentation will visually show, through the use of historic and contemporary photographs, that reclamation was a cornerstone of growth in the West: providing a stable water supply for crops, transforming the desert to the farmlands, and now farmlands to the development of cities businesses and communities; developing power, to operate the irrigation pumps, light the homes, and now power our industries. SRP, as one of the first multi-purpose reclamation projects authorized by the federal government, provided irrigation water to the settlers of the Salt River Valley at the beginning of the twentieth century. Now, over one hundred years later, SRP continues that tradition and is still delivering water to its shareholders and customers, but now in an urban setting.

INTRODUCTION AND BACKGROUND

Within a year of the passage of the National Reclamation Act in 1902, the Secretary of the Interior authorized the Salt River Project as one of the first federal reclamation projects. Reclamation Service engineers constructed Theodore Roosevelt and Granite Reef Diversion dams, purchased existing irrigation systems, and built additional canals to deliver water to 150,000 acres for the Salt River Project. Within three decades and after the construction of additional dams, power facilities and groundwater pumps, SRP provided irrigation water to approximately 238,000 acres.

Over one hundred years later, the Salt River Valley is the major population center of Arizona, made possible by the water storage and delivery system of the Salt River Project. Phoenix is the seat of Maricopa County, the state capitol of Arizona, and now the 5th largest city in the United States with a population of 3,700,000. SRP is the third largest public power provider in the nation. Salt River Project still provides water to its member lands, but today, less than 24,000 acres are still being farmed. Much of the Project's stored and developed water now passes through municipal water treatment plants and is delivered to residential, commercial and industrial enterprises.

Shortly after Jack Swilling's arrival in the Salt River Valley in the late 1860s, he and other farmers started digging canals, using the prehistoric structures left by the Hohokam as the foundation for their work.² By 1870, there were 700 people living in the Valley and over 7,000 acres irrigated. Pioneers, farmers, miners and entrepreneurs flocked to central Arizona when they heard of the fertile soil and healthy climate. With the construction of the railroad, Arizona citrus could be shipped East prior to the West Coast

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² Jack Swilling was an explorer, prospector, Confederate soldier, entrepreneur, and farmer who constructed the first modern irrigation canal in the Salt River Valley.

harvest, since the fruit ripened before the California orchards (see Image 1). Exotic fruits were grown beyond the staple crops of grain, cotton and alfalfa. At the beginning of the new century, the U.S. Census tallied over 20,000 people within Maricopa County and the acreage farmed within the Valley totaled more than 130,000.



Image 1. Oranges grown in the Arizona sun.

Farmers on both sides of the Salt River expanded the irrigation systems so much that when the rains did not fall, the river stopped flowing and not enough water could be diverted into the various canal headings. Private enterprise could not raise the capital necessary to construct a large storage reservoir up on the Salt River. Early surveyors had already found the ideal location, but money was not available to build a dam. In the midst of a drought in central Arizona, the national irrigation movement was hard at work attempting to get a federal reclamation bill passed through Congress. Benjamin Fowler, chairman of the Maricopa County Water Storage Committee, had been in Washington D.C. at various times since 1900, lobbying for passage of the Reclamation Act. Fowler and reclamation lobbyist George Maxwell aided Francis Newlands in his congressional fight for a reclamation act. At his Washington residence, Maxwell gathered government officials, including Gifford Pinchot and Frederick Newell, to discuss the national irrigation movement and possibly a Salt River Valley reclamation project. Pinchot and Maxwell were good friends with Vice-President Theodore Roosevelt, a strong supporter of the reclamation and conservation movements. Following the ascendancy of Roosevelt to the office of the President, the reclamation measure passed Congress and the Secretary of the Interior was authorized to choose the first projects from a list supplied by Newell.³

NATIONAL RECLAMATION AND SRP

After the passage of the National Reclamation Act on June 17, 1902, the Secretary of Interior authorized the Salt River Project and the construction of Theodore Roosevelt Dam by the U.S. Reclamation Service. The Project allowed for the storage of water on the Salt River to be used when normal flow was not available. Valley landowners

³Smith, "Campaign for Water in Central Arizona," 127-147. Benjamin A. Fowler to E. A. Hitchcock, November 20, 1900. National Archives, Washington, D.C. RG 48, LANDS & R.R. DIV., RECL., S.R.P.

organized the Salt River Valley Water Users' Association (Association) in February 1903, to facilitate the repayment of the construction costs and to later operate and maintain the Project. The Association opened up membership to those who owned land within the boundaries set by the Articles of Incorporation; within five months farmers signed up more than 142,000 acres. By the end of the 1920s, approximately 238,000 acres joined the Project.

The drought that started in 1898 ended in 1905 following a torrential down pour that sent water rushing down the Salt River, delaying construction of Roosevelt Dam and washing out all the small diversion dams in the Valley. Local farmers approached the U.S. Reclamation Service engineers for assistance. The government purchased the northside canals in April 1906, paying over \$300,000 for the Arizona, Grand, Maricopa, Salt River Valley and Crosscut canals. The federal engineers also constructed Granite Reef Diversion Dam (see Image 2) which diverted water to both sides of the river.



Image 2. Granite Reef Diversion Dam.

Because some lands did not immediately join the Salt River Project, a combination of local farmers and government crews constructed additional canals on the south side of the river. Later, the Reclamation Service embarked on a program to acquire private laterals; by 1915 almost sixty miles of laterals and ditches had been acquired and rebuilt.⁴

Following completion of Roosevelt Dam in 1911 and the settling of financial accounts, the Association assumed operational control of the Salt River Project in 1917, although title to the dams and irrigation works remained with the United States (see Image 3). Shareholders farmed over 181,000 acres of land and with World War I in progress, additional acreage was irrigated to over 205,000 acres by the fall of 1918. With

⁴U.S. Reclamation Service. *Fourteenth Annual Report 1914-1915*. GPO, 1915 p. 50

continuous irrigation, portions of the Valley soon experienced water logging from the rising groundwater table. The Association amended its Articles of Incorporation in 1919 and embarked on a program of constructing over 300 miles of drains and installing pumping plants.⁵



Image 3. Roosevelt Dam spilling.

As the wartime economy grew, so did the population of Maricopa County, rising in 1920 to 90,000 from 34,500 people in 1910. In the second half of 1920, the booming financial conditions came to a dead stop, and prices of agricultural goods plummeted to below pre-war levels. Valley farmers were especially desperate because they had planted cotton in record amounts, not anticipating the market bottoming out at the end of war. Expecting cotton prices of \$1.50 per pound, SRP farmers planted 146,000 acres of cotton in 1920 (see image 4). Enthusiasm was so high that alfalfa lands were plowed up and dairy cattle slaughtered to make more room for cotton. When the price of cotton dropped to 28 cents a pound—half the cost of production—only those farmers who could afford to hold their crop in hopes of better prices survived. It was estimated that the loss on agricultural produce in 1920, amounting to more than \$12 million, was more than the cost of constructing Roosevelt Dam and the Valley canals. It is interesting to note, however, that although the amount of cotton grown in 1921 was less than half cropped the year before, the Valley farmers only decreased the total number of acres irrigated by only 2,000.⁶

⁵SRP *Annual History* 1920-1921, p 62.

⁶Michael Kotlanger, S.J., “An Overview of Economic Development in Phoenix in the 1920s,” in *Phoenix in the Twentieth Century: Essays in Community History*, edited by G. Wesley Johnson, Jr. University of Oklahoma Press, 1993.



Image 4. Cotton picking in the Salt River Valley.

While the depression of the 1930s was more moderate in the Valley than other parts of the nation, farm prices did drop and the Arizona copper industry was at one of its lowest points. For the Salt River Project, this meant shareholders had difficulty paying assessments and power revenues were reduced. Farmers irrigated almost half the acreage in alfalfa, grain or pasturage with a total number of acres being cropped within the Salt River Project reaching 208,546. By the middle of the decade, farmers were irrigating more than 228,000 acres, not including fallow, urban irrigation or water to townsite lands (see Image 5). Prices also had risen on almost all the crops being grown.⁷



Image 5. Irrigating the fields.

Although the farmers were still able to sell their produce, the scarcity of funds limited the amount of maintenance work done on the SRP irrigation system. Following the election of Franklin D. Roosevelt and his programs of finding work for the unemployed, the Civilian Conservation Corps (CCC) came to the Salt River Valley in the fall of 1935.

⁷SRP *Annual History* 1930-1931; SRP *Annual History* 1934-35.

Utilizing the services of this federal agency, the Association had the men construct headgates, line canals, and help repair damages to the irrigation structures throughout the Project. The CCC crews repaired the canals on both sides of the river when floods broke through the irrigation structures. Operation and maintenance of the SRP irrigation system was reaching a critical point in 1938. A large number of ditch structures had been constructed of redwood lumber during the early years of the Project and these features were reaching their end of useful life when CCC crews replaced practically all these structures with concrete (see Image 6). The CCC also worked on modifying the ditch and lateral capacities due to the increase in specialty crops, such as lettuce, concentrated in particular areas. The original lateral system was designed for diversified cropping, which permitted delivery of water through a normal rotation. The special crops often required simultaneous demands for water service within the same contiguous areas.⁸ The CCC work on the Project was discontinued because of the trade union complaints charging the corps members were doing the skilled work of the union laborers. Before its departure, the CCC completed over 700 projects at SRP.



Image 6. CCC work done on SRP lateral in 1938.

By the time Europe was engulfed in war in 1940, the irrigated acreage remained at approximately 214,000 acres, but farmers were double cropping almost that same amount of acres. Previously, acreage that supported at least two crops rose from 10,000 acres in 1920, to 60,000 acres in 1930 and then 177,000 acres in 1935. Once America became involved in World War II, central Arizona felt the impact of the war time production. Military bases opened in the Valley, the Arizona copper mines operated at full capacity and agricultural prices rose. After the war was over, many of the military personnel who were stationed in the Valley returned and the spectacular economic expansion broke all past projections for growth in central Arizona. The population of Maricopa County rose to over 330,000 in 1950, but cultivated acreage remained relatively the same.⁹

⁸SRP, *Annual History*, Irrigation Division, 1938, 2.

⁹SRP *Annual History* 1930-31; 1934-35; 1940.

URBAN LANDSCAPE

Although agricultural land slowly was becoming residential subdivisions and shopping centers, SRP still needed to maintain its irrigations in an evolving urban setting. Because of the lack of workers and materials, minimal improvements were made to the irrigation system in the 1940s. In 1949, the U.S. Congress passed legislation, the Rehabilitation and Betterment Act, which loaned funds to federal reclamation projects to improve both power and water infrastructure. During the first fifty years of the Salt River Project, the design of the irrigation distribution system focused on delivering water with little seepage loss and limited expense; losses of water in unlined dirt ditches were unwanted, but the cost to line them with concrete was prohibitive for the Association. The turnout structures were meant to be functional, not beautiful. That attitude changed after the war. Long time residents frowned at the unsightly turn-out structures which stood above-ground in their neighborhoods, but they realized the necessity for the delivery of subdivision and irrigation water in the area (see Image 7). The newer citizens were unaware of the connection of the water, distribution system and their land.



Image 7. SRP employee cleaning a lateral.

In 1952, the City of Phoenix and the Salt River Project signed a twenty-five year domestic water agreement which allowed the city, as an agent for the landowners, to receive all the water no longer being irrigated from the SRP system, within the city limits for distribution to those lands. Phoenix assumed responsibility for collecting and paying delinquent and future assessments on these lands. As Phoenix grew and the annexed lands within the Association boundaries were transformed into residential subdivisions and businesses, the city gained access to the same amount of water those lands would have received if they had remained farms. Water treatment plants were constructed next to the canals (see Image 8).



Image 8. Val Vista Water Treatment Plant, South Canal.

The domestic water agreement also opened the way for SRP water to be delivered to cities through canals, and the first Phoenix canal water treatment plant opened on the Arizona Canal in 1952. The contract increased the supply available to cities, and it provided the Salt River Project with a way to manage the urbanization of its area by providing water to the new residents who were coming to live on the former farmlands. Furthermore, the contract became a model for other agreements with local municipalities. In time, the cities of Scottsdale, Tempe, Mesa, Chandler, Gilbert, and Peoria all signed similar domestic water contracts.

While SRP had always worked to improve their irrigation structures, it was not until the mid 1960s when they started “dressing up” the exposed portion of a structure to give it a decorative appearance. The Project placed a new emphasis on beauty (community styling); its engineers aided this beautification effort by designing “more picturesque” structures.¹⁰ In 1964 SRP employees started laying flagstones and other types of inlay into the concrete slabs (see Image 9). An average structure used approximately 1.5 tons of stone and SRP termed this “hydro-styled” to make it pleasing to the eye.¹¹

¹⁰“A More Beautiful Valley . . .” *The Current News*, August 1965, 8.

¹¹“Designed for Beauty,” *The Current News*, August 1965, 12-13.



Image 9. Community styling irrigation structure.

These structures had the appearance of blending into the surrounding area. When SRP needed to replace an irrigation turnout, employees installed one of the new community designed structures, attempting to make it “fit into a neighborhood” with its shape and pattern. Plans could call for flagstone, brickwork, redwood veneer or new types of precast designs. As new subdivisions or commercial enterprises took over farm land, SRP worked with the developers and supplied the builders with specifications and plans for the new structures.¹² Road and building construction required most of the laterals and ditches to be relocated and piped (see Image 10).



Image 10. Cast in place pipe being manufactured as open laterals are placed underground.

During the first half of the century, farm and ranch children usually did not have the luxury of going to the city to cool off in the municipal pools during the hot summer months. Instead many just had to cross the field to one the Project’s laterals and swim with the neighborhood children. Today, SRP strongly discourages this activity for health and safety reasons.

¹²“A More Beautiful Valley,” *The Current News*, August 1965, 9.

In the mid-1960s, SRP changed its view of the irrigation system as only a means to deliver water. As the urban area increased in proximity to SRP's canals and laterals, the need to provide for recreational and multi-use activities along the canals became more apparent. The Project cooperated with the local Valley Beautiful committee by planting trees and landscaping along the banks of the waterways. With encouragement from local communities, neighborhoods, and cities, SRP and the Bureau of Reclamation signed agreements that would permit the use of canal and lateral rights of way for parks and trails, but swimming was still not allowed (see Image 11). Employees trimmed trees and removed weeds along the banks of the canals, laterals and ditches.



Image 11. Jogging along a SRP canal.

From 1965 to the present, agricultural acreage within SRP has decreased from 145,000 acres to less than 24,000 being cropped (see Chart 1).

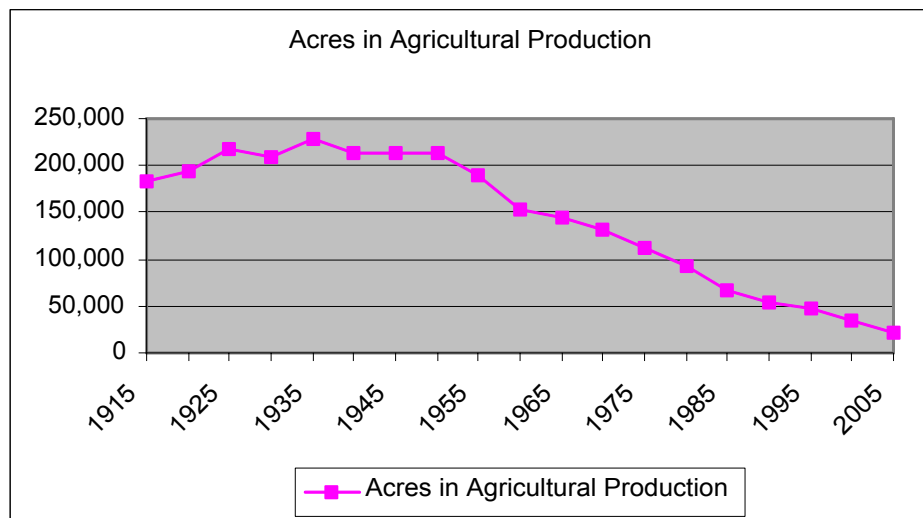


Chart 1

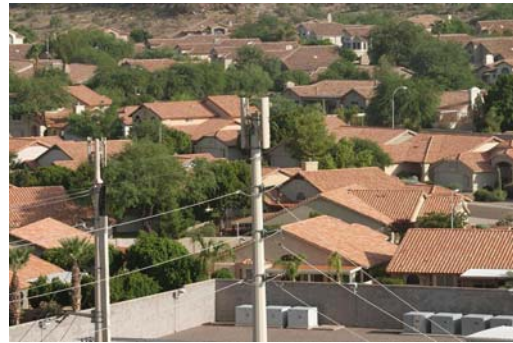
SRP is still delivering water to shareholder land, but instead of having a zanjero open a head gate, the water is diverted at one of the municipal water treatment plants located on

the SRP canal system, including the newest one, on Arizona Canal Lateral 19 for its Glendale Oasis Water Campus. The plant will furnish a new source of potable water with state-of-the-art technology.

SRP continues to deliver water to the residents of the Valley. Over the past one hundred years, SRP provided a stable water supply for crops, transforming the desert to the farmlands, and now farmlands to the development of cities businesses and communities; developing power, to operate the irrigation pumps, light the homes, and now power our industries.



Tempe irrigated fields, 1903



Residential subdivisions, 2005