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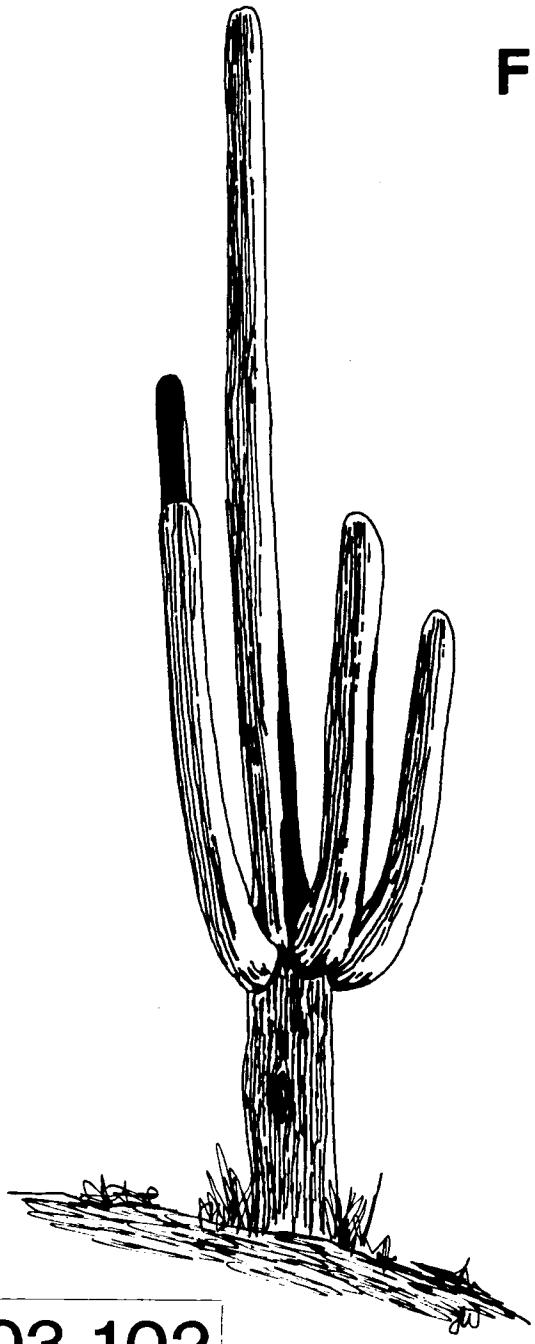

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

JULY 1, 1976
to
JUNE 30, 1977

003.102

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SECTION I

INTRODUCTION

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

ANNUAL REPORT
July 1, 1976, to June 30, 1977

INTRODUCTION

The legislation providing for the creation of the Flood Control District of Maricopa County provided for the Flood Control District to be a public political taxing subdivision of the State and a municipal corporation to the extent of the powers and privileges conferred by the legislation or granted generally to municipal corporations by the Constitution and Statutes of the State of Arizona.

Arizona Revised Statutes 45-2364 C authorized the Flood Control Tax Levy to be 20¢ per $100 property evaluation. In addition, Arizona Revised Statutes 45-2701, et seq. established the State Flood Control Assistance Program in 1973. This Program provided for State financial assistance for a period of 15 years and authorized the State to contribute half the local costs for authorized Federal flood control projects.

Stated below are the amount of funds requested and appropriated since the Flood Control Assistance Program was authorized:

Year	Amount Requested	Amount Appropriated
1973	$2,450,000	$2,450,000
1974	2,475,000	895,000
1975	3,688,000	176,000
1976	4,700,000	600,000
Total	$13,313,000	$4,121,000

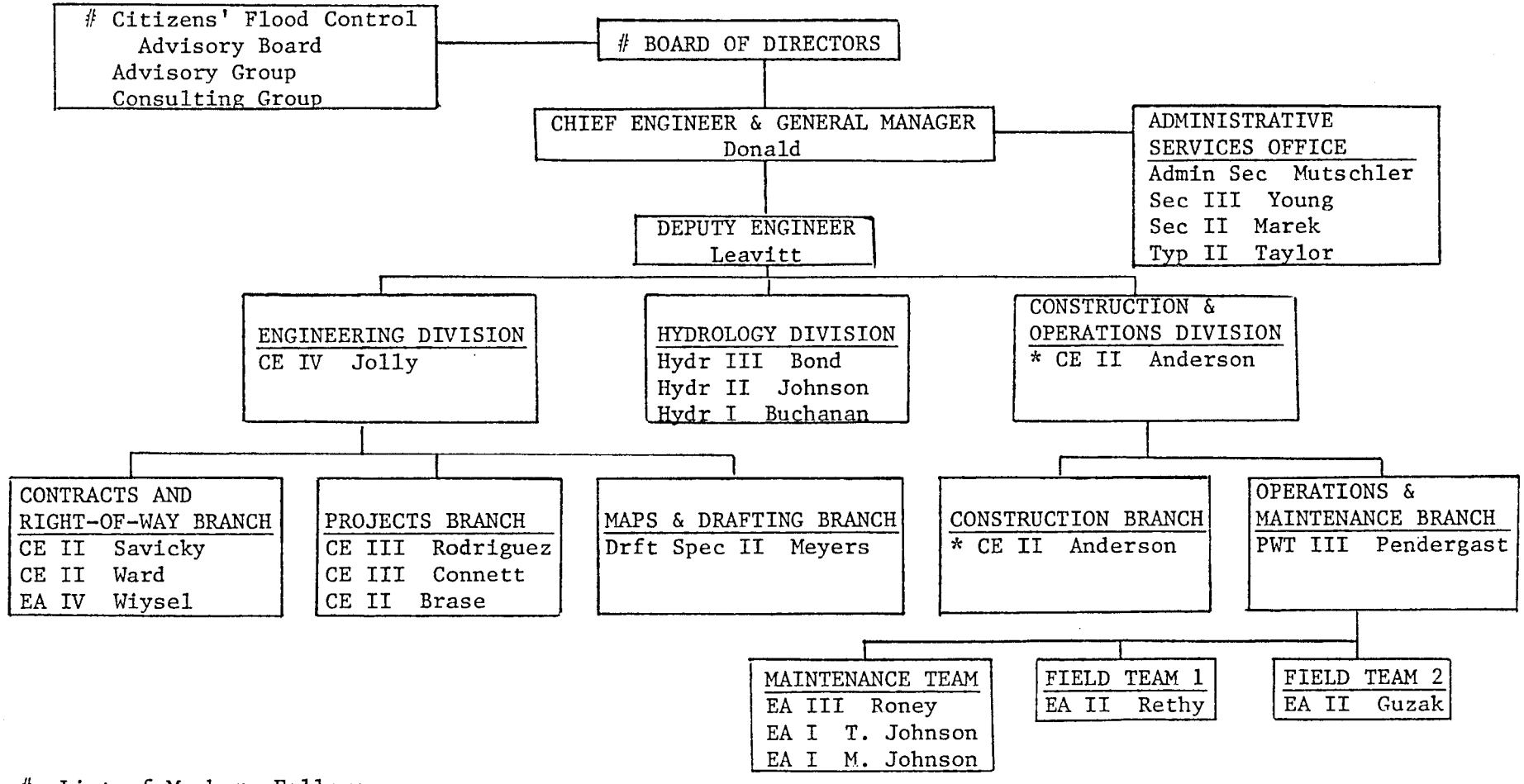
Federal flood control projects are planned, designed and constructed by either the U. S. Army Corps of Engineers or the Soil Conservation Service, U. S. Department of Agriculture. It is the responsibility of the Flood Control District to provide funds for the acquisition of all rights of way necessary for the project and to relocate all facilities such as roads, bridges, utilities, irrigation systems, etc. In addition the Flood Control District has established a Local Projects Program by which the District participates equally with municipalities or other governmental agencies in the planning and construction of non-Federal flood control projects.

SECTION II

ORGANIZATION CHART

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

Organization Chart



List of Members Follows

* Indicates Dual Assignment

Total Authorization 24

June 30, 1977

BOARD OF DIRECTORS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

Hawley Atkinson, Member, January 3, 1977, through June 30, 1977
Chairman, June 6, 1977, through June 30, 1977

George L. Campbell, Member, January 3, 1977, through June 30, 1977

Bob Corbin, Member, July 1, 1976, through June 30, 1977
Chairman, January 3, 1977, through June 6, 1977

Henry H. Haws, Member, July 1, 1976, through June 30, 1977
Chairman, July 1, 1976, through January 3, 1977
Vice Chairman, January 10, 1977, through June 30, 1977

Joe Eddie Lopez, Member, July 1, 1976, through December 31, 1976

Ed Pastor, Member, January 3, 1977, through June 30, 1977

Eldon Rudd, Member, July 1, 1976, through December 31, 1976

Bob Stark, Member, July 1, 1976, through December 31, 1976

Rhea Woodall, Clerk of the Board, July 1, 1976, through June 30, 1977

CITIZENS' FLOOD CONTROL ADVISORY BOARD

H. Lynn Anderson

James E. Attebery, Phoenix City Engineer

Henry E. Brodersen, Vice Chairman, July 1, 1976, to November 18, 1976
Chairman, November 18, 1976, through June 30, 1977

Elijah A. Cardon, Vice Chairman, November 18, 1976, through June 30, 1977

Donald K. Chambers, Chairman, July 1, 1976, to November 18, 1976

Reid Teeples, Salt River Project

Wilbur Weigold

SECTION III

CORPS OF ENGINEERS PROJECT ACTIVITIES

CORPS OF ENGINEERS PROJECT ACTIVITIES

A. Indian Bend Wash

The Indian Bend Wash Project is a Corps of Engineers' project sponsored locally by the Flood Control District of Maricopa County and the City of Scottsdale. The purpose is to contain and convey local flows, produced on the watershed, for all storms up to the 100 year event, through the Cities of Scottsdale and Tempe and into the Salt River. The total project is comprised of approximately 7 miles of channelization, 1.7 miles of Outlet Channel, 1 mile of Inlet Channel and about 5 miles of Greenbelt Floodway. Ancillary structures planned are the Interceptor Channel which parallels the Arizona Canal from Pima Road west to the Inlet Channel, approximately 1.5 miles; and the Side Channels System which parallels the Arizona Canal from the Inlet Channel south to 68th Street, approximately 3 miles. The Interceptor and Side Channels will serve to relieve ponding along the uphill side of the Arizona Canal.

1. Indian Bend Wash Outlet

The Outlet portion of the project was designed and constructed by the Corps of Engineers. Construction resumed on July 13, 1976, following a labor dispute, with a priority being completion of work on Yavapai School grounds. Work also resumed on the channelization and levee construction in the Princess Drive (Curry Road) vicinity and proceeded upstream (north). By March 1977 channelization had been completed, the entrance structure constructed and McKellips Lake excavated and lined. At that time McKellips Lake was filled and the project became fully functional for flood control. The remainder of the contract entailed landscape and correction of minor construction deficiencies. By June 30, 1977, the contract was essentially complete. On August 17, 1977, a Dedication Ceremony was held at McKellips Lake with guest speakers Congressmen John Rhodes and Eldon Rudd and General Connell, Division Engineer, South Pacific Division, U. S. Army Corps of Engineers.

2. Indian Bend Wash Greenbelt Floodway

The Greenbelt Floodway is a cooperative effort of the City of Scottsdale and the Flood Control District with additional funding by the State of Arizona through the Arizona Water Commission. The Corps of Engineers acts in a review and advisory capacity for the local flood control developments with the additional responsibility of design and funding of recreational developments within the Greenbelt. During fiscal year 76-77, under direction of the City of Scottsdale, the Thomas Road Bridge project and the Hayden Road flood flow improvements were completed. Planning was initiated in earnest on the El Dorado Park Dikes and the Schrader Ranch

channelization (private development). In addition, a hydraulic analysis was completed by the Corps which identified areas of additional concern where the existing Greenbelt was deficient in ability to carry the 100 year flood. With these areas identified, the City of Scottsdale was able to determine the amount of additional work required to complete the Greenbelt. These deficiencies have been corrected or are scheduled for correction prior to completion of the last link of main channel construction, the Inlet Channel.

3. Indian Bend Wash Inlet Channel

The Inlet Channel is to be constructed by the Corps of Engineers with an award in July 1978. Work done in FY 76-77 consisted of finalization of planning and the initiation of formal design by the Corps. During this time, the Flood Control District initiated a contract with a consulting engineer to map and define the right of way for the acquisition program. The mapping was completed in July 1977. In its review capacity, the Flood Control District recommended modifications to the Corps' concept which brought the project more in line with desires of local interests while decreasing right of way and construction requirements. These changes also required a delay in the preliminary schedule, moving anticipated award from October 1977 to the July 1978 date currently envisioned. By June 1977, the Flood Control District had completed review of the Corps' Feature Design Memorandum for the Inlet and the Corps was able to proceed with finalization of the Feature Design Memorandum and detailed design.

4. Interceptor and Side Channels System

The Interceptor and Side Channels are the final phases of the Indian Bend Wash Project. Right of way for the Interceptor was mapped with the Inlet right of way and preliminary appraisals were completed during FY 76-77. Finalization of planning and design are scheduled for FY 77-78.

B. Cave Buttes Dam

Proceedings for the acquisition of all mining claims on Federal lands required for the construction of Cave Buttes Dam were major items of concern during the year. The Corps of Engineers filed a withdrawal request with the Bureau of Land Management that stopped all future filing of mineral claims and stopped all mining exploration.

A consulting geologist was hired to go out and actually walk the property trying to find mining claims and he found hundreds and also found that there were mining claims on top of mining claims. A professional geologist was retained to appraise the claims. In order to search title, one of the few people in Arizona familiar with this was hired, and he worked a long time trying to search title.

Mining claim condemnation suits were necessary to allow legal right of entry by the Flood Control District on approximately 60 mining claims owned by Frank Melluzzo, about 25 claims held by the Vanguard Properties and a smaller number of unknown claimants because they could not be secured by negotiation.

The major part of February, March and April was spent in preparation and hearings for five separate condemnation lawsuits covering approximately 100 mining claims. By the end of April the court action was completed, and the courts passed summary judgements on the mining claims that were under condemnation and requested that bonds be posted by the Flood Control District. Settlement of the hearings concluded the right of entry actions. Value and validity will be determined by further court action in the future.

One interesting case was a successful suit filed against "nobody". This was necessary to make sure each and every conceivable claim in the area was covered.

Although a preliminary approval was given on the application to purchase State Trust Lands, final settlement could not be made on all of our applications by the State Land Department. In April 1977 the General Counsel for the Flood Control District began negotiations with the State Attorney General's office regarding a possible condemnation lawsuit of State Trust Lands. Litigation was necessary because the State Land Department did not act on a request for immediate right of way by the Flood Control District.

Agreement was finally reached on the Goettl property in December 1976. This was the largest individual land holding within the Cave Buttes impoundment area. By February, all Show Cause Hearings for the remaining private land were either conducted or scheduled as to court dates. This allowed the certification to the Corps of Engineers for all of the private lands to proceed.

The Flood Control District requested the Corps of Engineers to consider the existing Cave Creek Dam Road as the alignment of the access road into the Cave Buttes Dam. In December and in May the Corps of Engineers submitted preliminary plans of Cave Creek Dam Road for the Flood Control District to review and comment. A joint review was made of these plans with the County Highway Department. Also, the Flood Control District requested that Jomax Road be relocated so that it will be centered on the section line and constructed as a paved access road into the overlook area of the recreation facilities.

It was necessary to relocate the buried cable along the west side of Cave Creek Road because of a flood control training dike which was to be located across the cable. Arrangements were made with Mountain Bell for this relocation. Cave Creek Road will also require relocation in order to ramp over the dike.

A hydrologic analysis was made by the Flood Control District to develop peak 50 and 100 year flows in two natural drainage ways that traverse an alternative access road to the proposed Dam.

Cave Creek Dam. There was much discussion about the fate of the Old Cave Creek Dam during the year. The Old Dam will be within the Reservoir area of the new Cave Buttes Dam. The Corps of Engineers was concerned about the safety of the Old Dam since one end of the Dam is not built on bedrock. It might fail during a major flood and cause damage to the upstream side of Cave Buttes Dam.

The Flood Control District had recommended that the Corps put in a bypass channel. The Corps included the bypass channel in their plans in order to prevent water impounded behind the existing Dam from spilling over the top and possibly eroding its foundation.

The Flood Control District does not feel that failure of the Old Dam is a likely occurrence. There is a natural spillway that follows a low area around a hill, and the water has flowed in this watercourse several times, eventually returning to Cave Creek below the Dam.

The structure is a concrete multiple arch dam. It is a good design but very expensive to build because of the labor involved in forming the arches. There will probably never be another dam built like it. The Old Cave Creek Dam catches silt which might be of some commercial value, and it is easier to get the silt out at that point. Also, the Dam could be there for 100 years or more, and it would be a good place for a permanent reservoir to be built at some future date.

The Old Dam was built in 1921 with money contributed by the State of Arizona, Standard Oil Company, Union Oil Company, Santa Fe Railroad, Greenwood Cemetery, Arizona Eastern Railroad, the Salt River Project, the City of Phoenix and the County of Maricopa. The governing body set up to operate and maintain the structure has ceased to exist and the Salt River Project has been taking care of the Dam for many years. It will be necessary for the Flood Control District to have authority to operate and maintain the Old Dam before the completion of Cave Buttes Dam.

B. Adobe Dam

The Corps of Engineers completed their study of the one dam versus two dam concept for Skunk Creek Both concepts would provide adequate flood control; however, the two dam concept would cost $4,000,000 more, and that amount would have to be paid by local interests. Efforts will now be turned toward the construction of one dam on Skunk Creek just south of Deer Valley Drive.

The Flood Control District had previously acquired property within the Saddleback Meadows Subdivision that was in the process of being developed. If construction of these residences had continued, the Flood Control District would have been forced to purchase completed homes rather than vacant land or partially completed residences. When plans were prepared on a more accurate scale, some of the property was found to be in excess of right of way required for construction of the Dam and Reservoir. A

contract was entered into with Dashney and Associates for engineering and surveying services to prepare a base map for a possible grading plan for lots within the Saddleback Meadows Subdivision. This regrading plan showed which lots could be regraded to be raised above the area that will be flooded. About twenty lots can be salvaged and resold to the public at an anticipated average cost of $10,000.

The Corps of Engineers completed studies for the crossing of Skunk Creek at I-17. Their studies revealed two alternatives. One would require a dip section of I-17 and the other alternate would be to leave I-17 as is and to do extensive channelization and diking of Skunk Creek upstream and downstream of I-17. The channelization alternate will be made a part of the final plans.

The Corps requested a right of entry for an area adjacent to the west abutment of the proposed Dam for the purpose of additional core drilling. This is to further explore the possibility of locating the spillway at the west abutment which would empty directly into Skunk Creek. The Flood Control District has long felt that this would be the most logical location and has recommended this site to the Corps of Engineers.

The Corps has also continued its work on proposed recreational features within the Reservoir area. Adobe Dam is adjacent to Thunderbird Park and has particular recreational potential. Recreational features would be constructed in conjunction with the County Parks and Recreation Department.

D. New River Dam

A right of way requirement map has been prepared by the Flood Control District so that right of way acquisition can begin. However, there is only one private land owner in the area in addition to the State lands. Purchase of the necessary right of way will be a very expensive proposition because the private land holding as well as the State lands will have to be purchased at one time.

E. Arizona Canal Diversion Channel

A contract was awarded to International Engineering Company for engineering services to prepare plans on the relocation of portions of the Arizona Canal to improve the hydrologic alignment by cutting out a jog in the Canal. The contract also included preparation of a base land rights map of the required right of way and plans for the relocation of bridges, roads and utilities for portions of the Arizona Canal. The contract covered the area from 49th Avenue to 64th Avenue.

The alignment of the Arizona Canal Diversion Channel would involve the City of Glendale and their proposed water treatment plant which is located on the southern Canal bank at Cholla and 47th Avenue. Possible realignment of the Canal southerly from about 45th to 49th Avenues was discussed. A Change Order was issued for International Engineering

Company to extend their contract from 64th Avenue to 43rd Avenue. It was estimated that the redesign of Glendale's Water Treatment Plant, as agreed to by the City, and the relocation of the Arizona Canal Diversion Channel could save the Flood Control District up to $1.5 million.

During the year the Flood Control District was approached by people wishing to sell their property along the alignment of the Arizona Canal Diversion Channel. However, due to lack of funds, the District's policy was to only purchase vacant land that was in danger of being subdivided and built upon. The Flood Control District did make arrangements with EJM Development Corporation for the acquisition of 3.45 acres of land. The acquisition of this land was necessitated by the right of way limits of the Arizona Canal Diversion Channel extending through a large existing electrical substation. These lands will replace the property taken by the Flood Control District from the Arizona Public Service parcel. Also, it allowed for expansion of the substation that was scheduled at this time therefore avoiding excessive relocation costs in the future.

Flowage Easements, Skunk Creek, New and Agua Fria Rivers

No activity took place to acquire flowage easements during FY 76-77.

SECTION IV

SOIL CONSERVATION SERVICE PROJECT ACTIVITIES

SOIL CONSERVATION SERVICE PROJECT ACTIVITIES

A. Wickenburg Flood Retarding Structures

The labor dispute that had previously halted construction was ended and the contractor, M. M. Sundt Construction Company, resumed work on July 12, 1976. Work was performed as quickly as possible on both the Sunset and Sunnycove structures in order to protect the existing facilities from the rapidly approaching monsoon season. On July 23, the Wickenburg area was hit by a fairly substantial rainstorm. The floodwaters came within a foot of topping the partially constructed Sunnycove structure, but there was no substantial damage to either site.

Construction was completed and a final inspection was conducted on September 15, 1976. The structures were accepted as completed. One week later, a major storm hit the Wickenburg area. The floodwaters from the storm filled the two reservoirs to approximately 75% of their total capacity.

In December the Operations and Maintenance Branch completed a new roadway into three existing dwellings that lie just above the reservoir area at the Sunset structure. The construction was required because the old entrance road was subject to inundation by the waters retained within the reservoir area.

B. Harquahala Valley Watershed

The most serious problem in providing flood control to the Harquahala Valley at the beginning of the fiscal year was concern as to whether or not the Flood Control District would be able to provide the $1,500,000 needed for right of way acquisition and relocation of facilities. The farmers in the Valley had planned an elaborate irrigation system using Central Arizona Project waters and they had to have flood control protection for the Valley before they could receive a loan from the Bureau of Reclamation to build the irrigation system. The Bureau would, if necessary, build a flood control structure to protect its Aqueduct; however, that structure would not be adequate to protect the farms in the Valley. There was also concern that, if the Bureau of Reclamation built a structure to protect the Aqueduct, the other flood control structures necessary to protect the Valley would no longer be economically feasible.

Local farmers in the Valley held a meeting on October 14, 1976, to propose means of financing the local costs of the project. Three proposals were presented: 1. Local residents would provide a portion of the funds needed with an agreement that the Flood Control District would reimburse them later, 2. The local residents would exchange their private lands for State lands, and 3. The local residents would make a concerted effort to stimulate State legislative interests for the funding of the project.

The efforts of the residents of the Harquahala Valley were successful because in May 1977 the State Legislature approved a $560,000 appropriation specifically for the Harquahala Valley Flood Control Project. Therefore, this project was given high priority by the Flood Control District, and, following completion of soil exploration and approval of final structural location plans, the Flood Control District will start right of way acquisition.

Acquisition of right of entry permits for survey work and subsurface investigation were completed and a contract was issued to an archeologist to enter and assess the lands for archeological value. The Supplemental Work Plans were signed by the Flood Control District Board of Directors on May 23, 1977.

C. Buckhorn Mesa Watershed

1. Spook Hill Flood Retarding Structure and Floodway

In October 1975 a pair of Yuma Clapper Rail birds had been discovered nesting in a marshy area of the Salt River. Concern was expressed that floodwaters from the Spook Hill Floodway might eventually accumulate enough sediment in this marshy area to destroy the birds' nesting sites. In order to resolve this problem a sediment basin was designed at the Floodway outlet. The preliminary plans for the sediment retention basin were completed and distributed to all the environmental protection interests and other agencies for their comment and approval in July 1976. This sediment basin will be part of the construction contract and will be paid for by the Soil Conservation Service.

In September, a contract was awarded to Genge/Wheeler, Petterson and Coffeen for the design of the Thomas Road Bridge crossing the Spook Hill Floodway. Following design, a contract for construction was awarded to Breinholt Contracting Company in the amount of $34,660.60. Construction was started in January and, although the contractor experienced extreme difficulty with the excavation having to drill and shoot numerous times, construction was completed in March 1977.

Final plans for the Floodway and the Flood Retarding Structure were delivered to all interested agencies in January 1977. The Flood Control District reviewed the plans (including the landscaping plans) and forwarded their comments to the Soil Conservation Service in February.

The remainder of the private lands required were acquired from United Development Corporation in September. Mining claims had been unexpectedly found on Tonto National Forest land in the Floodway area in October 1975. The resolution of these claims was holding up the permit that would allow the Flood Control District to construct and maintain the Floodway.

However, in January 1977, the Bureau of Land Management declared the mining claims null and void. Permission was received from the Tonto National Forest and the Bureau of Land Management to enter upon Federal lands and construct the structures. This permission cleared the last of the Flood Control District's obligations prior to construction.

In April the Board of Directors of the Flood Control District approved the land rights certification for all the right of way required for the Flood Retarding Structure and the Floodway Channel.

The City of Mesa continued with design and construction for relocation of water mains. The Salt River Project also continued its relocation work; however, only Mountain Bell's relocation work was completed prior to the end of the fiscal year.

The only house within the impoundment area was sold at a public auction by the Board of Directors and was moved out of the area.

The application for a permit to construct the Spook Hill Flood Retarding Structure was prepared and submitted to the Arizona Water Commission in February.

The Project Agreement and the Operations and Maintenance Agreement were drafted by the Soil Conservation Service, and these documents were reviewed by the Flood Control District. Approval by the Board of Directors is expected in August 1977.

The Horticulture Department declared that they would physically count cacti and issue permits for removal. This has been completed.

2. Signal Butte Floodway

The Floodway alignment previously proposed by the Soil Conservation Service would have bisected numerous private properties causing the Flood Control District to pay substantial severance damages. The alternate alignment location, as proposed by the Flood Control District, has been approved by the Soil Conservation Service as a feasible location, and alignment is now fixed. Right of way acquisition can proceed.

D. RWCD Floodway

The Roosevelt Water Conservation District (RWCD) Floodway will be built in six phases with the first phase centered on the Gila River Indian Reservation. The Indian Community has been very cooperative in that they have made Tribal lands available to the Flood Control District. The application for a request of right of entry to survey within the Indian lands was approved by the Tribe in August 1976.

A contract was signed with L. H. Bell and Associates to survey the right of way for the Floodway in the Indian Reservation from the Gila River northward to Hunt Highway. This work was completed by the end of the fiscal year.

Acquisition of right of way from private land holders proceeded very slowly during the year because of lack of local funding. However, planning for the Floodway continued. A Public Meeting was held in November to discuss the Floodway with the citizens of the area. The draft of the Environmental Impact Statement was reviewed by the Flood Control District and comments forwarded to the Soil Conservation Service.

The County Highway Department awarded bids for the construction of Rittenhouse and Higley Road Bridges across the Floodway. The cost of Higley Road Bridge was approximately $700,000 and Rittenhouse Bridge was approximately $300,000. Williams Field Road Bridge will be constructed in the near future as well as the Oueen Creek Bridge.

E. Queen Creek

Planning is continuing in the Queen Creek area. A right of entry for archeological exploration was obtained so that archeological work can begin. Two proposals for flood control of the Queen Creek Wash have been submitted by the Arizona Water Commission which is working in conjunction with the Soil Conservation Service.

SECTION V

LOCAL PROJECT ACTIVITIES

LOCAL PROJECT ACTIVITIES

A. Paradise Valley, Scottsdale, and Phoenix Study (PVSP)

On September 25, 1976, a severe rain storm occurred in a very limited area of Paradise Valley, Scottsdale and Phoenix causing damage. The closest official rain gauge indicated 1.6 inches which is not over a 5 or 10-year storm.

This area has been a problem area for a number of years. Each municipality had been trying to resolve the problem on a piecemeal basis and, in so doing, created problems for the other municipalities. Following this rainstorm the governing body of each municipality requested that the Flood Control District coordinate a program to find a solution to this problem. A Study Committee was formed with a representative from each municipality and the Flood Control District to formulate plans for a solution to flood damages caused by storms of intensities up to a 100-year storm frequency.

The study area involves a large area that centers around 64th Street and Cactus. The area extends northward to the Central Arizona Project, southward to the Indian Bend Wash, eastward to Hayden Road and westward to 56th Street.

A contract was entered into with Collar, Williams and White, Consulting Engineers, for $51,853 to look at the entire area and come up with feasible alternatives. Each of the municipalities involved agreed to participate in the cost of the consulting engineer.

In June the consulting firm presented a summary of existing hydraulics and hydrology and a review of proposed alternatives to the Study Committee. The Study Committee was in the process of reviewing and proposing submittals to the governing bodies as the fiscal year ended.

B. Gila Drain

The Gila Drain area, which includes parts of Tempe, Mesa, Chandler and Gilbert, has been studied by both the Soil Conservation Service and the U. S. Army Corps of Engineers. The Soil Conservation Service was unable to undertake a project in the area because development had increased to the extent that the project could not be justified. The Corps of Engineers conducted an extensive hydrology study but determined that it was not a justified project because the benefit-cost ratio was unacceptable.

In order to develop some kind of drainage relief, the municipalities involved and the Salt River Project asked the District to examine the possibilities of a non-federal project. The concept of the project will be to detain water and release it slowly. The proposed Drain

would utilize portions of the Western Canal and an existing Drain and then empty into the Gila River behind the South Mountains after going through a portion of the Gila River Indian Reservation. Mesa has already constructed detention facilities, and all of the municipalities have detention requirements for new developments.

In March 1977 a preliminary plan with alternates was presented to the Hohokam RC&D Steering Committee. The presentation included estimates for construction costs and land acquisition. The municipalities of Tempe, Chandler, Gilbert and Mesa, the East Maricopa Natural Resource Conservation District, the Salt River Valley Water Users' Association and the Flood Control District were sponsors.

C. Champion Drain Flood Control Project

The Champion Drain Flood Control Project is a local project to provide flood protection in an area of southwest Phoenix. The Project was formerly known as the Old 43rd Avenue Drain. The City of Phoenix, the Salt River Project and the Agua Fria-New River Natural Resource Conservation District joined with the Flood Control District in co-sponsoring the project as a Measure of the Hohokam RC&D Project. The Hohokam RC&D accepted the proposal in 1976 and adopted the Champion Flood Prevention Measure as one of their projects: However, due to their present backlog of pending Measures, it will be at least several years before the Measure would be ready for funding.

D. Sossaman Road Channel

The Maricopa County Highway Department, in conjunction with their proposal to improve Sossaman Road between Baseline and Guadalupe Roads, requested that the Flood Control District conduct a hydrology study in order to determine the minimum right of way requirement for the continuation of an existing drainage channel which essentially ends at Baseline Road just east of Sossaman. This study was completed in September of 1976 and our findings were then presented to the Highway Department for their consideration.

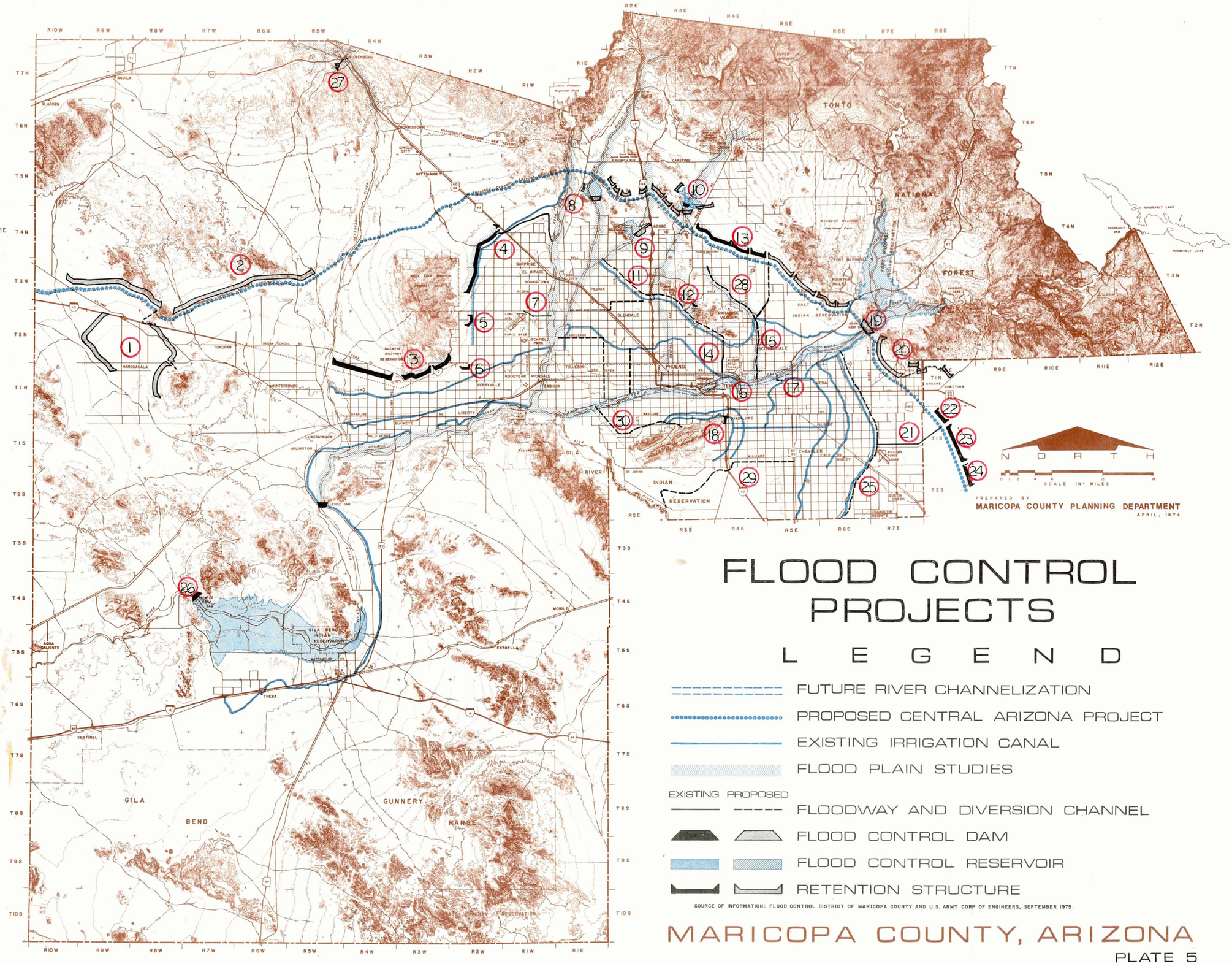
SECTION VI

PROJECT LOCATION MAP

LEGEND

1. Harquahala Valley Watershed Project
* 2. Tonopah Watershed Project
3. Buckeye Watershed Project
4. McMicken Dam
5. White Tanks Dam #3
6. White Tanks Dam #4
7. Dysart-Agua Fria Drain
8. New River Dam
9. Adobe Dam
10. Cave Buttes Dam
11. Arizona Canal Diversion Channel
12. Dreamy Draw Dam
13. Paradise Valley Structures
14. Old Cross Cut Canal
15. Indian Bend Wash Floodway
16. 48th Street Drain
17. Alma School Drain
18. Guadalupe Watershed Project
19. Orme Dam
20. Buckhorn Mesa Watershed Project
21. Powerline Floodway
22. Powerline Dam
23. Vineyard Road Dam
24. Rittenhouse Dam
25. RWCD Floodway
26. Painted Rock Dam
27. Wickenburg Watershed Project
28. PVSP
29. Gila Drain
30. Champion Drain

* Bureau of Reclamation Projects



FLOOD CONTROL PROJECTS

L E G E N D

FUTURE RIVER CHANNELIZATION

PROPOSED CENTRAL ARIZONA PROJECT

EXISTING IRRIGATION CANAL

FLOOD PLAIN STUDIES

EXISTING PROPOSED

FLOODWAY AND DIVERSION CHANNEL

FLOOD CONTROL DAM

FLOOD CONTROL RESERVOIR

RETENTION STRUCTURE

SOURCE OF INFORMATION: FLOOD CONTROL DISTRICT OF MARICOPA COUNTY AND U.S. ARMY CORP OF ENGINEERS, SEPTEMBER 1975.

MARICOPA COUNTY, ARIZONA

PLATE 5

SECTION VII

CONSTRUCTION AND OPERATIONS ACTIVITIES

CONSTRUCTION AND OPERATIONS ACTIVITIES

A. McMicken Dam

McMicken Dam was built in 1959 by the U. S. Army Corps of Engineers to protect Luke Air Force Base and also to protect urban and rural areas in the Trilby Wash area. There had been a very severe rain storm in the area in 1954 that severely damaged the Air Base and the surrounding areas.

The Corps of Engineers was aware that there were problems concerning the integrity of McMicken Dam. The failure of Teton Dam in Idaho brought the problem to the forefront. The Corps of Engineers studied the situation more carefully and the Flood Control District did some testing by digging out some of the cracks. The District found 85 cracks in one 3000 foot reach. Eight thousand gallons of water were put in one crack and, although it was still taking water, the water wasn't coming out anywhere.

The Corps of Engineers decided that it would be necessary to install two emergency spillways in order to avoid the possibility of the dam failing with a major storm and a full reservoir. The Board of Supervisors/Directors, the Citizens' Flood Control Advisory Board and the Maricopa Water District #1 accepted the Corps' suggestion. An emergency appropriation of $70,000 was appropriated by Congress for the purpose of providing two emergency outlets in the structure. Representative Bob Stump has introduced a Bill in Congress to provide funding to make permanent repairs to the structure.

The cause of the cracking appears to be the desiccation of the structures although subsidence has also been considered and may be a factor.

The Corps of Engineers awarded a contract to Magini Leasing and Contracting Company on June 19, 1977. The emergency work was started immediately, and 30% was completed prior to June 30, 1977.

A warning and evacuation plan for the downstream area was prepared by the County Civil Defense Department. A number of agencies are involved including the Sheriff's Office, the Maricopa Water District #1, Luke Air Force Base and the Flood Control District.

B. 48th Street Drain

In 1966 the State of Arizona, the City of Tempe, the Salt River Valley Water Users' Association and the Flood Control District entered into an Agreement concerning the 48th Street Drain. The Flood Control District did not participate in the costs but agreed to maintain the facility upon its completion beginning at 48th Street west to the Salt River and also agreed to indemnify other parties for any injuries, losses or damages. The Agreement also stated the amount of water that any party could discharge into the Drain. In 1969 the Agreement was modified to relieve the Flood Control District from any liability when any party to the Agreement was in breach of the Agreement.

The problem during the 76-77 fiscal year was that Tempe was adding more water to the Drain than the Agreement allowed and the Drain could hold. Various residences along the channel, within the City of Phoenix, were being flooded. Also, the City of Tempe was in the process of making storm drainage plans for the eventual discharge of up to 1000 cfs into the Drain.

During the year short term solutions to the problem were considered as well as possible litigation against the City of Tempe.

The City of Tempe selected an engineering firm, Sverdrup and Parcel and Associates, to design plans for the reconstruction of the channel. The plans are expected early in the next fiscal year. The total cost of the project will be about $1.5 million.

The Cities of Phoenix and Tempe and the Flood Control District began work on a participation agreement for sharing the costs of reconstructing the Drain and building seven bridges. Also, work began on a new Master Agreement concerning the 48th Street Drain that would include the City of Phoenix as one of the signatories.

C. Soil Conservation Structures

Because of the deterioration of McMicken Dam, the Flood Control District took a serious look at its other flood control structures. It was discovered that the same deterioration was occurring on the Rittenhouse, Vineyard and Powerline structures. The worst cracking appears to be in Rittenhouse which is approximately ten years old. There is also some cracking in Buckeye #1 and White Tanks #4 which are approximately three years and twenty years old, respectively. Guadalupe and the Wickenburg structures were studied but no evidence of a problem was discovered.

There has been subsidence in the area of the Pinal County structures. The District has no knowledge of any subsidence in the Buckeye area but because of the cracking there, the District undertook a survey to determine if subsidence had occurred.

The County Civil Defense Department began preparing a warning and evacuation plan for the Pinal County structures.

Engineers Testing Laboratories was requested by the Flood Control District to do a study on the condition of Rittenhouse, Vineyard and Powerline Flood Retarding Structures. The report will be completed within the next few months.

D. Old Cross Cut Canal

The Old Cross Cut Canal was a Salt River Project Canal up until 1976. At that time the Canal was studied by the City of Phoenix, and it was determined that the Canal could be enlarged to carry 2000 cfs. Of the total, 1000 cfs was to be used by the Salt River Project in the event

that they needed to release water from the Arizona Canal. The remaining 1000 cfs was to be used for floodwaters from the surrounding area. The reconstruction of the Canal was a joint project funded equally by the City of Phoenix and the Flood Control District of Maricopa County with the Salt River Project furnished all of the required rights of way. The final contract for the reconstruction of the Canal was awarded to Lattimore and Sons Construction Company. The amount of the contract was $53,000. Upon completion of this final contract, the Flood Control District assumed full maintenance and operation responsibilities for the Old Cross Cut Canal.

SECTION VIII

HYDROLOGY DIVISION ACTIVITIES

HYDROLOGY DIVISION ACTIVITIES

A. General Areas of Responsibility

The Hydrology Division performs studies and acquires information for Flood Control District projects as necessary. These include review of project hydrology performed by the U. S. Army Corps of Engineers and the Soil Conservation Service, preliminary hydrology for certain Local Projects, and other special studies requested by other divisions of the Flood Control District.

In addition the Hydrology Division performs a number of tasks under an agreement with Maricopa County. These tasks include review of floodplain delineations to be adopted by the Floodplain Board (Board of Supervisors) under the 1975 Regulation for the Unincorporated Area of Maricopa County, review of requests for zoning district changes and certain Board of Adjustment cases, review of subdivision drainage, review of building permits requested within floodplains, and the County's participation in the National Flood Insurance Program.

B. Floodplain Regulations and Delineations

The Flood Control District of Maricopa County first became involved in establishing floodplain regulations in 1961. In 1974 the Board of Supervisors of Maricopa County adopted a Regulation. On July 14, 1975, the current Floodplain Regulations were adopted by the Floodplain Board (Board of Supervisors) which superseded the 1974 Regulations. The 1975 Regulation is a two-district Regulation and is closely aligned with State legislation and the National Flood Insurance Program.

Under this Regulation, a total of 175 river miles of delineated floodplain had been adopted by June 30, 1976, (see Table A). Between July 1, 1976, and June 30, 1977, an additional 5.6 miles of delineation were adopted (see Table B). During this year the Federal Insurance Administration signed a contract with Harris-Toups Corporation for a comprehensive flood insurance study for Maricopa County and a number of communities within the County. In conjunction with this contract, the Harris-Toups Corporation will delineate the Salt and Gila Rivers from Arlington to the west side of Phoenix, Cave Creek and several of its tributaries above Carefree Highway, the Skunk Creek above Carefree Highway along with several smaller streams throughout the County. These delineations will be made available to the Floodplain Board as they are completed by the Harris-Toups Corporation.

C. Flood Insurance

A review of the preliminary Flood Insurance Study and Flood Insurance Rate Map for the unincorporated area of Maricopa County was completed by Flood Control District staff on August 4, 1976. This review was coordinated with the Los Angeles District, U. S. Army Corps of Engineers, with comments from both the Flood Control District and the Corps of Engineers being forwarded to the Federal Insurance Administration's

review contractor, Dames and Moore. Our response consisted primarily of a recommendation against the designation, by Dames and Moore, of large areas of the County as AO flood insurance zones subject to 100-year shallow flooding of one to three foot depths.

A revised Flood Insurance Rate Map was submitted to us for review prior to its official presentation to the County by the Federal Insurance Administration during a meeting at the Flood Control District offices on May 31, 1977. Attending the meeting were officials from the Federal Insurance Administration, Dames and Moore, and from various local communities. Among the topics discussed was a floodplain delineation of the Salt and Gila Rivers currently being performed by Toups Engineering under contract with the Federal Insurance Administration and the possibility of including portions of this delineation in the County's Flood Insurance Rate Map. An extensive list of review comments regarding the revised Flood Insurance Rate Map were forwarded to Dames and Moore following the meeting.

D. Other Technical Assistance Provided to Maricopa County

1. Review of Building Permits

The Flood Control District has agreed to review applications for Building Permits for structures to be located within floodplains on a cost-reimbursable basis. During the year, a total of 105 such Building Permits were reviewed by the Hydrology Division.

2. Zoning District Changes

On a similar basis, the Flood Control District reviews all requests for zoning district changes in order to ensure that these requests do not conflict with existing or proposed Flood Control District projects and to provide information to the Planning and Zoning Commission and the Board of Supervisors concerning storm drainage and flood problems. The Hydrology Division reviewed 39 such cases.

3. Board of Adjustment Cases

On a similar basis, the Planning Departments sends certain Board of Adjustment cases to the Flood Control District for review. These are cases where the Planning Department suspects an existing drainage problem or cases for such dense developments as apartment buildings and mobile home parks. The Hydrology Division reviewed 18 such cases during the year.

E. Review of Subdivision Drainage

Review of all preliminary and final subdivision plats within the unincorporated area of Maricopa County was begun as a coordination effort to avoid conflicts between new developments and Flood Control District projects. Currently, however, the Flood Control District provides a detailed review of drainage reports submitted by developers

in compliance with the Subdivision Regulations for the Unincorporated Area of Maricopa County. This task is performed on a cost-reimbursable basis also. During the year, the Hydrology Division reviewed 31 preliminary plats with detailed drainage reports. The Division also reviewed 35 final plats to ensure that they complied with the provisions of the drainage reports. Included for review were an additional 20 preliminary and 6 final plats which had been revised.

Table A

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FLOODPLAIN DELINEATIONS FOR THE UNINCORPORATED AREA OF MARICOPA COUNTY

WATERWAYS OR STRUCTURES	GENERAL LOCATION	RIVER MILES	DATE OF ADOPTION
Agua Fria River	Confluence with Gila River to ½ mile north of Pinnacle Peak Road	24.3	November 3, 1976
Agua Fria River *	½ mile north of Pinnacle Peak Road to Lake Pleasant	9.8	July 14, 1975
Buckeye Structures	Parallel I-10 on the north from ½ mile east of Turner Road to Hassayampa River		July 14, 1975
Cave Creek Reservoir	Two miles northwest of Pinnacle Peak and Cave Creek Road		July 14, 1975
Cave Creek Wash	Bell Road to Beardsley Road	2.0	July 14, 1975
Cave Creek Wash *	Cave Creek Reservoir to one mile east of School House Road	7.8	July 14, 1975
Gila River *	107th Avenue to center Section 27, T1S, R5W	27.0	July 14, 1975
Granite Reef Detention Dike	Cave Creek Road to Scottsdale Road		July 14, 1975
Guadalupe FRS	South of Baseline Road and along west side of I-10		July 14, 1975
Hassayampa River *	Yavapai County line to south section line of Section 10, T6N, R4W	14.8	July 14, 1975
Lake Pleasant	Carl Pleasant Dam to County line		July 14, 1975
Mexican Wash *	Confluence with Rowler Wash to ¼ mile west of 72nd Street	.7	July 14, 1975
New River	Confluence with Agua Fria River to ¼ mile north of Pinnacle Peak Road	14.5	January 5, 1976
New River *	¼ mile north of Pinnacle Peak Road to north section line of Section 12, T7N, R2E	22.0	July 14, 1975

Table A, Continued

WATERWAYS OR STRUCTURES	GENERAL LOCATION	RIVER MILES	DATE OF ADOPTION
Painted Rock Reservoir	East along the Gila River northwest of Gila Bend		July 14, 1975
Rowler Wash *	Confluence with Cave Creek to 72nd Street	2.3	July 14, 1975
RWCD Canal	Brown Road to Baseline Road		July 14, 1975
Salt River *	Confluence with Gila River to 27th Avenue	10.5	July 14, 1975
Salt River *	Scottsdale Road to Price Road	2.0	September 29, 1975
Salt River	Price Road to center of Section 29, T2N, R6E	9.0	July 14, 1975
Scatter Wash	Skunk Creek Confluence to Black Canyon Highway	4.0	January 5, 1976
Skunk Creek	New River Confluence to Carefree Highway	18.0	January 5, 1976
Sols Wash *	Hassayampa River to Section 32, T8N, R4W	4.5	July 14, 1975
Trilby Wash Detention Basin	Extension of Peoria Avenue to Cotton Lane and Grand Avenue		July 14, 1975
Wickenburg Area Washes *	Flying "E" Wash and Powder House Wash	1.8	July 14, 1975
White Tank Detention Basin #3	Southwest Beardsley Canal and Glendale Avenue		July 14, 1975
White Tank Detention Basin #4	Northwest of Van Buren and Jackrabbit Road		July 14, 1975

* Interim Delineations

Table B

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FLOODPLAIN DELINEATIONS FOR THE UNINCORPORATED AREA OF MARICOPA COUNTY
July 1, 1976, to June 30, 1977

WATERWAYS OF STRUCTURES	GENERAL LOCATION	RIVER MILES	DATE OF ADOPTION
Agua Fria	River mile 25.42 to 28.30	2.88	August 16, 1976
Agua Fria	River mile 23.0 to 25.5	2.5	January 24, 1977
Indian Bend	County Island near 56th Street and Double Tree Road	.25	February 28, 1977

SECTION IX

EXPENDITURES

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

Comparison of Amounts Budgeted and Amounts Expended

July 1, 1976, through June 30, 1977

Account No.	Description of Budgeted Item	Amount Budgeted	Amount Expended	% Exp.
PERSONAL SERVICES				
6-0100	Salaries & Wages	307,488	317,792	103
6-0200	Overtime	4,000	1,330	33
6-0300	Temporary Help	10,000	651	6
6-0600	Employee Benefits	50,445	51,046	101
	TOTAL PERSONAL SERVICES	371,933	370,819	99
SERVICES AND SUPPLIES				
7-1100	Communications	5,200	7,888	152
7-1200	Insurance	20,200	63,338	314
7-1300	Memberships	400	202	51
7-1600	Professional and Special Services (Legal)	20,250	23,604	117
7-1700	Professional and Special Services (Other)	63,600	71,400	112
7-1800	Rents & Leases--Bldgs, Grounds & Equip.	18,550	6,395	34
7-2000	Transportation and Travel	1,200	691	58
7-2100	Utilities	8,150	5,473	67
7-4100	Landscaping	-	1,042	
7-4500	Maintenance Contracts and Repairs	135,491	12,731	9
7-4600	Maintenance and Construction Supplies	5,700	6,276	110
7-4800	Office and Education, Supplies and Expense	5,782	5,143	89
7-4900	Other Supplies and Expense	1,575	1,205	77
	TOTAL SERVICES AND SUPPLIES	286,098	205,388	71
FIXED ASSETS				
8-7200	Land	7,642,800	4,997,226	65
8-7400	Structures and Improvements	30,000	14,243	47
8-8100	Communication Equipment	1,300	1,318	101
8-8200	Furniture and Equipment	15,055	11,185	74
8-8300	Motor Vehicles	9,500	8,653	91
	TOTAL FIXED ASSETS	7,698,655	5,032,625	65
LABOR AND EXPENSE TRANSFERS		31,087	191,088	614
	TOTAL DEPARTMENT	8,387,773	5,799,921	69

The total revenue of the Flood Control District during FY 76-77 was $8,387,773. This revenue was derived from the following sources:

20 Cent Tax Levy	$4,394,979
Treasurer's Carryover	3,392,794
State Allocation	600,000
TOTAL	$8,387,773

The expenditures of the Flood Control District, for accounting purposes, are divided into four main categories. The Personal Services category is composed of salaries and fringe benefits. The Services and Supplies category includes services and supplies of a noncapital nature. The Fixed Assets category is for capital nature items. The Labor and Expense Transfers category is used for transfering funds to various County Departments for services they provide to the Flood Control District. This category is also used for charging the County for services we provide for them.

The expenditures of the Flood Control District during FY 76-77 were divided into the following categories, and the percentage of the total is also shown:

Personal Services	$ 370,819	6.4%
Services and Supplies	205,388	3.5%
* Fixed Assets	5,032,625	86.8%
Labor & Expense Transfers	191,088	3.3%
TOTAL	$5,799,921	100.0%

* Land Acquisition and Relocations accounted for a total of 86.4% of the total Flood Control District expenditures.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

EXPENDITURES BY PROJECT

Project	Expenditures FY 76-77	Total Expenditures To June 30, 1977
Indian Bend Wash	436,100	3,526,200
Cave Buttes Dam	2,590,700	3,490,401
Adobe Dam	29,010	1,431,400
Arizona Canal Diversion Channel	258,100	413,300
Sunset/Sunnycove F.R.S.	88,410	176,575
Harquahala Valley Watershed	1,500	2,400
Spook Hill F.R.S.	1,071,940	1,933,840
Signal Butte Floodway	4,760	10,820
RWCD Floodway	68,400	1,693,300
Lower Queen Creek Watershed	500	6,700

SECTION X

TABULATED DATA ON COMPLETED STRUCTURES

STRUCTURE	DRAINAGE AREA	STORAGE CAPACITY	SURFACE AREA FLOODWATER POOL	VOLUME OF FILL	MAXIMUM HEIGHT OF DAM	LENGTH OF STRUCTURE	TIME TO DISCHARGE	LOCAL COST	FEDERAL COST	STRUCTURE COMPLETED
Powerline F.R.S.	49.6 sq. mi.	4019 ac. ft.	456 ac.	880,000 c.y.	35 ft.	3.9 mi.	30 days	$ 4,800	$ 377,300	1967
Vineyard Road F.R.S.	53.4 sq. mi.	4122 ac. ft.	837 ac.	1,154,400 c.y.	20 ft.	4.5 mi.	30 days	$ 54,900	$ 512,000	1968
Rittenhouse F.R.S.	49.6 sq. mi.	3875 ac. ft.	660 ac.	798,800 c.y.	21 ft.	3.0 mi.	30 days	$ 28,800	$ 400,000	1969
Guadalupe F.R.S.	1191 ac.	273 ac. ft.	30.4 ac.	175,000 c.y.	32 ft.	1.0 mi.	10 days	$160,500	$ 498,000	1975
White Tanks Dam #3	24.1 sq. mi.	2655 ac. ft.	384 ac.	375,000 c.y.	30 ft.	7667 ft.	80 hrs	$218,287	$ 199,088	1954
White Tanks Dam #4	10.3 sq. mi.	1036 ac. ft.	221 ac.	175,000 c.y.	20 ft.	6839 ft.	118 hrs			1954
Buckeye F.R.S. Sites 1,2, & 3	58,896 ac.	8000 ac. ft.	2845 ac.	4,100,000 c.y.	33 ft.	16 mi.	10 days	$103,400	$3,544,000	1975
McMicken Dam	223 sq. mi.	30,500 ac. ft.	2300 ac.	2,400,000 c.y.	38 ft.	9.4 mi.	4.5 days	$180,000	$2,000,000	1956
Dreamy Draw	1.3 sq. mi.	317 ac. ft.	26.7 ac.	83,500 c.y.	50 ft.	1400 ft.	19.5 hrs	$ 25,000	$ 388,870	1973
Sunset F.R.S.	384.0 ac.	55 ac. ft.	8.6 ac.	67,800 c.y.	30.5 ft.	500 ft.	7.6 days	$150,000	$ 776,700	1976
Sunnycove F.R.S.	864.0 ac.	218.7 ac. ft.	18.0 ac.	111,500 c.y.	50.5 ft.	700 ft.	17 days			1976

	LENGTH	AVERAGE BOTTOM WIDTH	AVERAGE CHANNEL DEPTH	VOLUME OF EXCAVATION	VOLUME OF CONCRETE	LOCAL COST	FEDERAL COST	STRUCTURE COMPLETED
Powerline Floodway	8.7 mi.	7'	5'	285,800 c.y.	15,534 cy	$64,000	$871,000	1968