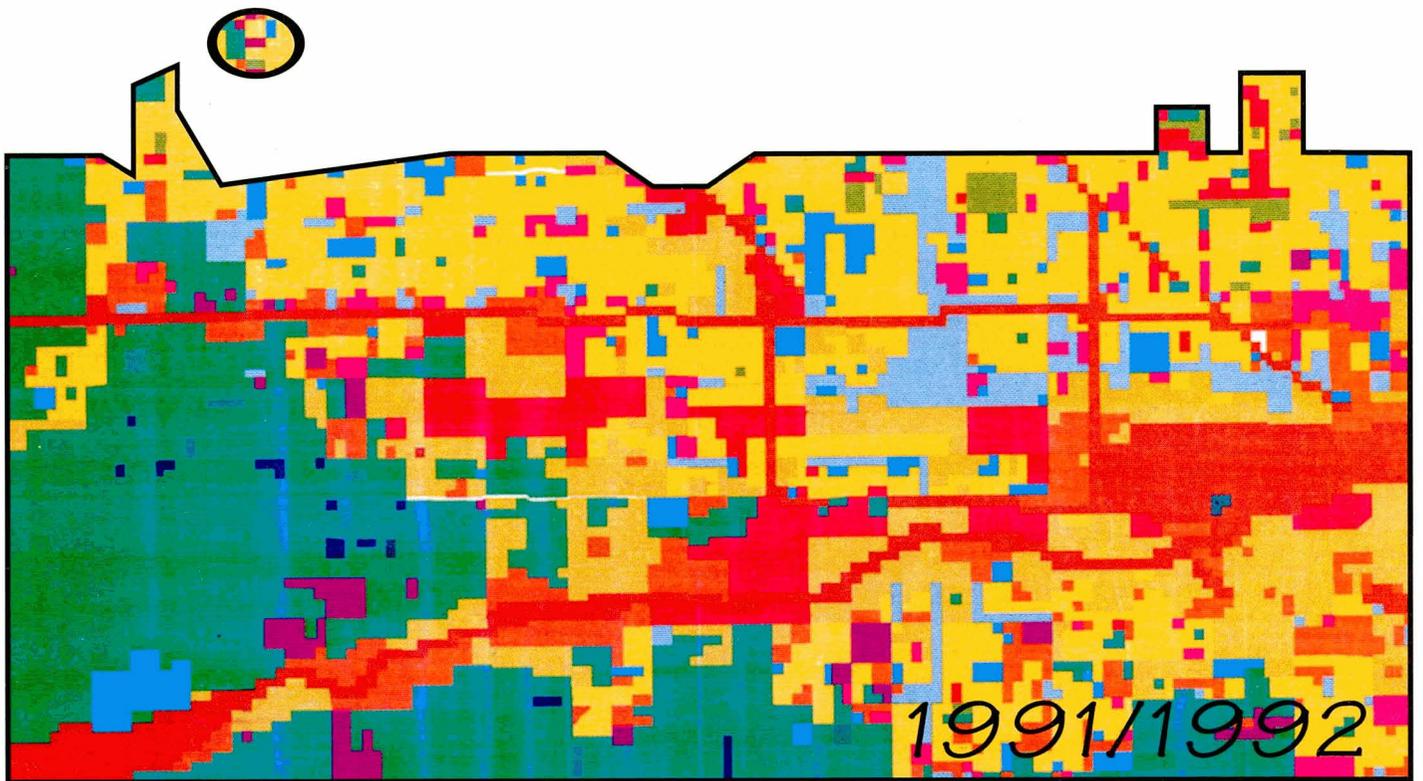


Flood Control District

OF MARICOPA COUNTY

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2801 W. Durango
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ANNUAL REPORT

FINANCIAL HIGHLIGHTS

Fiscal Year Ending June 30, 1992. Preliminary and Unaudited.
See pages 14 through 16 for detailed reporting.

	Dollars	Percent
Revenue		
Flood Control Tax	\$46,879,000	88
Local Participation	3,758,000	7
Rental Income	120,000	—
Interest Earnings	1,685,000	3
Sale of Excess Land	1,091,000	2
Miscellaneous	110,000	—
Total Revenue	53,643,000	100
Expenditures		
Flood Control Capital Improvements	28,955,000	62
Other Expenditures	17,851,000	38
Total Expenditures	46,806,000	100
Excess (Deficiency) of Revenues over Expenditures	6,837,000	
Fund Balance at Beginning of Year	22,299,000	
Fund Balance at End of Year	29,136,000	
Breakdown of Expenditures		
Capital Improvements		
Salaries and Wages	1,075,000	2
Real Estate	2,445,000	5
Engineering	1,826,000	4
Relocation of Facilities	2,142,000	5
Construction	21,467,000	46
	28,955,000	62
Other		
Engineering	4,177,000	9
NPDES	431,000	1
Fixed Assets	1,167,000	2
Maintenance	5,841,000	12
Administration	6,235,000	14
	17,851,000	38
Total	\$46,806,000	100



The Flood Control District
of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009
(602) 506-1501

Editors: Susan Fitzgerald and Tina Porter.
Layout and Design: Tina Porter.



Printed on paper made of recycled fiber.

A MISSION TO PERFORM

This has been a year of change for the Flood Control District, from within and without.

On the outside, we have a new workplace that enhances our ability to perform our mission.

We also have a change in leadership. Our longtime Chief Engineer and General Manager, Dan Sagramoso, P.E., has been appointed to head the rechristened Maricopa County Department of Transportation. We wish him well and express our appreciation for his warmth, wit and wisdom during his time with us. He helped shape what we are. Since December, Stanley L. Smith Jr., P.E., previously our Deputy and for many years Dan's strong right arm, has taken over leadership of the District, guiding and overseeing our evolution into nationwide leadership in floodplain management until a new Chief Engineer is selected.

From within, we took a searching look at our mission of providing you with flood and stormwater management and framed this mission in terms of performance, the most direct ways we can perform these functions in your daily life.

Our mission is to provide you—the citizens, municipalities, and other governmental agencies—with flood and stormwater protection. We provide these services through regulatory activities, master planning, technical assistance, and structural projects, such as dams, channels, and stormdrains.

Through much discussion and work, we developed some guiding principles for the performance of our mission:

- Contribute to the quality of life, economic development base, and transportation system development by managing flood and stormwater runoff so that damages, transportation delays, and restrictions to development are minimized.

- Contribute to the quality of life of the people of Maricopa County by managing floods and stormwater to enhance the environment or at least to minimize and mitigate negative environmental impacts.

- Develop and sustain a maintenance and operations program that ensures safe and reliable flood control and drainage management facilities.

- Maintain a high-quality, motivated, satisfied work force.

- Be recognized among the county governments of the state as being the best financial managers of flood control and stormwater management programs.

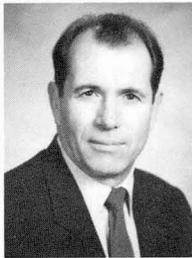
We present our accomplishments of the past fiscal year in terms of how we—as one multi-disciplined department—have applied these guiding principles to perform our mission. This report also documents our continued improvement and development as an organization and as individuals to serve you, our customers, better still.



The Flood Control District moved into its new facilities in October, 1991. The facilities include an administrative office building and an operations building, from which our maintenance and flood and storm monitoring objectives are based.

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BOARD OF DIRECTORS



Tom Freestone
District 1



James D. Bruner
District 2



Betsy Bayless
District 3, Chair



Carole Carpenter
District 4



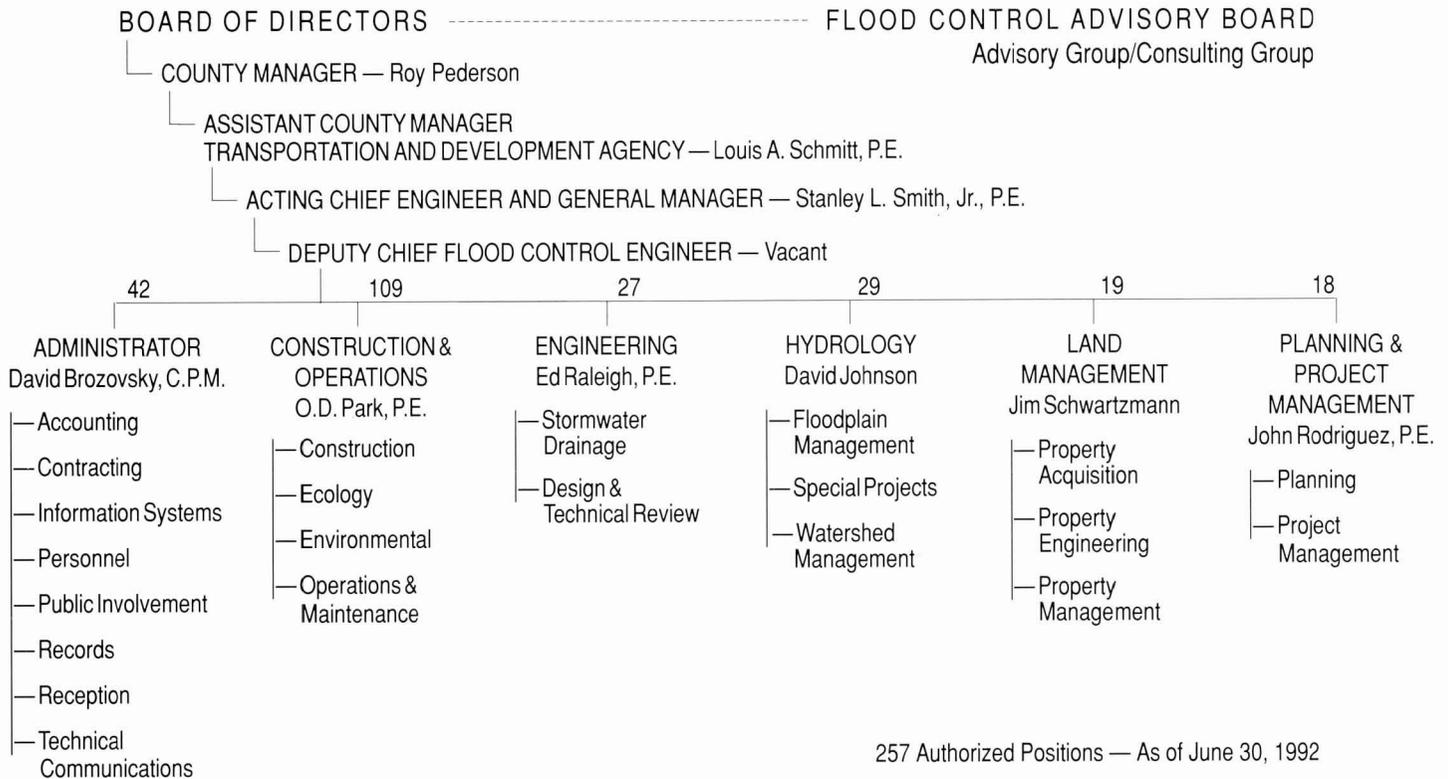
P. Ben Arredondo
District 5

The Flood Control District of Maricopa County, founded in 1959, is a municipal corporation and political subdivision of the State of Arizona. The District is governed by a five-member Board of Directors which consists of the elected County Supervisors.

The District has all the powers, privileges, and immunities granted generally to municipal corporations. The Board of Directors exercises all powers and duties in the acquisition and operation of District properties, contracting, and in carrying out regulatory functions as ordinarily exercised by governing bodies.

The activities of the District are funded by a flood control tax levy assessed on all real property within Maricopa County and a variety of cost-sharing arrangements with the Federal, State, County, and local governments. The tax levy rate for Fiscal Year 1991/92 was \$0.4447 per \$100 of assessed value.

ORGANIZATIONAL CHART



257 Authorized Positions — As of June 30, 1992

CITIZENS ADVISORY BOARD



William LoPiano
District 1



John E. Miller, Jr.
District 2



Samuel K. Wu
District 3



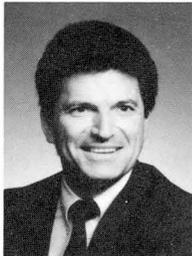
Ron Wheat
District 4



Marcella Peters
District 5, Chair



James Matteson
City of Phoenix



Paul Cherrington
Salt River Project

The Flood Control Citizens Advisory Board (FCAB) advises the Board of Directors on flood control, water conservation, floodplain management, drainage, and related matters. The FCAB reviews planning, operations, and maintenance of flood control facilities, and recommends an annual budget to the Board of Directors. The Flood Control Advisory Board members also serve the District as members of the Floodplain Review Board and the Drainage Review Board.

The Advisory Board consists of seven members, five of whom are appointed by the Board of Supervisors to five-year terms. At least one member must be a resident of the City of Phoenix. In addition to those five members, the Salt River Project and the City of Phoenix appoint representatives who are ex-officio members of the FCAB.

This year, Lynn Anderson, who represented Supervisorial District 4, resigned after serving on the citizen's advisory board since November, 1971. Ron Wheat was appointed to serve in his place.



Supervisor Carole Carpenter, District 4, bids farewell to Flood Control Advisory Board member Lynn Anderson, who retired in October, 1991, after serving on the board for 20 years.

“Contribute to the quality of life ... by managing flood and stormwater runoff such that damages, transportation delays, and restrictions to development are minimized.”

PLANNING

Managing flood and stormwater runoff requires us to perform a variety of tasks: planning for development, improving capital investments, managing floodplains, regulating drainage plans for development, monitoring floods and storms, and, finally, managing District-owned property to provide flood protection as well as some recreational and aesthetic amenities.

Our planning program calls for the identification of regional drainage problems and development of alternative solutions to protect life and property through the Comprehensive Plan, the Area Drainage Master Study program, Watercourse Master Planning, and other inter-agency cooperative projects.

This year, the updated Comprehensive Plan was adopted by the Board of Directors, providing the framework for our Capital Improvement Program. We are committed to developing scopes of work for each project in the Plan, updating it, and republishing it every five years.

Through our Area Drainage Master Studies (ADMS) program, we evaluate natural drainage systems and watersheds to determine what—if any—additional floodproofing measures are required to meet the current and planned development of the area. This year, several of our projects reached milestones, from commencement to preparation for submittal to the Federal Emergency Management Agency (FEMA):

- The **Salt-Gila Floodplain Delineation** study began in March 1992.
- The **White Tanks Agua Fria** floodplain mapping was completed and made public in two meetings with residents.
- The final floodplain review is underway for the **Laveen** study and we are preparing documents for submittal to FEMA.



A truck distributes crushed granite and a worker sprays it to finish and harden it for the jogging trail it will become in Basin 4 of the East Fork Cave Creek project, on the grounds of the Paradise Valley Community College. (Photo by Ed Karnafel)

CAPITAL IMPROVEMENT

The five-year Capital Improvement Program, also adopted by the Board of Directors this year, calls for implementation of structural projects to resolve flooding and drainage problems through a process of design, land acquisition, relocations, and construction. Some of the projects completed this year are:

Bell Road Improvements: Under an intergovernmental agreement with Maricopa County, we constructed a concrete-lined channel from Bell Road along the 91st Avenue alignment to Greenway Road and east to New River. The channel was completed in April 1992. The City of Peoria will operate and maintain the channel, according to the same agreement.

Upper East Fork Cave Creek: Construction of Basin 4, on the grounds of Paradise Valley Community College, was completed in November 1991. Irrigation installation and landscaping on the basin has begun and is expected to be completed in September 1992. We are working with the City of Phoenix to provide adequate drainage facilities in the area; Phoenix is constructing all of the basins north of Bell Road.

Gilbert Retention Basin: Rain delayed completion of the basin until July 1992, however it did not delay completion of the inlets or the lake there. When complete, the basin will be known as Crossroads Park and will be maintained by the Town of Gilbert. The basin is nestled in the area east of the intersection of the Eastern Canal and the Southern Pacific Rail Road, west of Greenfield Road.

Other projects where work is underway include:

Arizona Canal Diversion Channel, Reach 4: This section, from approximately 12th Street to 40th Street, was estimated to be 71 percent complete by the end of the fiscal year. The Corps of Engineers and the District are working with a committee of Phoenix and Paradise Valley residents to develop final landscape plans for the area east of 30th Street.

Salt River Channelization: Channelization from Sky Harbor Airport to McClintock Drive continues, although work was delayed due to water releases from Salt River Project dams after a particularly wet winter and spring in the Valley of the Sun. The District is cost-sharing with the Arizona Department of Transportation (ADOT) and the City of Tempe for the design and construction of the channel from the Hohokam Freeway to Sky Harbor Freeway. ADOT has paid for all construction west of the Southern Pacific Railroad bridge to McClintock. Tempe is providing all of the rights-of-way, and we are cost-sharing with ADOT for construction of the channel east of the bridge. Channelization of the river will extend east of McClintock Drive, however, a "superfund" landfill site in the area must be addressed and a permit from the Corps of Engineers must be obtained before construction can continue. Construction is expected to begin in this area in 1993.



After lengthy negotiations among three parties, an agreement was reached for the protection and exhibition of Native American petroglyphs and artifacts from Flood Control Project sites. The Board signed an agreement in June with the U.S. Army Corps of Engineers and Arizona State University for building and operation of a Cultural Resources Interpretive Center on District property downstream of Adobe Dam. Completion of the Center is expected in June 1993.

Here, Mike Meng, Maintenance Supervisor, plays tour guide for visiting art teachers interested in viewing and drawing the petroglyphs at the future site of the Cultural Resources Interpretive Center. (Photo by Ed Karnafel)

In addition to our planning and capital improvement programs, we also minimize flood damages and restrictions to development by defining and regulating floodplains through our Floodplain Management, Drainage Administration, and Flood and Storm Monitoring programs.

FLOODPLAIN MANAGEMENT

The Floodplain Management program is mandated by Arizona Revised Statutes § 48-3609 and is essentially a program to delineate boundaries of and regulate development within 100-year floodplains using the *Floodplain Regulations for Maricopa County*.

Floodplain Management Workload	Fiscal Year		
	1989/90	1990/91	1991/92
Floodplain Use Permits	52	3	40
Floodplain Variances	2	0	3
New Delineations	8	7	3
District Clearances	24	26	27
Violation Cases	3	7	1
Referrals to County Attorney	0	2	0

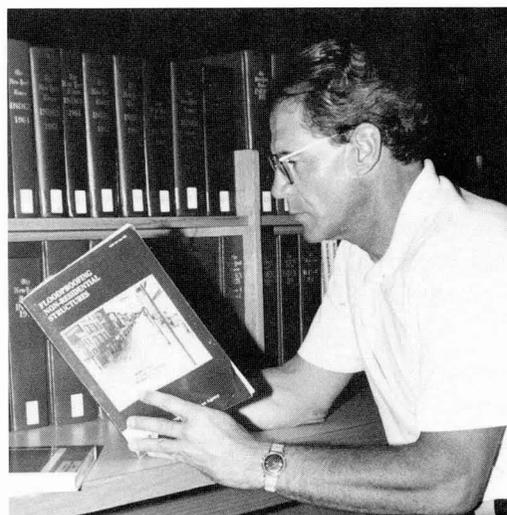
Last year, the Federal Emergency Management Agency (FEMA) approved the floodplain delineation studies for the following areas: Trilby Wash, Wagner Wash, Gila Bend Canal Study, Caterpillar Tank Wash, East Garambullo Wash, West Garambullo Wash, Twin Buttes Wash, and White Peak Wash. The Sun Valley Parkway North floodplain delineation study was submitted to FEMA last year, but has not yet been approved.

This year we successfully documented our continued compliance with the National Flood Insurance Program and substantiated our im-

proved floodplain management activities through the Community Rating System (CRS). The CRS program was developed by FEMA to recognize the efforts of communities by rating twenty different floodplain management activities that reduce flood losses and rewarding such efforts through flood insurance premium credits to policy holders. Credited activities include floodplain mapping and regulating, providing public information, promoting flood awareness, and flood warning.

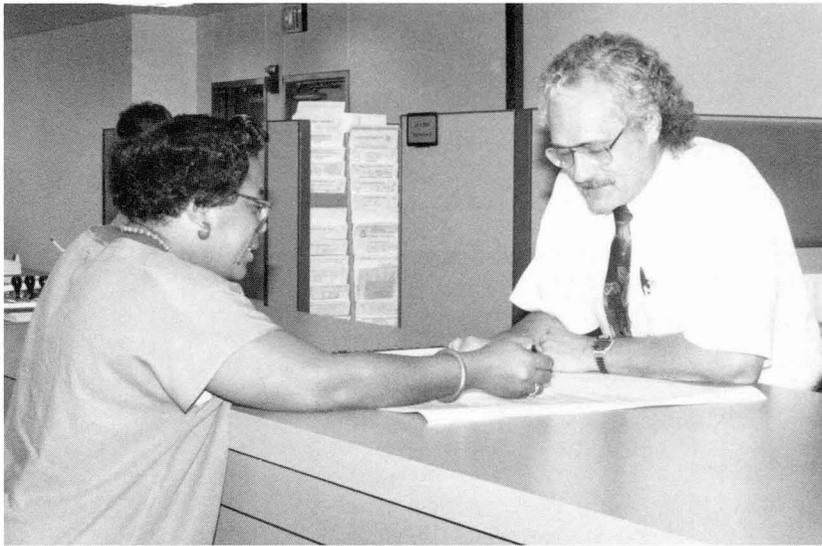
This fiscal year, a five percent flood insurance premium reduction for residents of the unincorporated areas of Maricopa County went into effect. FEMA has confirmed that Maricopa County will obtain an additional ten percent reduction effective October 1, 1992, putting us well on our way to reaching our goal of a twenty percent premium reduction credit in October, 1994.

In one CRS activity, providing public information, the Floodplain Administration section of our Hydrology Division provides flood hazard/map determinations upon request from residents of the unincorporated areas of Maricopa County. We performed more than 6,100 flood hazard/map determinations this fiscal year.



The District accumulates points under the Community Rating System by placing in local libraries publications by the Federal Emergency Management Agency, like this one on how to floodproof structures, and by notifying the public through the media that the publications are available. (Photo by Ed Karnafel)

DRAINAGE ADMINISTRATION



Joe Baker, Administrative Assistant I, and Bill Poppe, Civil Engineering Technician III, provide customer assistance at the downtown planning office, to ease the permit application process for builders and residents who need Flood Control District approval for their plans. (Photo by Ed Karnafel)

Our Drainage Administration program regulates building in the unincorporated area of the County to reduce existing and potential flooding problems caused by local stormwater outside a delineated 100-year floodplain. We coordinate with the Planning and Development, Transportation, and County Health departments to ensure that new development will not increase runoff, divert flows, or cause backwater on other property. We also investigate reports of flooding or possible flooding hazards reported by citizens, and share the information with appropriate departments and agencies.

We conducted a customer satisfaction survey to develop baseline information on our performance and what we can improve. On the whole, respondents indicated the staff was knowledgeable, courteous, helpful and efficient; only one respondent indicated a less-than-satisfactory experience. The survey will be repeated periodically to ensure continued improvement in customer satisfaction.

We reached another milestone in our goal to establish a common basis for drainage management for all jurisdictions within Maricopa County this year as the *Drainage Design Manual for Maricopa County* was prepared for final publication. Volume I, Hydrology, had been published first in April 1991, however, in this fiscal year it underwent significant changes. It was republished in June 1992. A draft of Volume II, Hydraulics, was made available to local governmental agencies and private contractors for review and comment in November 1991, and has since been revised for publication in the fall of 1992. Revisions to both manuals will be made annually, according to our Strategic Plan, beginning July 1, 1993. The District will require that the procedures and standards outlined in the Drainage Design Manual are used in design of its future projects as well as projects in which the District shares costs with other jurisdictions.

Drainage Administration Workload

	Fiscal Year		
	1989/90	1990/91	1991/92
Reviews			
Zoning (including resubmittals)	259	169	144
Subdivision	50	25	26
Master Plans	4	10	8
Board of Adjustment	190	152	108
Drainage Inspections	3,679*	2,899	2,545
Drainage Clearances Issued			2,738

*New drainage regulations implemented in 10/88.

FLOOD AND STORM MONITORING

We have made tremendous strides in improving the technology for gathering "real time" storm data from our precipitation and stream gauge system. This allows us to provide the National Weather Service the information they need to issue flash flood warnings throughout Maricopa County. Highlights of our improvement include:

- Converting our telemetered data collection system from Ultra High Frequency (UHF) to Very High Frequency (VHF). This increased our system's stability because VHF travels better through mountainous territory and is a stand alone system not dependent on outside support. Total conversion of the gauge system is expected in October 1992.

- Reducing the downtime of our precipitation and stream gauge system by standardizing maintenance schedules, and through use of on-site and in-lab repair by our Hydrometeorologic staff.

- Participating in a program that allows data-sharing among flood control districts throughout Arizona. The program required coordination between the districts to renumber gauges to eliminate duplication and allow precise identification of gauges throughout the state.

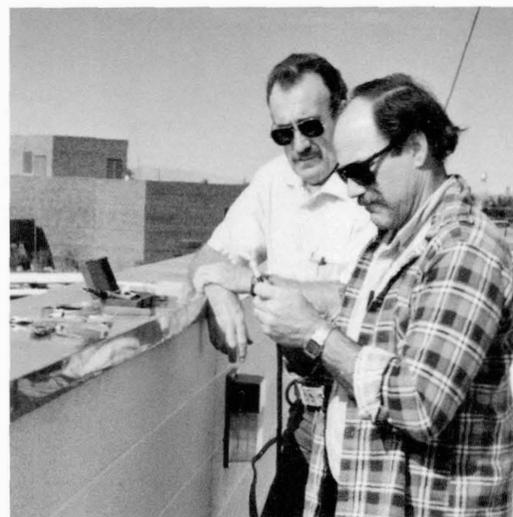
A flood warning market survey was completed during the last fiscal year that surveyed and evaluated the need for and the feasibility of improving flood warning services within Maricopa County. The study found that the District's current telemetered precipitation and stage gauges provide useful rainfall and runoff measurements of storm conditions as they occur, and that weather forecasting tools do aid in forecasting storm conditions before they occur. We continue to work toward implementing one of the five alternatives suggested by the consultant.

PROPERTY MANAGEMENT

In order to help minimize flood damages, we need to acquire land and easements for our flood control projects, and once it is acquired, we manage it, often providing opportunities for other public and private development. For example we lease property to other governmental agencies for multiple-use areas such as the Thunderbird Paseo, a park constructed and maintained by the City of Glendale in Reach 3 of the Arizona Canal Diversion Channel. We allow such development on our land when it does not interfere with the flood control purpose.

We acquired 183 land parcels in this fiscal year, at a cost of more than \$3 million. We completed acquisition of property for the New River, ACDC, Trilby Wash, Sossaman Road Drain and the Salt Gila 1000-foot Corridor flood control projects. With the addition of 4,720 acres this fiscal year, we now have 64,354 acres in our land inventory.

We also began the exciting negotiations for a multi-million dollar property exchange to enhance the County's efforts to bring major league baseball to Peoria. The exchange involves 46 acres of District land swapped for 54 acres of privately-owned property, at no cost to the District. The result will be a 76-acre parcel of



Hydrometeorologic Technician Assistants Randy Elson and Tom Kiefer prepare to rig an antenna atop the District's new operations building. Once installed, the antenna will receive via radio waves information from precipitation and stream gauges throughout Maricopa County, as well as from neighboring counties.

District property that Peoria could lease for a portion of a proposed baseball complex. This exchange has the potential of using District land to generate millions of dollars over the life of the agreement with Peoria and the San Diego Padres.

Managing property also allows us to sell or lease excess property after the completion of a flood control structure. This year, we sold property south of Adobe Dam at Beardsley Road to the Arizona Department of Transportation for construction of the Outer Loop. We also sold to a private developer some property that had been acquired for the Arizona Canal Diversion Channel.

In order to best manage the rights-of-way we have acquired over the years, we have begun a computer-based mapping inventory of all District right-of-way. Our geographic information system allows us to store the inventory as a database that produces a pictorial representation.



Youngsters play soccer to kick off the opening of the Thunderbird Paseo in Reach 1 of the Arizona Canal Diversion Channel. The District's Land Management Division oversees the arrangement with Glendale, which funded and maintains the park portion of the channel, at about 59th Avenue.

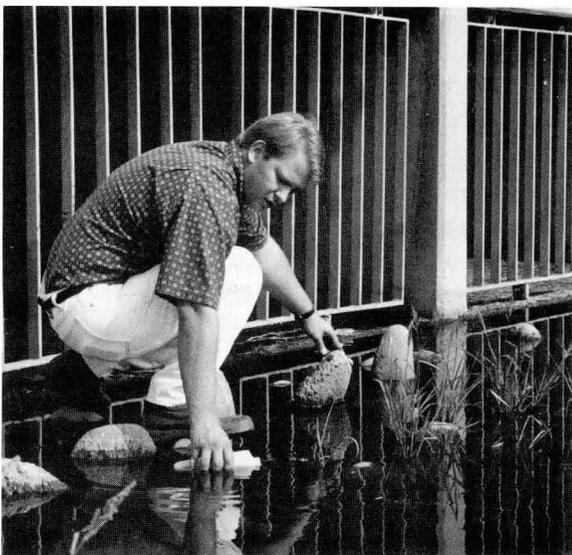
“Contribute to the quality of life ... by managing floods and stormwater to enhance the environment or at least to minimize and mitigate negative environmental impacts.”

ENVIRONMENT

Our environmental program calls for us to meet requirements set by state and federal government, and to be a catalyst in the definition and coordination of regional roles and responsibilities regarding flood control and stormwater management.

We already are acting to become lead coordinators in meeting the requirements of the Federal Clean Water Act's National Pollutant Discharge Elimination System (NPDES). This program holds municipalities responsible for the quality of the stormwater discharged into waters of the United States. Some examples of such District structures would be the Arizona Canal Diversion Channel discharging into Skunk Creek, and the East Maricopa Floodway discharging into the Gila River.

We successfully urged the Maricopa Association of Governments (MAG) to form a Stormwater Task Force, which will



David Gardner, Civil Engineering Technician I, collects stormwater from the Indian Bend Wash as part of the District's stormwater monitoring program for water quality. (Photo by Ed Karnafel)

Five-gallon cottonwoods planted last winter thrive at a 32-acre site at the Gila-Agua Fria River confluence. The site, planted with 3,200 trees and native grasses, will mitigate the environmental impacts of channelizing the New River.



evaluate the development and implementation of a regional approach to stormwater management that will benefit all NPDES-targeted municipalities. We facilitate and provide administrative support for the task force meetings, the first of which was in June. Issues tackled by the task force include best management practices for erosion control, illicit discharges, and management of stormwater on construction sites of more than 5 acres.

Our progress in meeting the NPDES requirements include:

- Helping to coordinate the County's NPDES application for its landfills, which was accepted by the Environmental Protection Agency.
- Drafting and starting negotiations of intergovernmental agreements with Mesa, Phoenix and Glendale to perform stormwater monitoring and other tasks.
- Preparing a list of 7,000 potentially targeted businesses and mailing NPDES program information, with 23 percent requesting further information.
- Developing the Erosion Control Manual, a product of a public-private interest task force, which will become Volume III of the *Drainage Design Manual for Maricopa County*.
- Establishing four stormwater monitoring sites in conjunction with the U.S. Geological Survey.
- Establishing and publishing the quarterly *Stormwater Monitor* as a forum on regional NPDES issues and information.

The Clean Water Act requires that projects affecting habitat in Waters of the U.S. must make some provisions to protect and/or mitigate that habitat. The New River Channelization project has afforded us the opportunity to perform on-site habitat preservation as well as off-site mitigation.

On-site Preservation: Several acres within the 3-mile channelization will have vegetation preserved, supplemented by native grasses and trees when channelization is completed. There will be no in-channel recreation, partly because of the potential of large, unpredictable flows, but also because it would drive off the wildlife for which the habitat is being preserved.

Off-site Mitigation: The District acquired 32 acres at the confluence of the Agua Fria and Gila Rivers, on the bank of the Gila. Twenty-five acres were planted with 3,200 cottonwoods and mesquites during the past year, with the remaining seven acres seeded with native plant species. The bare-root and five-gallon trees planted at the site will provide cover and food for a variety of wildlife: quail, rabbits, native lizard species, snakes, hawks, coyote and javelina.

“Develop and sustain a maintenance and operations program that ensures safe and reliable flood control and drainage management facilities.”

MAINTENANCE

Operating and maintaining our flood control structures to the highest standards of function and aesthetics is one of our most effective methods of managing flood and stormwater. This year, we received a letter of commendation from the U.S. Army Corps of Engineers for our maintenance practices and schedules. The Corps has been a partner on several of our major projects that we now maintain, including the Arizona Canal Diversion Channel.

Maintaining our structures also requires the care of about 120,000 plants that enhance the aesthetics as well as prevent the erosion of earthen structures and slopes.

In total, we maintain 56 flood control facilities, 22 of which are operating structures that must undergo annual dam safety inspections. This year, all of the inspections were completed satisfactorily.

Some of the projects we accepted for operation and maintenance this year are:

Arizona Canal Diversion Channel, Reach 3 (23rd Avenue to 7th Street): This project requires maintenance of four miles of lined channel and about 20,000 plants. Because of the additional maintenance responsibilities for this reach and the other two completed stretches of the 17 mile channel, we opened a satellite equipment yard and assigned crews to work six days a week on the Diversion Channel to ensure prompt response to maintenance concerns.

We also accepted landscaping maintenance responsibilities for Reach 1 of the Arizona Canal Diversion Channel (Skunk Creek to Cactus Road) after completion in February 1992. Thunderbird Paseo, a multi-use park, was installed by the City of Glendale, which will be responsible for maintenance of the recreation amenities.



Noel Nunley, Team Leader, trims a Palo Verde, one of hundreds of trees and thousands of landscaping plants maintained by the District along the Arizona Canal Diversion Channel, here shown about 35th Avenue.

Maintenance Responsibilities Highlights			
	Inventory as of 6/91	Added 7/91 to 6/92	Total Inventory
Bank Protection	710,870	223,704	934,574 square yards
Landscape Erosion Control	3,128	168	3,296 acres
Low Flow — Paved	138,400	150,900	289,300 square feet
Roads	446	21	467 miles
Stormdrain Pipe	27,718	5,232	32,950 feet

We will continue to maintain the paths and the landscaping.

East Maricopa Floodway (between Broadway and Brown Roads): Installation of landscaping was completed and a dedication ceremony was held in May 1992. The landscaping project included a "tree donation program" where area residents donated funds to have additional trees planted on the structure. Twenty-three additional drought-resistant trees were planted using the funds donated by 24 individuals and 3 organizations. The District maintains the irrigation system as well as the landscaping while the City of Mesa provides the water.

Other areas we accepted for maintenance include **Scatter Wash** (1,420 feet of channel); **New River Mitigation area** (32 acres); **Sossaman Drain**, north of Baseline Road; and the **Old Cross Cut Canal Improvements**.

Because maintenance is such a labor-intensive job, we use prisoner work crews from the Department of Corrections to assist District workers. The Department of Corrections crews worked 91,455 hours this fiscal year, at a cost of \$45,727.50 (\$.50 per hour).

○ "Maintain a high-quality, motivated, satisfied work force."

QUALITY WORK FORCE

A quality work force is required to provide the kind of service our customers deserve, whether those customers are private citizens, developers, other County or governmental agencies, or other District employees. All District employees participated in the District's Total Quality Management (TQM) training program, modeled on the continuous improvement principles of Dr. W. Edward Deming.

The training curriculum was developed by five District employees who served as facilitators for the program: Michael Cuneo, Controller; Betty Dickens, Revegetation Ecologist III; Fred Fuller, Chief Construction Inspector, and Felicia Terry, P.E., Civil Engineer II, and Doug Toy, P.E., Water Resources Manager.

The facilitators attended many training courses which helped them to successfully adapt the TQM principles for service in the public sector.

During the course of each six-week session, five-member teams picked a work-related project and researched means to improve a process. While course projects were meant to be exercises in the Deming principles, some class-time projects provided such clear benefits that they have already been implemented.

A TQM Infrastructure Committee was formed to define a process for evaluating all project proposals. The evaluation would determine if a project proposal was suited to a full TQM analysis and, if so, to track the proposal through implementation or rejection.



Team Leaders Gary Drake and Noel Nunley discuss the placement of a spillway for stormwater to run off a local parking lot and enter the Arizona Canal Diversion Channel at about Hatcher and 17th Avenue.

Another way of monitoring continuous improvement in the work force is through the awards the organization and its employees receive.

This year, the District was proud to receive the National Association of Floodplain Managers' Award of Excellence, in recognition of our progressive, pro-active efforts to identify flood hazard areas to minimize potential damages and loss.

We are also proud of the initiative and creativity of our individual employees who developed programs that proved to save time and money. These implemented program ideas were then submitted to the National Association of Counties and received Awards of Recognition:

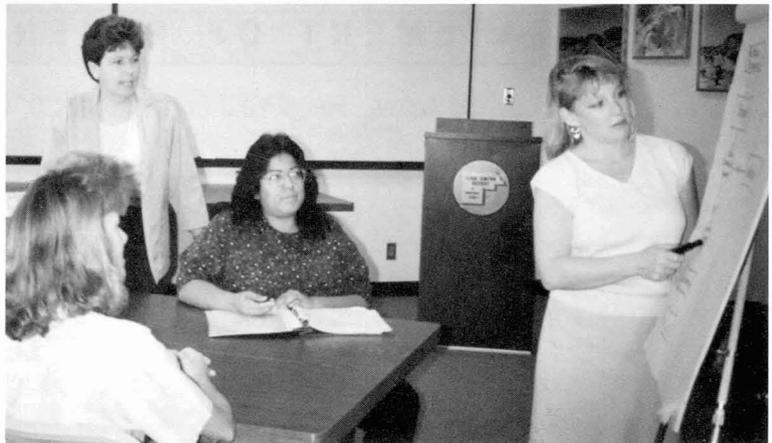
Total Quality Management Training: Stanley L. Smith, Jr., P.E., Acting Chief Engineer and General Manager, proposed and implemented the training of staff to facilitate the Total Quality Management program.

Computer Model Cost Estimator: Anne Blech, C.P., Facilities Planner, developed a computer model to estimate costs of strategic tasks performed in contracted studies.

In-house Construction Inspection: Shewa Shivaswamy, Construction Inspector, took on tasks usually delegated to an outside consultant, at a cost that averages 10 to 15 percent of a construction contract. He performed the inspection duties on a \$2 million flood control channel that the District staff also designed, at further cost savings.

Solar-powered Precipitation Gauge: Randy Elson, Hydrometeorologic Assistant II, adapted an existing telemetry rain gauge to use solar energy to melt snowfall (rather than anti-freeze) to provide instantaneous transmission of data.

Telemetry Calibration Device: Tom Kiefer, Hydrometeorologic Assistant III, developed a testing device to check the pressure accuracy of telemetry stream gauges that will save more than \$9,000 annually in staff time, plus \$500 a year in lower vehicle use and maintenance, in addition to improving the safety of the testing process.



As the fiscal year closed, the last training sessions of Total Quality Management were underway, fulfilling the District's goal of teaching every employee the continuous improvement process. Here, Kelly Rogers, Accounting Technician, explains to facilitator Betty Dickens, Revegetation Ecologist III, a problem-solving flow chart for the project she and team members Terry Bolligar, Accounting Technician, and Margaret Bejarano, Records Technician II, have chosen.



Bob Naud, Jr., Hydrometeorological Technician, explains an automated computerized telemetry rain gauge to Board of Directors member Jim Bruner, District 2.

STATEMENT OF REVENUES

Budget and Actual. Fiscal Year Ending June 30, 1992. Preliminary and Unaudited.

	Budget	Actual	Variance Favorable (Unfavorable)
Revenues			
Flood Control District Tax Levy	\$47,040,000	\$46,879,000	\$ (161,000)
Local Participation	4,027,000	3,758,000	(269,000)
Rental	109,000	120,000	11,000
Interest Earnings	2,000,000	1,685,000	(315,000)
Sale of Excess Land	1,100,000	1,091,000	(9,000)
Miscellaneous	90,000	110,000	20,000
Total Revenues	54,366,000	53,643,000	(723,000)
Expenditures			
Personnel Services			
Salaries and Wages	7,912,000	7,061,000	851,000
Overtime	50,000	4,000	46,000
Total	7,962,000	7,065,000	897,000
Supplies and Services			
Professional Services Contracts	8,995,000	5,773,000	3,222,000
Maintenance Contracts	1,300,000	2,067,000	(767,000)
Maintenance Supplies	301,000	382,000	(81,000)
Insurance	110,000	86,000	24,000
Other Supplies and Services	420,000	1,311,000	(891,000)
Total	11,126,000	9,619,000	1,507,000
Capital Outlay			
Salaries and Wages	1,686,000	1,075,000	611,000
Real Estate	8,751,000	2,445,000	6,306,000
Engineering	4,188,000	1,826,000	2,362,000
Motor Vehicles and Equipment	1,346,800	1,167,000	179,800
Construction and Other Capital Outlay	42,283,000	23,609,000	18,674,000
Total	58,254,800	30,122,000	28,132,800
Total Expenditures	77,342,800	46,806,000	30,536,800
Excess (Deficiency) of Revenues over Expenditures	(22,976,800)	6,837,000	29,813,800
Fund Balance at Beginning of Year	29,890,200	22,299,000	(7,591,200)
Fund Balance at End of Year	\$ 6,913,400	\$29,136,000	\$22,222,600

EXPENDITURES

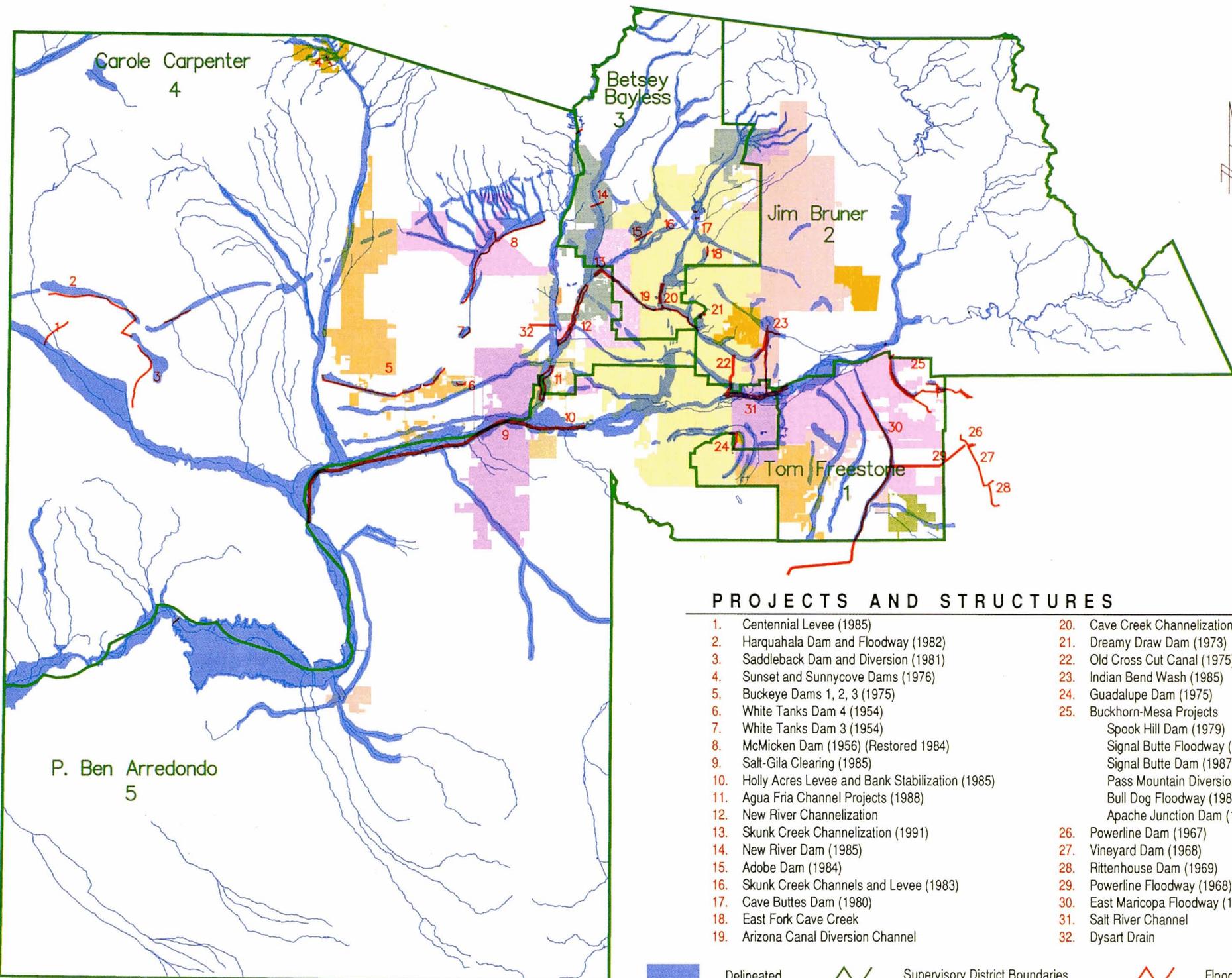
Fiscal Year Ending June 30, 1992. Preliminary and Unaudited. This table may not always agree with the Breakdown of Expenditures in the Financial Highlights table (inside front cover) except in total.

	Engineering	Land	Relocation and Construction	Wages	Total
CAPITAL IMPROVEMENT PROJECTS					
Agua Fria	\$ 5,000	678,000		37,000	720,000
Arizona Canal Diversion Channel	222,000	474,000	1,356,000	353,000	2,405,000
Bell Road Expansion			1,217,000	41,000	1,258,000
Cave Creek Improvements	4,000				4,000
District Facility	173,000		1,591,000	8,000	1,772,000
East Fork Cave Creek	43,000	298,000	4,402,000	139,000	4,882,000
EMF: Buckhorn-Mesa	7,000		976,000	34,000	1,017,000
EMF: Williams-Chandler	4,000		75,000	4,000	83,000
Flood Warning			128,000	9,000	137,000
Glendale/Peoria ADMP	279,000		729,000	14,000	1,022,000
McMicken Dam		99,000		3,000	102,000
Old Cross Cut Canal	224,000			48,000	272,000
Plan Six			1,057,000		1,057,000
Price Drain	133,000		1,345,000		1,478,000
Reed Landfill		4,000			4,000
Salt-Gila Control Works	42,000	72,000	765,000	38,000	917,000
Salt River Channelization			1,826,000	36,000	1,862,000
Scatter Wash				6,000	6,000
Skunk Creek/New River	345,000	292,000	1,837,000	164,000	2,638,000
Sossaman Road	136,000	444,000		48,000	628,000
Spook Hill FRS	13,000		183,000	25,000	221,000
Town of Gilbert	196,000	76,000	3,320,000	27,000	3,619,000
Union Hills Storm Drain			2,802,000	3,000	2,805,000
White Tanks ADMP		1,000		29,000	30,000
Wittmann Wash		7,000		9,000	16,000
Total	\$ 1,826,000	\$ 2,445,000	\$ 23,609,000	\$ 1,075,000	\$28,955,000
	Administration	Maintenance	NPDES	Engineering	Total
AREA DRAINAGE MASTER STUDIES					
Laveen	\$ 11,000			\$ 129,000	\$ 140,000
Salt River	49,000			551,000	600,000
Wickenburg	20,000			304,000	324,000
White Tanks	17,000			271,000	288,000
Mesa/Gilbert	73,000				73,000
Arizona Canal Diversion Channel	11,000			504,000	515,000
4 others with expenditures under \$10,000 each	20,000				20,000
Total	201,000			1,759,000	1,960,000
DISTRICT SERVICES					
Administrative Overhead	4,666,000	277,000	282,000	139,000	5,364,000
Maintenance Overhead	142,000	2,350,000	143,000		2,635,000
District Yard		339,000			339,000
USGS Service Work	444,000				444,000
Work to improve CRS	18,000				18,000
Enforcement of Floodplain Regulations	37,000				37,000
Work done for Planning & Development	429,000				429,000
Watershed Hydrology	188,000			45,000	233,000
Work done for MCDOT	11,000	6,000			17,000
Floodplain Delineation	141,000			1,369,000	1,510,000

continued on page 16

	<u>Administration</u>	<u>Maintenance</u>	<u>NPDES</u>	<u>Engineering</u>	<u>Total</u>
Flood Insurance Study	90,000			166,000	256,000
Hydrologic Data Collection	49,000	7,000		219,000	275,000
Flood Warning System	173,000	91,000		182,000	446,000
Floodplain Administration	85,000			8,000	93,000
Computer Systems	216,000				216,000
City of Phoenix	2,000			82,000	84,000
Town of Wickenburg		10,000			10,000
DISCTRICT STRUCTURES					
Dysart Road Agua Fria Drain	2,000	17,000		3,000	22,000
48th Street Drain		15,000			15,000
Old Cross Cut Canal	4,000	38,000		4,000	46,000
Salt-Gila Clearing	4,000	275,000			279,000
Salt-Gila Control Works	6,000	6,000			12,000
Sossaman Road	10,000	28,000			38,000
Agua Fria River	53,000	158,000			211,000
Indian Bend Wash: Outlet	11,000	2,000			13,000
Indian Bend Wash: Inlet	2,000	15,000		1,000	18,000
Indian Bend Wash: Interceptor	1,000	28,000			29,000
Arizona Canal Diversion Channel	112,000	766,000	2,000	30,000	910,000
East Maricopa Floodway	9,000	363,000	2,000	11,000	385,000
Buckhorn-Mesa		1,000		27,000	28,000
Salt River Channel	22,000				22,000
White Tanks #3	1,000	10,000		10,000	21,000
White Tanks #4		23,000			23,000
McMicken Dam	4,000	39,000			43,000
Dreamy Draw Dam	2,000	9,000			11,000
Buckeye #1	10,000	60,000			70,000
Buckeye #3		47,000			47,000
El Mirage Road Drain Channel		18,000			18,000
Spook Hill FRS	10,000	40,000		4,000	54,000
Signal Butte Floodway		15,000			15,000
Apache Junction FRS	5,000	6,000			11,000
Bulldog Floodway		13,000			13,000
Powerline Dam		50,000			50,000
Powerline Floodway	3,000	77,000			80,000
Vineyard Road FRS		37,000			37,000
Rittenhouse FRS		10,000			10,000
Harquahala FRS	1,000	48,000		7,000	56,000
Saddleback FRS		18,000			18,000
Centennial Levee		12,000			12,000
Harquahala Floodway		11,000			11,000
Eagletail FRS	14,000				14,000
Wittmann Area	2,000	4,000		5,000	11,000
Cave Buttes Dam	1,000	83,000		1,000	85,000
Adobe Dam	5,000	53,000			58,000
Skunk Creek Channelization at I-17		21,000			21,000
New River Dam		36,000		3,000	39,000
Skunk Creek/New River	34,000	196,000		62,000	292,000
Agua Fria River	79,000	13,000		3,000	95,000
East Fork Cave Creek	26,000	25,000		15,000	66,000
Bell Road Expansion				15,000	15,000
Cave Creek Channelization	7,000			4,000	11,000
36 others with expenditures under \$10,000 each	70,000	75,000	2,000	3,000	150,000
Total	\$ 7,201,000*	\$ 5,841,000*	\$ 431,000	\$ 2,418,000	\$15,891,000

*Includes fixed assets.



PROJECTS AND STRUCTURES

- | | |
|---|--------------------------------------|
| 1. Centennial Levee (1985) | 20. Cave Creek Channelization (1991) |
| 2. Harquahala Dam and Floodway (1982) | 21. Dreamy Draw Dam (1973) |
| 3. Saddleback Dam and Diversion (1981) | 22. Old Cross Cut Canal (1975) |
| 4. Sunset and Sunnycove Dams (1976) | 23. Indian Bend Wash (1985) |
| 5. Buckeye Dams 1, 2, 3 (1975) | 24. Guadalupe Dam (1975) |
| 6. White Tanks Dam 4 (1954) | 25. Buckhorn-Mesa Projects |
| 7. White Tanks Dam 3 (1954) | Spook Hill Dam (1979) |
| 8. McMicken Dam (1956) (Restored 1984) | Signal Butte Floodway (1984) |
| 9. Salt-Gila Clearing (1985) | Signal Butte Dam (1987) |
| 10. Holly Acres Levee and Bank Stabilization (1985) | Pass Mountain Diversion (1987) |
| 11. Agua Fria Channel Projects (1988) | Bull Dog Floodway (1988) |
| 12. New River Channelization | Apache Junction Dam (1988) |
| 13. Skunk Creek Channelization (1991) | 26. Powerline Dam (1967) |
| 14. New River Dam (1985) | 27. Vineyard Dam (1968) |
| 15. Adobe Dam (1984) | 28. Rittenhouse Dam (1969) |
| 16. Skunk Creek Channels and Levee (1983) | 29. Powerline Floodway (1968) |
| 17. Cave Buttes Dam (1980) | 30. East Maricopa Floodway (1989) |
| 18. East Fork Cave Creek | 31. Salt River Channel |
| 19. Arizona Canal Diversion Channel | 32. Dysart Drain |

 Delineated
100-Year
Floodplains

 Supervisory District Boundaries

 Flood Control Structures



	Light Industrial
	Heavy Industrial
	Light Residential
	Medium Residential
	Heavy Residential
	Commercial
	Open
	Agricultural
	Transportation
	Public Land

The cover art is a color-coded land-use map generated by our computerized geographic information system.

The District generates land-use and soil maps because these factors help determine the rate and amount of stormwater runoff, which is vital to project planning.

The area on the cover is central Phoenix, including the Salt River, which is identified roughly by the jagged brown line starting from the lower left corner.

The District is conducting a Master Plan Study of the Salt-Gila Rivers from Gillespie Dam to Granite Reef Dam, and mapping such as this will be an important component.

The legend to the left provides a reference of the land uses in this area.