

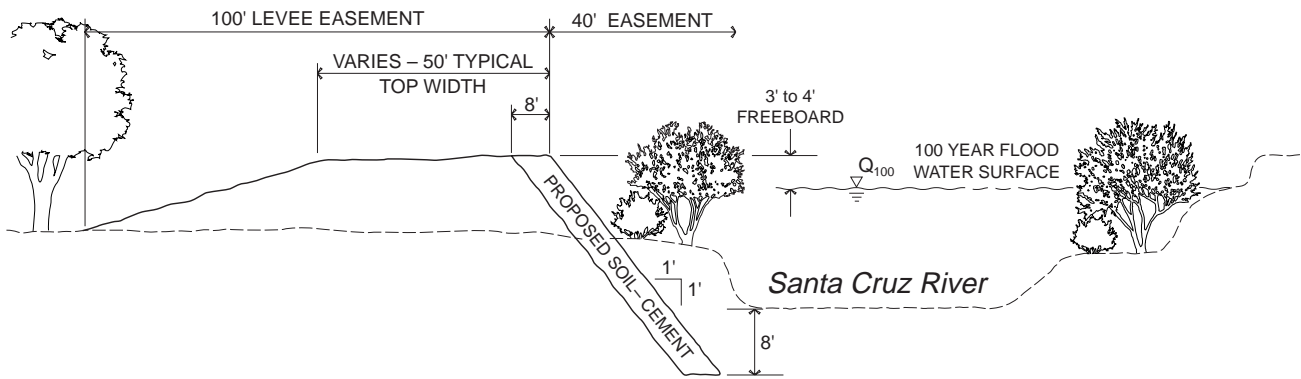


Pima County Flood Control District



Annual Report 1997/98

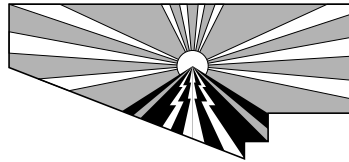
**LOWER SANTA CRUZ RIVER
BANK PROTECTION PROJECT
PHASE 1A AND 1B**



**TYPICAL SECTION
NOT TO SCALE**

PIMA COUNTY FLOOD CONTROL DISTRICT
ANNUAL REPORT

FISCAL YEAR 1997/98



Prepared by
Pima County Flood Control District
201 North Stone Avenue
Tucson, Arizona 85701

June 1999

FLOOD CONTROL DISTRICT ADMINISTRATION

Board of Directors (Board of Supervisors)

Mike Boyd, Chairman, District 1
Dan Eckstrom, District 2
Sharon Bronson, District 3
Ray Carroll, District 4
Raúl Grijalva, District 5

Flood Control District Advisory Committee

Phil Pearthree, Chair, District 5
Robert Condit, Vice-Chair, Marana
Hugh Holub, 2nd Vice-Chair, District 2
Mary Horvath, District 3
Brent Cluff, Oro Valley
Paul Cella, District 4
Antonio Figueroa, City of Tucson
Rene Gastelum, City of South Tucson
Herb Osborn, City of Tucson
Jim DeGrood, Sahuarita
Doug Shakel, District 1
Mike Zeller, City of Tucson

General Manager (County Administrator)

Charles H. Huckelberry

Chief Engineer (Director)

Brooks A. Keenan

Division Managers

Leo R. Smith, Floodplain Management Division
Zbigniew Osmolski, Flood Control Engineering Division
Kathy Black, Administrative Services
M. James Barber, Field Engineering Division
Subhash Raval, Operations Division (Acting)
Thomas E. Burke, Real Property Division
Richard G. Harrington, Technical Services Division

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PIMA COUNTY BOARD OF SUPERVISORS

*District 1
Supervisor
Mike Boyd*



*District 2
Supervisor
Dan Eckstrom*



*District 4
Supervisor
Raymond J. Carroll*

*District 3
Supervisor
Sharon Bronson*



*District 5
Supervisor
Raúl M. Grijalva*



FLOOD CONTROL DISTRICT ADVISORY COMMITTEE FY 97/98



*Phil Pearthree, Chair
District 5*



*Robert Condit, Vice-Chair
Marana*



*Hugh Holub, 2nd Vice-Chair
District 2*



*Mary Horvath
District 3*



*Brent Cluff
Oro Valley*



*Paul Cella
District 4*



*Antonio Figueroa
City of Tucson*



*Rene Gastelum
City of South Tucson*



*Herb Osborn
City of Tucson*



*Doug Shakel
District 1*



*Jim DeGrood
Sahuarita*



*Mike Zeller
City of Tucson*

MESSAGE FROM THE CHIEF ENGINEER (DIRECTOR)

On behalf of the Board of Directors of the Pima County Flood Control District, I am pleased to present the District's Annual Report for FY 97/98. This past year was a busy one for the District, with increased flood awareness and activity mainly due to a strong El Niño phenomena that affected regional weather patterns. Although no major floods occurred during this period, the heightened awareness helped underscore the importance of the District's work in minimizing flood and erosion hazards, and decreasing overall flood-related costs for Pima County residents.

Significant progress was made on both the District's structural and nonstructural flood control programs during this past year. Work on structural flood control facilities included bank stabilization projects, detention basins, and design and construction of river parks. There was also a significant amount of activity in the District's Floodplain Management Program, with a record number of requests for floodplain status information processed by District staff. Permitting activities, site reviews and drainage complaint activities were also active areas. A variety of long-range planning activities, groundwater recharge projects and natural resource preservation efforts rounded out the District's efforts during the past fiscal year. A few highlights of the District's activities in FY 97/98 include:



- Continued design work on the Lower Santa Cruz River Levee project, a 7.3 mile levee that will protect over 4,500 acres of floodprone land in the Town of Marana and Northwestern Pima County. Staff also finalized plans for river trails, pedestrian bridges, and environmental mitigation and enhancement work along the 13-mile Rillito Creek Bank Protection Project.
- Submitted eight Letter of Map Amendments to remove individual structures from designated flood hazard areas. When approved by FEMA, these changes result in substantial savings in flood insurance premiums paid by these property owners.
- Responded to over 8,200 written requests for floodplain status information, a 21 percent increase over the previous year. Staff also provided floodplain assistance to over 5,400 walk-in customers and issued over 600 Floodplain Use Permits.
- Continued participation in the NFIP, Community Rating System. In FY 97/98, this program saved Pima County property owners an estimated \$133,567. Pima County ranks in the top six percent of almost 1,000 communities across the country that take part in this program.
- Strengthened provisions of the District's Floodplain and Erosion Hazard Management Ordinance pertaining to uses in flood hazard areas and to riparian habitat protection.
- Continued work on the District's World Wide Web site, which presents information on a variety of flood control and floodplain management topics. The site receives widespread use from real estate and insurance agents, consultants, engineering firms and the general public.

I believe that District efforts in FY 97/98 made a significant contribution toward minimizing flood and erosion hazards for Pima County residents and their property. I hope you'll take a closer look at this year's Annual Report for more details on the District's many flood control activities.

A handwritten signature in black ink, which appears to read "Brooks A. Keenan". The signature is written in a cursive style with a long horizontal flourish extending to the right.

Brooks A. Keenan
Director

DISTRICT FINANCES

REVENUES

Although the District receives assistance from state and federal agencies to construct major capital facilities, most of the District's funding is generated from the property tax levy, along with general obligation bond sales authorized by the electorate. Approximately one-half of the annual levy revenue is devoted to the Capital Improvement Program, with the remainder allocated to operating expenses.

Although the annual levy rate was less than the previous fiscal year (FY 95/96), total revenue obtained from the levy increased by almost 10 percent. This can be attributed to both an increasing number of taxable properties and increases in assessed valuations. Information on the District levy rate and revenues is shown in the table at right.

EXPENDITURES

The table on the following page provides information on capital project expenditures for FY 97/98. Project numbers shown in the table correspond to the projects shown on the map on pages 10-11.

Operating expenses comprise the remainder of District expenditures and include funds allocated for maintenance of flood control structures, engineering and design services, floodplain management, and planning and administration activities. A detailed breakdown of the District's finances is provided on pages 12-13.

Flood Control District Tax Levy Rate 1979 to 1998		
Fiscal Year Ending	Levy Rate*	Tax Revenue
1979	0.0966	\$798,000
1980	0.1302	\$1,126,000
1981	0.5143	\$4,637,000
1982	0.4683	\$5,342,000
1983	0.5072	\$6,882,000
1984	0.4739	\$7,652,000
1985	0.5269	\$9,243,000
1986	0.5102	\$9,969,000
1987	0.5346	\$11,713,000
1988	0.7630	\$17,272,000
1989	0.5592	\$13,730,000
1990	0.5985	\$14,663,000
1991	0.5985	\$14,058,000
1992	0.5871	\$13,689,000
1993	0.5871	\$13,767,000
1994	0.5398	\$12,678,000
1995	0.4623	\$11,379,000
1996	0.3596	\$9,368,000
1997	0.3596	\$9,467,000
1998	0.3296	\$10,392,000

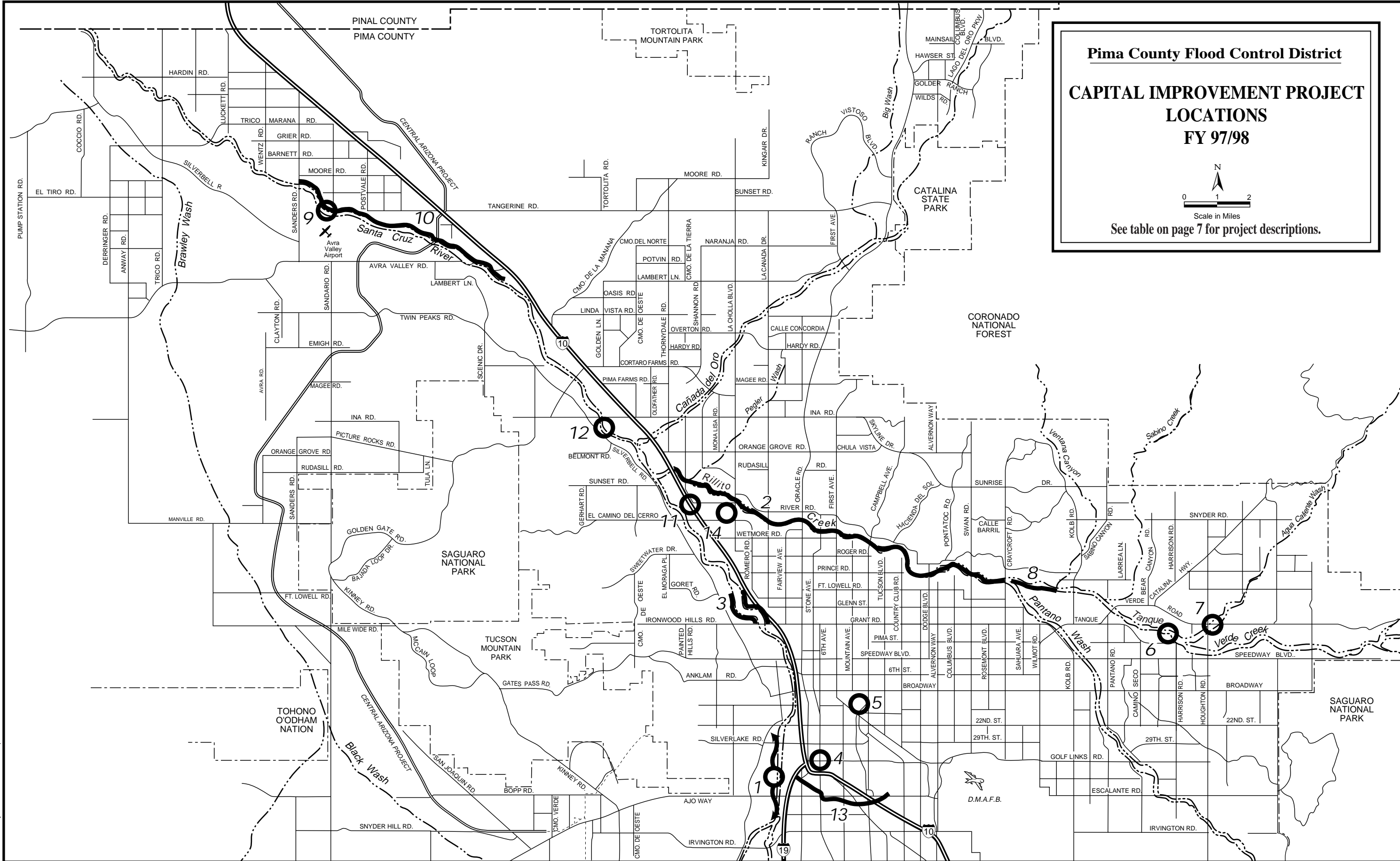
* Per \$100 assessed valuation

CAPITAL IMPROVEMENTS PROJECT EXPENDITURES
Fiscal Year Ending June 30, 1998

PROJECT	IN-HOUSE ENGINEERING	CONTRACT SUPPLIES AND SERVICES	ROW ACQUISITION	CONSTRUCTION COST	OTHER	SUBTOTAL
1 Santa Cruz River Study (COE)	\$0	\$158,784	\$270	\$0	\$0	\$159,054
2 Rillito Creek Bank Stabilization (River Park)	\$93,408	\$22,565	\$131,234	\$0	\$17,131	\$264,338
3 Santa Cruz River Bank Stabilization, Grant to Fort Lowell	\$9,289	\$20,175	\$0	\$0	\$1,300	\$30,764
4 City of South Tucson	\$280	\$550,000	\$0	\$0	\$48	\$550,328
5 Arroyo Chico Detention Basin	\$97,016	\$96,344	\$7,130	\$0	\$17,328	\$217,818
6 Tanque Verde Creek at Castle Rock	\$4,981	\$50,458	\$0	\$0	\$1,240	\$56,679
7 Agua Caliente/Tanque Verde Bridge	\$57,115	\$36,675	\$881	\$0	\$10,521	\$105,192
8 Tanque Verde Creek Craycroft to Sabino Canyon	\$0	\$7,610	\$0	\$0	\$0	\$7,610
9 Northwest Replenishment Project	\$103,981	\$131,814	\$5,000	\$0	\$18,949	\$259,744
10 Lower Santa Cruz Flood Control Levee	\$536,569	\$219,970	\$59,274	\$436,673	\$95,294	\$1,347,780
11 Ruthrauff Road Drainage Improvement	\$132	\$0	\$0	\$0	\$27	\$159
12 Santa Cruz Bank Stabilization Near Ina	\$16,215	\$36,602	\$0	\$0	\$11,027	\$63,844
13 Tucson Diversion Channel	\$39,881	\$94,760	\$0	\$0	\$7,957	\$142,598
14 Sullinger Ave. Repair	\$2,056	\$0	\$0	\$0	\$505	\$2,561
Floodprone Land Acquisition	\$53,095	\$34,191	\$169,000	\$27,493	\$11,013	\$294,792
Other Projects	\$978	\$25,567	\$0	\$0	\$30	\$26,575
TOTAL	\$1,014,996	\$1,485,515	\$372,789	\$464,166	\$192,370	\$3,529,836

Pima County Flood Control District
CAPITAL IMPROVEMENT PROJECT
LOCATIONS
FY 97/98

Scale in Miles
 See table on page 7 for project descriptions.

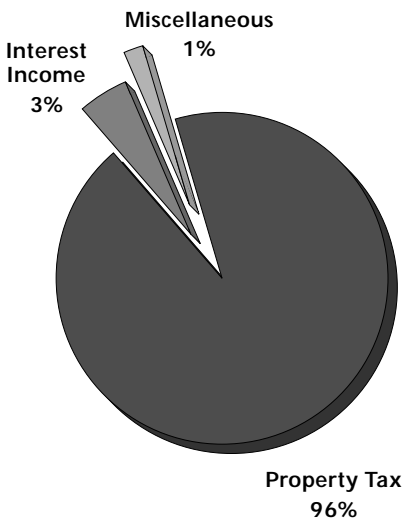


FINANCIAL HIGHLIGHTS FOR FISCAL YEAR 1997/1998

FUND BALANCES

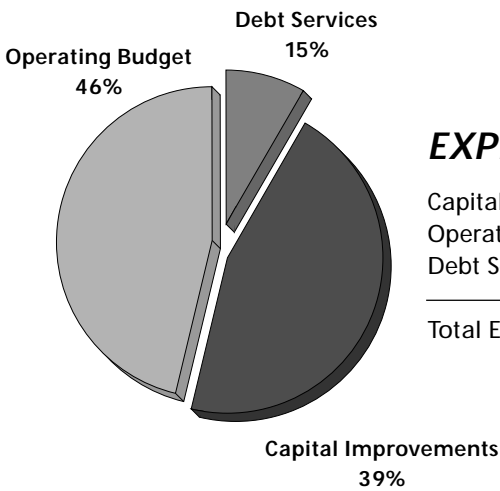
Beginning Fund Balance as of 6-30-97	\$ 4,875,415
Total Revenues	10,391,667
Total Expenditures	(9,133,436)
<hr/>	
Ending Fund Balance as of 6-30-98	\$ 6,133,646

REVENUES & EXPENDITURES



REVENUES

	<i>DOLLARS</i>	<i>PERCENT</i>
Property Tax, Flood Control District	\$ 9,971,422	96
Federal Participation	3,047	0
Interest Income	289,548	3
City Participation	1,018	0
State Participation	41,651	0
Miscellaneous	84,982	1
<hr/>		
Total Revenue	\$10,391,667	100

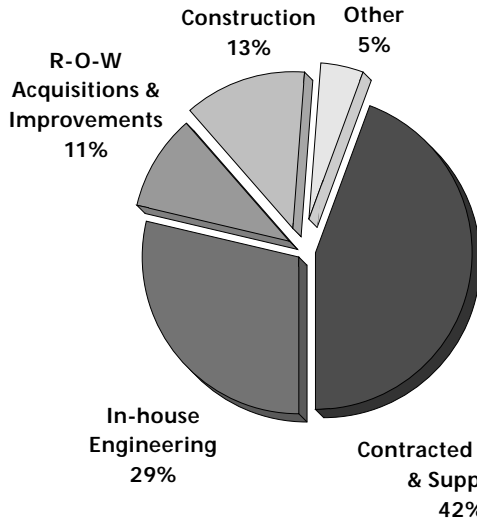


EXPENDITURES

	<i>DOLLARS</i>	<i>PERCENT</i>
Capital Improvements	\$3,529,836	39
Operating Budget	4,275,105	46
Debt Services	1,328,495	15
<hr/>		
Total Expenditures	\$9,133,436	100

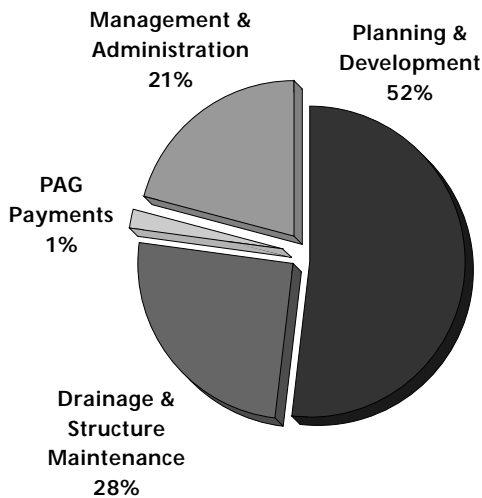
Note: FY 97/98 preliminary and unaudited amounts rounded to the nearest thousand.

BREAKDOWN OF EXPENDITURES



CAPITAL IMPROVEMENTS DOLLARS PERCENT

In-house Engineering	\$1,014,996	29
Contracted Services & Supplies	1,485,515	42
R-O-W Acquisition & Improvements	372,789	11
Construction	464,166	13
Other	192,370	5
<hr/>		
Total Capital Improvements	\$3,529,836	100



OPERATING BUDGET DOLLARS PERCENT

Planning & Development	\$2,225,527	52
Drainage & Structure Maintenance	1,216,518	28
Engineering	-109,710	--2
PAG Payments	34,994	1
Management & Administration	907,776	21
<hr/>		
Total Operating Expenses	\$4,275,105	100

DEBT SERVICES DOLLARS PERCENT

Annual Payment	\$1,328,495	100
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Total Expenditures	\$9,133,436	
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OVERVIEW OF THE DISTRICT

ESTABLISHMENT OF THE DISTRICT

To comply with federal law, the State of Arizona passed the Floodplain Management Act of 1973. This act authorized Arizona counties to adopt rules and regulations concerning management of floodplain areas. Subsequently, the state legislature authorized flood control districts to levy taxes on real property in order to finance district operating expenses. The Pima County Board of Supervisors is designated as the Pima County Flood Control District Board of Directors (Board). On June 5, 1978, the Board organized the Pima County Flood Control District and the District became operational on July 1, 1978.

Provisions of state legislation also allowed incorporated cities and towns within the county to undertake their own floodplain management duties and regulatory functions. The incorporated areas of the City of Tucson, the Town of Oro Valley and the Town of Marana have elected to assume floodplain management duties in their respective jurisdictions. The District is responsible for floodplain management activities for the remainder of unincorporated Pima County (with the exception of national forests, parks, monuments, and Indian Nations) and for the City of South Tucson and the Town of Sahuarita.

STATEMENTS

VISION

The District will continue to be a leader in providing quality flood protection and floodplain management services within Pima County.

MISSION

Pima County Flood Control District is a regional agency whose mission is to protect the health, safety, and welfare of Pima County residents by providing comprehensive flood protection programs and floodplain management services. These services emphasize fiscal responsibility, protection of natural resources, and a balanced multi-objective approach to managing regional watercourses, floodplains, and stormwater resources.

VALUE STATEMENT

The District is committed to the fair treatment of the general public and our employees, a decision-making process that is open, fostering the opportunity for employee contributions, improved quality of work through working in partnership, and consideration of environmental values along with economic benefits in our programs.



Bank erosion

GOALS AND OBJECTIVES

The goals and objectives of the District represent both flood control and resource protection views and vary from traditional flood control approaches because of a multi-benefit public philosophy. The District recognizes that it is necessary and desirable to maintain a balanced relationship between human communities and the land and resources which sustain them. To that end, the following twelve specific policy goals and objectives have been adopted by the Board as part of the District's Floodplain and Erosion Hazard Management Ordinance:

- To minimize flood and erosion damages
- To meet or exceed state and federal requirements relating to floodplain management, thereby enabling Pima County residents to purchase low-cost flood insurance, to receive disaster relief should the need arise, and to seek residential and commercial real estate loans
- To establish minimum flood protection elevations and damage protection requirements for structures and other types of development which may be vulnerable to flood and erosion damage
- To regulate encroachment and building development within areas subject to flooding or erosion, and to ensure that the flood-carrying capacity within the altered and/or relocated portion of any watercourse is maintained
- To encourage the most effective expenditures of public money for flood control projects
- To protect, preserve, and enhance groundwater recharge
- To minimize the need for rescue and relief efforts associated with flooding and erosion, usually undertaken at the expense of the general public
- To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, and streets located in regulatory floodplain and erosion hazard areas
- To help maintain a stable tax base by providing for the protection of regulatory floodplain and erosion hazard areas
- To inform the public when property is in a regulatory floodplain or erosion hazard area
- To ensure that those who occupy the areas within a regulatory floodplain and erosion hazard area assume responsibility for their actions
- To encourage the preservation of natural washes and enhance the riverine environment



Bank protection

DISTRICT ORGANIZATION

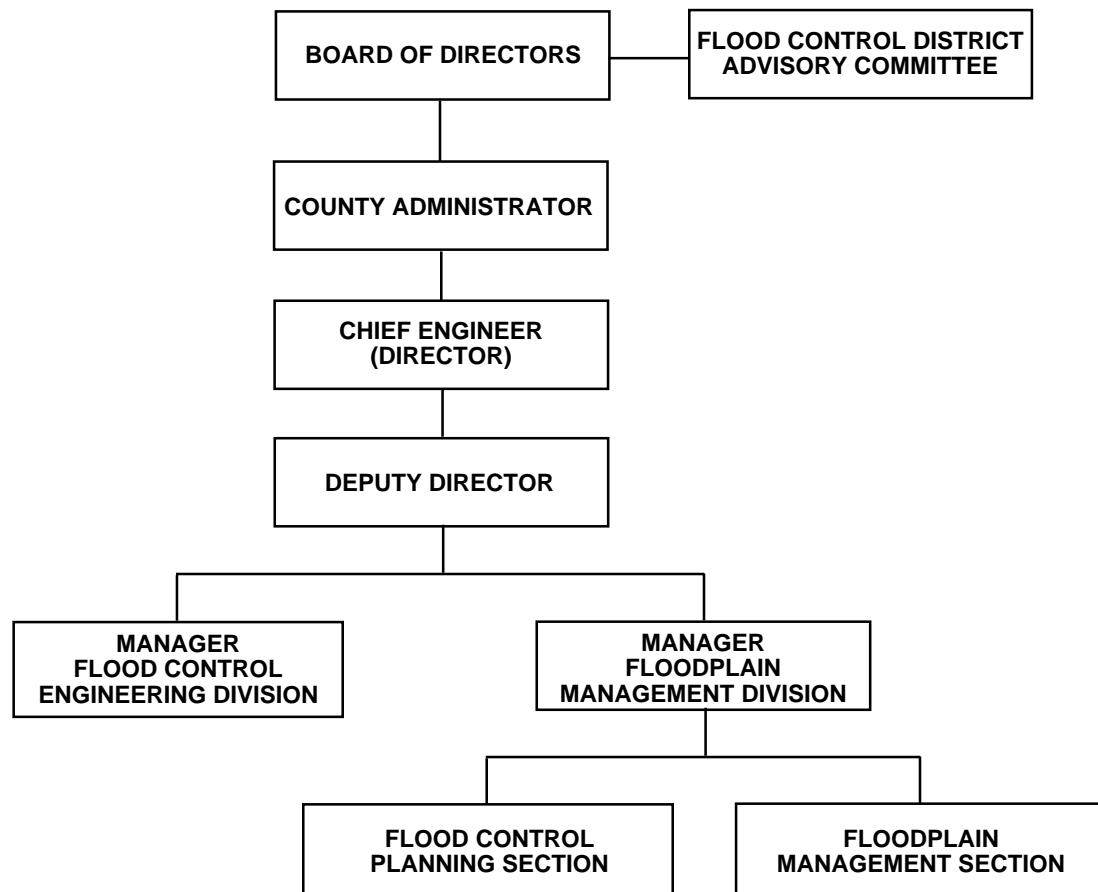
The District is organized into two main divisions based on the major functions of each group: 1) the Floodplain Management Division, and; 2) the Flood Control Engineering Division. The District's Floodplain Management Division is further divided into two sections: the Floodplain Management Section and the Flood Control Planning Section. Substantial support is provided to the District by a variety of divisions within the Pima County Department of Transportation (PCDOT). These include: Administrative Support Services, Maintenance Operations, Field Engineering, Real Property, and Technical Services. The District also receives support and assistance from other county departments including: Development Services, Department of Environmental Quality and the Pima County Attorney's Office. The District pays for services rendered by PCDOT and other departments through interdepartmental fund transfers from the District to Pima County.

Although District employees are part of the Pima County Department of Transportation and Flood Control District,

their positions are funded entirely from District revenues. There were 38 full-time equivalent (FTE) personnel positions funded by the District in FY 97/98.

The Pima County Board of Supervisors, which sits as the Flood Control District Board of Directors (Board), governs the Flood Control District. The Board hears requests for variances and appeals to the Floodplain and Erosion Hazard Management Ordinance (FPMO). In 1988, the Board formed the Flood Control District Advisory Committee (FCDAC) to advise the Board on flood-related matters and to increase public participation in the decision-making process. The 12 member FCDAC includes five appointed members by the Board (one for each Board member), three representatives from the City of Tucson, and one representative each from the City of South Tucson, the towns of Marana, Oro Valley and Sahuarita. One position in an ex-officio capacity is available for appointment by the Tohono O'odham Nation.

DISTRICT ORGANIZATIONAL CHART



FLOODPLAIN MANAGEMENT DIVISION

FLOODPLAIN MANAGEMENT SECTION

The primary responsibility of the Floodplain Management Section is to enforce provisions of the Pima County Floodplain and Erosion Hazard Management Ordinance. This ordinance, prepared in accordance with the National Flood Insurance Program, includes regulations and requirements designed to minimize flood damage and losses throughout the community. This important goal is accomplished mainly through review and issuance of Floodplain Use Permits and the dissemination of floodplain-related information provided daily through the District's public service counter. Section staff also respond to drainage and flood-related complaints and prepares information for updating and revision of the FIRMs. Public education and awareness programs are also an important component of this program. Section accomplishments during FY 97/98 include:

FLOODPLAIN USE PERMITS

Virtually all development and other improvements made in floodplains or erosion hazard areas require a permit from the District prior to beginning construction. The permit process is intended to ensure compliance with the District's FPMO and provide for reasonably safe developments in floodprone areas. In FY 97/98, the District received 836 permit applications and issued 609 Floodplain Use Permits. Information on these and other floodplain management activities is summarized in the table below.

SITE REVIEWS AND FLOODPLAIN STATUS REQUESTS

District staff is involved in a variety of activities to assist new home buyers and land purchasers in understanding the hydrologic conditions that may affect their property. Staff provides detailed site reviews that identify potential flood hazards and any floodplain restrictions that may be associated with the parcels. In FY 97/98, District staff completed 132 detailed site reviews. Staff also responded to 8,240 requests for the floodplain status of individual properties. The floodplain status of each parcel, as indicated on the FEMA FIRMs, is provided in writing to each requestor.

DRAINAGE COMPLAINTS, VIOLATIONS AND MAINTENANCE REQUESTS

Drainage complaints, which may involve possible floodplain use violations, are investigated by the District. Investigating drainage complaints enables the District to identify potential problems that may warrant further study for possible mitigation. If it is determined that a violation has occurred, the property owner is notified and corrective actions are requested. Staff also reviews and evaluates conditions on drainage ways that are either owned or maintained by Pima County. The District coordinates with DOT's Operations Division to ensure that any needed maintenance, such as clearing of debris or excessive vegetation from a channel, is accomplished. During FY 97/98, 559 drainage complaints were processed.

FLOOD INSURANCE STUDIES AND FIRM REVISIONS

The District works cooperatively with the Federal Emergency Management Agency's Flood Insurance Study Program (FIS) to identify floodprone areas and set insurance rates in flood hazard areas in Pima County. A key product of this work is a set of official maps called Flood Insurance Rate Maps (FIRMs). These maps show flood hazard zones and other pertinent hydrological information. Federal, state, and local floodplain management regulations apply to development and other activities that occur in designated flood hazard zones.

FIRMs have been prepared for most major watercourses and many smaller watercourses in Pima County. These maps are updated periodically when structural improvements are implemented or other modifications to channel geometries, etc., alter floodplain characteristics. The Floodplain Management Division is the local map repository for the FIRMs.

Floodplain Use Permit (FPUP) Activities				
	FY 94/95	FY 95/96	FY 96/97	FY 97/98
FPUP Applications Received	802	577	724	836
FPUP's Issued	547	448	528	609
Drainage Complaints Received	367	432	605	559
Floodplain Status Letters Written	4338	5960	6778	8240
Counter Service	5292	4882	5113	5436
Central Permit Reviews	9553	10,880	11,204	11,989
Site Reviews	279	267	178	132

During FY 97/98, the District worked on a number of projects that resulted in map revisions and corrections that were submitted to FEMA for review and acceptance. Work by District staff included the following:

- Five Letter of Map Revisions (LOMRs) to revise floodplain designations and incorporated these changes into the FIRMs.
- Eight Letter of Map Amendments (LOMAs) to remove individual structures from FIRMs.
- Assisted FEMA with the corrections and reprinting of 17 FIRM panels.
- Completed all reviews of digital versions of FIRM panels and coordinating with FEMA on efforts to correct the digital FIRMs (the digital maps will become official in FY 98/99).
- Coordinated with Pima County Technical Services to incorporate a complete listing of past LOMRs to incorporate into the GIS System.
- Continued remapping work on the Agua Caliente Wash and Pima Wash at Ina Road.
- Continued work on the Lower Santa Cruz Levee Conditional Letter of Map Revision (CLOMR) report.

COMMUNITY RATING SYSTEM PROGRAM

For the past five years, the District has participated in FEMA's Community Rating System (CRS), a program that recognizes and rewards floodplain management activities undertaken by local agencies.

The program emphasizes floodplain management activities that serve to:

- Reduce flood damages to existing buildings.
- Manage development in areas not mapped by the Nation Flood Insurance Program (NFIP).
- Institute a greater level of flood protection than the minimum required by NFIP.
- Facilitate residents and other agencies in obtaining information about area flooding conditions and flood insurance.

The District's involvement in the CRS program has resulted in a 15 percent reduction in insurance premiums that county residents pay every year. In FY 97/98, District-sponsored CRS activities saved property owners in unincorporated portions of Pima County approximately \$133,567. The county ranks in the top six percent of almost 1,000 communities across the country that are involved in this program.

PUBLIC AWARENESS AND EDUCATION

Pima County Floodplain Management Division offers numerous free publications on flood and erosion hazards that impact the community, as well as information on how to safely develop property lying within floodprone areas. Display boards documenting historical flood events and providing flooding safety information are located in the lobby of the Floodplain Division office. Brochures and other free publications, dealing with floodplain issues and regulations, are also provided. This same display, along with video presentations, computer demonstrations and other information on flooding issues is also featured each year in the District's information booth located at the Pima County Fair.



The traveling public information display

FLOOD CONTROL PLANNING SECTION

This section is involved with medium and long-term flood control planning activities that focusing on decreasing flood and erosion damages in the community. Some of the major activities of the section include conducting river and basin management studies, operating the District's flood warning system, acquiring floodprone land, river park system planning, groundwater recharge and replenishment programs, riparian habitat protection and enhancement, and preparation of the District's Capital Improvement Program. Other special projects are undertaken as resources allow. Major activities during FY 97/98 included the following:

FLOODPRONE LAND ACQUISITION PROGRAM

The District's Floodprone Land Acquisition Program (FLAP) was initiated in 1984, and is funded by bond monies authorized by Pima County voters and by an annual allocation from the District's tax levy. FLAP is an effective nonstructural floodplain management tool that yields multiple community benefits. Some of these benefits include removal of residences and structures from dangerous floodprone areas, preservation of natural floodplain characteristics (which helps attenuate downstream flood peaks), provides recreational opportunities, maintains open space, and protects ground water quality and riparian habitat resources. The District administers FLAP solely on a voluntary basis, without utilizing land condemnation proceedings in this program. Floodprone land has been acquired along the Tanque Verde, Rillito, Cienega, and Agua Verde Creeks, the Cañada del Oro Pantano, Pegler and Black Washes, and along the Santa Cruz River. During FY 97/98, the District purchased six parcels of land totaling 27 acres at a cost of \$429,000. Due to the timing of two acquisitions, partial payments of \$134,208 were carried over from the District's FY 96/97 budget.

NORTHWEST REPLENISHMENT PROGRAM/LOWER SANTA CRUZ REPLENISHMENT PROJECT

During the last fiscal year, the Northwest Replenishment Program Executive Management Team completed a study of recharge feasibility along the lower Santa Cruz River and a portion of the Canada del Oro Wash. As a result of the study, one proposed recharge project, Phase I of the Lower Santa Cruz Replenishment Project, progressed to design and permitting stages. Another site, the Canada del Oro Recharge and Recovery Project, was identified as a promising solution to water supply issues in the northwest Tucson Active Management Area. The team also identified certain additional hydrogeological and water supply investigations, which are needed for the latter project. These are now underway for the Canada del Oro Project.

In addition, the feasibility study supported the development of two additional recharge projects:

- The High Plains Effluent Recharge Project
- The "Siphon" Project

The "Siphon" Project is under discussion by BKW Farms and Metropolitan Domestic Water Improvement District. The experience of ongoing working relationships also led to several agencies initiating other cooperative projects. For example, a baseline study was initiated to investigate



High Plains effluent recharge site in foreground of photo

movement of CAP water in the vicinity of the Avra Valley Recharge Project, an existing recharge project located near the lower Santa Cruz River.

PIMA COUNTY FLOOD WARNING PROGRAM

The Flood Warning Program includes the District's Automated Local Evaluation in Real Time Warning System (ALERT), along with the District's Flood Response Plan, and Flood Hazard Mitigation efforts.

The ALERT System comprises 65 automatic self-reporting precipitation gauges, 24 stream gauges, four weather

stations, and four radio repeater stations. The system automatically transmits hydrometeorological data via radio telemetry to the District's base station and to the office of the Tucson National Weather Service (NWS). District staff evaluate incoming data to monitor flood conditions during storm events, and the NWS uses the information to help determine the need to issue flash flood warnings and advisories. ALERT data is also used by the Pima County Department of Transportation, Maintenance Operations Division in planning storm-related road closures, and by other Pima County agencies. A number of significant storm events occurred during FY 97/98. The storms prompted issuance of NWS advisories, road closures, more intensive ALERT system monitoring, and preparation of summary storm reports by District staff.

During FY 97/98, District staff worked in cooperation with the U. S. Army Corps of Engineers (ACOE), Arizona Department of Water Resources (ADWR), and other state and local agencies, in planning development of a state-wide flood warning system. Plans for the system include installation of additional rainfall and stream gauges to the District's ALERT network and enhanced communication links within Pima County and state-wide.



One of the District's automated stream gauges in action

GRANT PROGRAMS

The District applied for and received grants from various agencies for several multi-objective projects located within the county. During the last fiscal year these grants included the following:

Partners for Wildlife

- U.S. Fish and Wildlife Service (USFWS) and Arizona Game and Fish Department (AGFD) granted \$20,000 to revegetate abandoned agricultural fields in the Cienega Creek Natural Preserve for the purpose of reducing erosion and improving wildlife habitat. This year's work involved planting nine acres of trees and shrubs and constructing check dams on a tributary watercourse. Crews from Pima County's Summer Youth Program and the Adult Probation Program worked on building the check dams. An additional grant of \$5,000 was secured from the ACOE for the project this year. Additional funding and 228 Mesquite trees was provided by AGFD.



Water quality monitoring in Cienega Creek Natural Preserve

Arizona Water Protection Fund

- The District was awarded \$189,000 to help inventory wildlife and vegetation, construct trails, and landscape effluent recharge basins in the High Plains Effluent Recharge Project. The site is located in the Town of Marana near Sanders Road. This year's work involved completion of biological investigations, obtaining environmental clearances, and developing conceptual landscaping plans.
- The District began a new project to restore riparian vegetation at the Bingham Cienega Natural Preserve located on the San Pedro River. The Arizona Water Protection Fund will contribute \$84,679. The

Arizona Nature Conservancy has secured additional funds from the U.S. Fish and Wildlife Service, private donations, and has prepared a restoration plan.

PUBLIC SCHOOL PRESENTATIONS

During FY 97/98, the District continued its annual contract with local meteorologist, Dr. Richard Wood, to undertake presentations at area elementary schools on flood and erosion hazards and flood safety topics. Twenty lectures, reaching over 2,500 students, were conducted this past year.

PUBLIC AWARENESS/EDUCATION/OUTREACH

To increase resident's awareness of flood hazards in the county, District staff prepared displays and various information to present at the annual Students Against Drunk Driving (SADD) Conference, Earth Day for Kids, and the Pima County Fair. Flood awareness, preparedness, and safety are major themes of these exhibits. Groundwater recharge information, water quality and watershed protection topics are also covered. The exhibit at the ten-day Pima County Fair features over 70 feet of display boards and includes a hands-on computer demonstration providing the public with the opportunity to explore the District's World Wide Web site. Free brochures, fliers, information on flooding and erosion hazards in Pima County, floodplain management regulations, the NFIP and related topics are distributed to fair goers. This same exhibit and free information is also made available year-round in the lobby of the Flood Control District office.



Elementary school students learn about groundwater recharge and water quality issues at Agua Caliente Park.



Making kids aware of flooding and erosion hazards at Earth Day for Kids

FLOOD CONTROL DISTRICT ADVISORY COMMITTEE (FCDAC)

During FY 97/98, the Advisory Committee worked with staff to revise certain provisions contained in the Floodplain and Erosion Hazard Management Ordinance (FPMO). Three sections of the Ordinance were modified to strengthen public safety and environmental protection regulations. The revised sections include: 1) the definition of "floodway," 2) flow depth and velocity criteria for safe development within the floodplain, and; 3) riparian habitat regulations.

The floodway definition was changed for watercourses where no detailed studies have been prepared or for watercourses where floodway limits have not been designated. Floodway limits for these watercourses was set at five times the main channel width from each side of the primary channel bank.

The depth and velocity criteria used in the permitting process in floodway fringe areas was also modified. These regulations were strengthened by stipulating that new habitable structures may only be permitted in these areas, provided that base-flood depth multiplied by the velocity value squared (the dv^2 provisions of the FPMO) do not exceed the numerical value of eighteen for longer

than thirty minutes, or the surrounding floodwaters of the base flood do not exceed three feet in depth. Under previous ordinance language, such structures could be permitted when just one of those conditions were met.

The riparian protection regulations saw two major changes. First, the ordinance was amended so that the requirements apply to *all* properties within unincorporated Pima County that contain riparian habitat (as delineated on adopted riparian habitat maps). The provisions are now triggered during the issuance of individual building permits and also are applied to any lot splits that may take place outside of county subdivision provisions. Previous requirements applied only to property undergoing the subdivision or rezoning process.

Another significant change was that any amount of disturbance to hydro/mesoriparian habitat now requires a mitigation plan to be approved by the Board of Supervisors. The intent of this requirement is to make the Board and the public aware of any proposed disturbance to this valuable habitat. Mitigation for disturbing xeroriparian type habitat is also required if more than one-third of an acre is disturbed.

DISTRICT WORLD-WIDE WEB SITE

The District continued work on developing its World-Wide Web site, which provides a public information on a variety of flood control and floodplain management topics. This past year, a section dealing with the District's Floodprone Land Acquisition Program (FLAP) was added to the site. This section provides information on the District's FLAP program and outlines the benefits of floodprone land acquisition. Generalized maps are provided showing the location of District-owned parcels, along with photographs of selected floodprone parcels before and after acquisition by the District. The photographs demonstrate how residents that chose to participate in FLAP can be relocated out of serious flood hazard areas and the acquired parcels prevent future development from occurring in vulnerable locations.

The response to the District's web site has been very positive with web page counters and e-mail messages indicating frequent use from real estate interests, insurance agencies, engineers and consultants, and the general public. The District also set-up a hands-on computer exhibit showcasing the web pages at the 1998 Pima County Fair. Web page development is an on-going effort, with future sections planned to address the District's formation, governing board and administration, and a section on historic flooding events within Pima County.

The internet address of the District's web site is: <http://www.dot.co.pima.az.us/flood/>.



***Pima County Flood Control District
<http://www.dot.co.pima.az.us/flood/>
 On-line Flood Control Information***

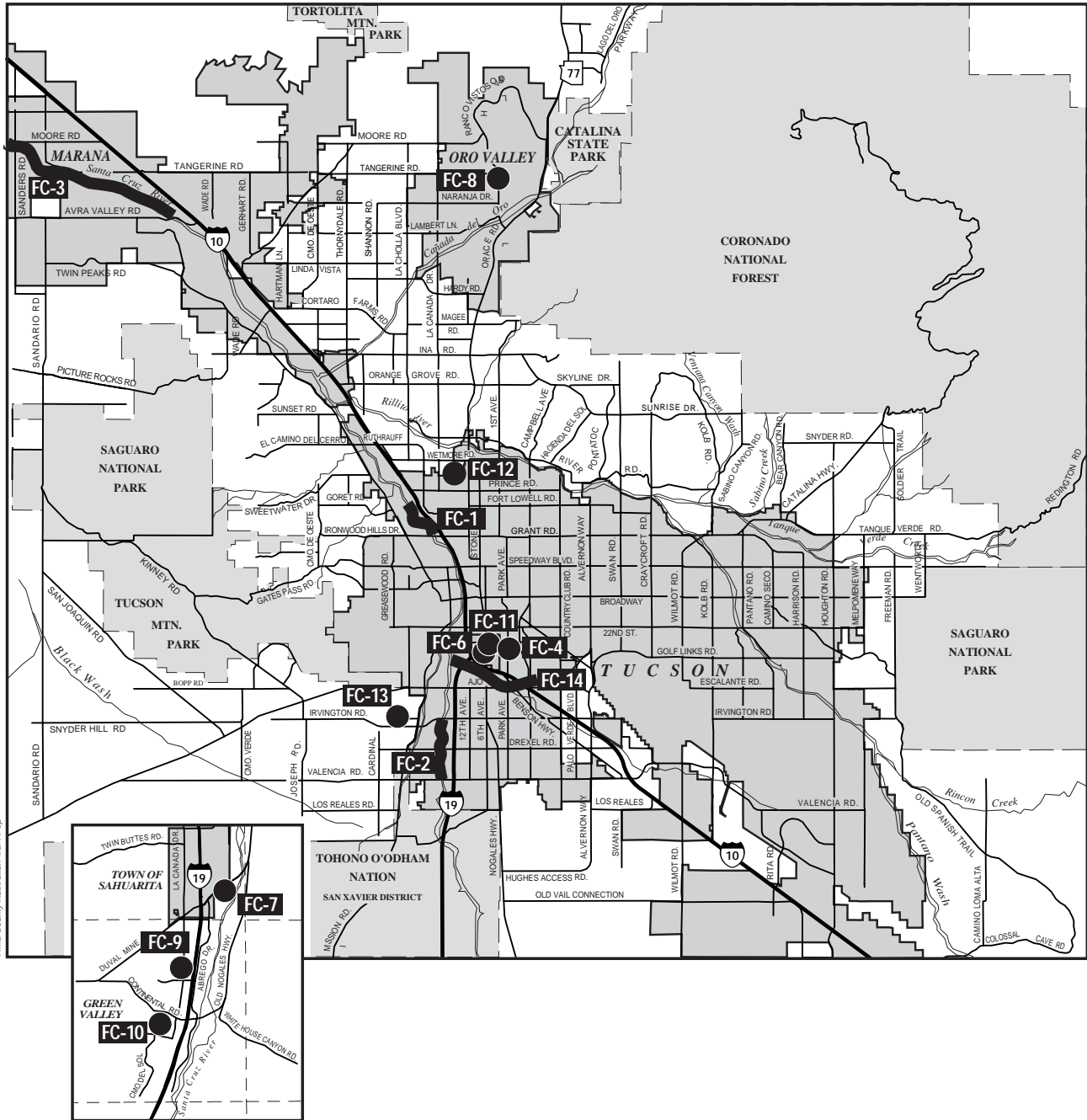
MAY 1997 SPECIAL BOND ELECTION

On May 20, 1997, the electorate of Pima County approved a number of bond issues, including the District's Flood Control Bond Program. The following table lists the bond projects, a brief description of each, and an anticipated implementation period.

Three projects are scheduled to begin during the first implementation phase: the Lower Santa Cruz River Levee (FC-4), and two South Tucson projects (FC-6 and FC-FC-11). Design plans for the levee were nearly complete at the end of FY 97/98, with construction on the project scheduled to begin FY 98/99. Construction of both South Tucson projects began during FY 97/98.

May 1997 Special Bond Election		
BOND PROJECT	DESCRIPTION	IMPLEMENTATION PERIOD, BOND FUNDING
FC-1: Santa Cruz River Bank Stabilization, Grant Road to Fort Lowell Road	Design and construct 100-year bank stabilization along both banks.	2001/02 - 2002/03 (\$3,500,000)
FC-2: Santa Cruz River Bank Stabilization, Valencia Road to Irvington Road	Design and construct 100-year bank stabilization along both banks.	1999/2000 - 2002/03 (\$4,000,000)
FC-3: Lower Santa Cruz River Levee, I-10 to Sanders Road	Design and construct 7.4 miles of earthen levee with soil-cement stabilization along the north bank.	1997/98 - 2000/01 (\$6,000,000)
FC-4: Mission View Wash Detention Basin	Design and construct a regional detention basin east of Park Avenue and south of 36th Street.	1999/2000 - 2000/01 (\$1,000,000)
FC-5: City of Tucson, Urban Drainage Improvements	Design and construct high priority projects recommended in Tucson Stormwater Management Study.	1997/98 - 2006/07 (\$2,000,000)
FC-6: City of South Tucson, Urban Drainage Improvements	Design and construct several drainage improvement projects, consisting mostly of storm drains.	1999/2000 - 2000/01 (\$900,000)
FC-7: Town of Sahuarita, Urban Drainage Improvements	Design and construct drainage crossings along La Canada Drive and Camino de las Quintas.	1999/2000 - 2000/01 (\$500,000)
FC-8: Town of Oro Valley, Urban Drainage Improvements	Design and construct several drainage improvement projects, consisting mostly of roadway drainage crossings.	1999/2000 - 2002/2003 (\$350,000)
FC-9: Green Valley Drainageway No. 9 Channel Improvements	Design and construct channel improvements along this drainageway to reduce the flood and erosion hazard to adjacent residential areas.	1999/2000 - 2000/01 (\$1,000,000)
FC-10: Continental Vistas Drainageway Improvements	Design and construct bank stabilization to reduce the flood and erosion hazard to adjacent residential areas.	1999/2000 - 2000/01 (\$250,000)
FC-11: South Tucson Fourth Avenue Drainage Improvements	Design and construct storm drains in conjunction with roadway improvements.	1997/98 - 1998/99 (\$500,000)
FC-12: Fairview Avenue and Limberlost Drive Drainage Improvements	Design and construct a drainage channel to alleviate flooding in this area.	2001/02 - 2002/03 (\$500,000)
FC-13: Holladay Street and Forrest Avenue Drainage Improvements	Design and construct roadway and associated drainage improvements to reduce flooding in this residential area.	1999/2000 - 2002/2003 (\$500,000)
FC-14: Tucson Diversion Channel Drainage Improvements	Design and construct drainage improvements to the TDC and tributary channels to improve local drainage conditions.	2001/02 - 2002/03 (\$500,000)

FLOOD CONTROL BOND PROJECT LOCATIONS



Pima County Illustration 4/5/99 9p

FLOOD PREPAREDNESS ACTIVITIES

The late summer months of this fiscal year saw the formation of a strong El Niño event, a weather pattern characterized by increases in Pacific Ocean surface temperatures off the coast of South America, which in turn affects weather patterns world-wide. In the following months, particular interest focused on the potential weather impacts from this event, especially since this year's El Niño was larger and formed earlier in the year than had the six strongest El Niño events of the past 50 years. Patterns from the 1997-98 El Niño looked much like those from 1982-83, which resulted in some of the largest flooding in the State of Arizona and the largest flood on record in Pima County. Locally, predictions called for above-average rainfall from February through April.

The occurrence of the 1997-98 El Niño was well-publicized locally, both in the newspapers and on television news. Television crews interviewed staff about the District's flood warning system, and journalists featured similar stories in local newspaper articles. To improve District preparedness, staff attended a special training session on El Niño sponsored by the Department of Emergency Management. District staff also worked with the Tucson-Pima County Office of Emergency Management to prepare a fact sheet on how to prepare for possible flooding and what to do in the event of a flood.

Although the El Niño pattern produced much higher precipitation levels during earlier in 1998, no major flooding occurred in Pima County during this period. The month of February 1998 was the second wettest February on record. At the Tucson International Airport, rainfall of 3.2 inches was recorded in February, with precipitation totals of 4 and 7 inches recorded at many gauges located in more mountainous areas. By way of comparison, the historical average rainfall for February is 0.70 inch.

PHOTOGRAMMETRIC MAPPING - PICTURE ROCKS/SANDARIO CORRIDOR

To assist in processing Floodplain Use Permits, a digital terrain model and rectified aerial photographs were obtained for the area west of the Tucson Mountains. The area mapped is generally bounded by Magee Road on the north, Mile Wide Road on the south, Saguaro National Park on the east, and Avra Road to the west. Although there are no federally-mapped floodplains in the area, topographic data from this project will assist in identifying local floodplains and setting minimum finished floor elevations for new development in this area.

BASIN AND RIVER MANAGEMENT STUDIES

Tortolita Area Basin Management Study, Phase 3a: Design Feasibility of Recommended Plan, Canada Agua Basin

During Phase 1 of the TABMS, existing flooding conditions were analyzed in nine watersheds contained within the Tortolita Mountains. During Phase 2, flood control alternatives were analyzed, and recommendations made to mitigate flooding in watersheds that affect Tangerine Road.

The Phase 3a report, finalized during FY 97/98, included a more detailed analysis of the improvements recommended for the Canada Agua East and West sub-watersheds. Regional detention basins, along with a series of collector channels to direct flows to the basins, were recommended for Canada Agua East and West. Location, sizing requirements and cost estimates were determined for each of the basins.

SOUTHERN ARIZONA REGIONAL WATERSHED MANAGEMENT STUDY

Work proceeded on Phase 1 of this multi-agency effort, the purpose of which is to bring together local water providers to identify long-range water needs and match them with available supplies. The Phase 1 study focuses on developing a comprehensive water management plan for the northwest Tucson basin. During FY 97/98, the U. S. Bureau of Reclamation (BOR) completed a work plan for Phase 1.

An Intergovernmental Agreement between the BOR and the District established BOR's responsibilities as project manager, and the District's responsibilities as coordinator of the local sponsors. According to the terms of the Intergovernmental Agreement, BOR will contribute approximately 50 percent of the cost of the study and the local sponsors will contribute the remaining share. It is expected that local sponsors will include the Towns of Marana and Oro Valley, and the Metropolitan Domestic Water Improvement District.

RIVER PARKS PROJECTS

In order to satisfy permit requirements that are part of the Federal Clean Water Act, the District plans and constructs river parks and related features in conjunction with its bank stabilization projects. River parks along the major watercourses have proven to be very popular, meeting important recreation and public open space needs region-wide. New segments of the river park system designed or constructed in FY 97/98 included:

Rillito Creek - Craycroft to Alvernon Way and La Cholla to the Santa Cruz River

The District worked with the ACOE on bank stabilization efforts, as well as plans for future recreational and aesthetic treatments along these reaches. Planned improvements include such river park elements as underpass ramps, paved paths, and staging areas. The ACOE approved the addition of 16 pedestrian bridges to this project. These bridges will provide connections that will link segments of the river park trail from Craycroft Road to the Santa Cruz River.

Tucson Diversion Channel - Ajo Detention Basin to Interstate 19

Construction of two major sections of this five-mile trail was started this past fiscal year. The project design includes trails, staging areas, and five pedestrian bridges. Construction is scheduled to be completed in the fall of 1998. Federal enhancement funding was obtained for construction of this section of the trail. A third section of the trail, currently under design, will connect the other two sections.



Tucson Diversion Channel River Park Improvements

FLOOD CONTROL ENGINEERING DIVISION

The Flood Control Engineering Division oversees design of flood control improvements projects within Pima County. Projects are completed by in-house staff or outside consultants, with staff administering the contracts. Major projects undertaken during FY 97/98 are listed below.

BANK STABILIZATION PROJECTS

Bank stabilization is constructed along major water-courses in the county where flood and erosion hazards threaten public and private structures. Each project is evaluated for various types of bank stabilization and the type that meets the criteria of the project is chosen. District bank stabilization projects are typically constructed with soil cement, which is a mixture of concrete and local soil material. Soil cement has many of the strength characteristics of concrete, but retains the appearance and textural qualities of a natural riverbank. It is also a cost effective solution. Bank stabilization projects undertaken in FY 97/98 include:

Rillito Creek Bank Protection

Following completion of the bank stabilization portion of this \$39 million multi-phase project, the District and ACOE are preparing plans and specifications for the project's next phase. The current phase will include 16 pedestrian bridges and linear park improvements extending from the Santa Cruz River to La Cholla Boulevard and from Alvernon Way to Craycroft Road. The project will provide a continuous pathway from the Santa Cruz River to Craycroft Road along the Rillito. Construction of the bridge and park improvements is expected to begin in 1999.

Santa Cruz Bank Stabilization Near Ina Road

The Flood Control District is developing plans and pursuing sources of funding to construct soil cement bank protection along the Santa Cruz River to protect the Ina Road bridge, the Ina Road Landfill, the Casas Arroyos mobile home subdivision, Silverbell Road, and the vacant land owned by Pima County.

Tanque Verde Creek at Castle Rock

The Flood Control District is developing plans to place approximately 2,000 linear feet of gabion mattresses along Tanque Verde Creek near Lakes of Castle Rock subdivision and Fountain Hill subdivision. The structures will provide erosion protection to existing recreational facilities in each subdivision and protect a Tucson Waterline.

LEVEE AND DIKE PROJECTS

When bank stabilization cannot provide sufficient flood protection because of inadequate channel size, shape, or alignment, levees can be constructed to minimize flood and erosion hazards .

Lower Santa Cruz River Levee

In October 1983, three people died in the Marana area as a result of catastrophic region-wide flooding. In addition, the flood caused extensive damage to residences, businesses, agricultural fields, transportation facilities, and other public infrastructures. The same area also sustained damage, although to a lesser degree, during the 1990 and 1993 flood events.

In seeking to resolve the area's flood and erosion hazards, the District has planned construction of a 7.3 mile long earthen levee, armored with soil cement bank stabilization. The levee is designed to provide 100-year flood protection with an additional three feet of freeboard. These design specifications will satisfy FEMA requirements and reduce flood insurance rates for approximately 4,500 acres of land in federally-mapped flood hazard areas.

Funding for the \$15 million project will come from the 1997 bond election funds, the Flood Control District levy, the Arizona Department of Water Resources (ADWR), the U.S. Bureau of Reclamation and other sources. As an added benefit to reduce project costs, over 600,000 cubic yards of material excavated to construct a series of recharge basins for the Lower Santa Cruz Replenishment Project will be used in the construction of the levee. In-house design work for the levee was nearly completed in FY 97/98 with advertisements for the construction bids expected in late 1998.

Avra Valley Road Extension

During the 1983 flood, residences south of Avra Valley Road between Quarry Road and Wasson were inundated,



Work underway on Avra Valley Road Extension Improvements

and Avra Valley Road was impassable in this section and at the Santa Cruz River bridge. The Pima County Department of Transportation replaced the bridge with a new structure that will pass the 100-year flow. Project design included raising Avra Valley Road next to the bridge to be passable during a 100-year event on the Santa Cruz River. Construction is to be completed in September. The elevated roadway will also serve as a dike to protect the residents, south of Avra Valley Road, from future flood events on the Santa Cruz River.

DETENTION BASINS

Another structural flood control strategy used by the District is construction of detention basins. Detention basins are facilities that allow for the temporary storage and measured release or metering out of flood waters. Control of flows exiting a detention basin during a storm event significantly decrease downstream flood peaks, and thereby minimize the potential for inundation in downstream areas. Detention basin projects currently being pursued by the District include:

Tucson Drainage - Arroyo Chico/Tucson Arroyo Project

The District, working in conjunction with the City of Tucson and the ACOE is continuing with planning work for a series of detention basins located near Park Avenue and Arroyo Chico. Phase I of this \$27.5 million project was completed last year with the construction of the Randolph South Detention Basin Project completed in March 1996. Phase II of this project focuses on the Park Avenue/Arroyo Chico detention basins and will also involve replacement of existing sections of storm drains located near the High School Wash and the Tucson Arroyo confluence.

Ajo Detention Basin

The Ajo Detention Basin was constructed by the ACOE in the early 1960's to address urban flooding problems. The Flood Control District, Pima County Wastewater and the ACOE, using Federal Environmental Restoration funds, plans to reconstruct the basin into a multi-purpose project including wetlands, recharge and flood control features. The restoration will involve 20 acres of wetlands and a 7-acre lake, which will support wildlife habitat and supply water for irrigation to the Kino Sports Park.

DRAINAGEWAY IMPROVEMENTS

Kino/I-10 Drainageway

In conjunction with the development of the Kino Sports Park, the Flood Control District designed and constructed a drainageway adjacent to I-10. The drainageway collects flow east of Kino Hospital in a 3,000 linear foot channel and conveys it to the Tucson Diversion Channel.

Roger Road Treatment Plant Sludge Pond Drainageway

Flood Control Engineering designed a 2,200 linear foot channel to carry offsite runoff around the Roger Road Treatment Plant Sludge Ponds. Prior to construction of the drainage channel, offsite flows would enter the sludge ponds and become contaminated, therefore requiring that this runoff be pumped backup hill to the treatment plant and be processed before discharging into the Santa Cruz River. The new channel carries runoff around the sludge ponds without contamination and permits the runoff to discharge into the Santa Cruz River.

OTHER PROJECTS

Santa Cruz River Watershed Study

Flood Control Engineering Division is participating with the ACOE, the City of Tucson and Pima County Wastewater in a \$2.0 million Santa Cruz River Basin Study. The study area is the Santa Cruz River mainstem within Pima County. The study will identify physical and cultural resources or constraints; identify flood and erosion hazards; evaluate hydrologic, hydraulic and geologic processes; identify potential public and private development pressures; evaluate flood and erosion control alternatives; and recommend floodplain management policies.

Lower Santa Cruz Replenishment Project and High Plains Effluent Recharge Project

Flood Control Engineering has provided engineering and technical assistance in the development and review of these two projects. As noted earlier, excavated material from the Santa Cruz Replenishment Project will be used in the construction of the Lower Santa Cruz Levee Project.

Agua Caliente at Tanque Verde Bridge

Flood Control Engineering is preparing hydrologic and hydraulic information to be submitted to FEMA for the recently completed Tanque Verde Road Bridge at Agua Caliente.

OTHER DIVISIONS

The District works cooperatively with a number of other divisions within the Department of Transportation and Flood Control District. These divisions make important contributions to the District's overall work product.

ADMINISTRATIVE SERVICES DIVISION

Administration Services staff plays a key role in helping prepare and monitor the District's annual budget and its Capital Improvement Program. The division also provides various accounting services, personnel and employee support work, procurement activities and contract administration for goods and services required by the District.

FIELD ENGINEERING DIVISION

The Field Engineering Division administers construction of all District Capital Improvement Projects to ensure that flood control facilities are constructed in accordance with contract specifications, and that they are completed within specified time and budget allocations. Typical activities include field inspection, materials testing and compliance, and resolving any construction-related discrepancies that may arise. The division's survey section provides surveying and technical land information to the District for right-of-way determinations, drainageway alignments and flood control improvements.

MAINTENANCE OPERATIONS DIVISION

Maintenance Operations Division staff inspects, maintains and repairs publically-owned watercourses and related improvements within unincorporated Pima County. Through intergovernmental agreements (IGAs), the division also maintains major watercourses and certain improvements located in the City of Tucson, and Towns of Oro Valley, Marana and Sahuarita.

Maintenance operations include repairing constructed improvements, removing sediment buildup, clearing vegetation and debris, regrading channels and maintaining drainageway access roads. When flooding occurs, staff responds promptly, prioritizes repair and maintenance needs and works diligently to ensure that any damage is repaired as soon as possible.

REAL PROPERTY DIVISION

The Department's Real Property Division assists the District with an array of real property appraisal, acquisition and inventory management needs. Major activities of the division include helping to negotiate acquisition of parcels under the District's floodprone land acquisition program, right-of-way dedications and abandonments for capital facilities, and maintaining property inventory records for District-owned parcels.

TECHNICAL SERVICES DIVISION

Technical Services Division provides an array of services for the District. The division's Illustration Section provides illustration and graphic design services for numerous printed and electronic publications the District develops. The GIS Database Services Section maintains various public works information using ArcInfo and AutoCad computer software. This section performs geographic information system analyses and produces maps and supporting data for many District projects. The Engineering Information Management Section houses, catalogues and disseminates engineering information, such as maps and records of street rights-of-way, easements, subdivision plats, construction plans, etc. Finally, Network Operations Section provides computer technical support to ensure that all hardware and software systems are operational and support the computer needs of the District.

COORDINATION WITH OTHER AGENCIES

PIMA COUNTY DEPARTMENT OF TRANSPORTATION

The District contracts with Pima County for services from divisions within the Department of Transportation, as follows:

- Field Engineering Division
- Maintenance Operations Division
- Real Property Division
- Technical Services Division
- Administrative Services Division

OTHER PIMA COUNTY DEPARTMENTS

The District cooperates with several other Pima County Departments on various projects and exchanges information as needed.

- Development Services Department
- Wastewater Management Department (WWM)
- Department of Environmental Quality
- Parks and Recreation Department
- County Attorney's Office
- Tucson-Pima County Office of Emergency Management

LOCAL GOVERNMENTS

The District has entered into intergovernmental agreements (IGAs) to provide specific flood control or floodplain management services to, or to jointly fund flood control activities with, the following:

- City of Tucson
- City of South Tucson
- Town of Oro Valley
- Town of Marana
- Town of Sahuarita

PIMA ASSOCIATION OF GOVERNMENTS (PAG)

PAG facilitates coordination among local government agencies, including the District, on environmental matters affecting the community.

STATE AGENCIES

The District coordinates activities with the following state agencies:

- Arizona Department of Water Resources (ADWR)
- Arizona Department of Environmental Quality (ADEQ)
- Arizona Game and Fish Department (AGFD)
- Arizona State Land Department

FEDERAL GOVERNMENT

Several federal agencies participate in local flood control projects, as listed below:

- U. S. Army Corps of Engineers (ACOE)
- Federal Emergency Management Agency (FEMA)
- Federal Highway Administration (FHWA)
- U. S. Bureau of Reclamation (USBR)
- U. S. Natural Resources Conservation Service (NRCS)
- National Weather Service (NWS)
- U. S. Geological Survey (USGS)
- U. S. Fish and Wildlife Service (USFWS)

NON-GOVERNMENT AGENCIES

Other non-governmental agencies the District works with include:

- The Nature Conservancy (TNC)
- Cortaro-Marana Irrigation District
- Central Arizona Water Conservation District (CAWCD)
- Metropolitan Domestic Water Improvement District (MDWID)
- University of Arizona (U of A)

OFFICE LOCATIONS

PIMA COUNTY FLOOD CONTROL DISTRICT

Public Works Building
201 North Stone Avenue, 4th Floor
Tucson, Arizona 85701-1215

Floodplain Management Division
(520) 740-6350

Flood Control Engineering Division
(520) 740-6371

PIMA COUNTY DEPARTMENT OF TRANSPORTATION

Public Works Building
201 North Stone Avenue
Tucson, Arizona 85701-1215

Administrative Services Division
(520) 740-6433

Real Property Division
(520) 740-6313

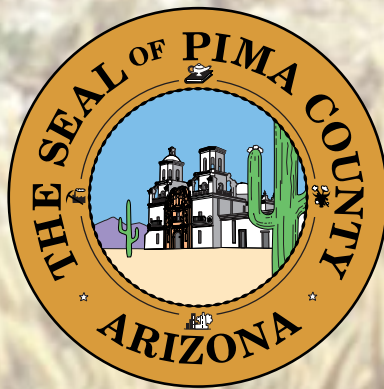
Transportation Systems Division
(520) 740-6458

Technical Services Division
(520) 740-6670

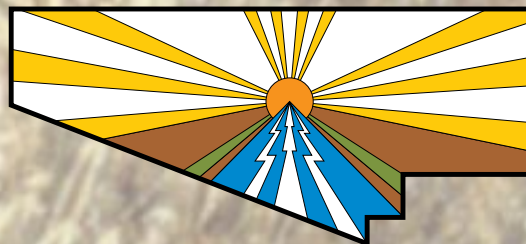
Mission Road Office
1313 South Mission Road
Tucson, Arizona 85713

Operations Division
(520) 740-2639

Field Engineering Division
(520) 740-2635



Pima County Flood Control District



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