



2009/2010 ANNUAL REPORT 

# REGIONAL FLOOD CONTROL DISTRICT

 PIMA COUNTY, ARIZONA

# PIMA COUNTY ADMINISTRATION

2009/2010

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# MESSAGE

## from the CHIEF ENGINEER

**O**n behalf of the Board of Directors of the Pima County Regional Flood Control District, I am pleased to present the District's Annual Report for fiscal year 2009/2010. The following are a few of this year's highlights, which are described in more detail later in this report:

In 2006, we received record rainfall events in June, July and August with 8.6 inches of rainfall; two inches more than the average. FEMA approved \$8 million in funding for emergency work and repair projects for the flood damage. Construction of flood damage repairs and the design of improvements for the Pantano Wash continued in fiscal year 2009/10. In addition to bank stabilization and sediment removal projects reflected in our CIP the debris flows, erosion and deposition associated with these floods as well as changes over time necessitated the restudy of numerous foothills floodplains. During FY09/10 numerous hydrologic and hydraulic floodplain mapping Special studies were conducted on foothills washes including; Trails End, West Speedway, Camino de Oeste, Ventana Canyon, Esperero, Flecha Caida, Woodlan and Craycroft Washes.

In September of 2009 the District completed the Lee Moore Wash Basin Management Study and entered the implementation phase. The District worked with the City of Tucson, Town of Sahuarita, and Arizona State Land Department on flood hazard mapping. This study is a multi-year comprehensive study that estimates flood and erosion potential for the watershed, maps watercourses, identifies existing and potential problems and develops preliminary solutions and standards for sound floodplain and stormwater management. The total watershed project is approximately 213 square miles including parts of unincorporated Pima County, the City of Tucson, Town of Sahuarita,

Coronado National Forest and Arizona State Land.

In addition to improved floodplain mapping and risk identification, our Capital Improvement Program continues to be successful resulting in the completion of several flood safety projects each of which provide multiple benefits including flood control, recreation and neighborhood stabilization. These include:

- Santa Cruz River Bank Protection in the vicinity of Continental Ranch;
- Rillito River Linear Park, Alvernon to Craycroft;
- CDO Bank Protection and Linear park at the Omni Golf Course; and continued work on the
- Pantano Wash Bank Protection.

Perhaps most significantly during Fiscal Year 2009/2010 the Board adopted a revision to the Floodplain Management Ordinance. Significant improvements included a system of enforcement, authorization for adoption of technical policies, as well as protection and identification of Critical Facilities.

I hope you'll take some time to read this year's annual report, which details our programs, CIP projects and other District activities. This year's report and all previous annual reports are also available at: [www.rfcd.pima.gov](http://www.rfcd.pima.gov).



**Suzanne Shields, P.E.**  
Chief Engineer and Director  
Regional Flood Control District



# Regional Flood Control District

## Pima County, Arizona

### *Vision*

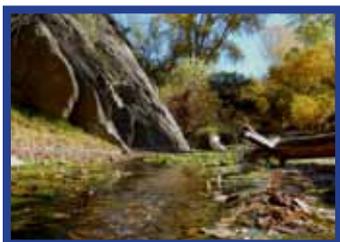
The District will continue to be a leader in providing quality flood protection and floodplain management services within Pima County.

### *Mission*

The Pima County Regional 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.



# OVERVIEW 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. The Arizona State Legislature subsequently authorized flood control districts to levy taxes on real property to finance district operating expenses. The Pima County Board of Supervisors, which sits as the Pima County Flood Control District Board of Directors (Board), organized the Pima County Flood Control District (District) on June 5, 1978. The District first became operational on July 1, 1978.

Provisions of state legislation also allow incorporated cities and towns within Pima County to undertake their own floodplain management duties and regulatory functions. In Pima County, the incorporated areas of the City of Tucson, the Town of Oro Valley, the Town of Marana, and the Town of Sahuarita 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.

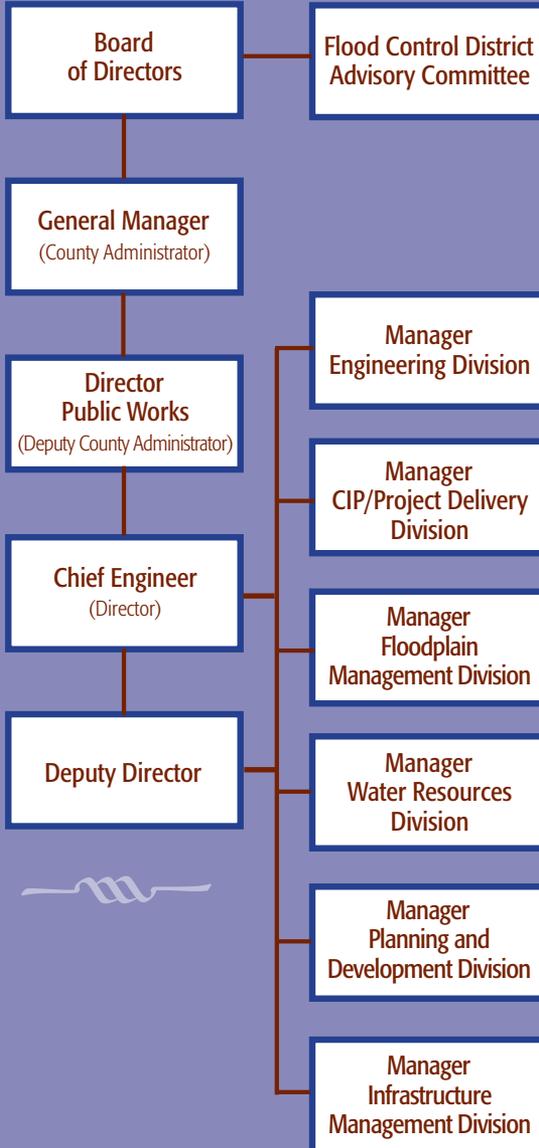
# Goals and Objectives

The goals and objectives of the District represent both flood control and resource protection. The District's approach varies 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 that sustain them. To that end, the following policy goals and objectives have been adopted by the Board as part of the District's Floodplain and Erosion Hazard Management Ordinance:

- Minimize flood and erosion damages.
- Meet or exceed state and federal requirements relating to floodplain management.
- Establish minimum flood protection elevations and damage protection requirements for structures and other types of development.
- Regulate encroachment and building development within areas subject to flooding or erosion.
- Encourage the most effective expenditures of public money for flood control projects.
- Minimize damage to public facilities, utilities and streets located in regulatory floodplain and erosion hazard areas.
- Help maintain a stable tax base by providing for the protection of regulatory flood and erosion hazard areas.
- Inform the public when property is in a regulatory floodplain or erosion hazard area.
- Encourage the preservation of natural washes and enhancement of the riverine environment.
- Emphasize overall watershed management.
- Protect, preserve and enhance groundwater recharge.



## District Organization



# DISTRICT ACTIVITIES

## Service Programs

### Customer Service

The District encourages residents to become familiar with flood related hazards that may impact their properties or properties they are considering for purchase. In order to assist in this research, the District maintains an abundant amount of information at our customer service counter which includes floodplain maps, elevation certificates, detailed hydrologic and hydraulic studies, historic and current aerial photos, and topographic information.

Residents may discuss any of this information with a hydrologist who can provide additional information regarding any limitations on the property or requirements that may apply for proposed improvements due to the extent of flooding or erosion hazards.

Floodplain Management also provides an efficient Special Flood Hazard Area

Identification service. This information is conveniently provided in writing via a Flood Hazard Information Sheet. This form identifies whether the property is located in or out of the federal floodplain and/or floodway and whether the structure is in or out of the floodplain. This service can be provided at our customer service counter. Since 07/08 the District has offered an online Flood Hazard Map service. By going to <http://rfcd.pima.gov/fpm/hazard.html> a user can enter a parcel id or address and download or print a Flood Hazard Map.

Another customer service component provided by Floodplain Management includes performing field investigations in response to constituent complaints and concerns. Through these field investigations, Floodplain Management is able to ensure that property owners are not being adversely affected by improvements that they or their neighbors construct, and can provide advice regarding improvements that can be made in order to minimize the potential of flood damage. If non-compliant improvements are observed, Floodplain Management personnel will proceed with compliance enforcement actions.



*Flood Protection Assistance*

# Floodplain Management

The goal of Floodplain Management is to provide floodplain information, establish development requirements and provide assistance to Pima County residents with drainage questions in order to minimize the threat to life and property from flooding and erosion hazards. This includes ensuring that any new development within the floodplain is safe from flooding and erosion hazards, does not adversely impact adjacent properties, and maintains the integrity of the floodplain.

Another important goal is protecting natural resources within floodprone areas. Floodplains typically support important riparian ecosystems and associated wildlife. These riparian areas are also important for their role in mitigating flood hazards by maintaining stable flood flow conditions, providing natural erosion control, as well as promoting recharge into underground aquifers. As such, it is beneficial to all residents of Pima County that these critical resources are protected and maintained.

One of the ways Floodplain Management accomplishes these goals is by implementing floodplain regulations contained in the Pima County Floodplain and Erosion Hazard Management Ordinance (Ordinance). The Ordinance was developed to conform to the National Flood Insurance Program administered by the Federal Emergency Management Agency (FEMA), which allows residents of Pima County to purchase flood insurance. In addition, the Ordinance includes provisions regarding the construction of buildings and other man-made structures within regulatory floodplains. The Ordinance applies only to those areas prone to flooding where the peak discharge is 100 cubic feet per second or greater, or prone to sheet flooding. In other areas, the Ordinance does not apply; however, other ordinances may apply, such as the Grading Ordinance administered by the Development Services Department.



# *Floodplain and Erosion Hazard Management Ordinance Revisions*

The Arizona Revised Statutes provides authority to flood control districts to enact and enforce floodplain regulations. The adoption and enforcement of these regulations is mandatory for communities wishing to participate in the National Flood Insurance Program (NFIP). Residents and property owners may obtain flood insurance only if the community implements a responsible floodplain management program.

Pursuant to this authority, the Pima County Regional Flood Control District (District) currently enforces the Floodplain and Erosion Hazard Management Ordinance No. 2005-FC2 (Ordinance). The purpose of this Ordinance is to promote public safety and minimize the potential for flood and erosion damage for developments that are impacted by the 100-year or base flood.

Floodplain management and flood control improvements increase public safety, reduce flood and erosion hazards, and protect public and private property. For example, the July 31, 2006 flood on the Rillito Creek was measured by the U.S. Geological Survey to be 39,000 cubic feet per second (cfs), which was greater than the flood of 1983 (29,700 cfs). FEMA established that there was a 100-year discharge (32,000 cfs), yet the flood damages along the Rillito were minimal because of structural improvements and floodplain management.

As Pima County continues to grow and in response to changes in the NFIP, it is necessary for the District to periodically update its Ordinance so that the language remains clear to the public and relevant to the goals of responsible floodplain management. The proposed revisions to the Ordinance will further ensure that development within floodplains does not adversely impact adjacent properties, minimizes the disturbance of regulated riparian habitat, establishes erosion protection guidelines, and improves compliance enforcement.

During FY 2009/2010 the District proposed the following Ordinance revisions to clarify and enhance floodplain requirements:

16.08.150 Cumulative Substantial Improvement – Defines cumulative improvements that are made to non-conforming structures as through the life of the structure as opposed to just the last five years.

16.08.350 Floodway area – Expands definition to include areas of “confined flow” due to increased hazard. This was the result of the appeal of the Chief Engineer’s decision by the Campbell Wash Coalition. 16.08.770 Written Finding by Chief Engineer – Adds a section to define written finding in order to provide clarity as to what decisions are subject to appeal to the Floodplain Board of Directors.

16.12.050 Improvements to Non-conforming Uses – Adds standards to ensure that improvements do not increase the flood damage potential of a non-conforming use.

16.16.070 Floodplain – New delineations required when – Adds requirement for District approval and submittal to FEMA of Conditional Letter of Map Revision (CLOMR) prior to recording of final plat, and District approval and submittal to FEMA of Letter of Map Revision (LOMR) prior to Release of Assurances or Certificate of Occupancy.

16.20.015 Floodplain Use Permit – Exemptions – Adds a section clarifying that improvements that do not require a permit are NOT exempt from the standards.

16.20.070 Certification of Elevation – Expands requirements to conform to FEMA requirements.

16.26.050 Structures, Construction restrictions – Clarifies how to apply the standard for emergency access during times of flooding (depth times velocity squared).

(depth times the square of the flow velocity, or DV<sup>2</sup>) restriction.

16.26.055 Critical Facilities – Adds new provision that defines a critical facility and requires protection from the 500-year flood.

16.34.030 Manufactured Homes- Location and placement conditions – Adds language that allows for the development of construction standards for piers, stem walls, and fill pads.

16.36.030 Grading, stormwater and drainage improvements – Requires the delineation of maximum encroachment limits so that developable portions of property can be disclosed during the platting process. This is intended to reduce the cost of engineer services for individual property owners.

16.36.030 Grading, stormwater and drainage improvements – New language that establishes timeframes for completion of subdivision drainage improvements. (E.g. basins to offset increased impervious area prior to building permits)

16.36.030 Grading, stormwater and drainage improvements – New language to emphasize adherence to Clean Water Act requirements.

Chapter 16.38 Maintenance of Private Drainage Improvements – Expands the requirement to maintain drainage improvements from FEMA floodplains to all floodplains.

Chapter 16.56. Appeals and Variances – Significant process revisions to clarify hearings associated with appeals and variance versus those associated with violations.

Chapter 16.64 Violations--Penalty – New language defining the role of a hearing officer and significant rewrite associated with new compliance enforcement authority provided by statute.

The revised Ordinance was approved in a 5-0 vote by the Pima County Board of Supervisors acting as the Board of Directors for the Pima County Flood Control District on May 4, 2010. The Ordinance became effective June 3, 2010.

The proposed Ordinance revisions can be found in their entirety at: [www.rfcd.pima.gov](http://www.rfcd.pima.gov).



# ALERT

One of our most used services is the District's Automated Local Evaluation in Real Time (ALERT) system, which has been providing precipitation and stream flow data from a series of gauges located throughout Pima County since 1981. The ALERT system was established as part of a three-way agreement with the National Weather Service (NWS), the Arizona Department of Water Resources and the District. The ALERT system was initially installed to provide advanced warning of potential flood flows on the upper Cañada del Oro watershed as a result of the Golder Dam breach. Federal and state financial assistance combined with funding from the District has allowed us to expand the ALERT system. The system of gauges now covers most of the large watersheds in eastern Pima County and currently includes 93 precipitation gauges, 36 stream gauges, and four weather sites.

The precipitation gauges relay rainfall or snowfall amounts and intensities, stream gauges measure the depth of flow in streams, and weather stations provide precipitation information plus wind speed, temperature, relative humidity and barometric pressure. This network of automated gauges transmits data in real time using radio telemetry transmitted directly to the District, NWS, and the Arizona Department of Water Resources office in Phoenix. The NWS uses this data to produce flash flood watches and warnings and to ground-truth radar estimates of precipitation. District personnel utilize the information to assist emergency response agencies including the Pima County Department of Transportation's Maintenance Operations staff during storm events. Data generated by these sites may be viewed at the District's [rfcd.pima.gov/wrd/alertsys/index.htm](http://rfcd.pima.gov/wrd/alertsys/index.htm)



# MANAGEMENT PROGRAMS

## *Lee Moore Wash Basin Management Study*

In September 2009, the District completed the Lee Moore Wash Basin Management Study to identify the regulatory flood and erosion hazards within the watershed and develop alternatives to address those hazards. This study, one of the largest planning efforts ever undertaken by the District, is a comprehensive study that estimates flood and erosion potential for the watershed, maps watercourses, identifies existing and potential future problems and develops preliminary solutions and standards for sound floodplain and stormwater management.

The Lee Moore Wash basin was selected for this study based on the high-level of development activity that is expected to occur in this watershed over the next few decades. The total project watershed is approximately 213 square miles including parts of unincorporated Pima County, the City of Tucson, Town of Sahuarita, Coronado National Forest and Arizona State Land.

During prior year's efforts to collect data, known flooding hazards were identified including researching historical flooding data and current land use plans, map floodplains, as well as soliciting input from stakeholders and the public.

Based on this information, the District has formulated a floodplain management approach consisting of structural and non-structural alternative solutions to reduce or eliminate flooding hazards and erosion. These include preservation of flow corridors and rules of development.



*Lee Moore Wash Basin*

The District has a comprehensive assessment of flood and erosion hazards and, once implemented, the strategies in the plan should reduce damage to property, loss of life from drainage issues and stormwater flooding.

# *Foothills Washes Hydraulic and Hydrology Studies*

In 2006, Pima County received record rainfall events in June, July and August with 8.6 inches of rainfall; two inches more than the average. With these events large amounts of debris including sediment flowed from the National Forest headwaters of the canyon washes into the foothills residential area and more intense development within the geologic floodplains of the desert basin floor. Since that time the District had focused attention on repairing damages including restoring channel capacity along the major watercourses and where damages were the most severe.

In addition to bank stabilization and sediment removal projects reflected in our CIP the debris flows, erosion and deposition associated with these floods as well as changes over time necessitated the restudy of numerous foothills floodplains. Furthermore a significant rainfall event in 2007 flooded homes along the Valley View Wash and highlighted the need for updated mapping and hydraulic studies. During FY09/10 with completion of the Lee Moore Wash Basin Management Study District staff turned their attention to the numerous Hydrologic and Hydraulic floodplain mapping studies needed in the following foothills washes;

- Trails End,
- West Speedway,
- Camino de Oeste, Ventana Canyon,
- Esperero,
- Flecha Caida, and
- Craycroft Wash.

These studies, conducted in-house by PCRFCFCD staff utilized approved local, state and federal methodologies to determine discharge rates and floodplains limits and have in most cases been used to submit Letters of Map Revision for approval by FEMA. These "Technical Data Notebooks" use better topographic, hydrologic and hydraulic data than was available when the original FEMA maps were created. Furthermore these studies identified specific infrastructure including culverts, dip sections and bridges which may restrict flow. Notices have been sent to every impacted property owner specifically explaining if their buildings or land has been determined to be within or not within the floodplain.



# Water Resources and Riparian Habitat Management

This program consists of activities intended to prevent flooding, erosion and riparian habitat loss by means other than constructing structural flood control improvements. The District promotes and supports regional riparian restoration with the goal of recovering natural functions within riverine systems and establishing habitat for native wildlife.

## **Mitigation Guideline Revisions**

The Floodplain and Erosion Hazard Management Ordinance (Ordinance) requires compensatory mitigation for disturbances to regulated riparian habitat. The Regulated Riparian Habitat Mitigation Standards and Implementation Guidelines (Guidelines) were developed as a supplement to Ordinance Number 1999-FC1 to provide guidance for applicants going through the mitigation process. Since its inception in 1994, the riparian protection regulations of the Ordinance have been revised twice, first in 1998 (Number 1999-FC1) and again in 2005 (Number 2005-FC2). In a continuing effort to meet the goals of the Ordinance and to ensure that requirements are being met, the District began revising the Guidelines in FY 2007-08 to incorporate Ordinance revisions adopted in 2005.

The District selected a project team to conduct technical studies which would determine the effectiveness of the current Guidelines, study offsite mitigation opportunities, and assist them with the public participation process. Because of the complexity of offsite mitigation issues, the revision process was split into two efforts, revision of the Onsite Mitigation Guidelines and development of an Offsite Mitigation Program.

Public participation is an essential aspect in revising the onsite Guidelines and development of the offsite mitigation program. The Mitigation Working Group (MWG) was created to assist the District in the process of revising the Guidelines, and members were selected to represent a broad spectrum of the community.

## **MWG Members**

- Southern Arizona Home Builders Association (SAHBA)
- Tucson Audubon Society
- Coalition for Sonoran Desert Protection
- Rincon Institute
- American Society of Landscape Architects
- Metropolitan Pima Alliance
- Westland Resources
- Diamond Ventures
- Pima County Resident

Two MWG meetings were held in FY 2009-10. These meetings occurred on November 4, 2009, and January 7, 2010. These focused on revising the onsite guidelines. The revisions to the Guidelines were not completed at the end of FY 2009-10 and are continuing.



*"Habitat loss contributes to flooding erosion hazards."*



*"Healthy habitat absorbs floodwater."*

# NATIONAL FLOOD INSURANCE PROGRAM

## Map Modernization

The national response to flood disasters prior to 1968 was to install dams, levees, and seawalls; however, this approach failed to reduce flood losses. Flood victims were often left destitute because homeowners and business owners could not purchase private flood insurance. Insurers were either unwilling to offer flood insurance or premiums were too costly—consequently flood disaster costs and the number of flood victims continued to increase over time.

In 1968, Congress created the National Flood Insurance Program (NFIP). The three basic goals of the program are to:

- 1) Promote sound floodplain management to reduce future flood losses,
- 2) Provide flood insurance, and
- 3) Identify flood hazards and create floodplain mapping.

The Federal Emergency Management Agency (FEMA) identifies flood hazard areas by publishing Flood Insurance Rate Maps (FIRMs). The first FIRMs for Pima County became effective in 1983, however, revising the FIRMs to accurately reflect flood hazards is a never-ending process. Watercourses move and watersheds change over time, so the maps are continually being updated.



### **Digital FEMA Data**

On October 23, 2008 FEMA announced its intent to discontinue distribution of paper maps and initiation of the distribution of Digital Flood Insurance Rate Maps or DFIRM's. In anticipation of this announcement the Regional Flood Control District (District) has been working with FEMA to create a digital GIS library that includes hyperlinks to all map change documents such as Letters of Map Revision, and Letters of Map Amendments. In Fiscal Year 2008/09, the District obtained digital map documents for all of the incorporated communities in Pima County that participate in the National Flood Insurance Program (NFIP).

We also made available digital map products in the form of ESRI shape files or AutoCAD files to engineering companies to assist them in preparation of map revision applications to FEMA. Conversion of the paper to digital Flood Insurance Rate Maps facilitated comparison to recent aerial photography.

This enabled District engineers and landowners to work together in submitting more accurate information for FEMA approval. In FY 09/10 we created a Mapguide comparison site so that property owners could look to see how the map changes would impact them.

## *Community Rating System: Pima County a Top 6% Community*

The Community Rating System (CRS) is a voluntary incentive program that rates local communities participating in the National Flood Insurance Program (NFIP) who are interested in providing a level of service that is above and beyond the minimum NFIP requirements. Participating communities receive discounted flood insurance premium rates in increments of 5%. For example, a Class 1 community, whose service is considerably above the minimum, would receive a 45% premium discount, while a Class 9 community whose service is nominally above the minimum would receive a 5% discount. A Class 10 community only meets the minimum level required, which in turn

would not receive a discount for their constituents.

The CRS classes for local communities are based on 18 activities and are organized under four categories: 1) Public Information, 2) Mapping and Regulations, 3) Flood Damage Reduction, and 4) Flood Preparedness.

In recognition of the excellent level of floodplain management performed by the District, Pima County is a Class 5 Community, which yields a 25% discount in flood insurance premiums for our constituents. Pima County ranks in the top 6% of all participating communities nationwide.



*Pantano Wash: Pantano Townhomes Bank Protection*

# FLOODPRONE LAND ACQUISITION PROGRAM

FLAP provides relocation assistance to property owners and purchases flood damaged land, whether it is improved property or vacant land. Specific criteria used to rank FLAP applications and determine eligibility include the extent of flood damage or severity of potential flood and erosion hazards on the property. The highest priority is given to improved properties that have or may suffer significant damage as a result of flooding.

This program is completely voluntary and is designed to assist property owners who are likely to experience, or have experienced, flooding which resulted in severe damage and flood hazards. The community also benefits from these acquisitions, which increase open space for overbank storage, enhance groundwater recharge, and provide riparian habitat preservation, wildlife corridors, passive recreation opportunities and protects cultural resources. FLAP also protects emergency responders and county resources from harm by reducing potential rescue needs.

Additional grant monies to purchase additional floodprone and damaged property became available after subsequent disasters because Pima County had an established floodprone land acquisition program.



*Before Flood*



*After Acquisition*

In 1986, after voters approved general obligation bond sales of \$20 million for flood-prone land acquisition, a land acquisition plan was adopted by the Pima County Board of Supervisors outlining criteria to guide the District's overall acquisition efforts and allow the dedication of tax levy revenues to be used for acquisition of floodprone lands. This newly adopted plan aided in the expansion of the program to include purchasing undeveloped land to prevent future floodplain development in sensitive riparian areas and to meet the open space goals of the community.

In fiscal year 2009/2010 the District spent \$4,244,185 and added 888.5 acres of land to the FLAP inventory bringing the total of District-owned property to 10,343.76 acres at a cost of \$67,452,037 since the program's inception.



# CAPITAL IMPROVEMENTS PROGRAM

*Fiscal Year*

*July 1, 2009-June 30, 2010*

CIP No.	PROJECT NAME	COMPLETION DATE	TOTAL COST
5SCRRCR	<b>FC5.09 Santa Cruz River Bank Protection in vicinity of Continental Ranch</b>	<b>August-09</b>	<b>5,740,067</b>
5RRLPA	<b>FC5.08 Rillito River Linear Park, Alvernon to Craycroft</b>	<b>February-10</b>	<b>5,421,946</b>
5FGOLF	<b>FC5.10 CDO Wash Bank Protection &amp; Linear Park: Omni Golf Course</b>	<b>April-10</b>	<b>4,159,340</b>
5WJAIL	<b>West Branch Jail Erosion</b>	<b>May-10</b>	<b>3,370</b>
5LNINO	<b>Los Nino Park / Sewer Line Channel Erosion</b>	<b>May-10</b>	<b>828</b>
5ACWTV	<b>Agua Caliente Wash at Tanque Verde Road</b>	<b>June-10</b>	<b>873,624</b>
5PTOWN	<b>Pantano Wash: Pantano Townhomes Bank Protection</b>	<b>June-10</b>	<b>701,153</b>
5PMULL	<b>Pantano Wash: Mullins Landfill Bank Protection</b>	<b>June-10</b>	<b>515,399</b>
5WBGCS	<b>West Branch / 36th Street Grade Control</b>	<b>June-10</b>	<b>34,168</b>
5GVDW7	<b>Green Valley Drainageway #7 Erosion</b>	<b>July-10</b>	<b>118,770</b>
<b>TOTAL</b>			<b>\$9,143,828</b>

## *FC 5.09 Santa Cruz River Bank Protection in vicinity of Continental Ranch*

The Town of Marana developed plans for bank protection on the west bank of this segment of the Santa Cruz River between the Yuma Mine Wash and Cortaro Road as part of the development of a regional park that was authorized in Pima County's 1997 General Obligation Bond election. The project included the construction of approximately 1.3 miles of soil cement bank protection between Ina Road and Cortaro Road. The County provided bond funding and flood control funds for the park and bank protection, respectively. The District secured all right-of-ways for this project.

## *FC 5.10 CDO Wash Bank Protection & Linear Park: Omni Golf Course*

This section of the Cañada del Oro Wash is bank protected from the Union Pacific Railroad on the south bank and from just west of Thornydale on the north bank to the Omni

Tucson National Golf Resort. The proposed project provided a river linear park on the south bank between Thornydale Road and the north end of Omni Tucson National Golf Resort plus a paved bike path connection to the Rillito River Park via Thornydale Road. It included a paved pathway on the south bank, landscaping, irrigation, and 6 pedestrian bridges. It also included underpass ramps at Thornydale, Ina Road and Magee Road, a parking node at Magee Road with ramadas and a restroom, a parking easement at Thornydale, as well as a reclaimed water irrigation system.

### *Pantano Wash: Mullins Landfill Bank Protection*

On July 31, 2006 the observed peak flow in Pantano Wash at Broadway Blvd wash measured to be 15,900 cfs, this corresponds to between a 25-30 year event. Existing soil cement bank protection toe was exposed at Mullins Landfill. The District provided temporary riprap to stabilize the toe and worked with FEMA to provide a permanent solution to the potential failure created by the monsoon flood. The temporary repairs were completed in 2007, while the permanent bank protection solution was designed.

The project included removal of the temporary riprap toe, extending the toe an additional 8 feet below the thalweg, and providing 2 new grade control structures to reduce the potential for future toe exposure at the landfill.

The project was bid and awarded on Nov. 17, 2009. Construction was started on Feb. 2, 2010 and substantially completed by Sept. 1, 2010.

### *Pantano Wash: Pantano Townhomes Bank Protection*

On July 31, 2006 the observed peak flow in Pantano Wash at Broadway Blvd wash measured to be 15,900 cfs, this corresponds to between a 25-30 year event. Existing rock and rail bank protection failed adjacent to Pantano Townhomes and the TEP tower, threatening to further unravel the bank protection and open the townhome to erosion. The District provided temporary riprap to stabilize the bank and worked with FEMA to provide a permanent solution to the failure created by the flood event. Temporary repairs were completed in 2007, while the permanent bank protection solution was designed.

The project included removal of the temporary riprap bank stabilization, stabilizing and coating the existing rock and rail with an 8 foot thick layer of soil cement bank protection, new handrail, maintenance road and associated drainage structures.

The project was bid and awarded on Nov. 17, 2009. Construction was started on Feb. 2, 2010 and substantially completed by Sept. 1, 2010. Landscaping and handrail were completed by Oct. 2010.



*March 2008, newly planted trees and hydroseed mulch (looking west near the center of western project boundary)*

# FINANCIAL OVERVIEW

## Flood Control District Tax Levy Rate 1981 to 2010

FISCAL YEAR ENDING	*LEVY RATE	TAX
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
1999.....	0.3246	\$10,411,000
2000.....	0.3046	\$10,327,151
2001.....	0.3046	\$10,414,427
2002.....	0.3546	\$13,713,102
2003.....	0.3546	\$14,467,389
2004.....	0.3546	\$14,467,389
2005.....	0.3546	\$14,467,389
2006.....	0.3746	\$19,720,839
2007.....	0.3746	\$22,620,303
2008.....	0.3446	\$25,331,448
2009.....	0.2935	\$25,145,000
2010.....	0.2635	\$23,142,303

## 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. Information on the District tax levy rate is shown in the table at left

## Expenditures

The table on Page 18 provides information on capital project expenditures for projects completed during Fiscal Year 2009/10. The remainder of District expenditures goes toward debt service and operating expenses, which include funds allocated for maintenance of flood control structures, floodplain management, planning and administration activities.



*Pantano Crumble*

# FINANCIAL HIGHLIGHTS

## Fiscal Year 2009/2010

### Revenues

The primary source of revenue is the District's secondary property tax levy of \$0.2635 per \$100 of real property assessed valuation (this figure represents a drop in the rate from \$.2935 in FY2008/2009). In 2009/2010, the District received approximately \$23.2 million dollars in tax levy revenue. Other local sources of revenue include revenue for capital improvements from the sale of general obligation (GO) bonds (2.6) and reimbursements from other funds (\$305,075). The total revenue from all sources in FY2009/2010 was \$26.1 million.

<b>Revenues</b>	<b>FY 09/10</b>	
Property Tax	\$23,142,303.00	88.5%
Federal Participation	\$40,000.00	0.2%
State Participation	\$-	0.0%
General Gov't	\$50,000.00	0.2%
Interest Income	\$35,000.00	0.1%
Rents & Royalties	\$30,000.00	0.1%
Misc.	\$150,075.00	0.6%
Bond Proceeds	\$2,690,500.00	10.3%
	<b>\$26,137,878.00</b>	<b>100.0%</b>

### Expenditures

The total expenditures for the District in FY2009/10 were approximately \$22.6 million. The Capital Improvement Program expenditures of over \$12 million were direct capital expenses. The annual operating budget for the District was approximately \$10.4 million. The other significant expenditure was \$34,227 for debt service on flood control bonds and our contribution to the Pima Association of Governments.

### Expenditures

	<b>FY 09/10</b>	
Capital Improvements	\$12,169,981.67	53.8%
Operating Budget	\$10,413,458.00	46.0%
PAG	\$30,266.00	0.1%
PimaCore/Debt Services	\$3,961.00	0.0%
	<b>\$22,617,666.67</b>	<b>100.0%</b>

### Breakdown of Expenditures

#### Capital Improvements

The expenditures for capital improvements include engineering service costs for planning and design; construction costs; right-of-way acquisition and utility costs; and other costs such as preparing new FEMA Flood Insurance Rate Maps once a capital project is completed.

<b>CIP Expenditures</b>	<b>FY 09/10</b>	
Right of Way	\$4,160,019.55	34.2%
Planning	\$972,085.05	8.0%
Design	\$456,795.01	3.8%
Construction	\$6,450,915.83	53.0%
Utility	\$130,166.23	1.1%
Public Art	\$-	0.0%
Contingency	\$-	0.0%
	<b>\$ 12,169,981.67</b>	<b>100.0%</b>

#### Operating Budget

The Districts operating budget includes administrative, personnel, supplies, and service costs associated with Flood Control Support, Flood Prevention and Riparian Protection. Flood Control Support Services include programs such as customer service, permits, public education, and financial management. Flood Prevention Services include maintenance, flood warning, emergency preparedness, and enforcement activities. Riparian Protection services include the environmental restoration, water resources and riparian habitat management programs.

# COORDINATION with other AGENCIES

## Pima County Department of Transportation

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

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

## Other Pima County Departments

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

- Pima County Attorney's Office
- Development Services Department
- Department of Environmental Quality
- Health Department
- Natural Resources, Parks and Recreation Department
- Tucson-Pima County Office of Emergency Management
- Regional Wastewater Reclamation Department (RWRD)

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

## Nongovernmental Organizations

Other nongovernmental agencies that the District works with include:

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



**Pima County Regional Flood Control District**  
**97 East Congress Street • 3rd Floor**  
**Tucson, Arizona 85701-1797**