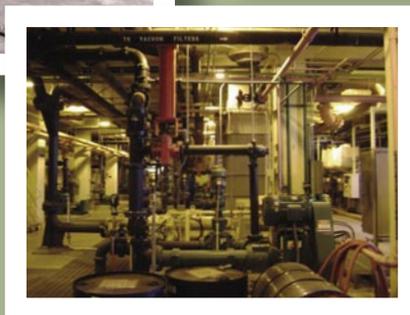
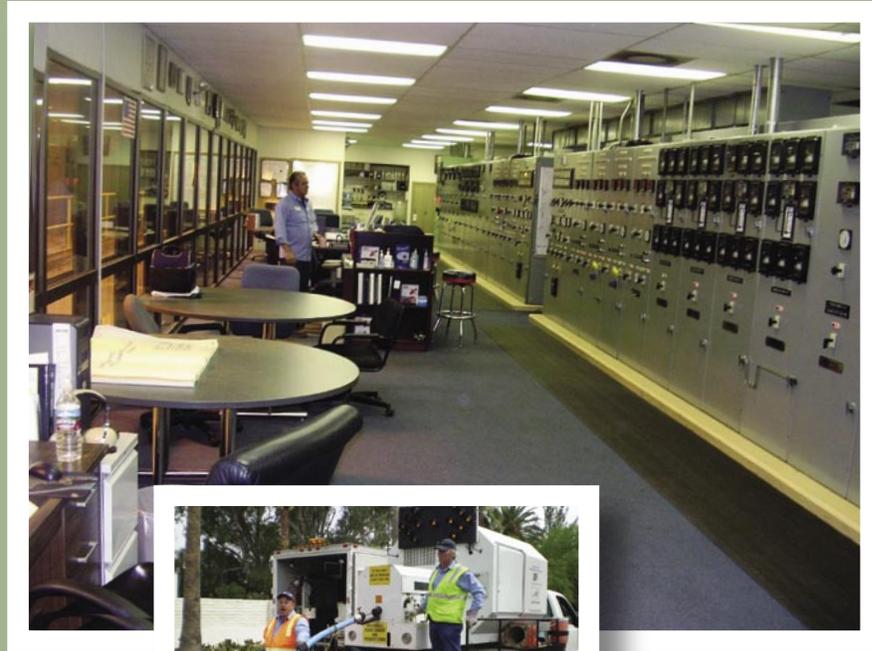


2007 ANNUAL REPORT



PIMA COUNTY REGIONAL
WASTEWATER RECLAMATION
DEPARTMENT



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Message from the Director

I am pleased to provide you with the 2007 Annual Report for the Pima County Regional Wastewater Reclamation Department (RWRD). The year 2007 was a busy one for the department. Staff worked hard on such important issues as moving ahead with the Regional Optimization Master Plan (ROMP), reducing odors in our conveyance system and treatment facilities, planning for the future, and of course assuring we continue to meet our permit requirements as we convey and treat the community's wastewater flows.

Staff works diligently to convey and treat approximately 72 million gallons of wastewater each day with the operation and maintenance of more than 3,400 miles of sewer lines and eleven treatment facilities. RWRD is staffed around the clock 365 days a year, assuring the public health and the environment are protected.

Odors have been a significant issue for the department for many years; however, in 2007, the department implemented a system-wide odor control program that has significantly reduced odors in many areas of Pima County. The department is committed to this program and to maintaining activities and processes that mitigate odors for families and businesses that are located in close proximity to our facilities.

The year 2007 has also been a significant year in terms of work that has been done on the ROMP and on other long term projects that will be required to meet the wastewater needs of the community to the year 2030 and beyond. The ROMP program will reduce nitrogen and ammonia levels in our effluent discharges at our two major facilities: the Roger Road Wastewater Reclamation Facility and the Ina Road Wastewater Reclamation Facility. The ROMP program is described in this publication, and I hope you will take the opportunity to read about this exciting program. In addition to the ROMP, many other projects required to meet the growth of our sub-regional facilities have also been planned during 2007.

Please take a few moments to learn about RWRD's 2007 activities and learn where the department is headed in both the near and longer term future.

Michael Gritzuk



Message from the Chairman of the Wastewater Management Advisory Committee

As Pima County plans to meet new environmental requirements, the Wastewater Management Advisory Committee (WMAC) has studied mandates the Regional Wastewater Reclamation Department (RWRD) must implement. One of our roles has been to understand the daunting challenge RWRD is facing and to communicate that challenge to the elected officials and organizations that have appointed us to serve on this advisory board. The Regional Optimization Master Plan (ROMP) is one of RWRD's responses to these mandates. ROMP must be fully implemented by the year 2015, and is estimated to cost \$536 million in 2006 dollars.

In addition to meeting the requirements of the ROMP, RWRD is also engaged in meeting the day to day needs of operating a wastewater reclamation agency that maintains and operates eleven wastewater treatment facilities and more than 3,400 miles of sanitary sewer lines. On a daily basis, RWRD conveys and treats 72 million gallons of sewage generated in Pima County. It has also been involved in the rehabilitation and expansion of a number of its facilities (both treatment plants and sewer lines) to meet the continuing and growing needs of Pima County.

One of the WMAC's roles each year is to review the department's financial plan. Based on the financial plan the department may recommend rate increases to meet the expanding wastewater conveyance and treatment needs of the community. WMAC studied RWRD's financial plan extensively and ultimately supported the recommended rate increases to the Pima County Board of Supervisors. In 2007, the Pima County Board of Supervisors approved the department's financial plan and passed two separate rate increases. The WMAC feels that these rate increases are appropriate and necessary to continue the proper functioning of the RWRD.

Another significant RWRD change this year was the adoption of a low-income assistance program. WMAC conceived of this program in June 2006. RWRD developed the Sewer Outreach Subsidy (SOS) program which the Pima County Board of Supervisors subsequently adopted in July 2007.

I extend my sincere thanks to all the members of the WMAC who have volunteered their time and have worked diligently to understand the complex issues facing the department and the community. Their work on behalf of Pima County's residents is important to the department's efforts during this critical time.

Adam Bliven



Part 1

Operating Highlights



“... the new name Regional Wastewater Reclamation Department (RWRD) emphasizes the department’s service area and increasing importance of reclaimed water in the desert.”

The year 2007 brought many changes to the Pima County Regional Wastewater Reclamation Department (RWRD). One obvious change was the adjustment of the department’s name to more accurately reflect the breadth of its responsibilities and activities. Formerly known as the Wastewater Management Department, the new name Regional Wastewater Reclamation Department (RWRD) emphasizes the department’s service area and increasing importance of reclaimed water in the desert.

Regional: RWRD serves customers in five separate jurisdictions as well as in many unincorporated areas of Pima County.

Wastewater: The department conveys and treats approximately 72 million gallons of sewage each day.

Reclamation: The department produces millions of gallons of reclaimed water daily that is used for a number of purposes, including the irrigation of turf facilities and landscaping and the creation of riparian habitats.

Department: RWRD is a department of Pima County government.

In addition to the name change, the year 2007 brought progress in many important projects. Great strides were made in the area of odor control and significant progress was made in the department’s continued implementation of the Regional Optimization Master Plan (ROMP). Facility expansions, sewer interceptor, and rehabilitation projects were also major accomplishments realized in 2007.

Regional Optimization Master Plan

Work on the development of the Regional Optimization Master Plan (ROMP) began in 2006. 2007 brought much progress to the planning of this major program which will be the largest and most expensive public works program ever to be undertaken in Pima County.

ROMP has been developed in response to an environmental mandate from the Arizona Department of Environmental Quality (ADEQ) that dictates Pima County must reduce ammonia and nitrogen levels in its effluent discharges to the Santa Cruz River. In January 2007, Richard Elias, Chairman of the Pima County Board of Supervisors signed letters to ADEQ that committed Pima County to the construction of the ROMP.

The department's two major wastewater treatment facilities (the Ina Road Wastewater Reclamation Facility and the Roger Road Wastewater Reclamation Facility) are impacted by the ROMP program. In addition to providing for the reduction of nitrogen and ammonia levels in effluent discharges, the ROMP also adds treatment capacity to meet the community's capacity requirements until the year 2030 and beyond. The approved plan includes the following features:

Ina Road Wastewater Reclamation Facility

The current Ina Road Wastewater Reclamation Facility (WRF) has a capacity of 37.5 million gallons a day (mgd). 12.5 mgd of this capacity already meets the ammonia/nitrogen reduction requirements. The other 25 mgd High Purity Oxygen treatment process will be converted to a Bardenpho process to achieve the new environmental requirements. Finally, an additional 12.5 mgd capacity Bardenpho process expansion will also be constructed at the Ina Road facility. Once completed, the Ina Road plant will provide a capacity of 50 mgd. The deadline for completion of the Ina Road upgrade and expansion is January 2014.

Roger Road Wastewater Reclamation Facility

The Roger Road Wastewater Reclamation Facility will be decommissioned after a new 32 mgd facility is constructed near the current site. The new facility will be a state-of-the-art water reclamation campus that will not only meet new environmental standards, but will also become the site of the department's compliance laboratory, headquarters for the department's Compliance and Regulatory Affairs Office and serve as a community facility where public education regarding water and wastewater resources can take place. The new facility will replace the existing 41 mgd Roger Road facility, which was originally built in the early 1950s.





Plant Interconnect

A five mile-long sewer interceptor line will be constructed to convey up to 28 mgd of average dry weather flows from the Roger Road service area to the Ina Road facility. This plant interconnect interceptor will allow for a portion of the current flows that now are treated at the Roger Road facility to be conveyed and treated at the Ina Road plant. Additionally, the interceptor will allow for future flows to be conveyed to the expanded Ina Road facility.

ROMP Progress

During 2007, the department requested *Expressions of Interest* recommendations from the private sector. The Expression of Interest proposals have led to evaluations of various delivery methods for the ROMP, including procurement, design, construction, finance, and operation methods for the water campus. Other ideas generated from the Expressions of Interest exercise included a variety of options for the upgrade of power generation and biosolids processing at the Ina Road facility. While the ideas generated from the Expression of Interest recommenda-

tions were being considered, a number of ROMP program manager, design engineer, and construction manager at risk contracts were negotiated. During this time, the department conducted field tests to determine whether an enhanced chlorination/dechlorination process will meet disinfection requirements. Testing indicated the use of Enhanced Chlorination technology instead of the sometimes preferred method of UV disinfection can save Pima County approximately \$70 million in ROMP costs and still meet regulatory requirements.

Odor Control Program

In 2007, RWRD retained consultants to develop a system-wide odor control plan.

For many years odors were a significant problem in Pima County, and although attempts were made at reducing odors, it was not until the department took a system-wide holistic approach to odor mitigation that significant progress was made. Based on odor samples and odor dispersion model results, an action list of improvements was created for both the Roger Road and Ina Road facilities and the sewage conveyance system. The list was divided into two categories: short term and near term projects. The short term efforts took only a few months to complete and largely were confined to refinement in operations or minor construction projects. The near term projects were larger construction projects



in the conveyance system and at the Roger Road facility. The original list of 22 projects was shortened to 20 projects when upstream conveyance system odor control projects made two downstream projects unnecessary. Of the remaining 20 projects, 19 were completed in 2007. The remaining project, (odor control at the Roger Road facility biotowers) was delayed when archeological findings were discovered at the site where an odor control facility was to have been constructed. The biotowers project had to be redesigned and construction scheduled for 2008.

By implementing the odor control plan, the department invested approximately \$5 million in odor control efforts in 2007. In the conveyance system, chemical dosing units and vapor phase treatment systems were installed in the conveyance system. At the Roger Road facility, major odor control projects were constructed at the headworks, six primary clarifiers and splitter boxes. The Ina Road facility also realized odor control through the adjustment of existing systems.

Once completed, odor control at the Roger Road facility's biotowers will allow for the reversal of airflow in the Roger Road facility's biotowers and will scrub (treat) foul air generated in this process. Both biotower projects will be completed in the first half of 2008.

During the course of the odor control planning and construction projects, a committee of concerned citizens helped the department by providing feedback from neighborhoods impacted by odors. The Citizen Involvement Committee met five times and presented a report and recommendations to the Pima County Board of Supervisors.

Financial Planning for ROMP and Non-ROMP Projects

In addition to ROMP, the department must also expand, rehabilitate, and upgrade facilities that are not part of the ROMP program. In 2006 dollars, ROMP costs are estimated to be \$536 million. Over the next fifteen years, combined ROMP and non-ROMP capital improvement projects (CIP) will total approximately \$1.4 billion.

Failure to make investments in the ROMP and CIP projects in a timely manner would place the department in jeopardy of violating regulatory requirements and impede its ability to meet the immediate and future wastewater needs of the community.

In preparation to meet these challenges, the department contracted with a financial consultant to conduct a comprehensive rate and financial planning study to support the development of the of the department's 2007/2008 and 2008/2009 fiscal years financial plans and to address the financial needs of the department over a ten year period. The ten-year financial plan will increase the financial stability of the department while ensuring high quality service. The plan also provides a roadmap for funding capital improvement projects and is the basis for developing rates and charges that are fair and equitable.



Reaching Out to Low-Income Customers

In 2007, the department served approximately 259,000 individual wastewater customer accounts. All accounts (residential, commercial and institutional) are charged based on the amount of water used. In January and July of 2007, the department raised rates by 6 percent.

Due to recent rate increases and the continued need for increases to fund the ROMP, other infrastructure needs, and operations and maintenance activities, the Pima County Board of Supervisors directed RWRD to develop a bill assistance program for low-income residents. In response, the department created the Sewer Outreach Subsidy (SOS) Program which went into effect in July 2007. The SOS program has a tiered rate structure based on federal poverty guidelines. Depending on income, customers are eligible for reductions in their sewer bills.

Conveyance Division Successfully Completes ISO and OHSAS Certification Audits

Established in 1947, the International Organization for Standardization (ISO) is a non-governmental worldwide federation of national standards bodies from approximately 140 countries. OHSAS, which is similar to ISO, is an international occupational health and safety management standardization system.



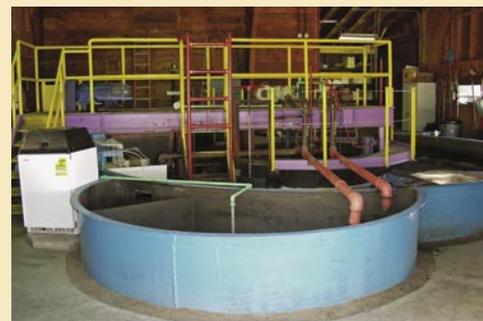
One of the main missions of ISO and OHSAS is to promote the development of excellence and standardization. ISO and OHSAS work in partnership with governments, international organizations, industry, and business and consumer representatives.

Implementation of ISO and OHSAS standards prevents unnecessary duplication of efforts and makes available the latest in expert knowledge. ISO and OHSAS standards propagate new advances and transfer of technology, making them an invaluable source of knowledge. ISO and OHSAS certifications demonstrate to regulatory agencies that the organization is proactive about reducing pollution and is committed to continual improvement and safety.

The primary benefit gained from implementing a business management system is building and sustaining a better organization. This very exact-

ing process guarantees that all major or critical processes are thoroughly reviewed and evaluated to ensure that only the best practices remain in place and are well defined, documented and understood by all involved individuals.

RWRD's Conveyance Division began preparing for ISO and OHSAS certification in 2006. Staff spent months gearing up to meet ISO and OHSAS standards. They closely examined how they operated and conducted business and made changes to processes as needed to meet ISO and OHSAS standards. In August 2007, six auditors visited the Conveyance Division and completed a Pre-Assessment Audit. The division implemented the changes and underwent the Quality (ISO 9001) audit in October and the Environmental (ISO 14001) & Safety (OHSAS 18001) audits in November. Six private, independent auditors closely examined whether the Conveyance Division's



Business Management System meets the standards for registration to ISO 9001, 14001, and the OHSAS 18001. The process included interviews with managers, staff, and scrutiny of the division's business records. Six days of audits resulted in the auditors' recommendations that the Conveyance Division be registered to all three standards. In February 2008, the Conveyance Divi-



sion received notification that the auditors' recommendations had been accepted and the division was officially ISO and OHSAS certified.

The Conveyance Division is the only entity in North America to receive all three certifications concurrently and only the second entity worldwide to receive all three certifications simultaneously.

Treatment Facilities

In 2007, the department spent time and resources planning for new opportunities and adding capacity at its sub-regional facilities.

Mt. Lemmon Wastewater Reclamation Facility

The Mt. Lemmon Wastewater Reclamation Facility differs from the other treatment facilities in Pima County because of its location. The Mt. Lemmon plant treats sewage flows from a mountaintop community that is situated more than 9000 feet above sea level. Extreme fluctuations in flows are part of the challenge of operating this 12,000 gallon per day facility. Flows increase during the summer months when vacationers seeking relief from the desert heat, rent cabins and hotel rooms for several days or weeks. Others in the Tucson area take weekend or day-trips up to the mountain. In winter, flows can also increase in response to snow events which draw skiers and desert dwellers seeking an opportunity to

experience snow. Throughout the year, weekend flows tend to be higher than weekday flows. Department operators must meet the challenges of fluctuating flows in the treatment plant that serves this mountain community.

In the summer of 2003, the Aspen Fire burned much of the forest and many of the structures in the Summerhaven community. As residents and business owners began planning for redevelopment, great interest was expressed for the expansion of the sewer system and the treatment facility. Many homes on the mountaintop were dependent on septic systems, but were situated on lots that were not well-suited for those systems. In spite of great interest in expanded sewer service on the parts of many property owners, the mountain is the jurisdiction of the US Forest Service (USFS) which is responsible for protecting the fragile sky island environment. Part of that responsibility includes the balancing of water levels in two separate water sheds on the mountain. Because many homes and businesses are located above one water shed and the disposal of effluent takes place on property above a different water shed, sewer service expansion became a complex and challenging prospect.

To explore what possibilities exist for expansion of the wastewater system on the



mountain, the department contracted with a local environmental engineering firm to conduct a study to evaluate the situation and develop a conceptual plan for the Mt. Lemmon community. The consultant worked with the USFS, the Pima County Department of Environmental Quality, and property owners. Two public meetings were held during which information was provided and feedback received. In 2007, the Comprehensive Service Area Watershed Study and Wastewater Management Plan was completed. Staff will use this document to develop an action plan while continuing to work with other jurisdictions, residents, business owners and interested parties.

Marana Wastewater Reclamation Facility Expansion

Once predominantly a farming community, in recent years the Town of Marana has an-

nexed more urban areas that provide flows to the Ina Road Wastewater Reclamation Facility. However, the Town of Marana is also experiencing a conversion of some of its farmlands to residential developments along the northwest perimeter of the metropolitan area. This conversion has required the expansion of the Marana facility. A 0.5 mgd expansion at the Marana Wastewater Reclamation Facility began operating in March, bringing the capacity to 0.7 mgd. With continued expansion in the area, plans for an additional 1.5 mgd expansion are under design.

Avra Valley Wastewater Reclamation Facility

The Avra Valley Wastewater Reclamation Facility serves sewer customers south of Marana on the western outskirts of the metropolitan area. This part of Pima County has seen much growth in recent years.

To keep up with the area's growing population, modifications to the existing process were made to accommodate an additional 1.0 mgd of capacity at the Avra Valley facility. Shortly after the completion of the 1.0 mgd expansion, construction of an additional 4.0 mgd expansion began.

Corona de Tucson Wastewater Reclamation Facility

The Corona de Tucson facility serves a population on the far east side of Pima County. Just as the Avra Valley facility required expansion to meet the needs of a fast-growing population, burgeoning housing developments in the Corona de Tucson area created a demand for more treatment plant capacity in the Corona de Tucson community. To that end, a 1.0 mgd expansion was constructed at the Corona de Tucson Wastewater Reclamation Facility and began operating in July, bringing the total capacity to 1.3 mgd.

Ina Road Wastewater Reclamation Facility

The Ina Road Wastewater Reclamation Facility began testing and operating a 12.5 mgd expansion in 2007. That expansion brought the capacity of the Ina Road facility from 25 mgd to 37.5 mgd. The expansion meets the ammonia and nitrogen removal criteria required by ADEQ.

Roger Road Wastewater Reclamation Facility

Although the Roger Road Wastewater Reclamation Facility will be decommissioned in 2015, it must continue to treat up to 41 mgd until that time. To assure the facility meets its permit requirements, repairs and retrofits continue as needed. In 2007, a Gravity Belt Thickener at one of the plant's digesters was added. In addition to the new Gravity Belt Thickener, many odor control projects were constructed at the Roger Road facility in 2007. (See Odor Control, page 6.)





Arid West Water Quality Research Project

In April 2007 RWRD successfully completed the twelve-year Arid West Water Quality Research Project (AWWQRP). This \$5.5 million federally-funded project included coordination among the EPA, Pima County and Western water/wastewater agencies. The purpose of the AWWQRP was to develop scientifically-supported water quality criteria, standards and uses for the ephemeral and effluent-dependent waters of the Arid West. The project produced eleven major research reports and more than sixty scientific papers and publications. Over the life of the project, staff and scientists made hundreds of outreach presentations to regulators, agencies, community organizations, environmentalists and scientific groups.

The final publication for the AWWQRP was a "User's Guide". This guide incorporates the research and findings from the entire project into a compact "how to"

manual for agencies, regulators and community members seeking to develop appropriate water quality criteria, standards and uses for their individual circumstances.

The AWWQRP received recognition and commendations from water quality organizations and state and federal water quality regulatory agencies across the Arid West. Requests for AWWQRP research publications and findings have also come from water/wastewater agencies, regulators and environmental groups in other regions of the United States. Environmental Canada (the Canadian EPA) also requested research findings. Because of its role as the AWWQRP administrator, Pima County achieved a leadership role in the critical issues of water quality and water reuse which has benefited not only the residents of Pima County, but also communities and ecosystems across the Arid West.

Town of Sahuarita Seeks Assistance from RWRD

In 2007, the Town of Sahuarita, a jurisdiction in southern Pima County faced capacity issues at its wastewater treatment facility. Rapid growth in the town outpaced the facility's needed expansion. The town approached RWRD for assistance in meeting treatment capacity for both sewage and biosolids. Intergovernmental agreements (IGA) were entered into for the treatment of excess flows. For four months, the Green Valley Wastewater Treatment Facility – which has sufficient capacity to treat the additional flows – accepted trucked sewage from the town. A second IGA was entered into for the treatment of biosolids. RWRD will continue to accept biosolids at the Ina Road Water Pollution Control Facility into 2008; however a completed expansion at the Sahuarita facility allowed Sahuarita to treat all its own flows by the end of 2007.

Part 2

Department Structure





Director's Office

Community Relations Office

The Community Relations Office is responsible for public outreach to residents and businesses impacted by sewer projects. Coordination between the department's engineering staff and contracted construction firms allows Community Relations staff to keep residents and businesses impacted by sewer projects informed about how construction activities will impact them, including temporary road closures, interrupted sewer/water service, and any other issues a construction project might generate.

The Community Relations Office also conducts public education about sewer and wastewater issues and represents the department at community events. This office is responsible for the Save

Our Sewers Grease Campaign and the Slow the Flow Indoor Water Conservation program. Community Relations staff acts as the media liaison for the department and arranges media interviews as needed. The office produces the department's monthly, quarterly and annual reports. Finally, the Community Relations Office is responsible for overseeing the internal communication plan and for writing and producing the monthly internal department newsletter.

Compliance & Regulatory Affairs Office

The Compliance and Regulatory Affairs Office (CRAO) was founded in January 2007 to draw compliance and regulatory activities into one group. This office reports directly to the PCRWRD Director with activities that include integrated compliance, permitting, industrial waste control and the department's laboratory operations.

CRAO is responsible for Permitting, Compliance Reporting, Water Quality, Industrial Waste Control, Biosolids Management, Information Management, and Laboratories. The Permitting group prepares permit applications and ensures compliance with public health and environmental regulations. The Compliance group focuses on ensuring all monitoring requirements are met. It conducts compliance sampling of discharges, groundwater, and field analyses.



Security Office

Security has become increasingly important in today's utilities. The cultivation of a security culture within the department has been assigned to a Security Office that reports to the Director. Security awareness and protocols are being fostered and instituted department-wide. Areas needing improvements in security are being identified and examined. The result of these activities is the development and implementation of an integrated security approach for our treatment facilities, conveyance system, laboratory, and department offices.



Finance and Administration Division

Customer Service Section

The Customer Service Section bills and collects user fees from residential and commercial customers. This section is staffed with department representatives who assist customers with questions about their sewer bills. Employees from this section work closely with potable water suppliers whose usage data provides the basis for the department's bills. Customer Service employees also work out payment plans for customers in arrears. This section provides collection agency services for RWRD and for the Pima County Development Services Department when their fees go unpaid.

Employment Services Section

The Employment Services Section provides payroll processing, benefits enrollment, and recruitment activities for the department. This section is responsible for processing time cards, coordinating interviews for open positions, and ensuring that all Equal Employment Opportunity criteria are met. Staff maintains an employee data base and personnel files. The Employment Services Section is also responsible for assuring that county personnel policies are followed.

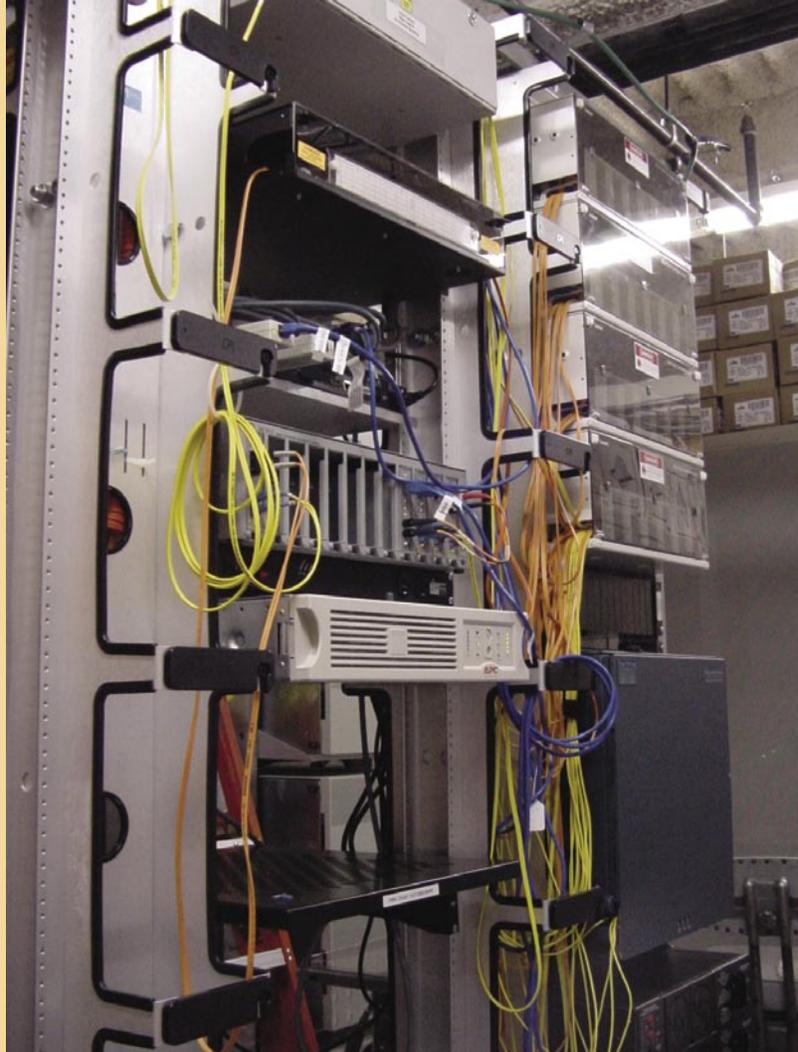
Information Technology Support Section

The Information Technology (IT) Support Section develops and implements the department's annual automation plan for computer replacement and upgrades. IT support staff assesses the need for new computers, printers, and other hardware and software systems. IT Support employees also coordinate with Pima County's Central IT Department to make needed IT work requests and purchases.

A major role of this section is to monitor and coordinate the department's use of the county's purchasing software program with the county's Central IT Department. Section employees provide training for department staff in the use of the computer network system and assist staff when they have questions about how to use the county's program.

Procurement Support Section

Procurement Support Section personnel assist department staff with ordering and receiving supplies, goods and equipment needed for the department to operate. Employees of this section are proficient at the county's procurement software program and assure that purchases are done properly. Procurement employees monitor contracts and intergovernmental agreements. They also track expiring contracts and assist with renewals when needed.



Training & Development Section

The Training and Development Section provides training for Wastewater Treatment Plant Operator certifications 1,2,3 and 4. Operator trainees are given the opportunity to work and train while they prepare for their Operator 1 certifications. Under this program, trainees can take between six to eighteen months to train for and attain their Operator 1 licenses. RWRD Training and Development employees also teach on-site community college classes through which RWRD employees can earn college credits. Staff provides training and certification for Utility Maintenance (convey-

ance system) Workers 1, 2, and 3. Other classes provided by this section include security awareness, management evaluation, and safety protocols. Some employees of this section are authorized to teach Occupational Safety and Health Administration (OSHA) standards and issue OSHA safety cards to staff that has successfully completed OSHA-certified training. Finally, Training and Development Section staff frequently participates in career events during which high school and post high school students can learn about careers in the field of wastewater reclamation.

Financial Management Section

The Financial Management Section oversees the department's fixed assets and inventory and handles accounts payable and receivables. This section oversees and monitors budgeting for Operations and Maintenance activities and manages budgeting and financing for Capital Improvement projects. Employees of the Financial Management Section are responsible for tracking travel and training expenses.

Engineering, Planning, and Capacity Management Division

Manager of Sanitary Engineering (Chief Engineer)

The Chief Engineer oversees the Design and Field Engineering sections of the Engineering Division. In addition, the Chief Engineer and his staff support CIP projects with environmental permits such as Historic Preservation and Cultural Resources, Corp of Engineer permits, and easement acquisitions. Other responsibilities of the Chief Engineer include the oversight of surveying contracts and real property acquisition.

Design Section

The Design Section develops and maintains public sewer system design standards and procedures for Pima County and develops and manages the hydraulic model of the sewage conveyance system. The section is also responsible for providing engineering technical support for the conveyance system and wastewater reclamation facilities.

The Design Section reviews and accepts sewer plans submitted by developers and is responsible for the sewer inspection permit process for new connections to the public sewage conveyance system. Finally, the Design Section manages utility coordination when sewers are impacted by road or water projects.

Field Engineering Section

Employees of this section inspect the construction of new sewer systems and repairs made to the existing system. Staff also reviews sewer utility plans. The Field Engineering Section manages the rehabilitation and repair contracts for the sewage system. The Field Engineering Section also manages the department's Blue Stake activities.

Capital Improvement Program (CIP) Section

The CIP Section manages the project delivery of the annual Capital Improvement Program. This work involves managing the design, construction and oversight of project schedules, budgets, and scopes. The CIP Section also processes all pre-procurement activities and invoices for capital improvement projects.

Planning and Capacity Management Section

The Planning and Capacity Management Section employees manage sewer service agreements with developers. Staff reviews tentative and final plats for developers' sewer planning and determines whether proposed projects will adversely impact the current system. Section staff assists developers and the general public with residential connection fee and service fee issues. This section also manages the capacity allocation process for developers' projects through the use of capacity restric-



tions in the public sewers and treatment facilities.

Maps and Records activities are a function of the Planning and Capacity Management Section. Maps and Records employees assist individuals and developers in researching needed information to make new connections or determine locations of private house connection sewers (HCSs) and connection information.

Long Range Planning Section

The Long Range Planning Section coordinates the strategic planning issues for the department by managing

the CIP project list in conjunction with the Pima County Department of Finance and Risk Management. Activities include administrative system development, capital planning, long range planning, environmental planning and engineering administration. Other responsibilities of this section include assistance to and management of the activities of the Wastewater Management Advisory Committee.

Conveyance Division

The ISO/OHSAS-certified Conveyance Division is committed to continuous improvement. To this end,

division employees review and evaluate work processes on a regular basis to assure best practices are employed in the division's day-to-day activities which include the operation and maintenance of more than 3,400 miles of sanitary sewer conveyance lines and 33 pump stations. The division also maintains more than 74,000 manholes and oversees contractors who provide roach control, system inventory services, and closed circuit television services.

Conveyance Section

The Conveyance Division is responsible for conveying over 72 million gallons of sewage a day to the department's reclamation facilities. Staff is responsible for performing preventative maintenance on more than 3,400 miles of sewer lines. In addition, staff





answers calls from the public on such issues as sewer odors, stoppages and possible sanitary sewer releases. Field staff quickly responds to each potential issue. Conveyance staff tracks sanitary sewer overflows (SSO) and completes required regula-

tory reporting and maintains associated records. Through tracking, planning and review of historical data, preventive measures are put into place to prevent/limit severity of future SSO events. Staff also is responsible for monitoring the private contract performance regarding pesticide application for control of the roach population in county manholes.

Pumping Systems Section

While most of the more than 3,400 miles of public sanitary sewers flow by gravity, a system of this size requires the use of pump stations in some areas. RWRD operates

33 pump stations. Pumping Systems personnel oversee the operation, maintenance and repair of these 33 pump stations that “lift” sewage that can no longer flow by gravity to a higher level (underground) so it can again flow by gravity to a treatment facility.

While a physical presence is needed at each station when hands-on work is required, the pump system can be monitored from a central location through the use of Supervisory Control And Data Acquisition (SCADA) technology. SCADA technology

allows staff to track flows and determine if flows are higher or lower than usual. High or low flows can be indicative of blockages in the system which can lead to sanitary sewer overflows. When flows are outside normal ranges, staff is dispatched to determine if there is a problem, and to mitigate any conditions which may be disrupting flows. The SCADA system alerts staff through pagers and cell phones of flow issues 24 hours a day. Once alerted, staff can track the situation by computer or travel to the pump station to handle problems on site.



Flow Monitoring Section

The Flow Monitoring section also uses SCADA technology to help create a database of historical flow patterns. Flow meters measure system flows and when the typical flow pattern changes, alarms alert staff of the change. Flow monitoring employees are then dispatched to determine if there is a change in sewage flows and what has created that change. Sanitary sewer overflows can be prevented or discovered early with this type of technology.

Gravity System Maintenance Section

The Conveyance Division maintains the sanitary sewer system with a number of specialized trucks. Rodder trucks cut through tree roots, grease, and debris that impact the sewage conveyance system. Combo trucks provide high-powered water spray that can dislodge debris in the sewers and clear lines. Combo trucks can also “vacuum” out debris



that has been dislodged or has settled in the sewer. Utility maintenance workers are assigned preventative maintenance work orders that provide instructions regarding which reaches of the system



should be serviced and what type of maintenance should be done. Crews implement this proactive approach unless they are called to respond to a Sanitary Sewer Overflow (SSO) or a situation that could lead to an SSO. Work orders are generated through the Conveyance Division's Computerized Maintenance Management System (CMMS).

Computerized Maintenance Management System Section

The Computerized Maintenance Management System is an asset management software program that maintains historical information on conveyance system assets and their related scheduled and unscheduled maintenance activities. Data entry and GIS staff update and add new maintenance activity information provided by utility maintenance workers on scheduled and unscheduled work orders at the end of each shift. The workers indicate what work they have done on specific reaches, the condition of those reaches

and any anomalies they may find. This information is used to create historical trends regarding future maintenance schedules and activities. For example, if there is a reach that has significant root intrusion, that reach will be scheduled for more frequent maintenance through the generation of work orders by the system.

Technical Support Section

The Technical Support Section provides Closed Circuit televising (CCTV) of sewer lines when sewer maintenance staff needs to “see” into certain reaches of the system. The CCTV crew is called when identified blockages or other anomalies in the system must be examined before maintenance or repair can be planned and performed. This section also manages CCTV contracts the department has with outside contractors.

Roach Control

The Conveyance Division has a contract with a company that provides roach control



service for the public system. In October, the two-year roach control program was completed one month ahead of schedule. Over the course of the program, more than 74,000 public manholes were treated with a product that is effective for at least two years. The program has yielded significant results. In July of 2004 (a few months before the system-wide program began), 705 complaints were reported to the department. In July of 2007, that number had dropped to 180. Three months later in September 2007, the number of roach complaints had dropped to 75. Immediately after the completion of the



initial roach control program, the second two-year program began in October. When a roach complaint is received, staff is sent to inspect manholes in the area of

the complaint. If an infested manhole is found, it is treated under the contractor's warranty.

Odor Control Program

Controlling odors in a system of more than 3,400 miles of sewer lines can be a daunting task. Much of the odor control work is achieved by Utility Service Workers who assure the county's sewer lines are well maintained. Odor control staff members focus on sewer lines that are 24 inches or larger. The team maintains and operates nine chemical dosing units and three vapor phase odor control units. It also responds to odor complaints. Often odor

complaints are precipitated by odors in private sewers or pump stations. In these cases, the team will work with the operator of these private systems and will provide advice on how to reduce odors.

Safety and Environmental Management Section

The Safety Section and Environmental Management Section in the Conveyance Division merged after the Conveyance Division began pursuing ISO and OHSAS Certification. (See page 8). This section is responsible for providing safety training to new employees and contracted workers who work in or on the conveyance system. Safety personnel assist with OSHA-related issues and purchase safety equipment for Conveyance Division employees. Safety and Environmental Management staff incorporate safety protocols while dealing with environmental issues such as sanitary sewer overflows, air quality concerns, and personal protective equipment for staff members assigned to mitigate such events as sanitary sewer overflows, chemical spills, and air quality issues associated with the use of portable generators.

Treatment Division

The Treatment Division operates eleven treatment facilities in Pima County. The two largest facilities (the Roger Road Wastewater Reclamation Facility and the Ina Road Wastewater Reclamation Facility) treat

flows originating in the urban area. A third smaller metropolitan facility (the Randolph Water Reclamation Facility) also treats urban-area flows.

Eight sub-regional facilities treat flows in areas where distance and topography make it difficult or impossible to convey flows to one of the metropolitan plants. Several sections within the Treatment Division assure the community's wastewater is properly treated.

Treatment Division Administration Section

The Treatment Division Administration Section consists of the Deputy Director of Treatment and administrative staff. The administrative staff coordinates all the different sections within the Treatment Division. This section also assures that county policies are complied with, that requirements such as budget preparation and implementation are efficiently managed, and that relevant county and department information is communicated internally and externally as needed.

Plant Services Section

The Plant Services Section is comprised of the superintendent and employees who deal with power generation and biosolids management. Custodians, grounds keeping staff and administrative staff also report to this section. The Superintendent of Plant Services oversees the operation and maintenance of three lagoon facilities.

LAGOON FACILITIES

The Superintendent of Plant Services is responsible for overseeing the operation and maintenance of three lagoon facilities. These three facilities are facultative ponds which service small communities with small incoming flows. The facilities are the Arivaca Junction Wastewater Reclamation Facility, Rillito Vista Wastewater Reclamation Facility, and the Pima County Fairgrounds Wastewater Reclamation Facility. Sewage at these facilities is treated and evaporated.

INA ROAD FACILITY ENERGY MANAGEMENT FACILITY

The Ina Road Facility Energy Management Facility is also overseen by Plant Services. This facility produces the energy that powers the original 25 mgd plant. Power is generated by running five of seven gas engines. On average, two of these five engines run on methane gas which is produced in the treatment process as a by-product. The other three engines typically run on natural gas purchased on the market. Electricity is purchased from the local electric company to power the new 12.5 mgd expansion.

The Ina Road Wastewater Reclamation Facility uses approximately five megawatts of power between its self-generated and commercial sources.

BIOSOLIDS MANAGEMENT

Bio-Solids Management is overseen by Plant Services. Biosolids from the Roger Road Wastewater Reclamation Facility are conveyed to the Ina Road facility where biosolids are further treated and dewatered. The Ina Road facility generates "Class B" biosolids which are recycled through land application (fertilizer). Although these treated biosolids can be used as soil amendments, they

cannot be used on food crops. Biosolids in Pima County are applied to farmlands where cotton or other non-food plants are grown.

EPKERP MAINTENANCE

EPKERP is an acronym which stands for Ed Pastor Kino Environmental Restoration Project. EPKERP is a flood control basin which produces a riparian habitat in the midst of urban Tucson. EPKERP pumps are maintained and operated by the Pima County Community Resources Department. RWRD Plant Services employees assist

FACILITY	CAPACITY	BIOSOLIDS DISPOSAL	EFFLUENT REUSE/DISPOSAL
Arivaca Junction WRF	0.1 mgd	Minimal Biosolids Production	Evaporation/Percolation Land Application/Irrigation
Avra Valley WRF	2.2 mgd	Biosolids Treated at Ina Road Facility	Evaporation/Percolation
Corona de Tucson WRF	1.3 mgd	Biosolids Treated at Ina Road Facility	Evaporation/Percolation
Fairgrounds WRF	0.02 mgd	Minimal Biosolids Production	Evaporation/Percolation
Green Valley WRF	4.1 mgd	Reclamation of Nearby Mine Tailings, Some Biosolids Processed at Ina Road Facility	Reuse/Irrigation/Percolation
Ina Road WRF	37.5 mgd	Agricultural Application on Non-Food Crops	Santa Cruz River
Marana WRF	0.70 mgd	Minimal Biosolids Production	Reuse/Santa Cruz River
Mt. Lemmon WRF	0.012 mgd	Minimal Biosolids Production	Spray Irrigation
Randolph WRF	3.0 mgd	Water Scalping Facility, No Biosolids Generated	Reuse
Rillito Vista WRF	0.02 mgd	Minimal Biosolids Production	Evaporation/Percolation
Roger Road WRF	41.0 mgd	Biosolids Treated on Site and Then Conveyed to Ina Road Facility For Dewatering and Disposal	Santa Cruz River/Reuse



regulatory requirements in a safe, efficient and cost-effective manner. Plant Operations ensures that all sampling, analyses and recording data are in compliance with regulatory standards for safe reuse and disposal of effluent and biosolids. RWRD's facilities also rely on maintenance staff to support the operations through the performance of preventative, predictive and emergency infrastructure repairs.

INVENTORY/WAREHOUSE

Treatment Division employees who oversee inventory/warehouse operations provide supplies and parts to treatment division employees to assure the department's facilities operate efficiently.

SCADA

Just as SCADA technology is used in the conveyance system, SCADA is also used at the department's treatment facilities. Computerized control is used to automate treatment processes at the Ina Road, Roger Road, and sub-regional facilities. The SCADA system also provides process monitoring and controls at these facilities.

the Community Resources Department with permit requirements.

GROUNDS KEEPING AND JANITORIAL SECTION

The Plant Services Section oversees all grounds keeping and janitorial activities at the Treatment Division's facilities.

Treatment Division Facilities

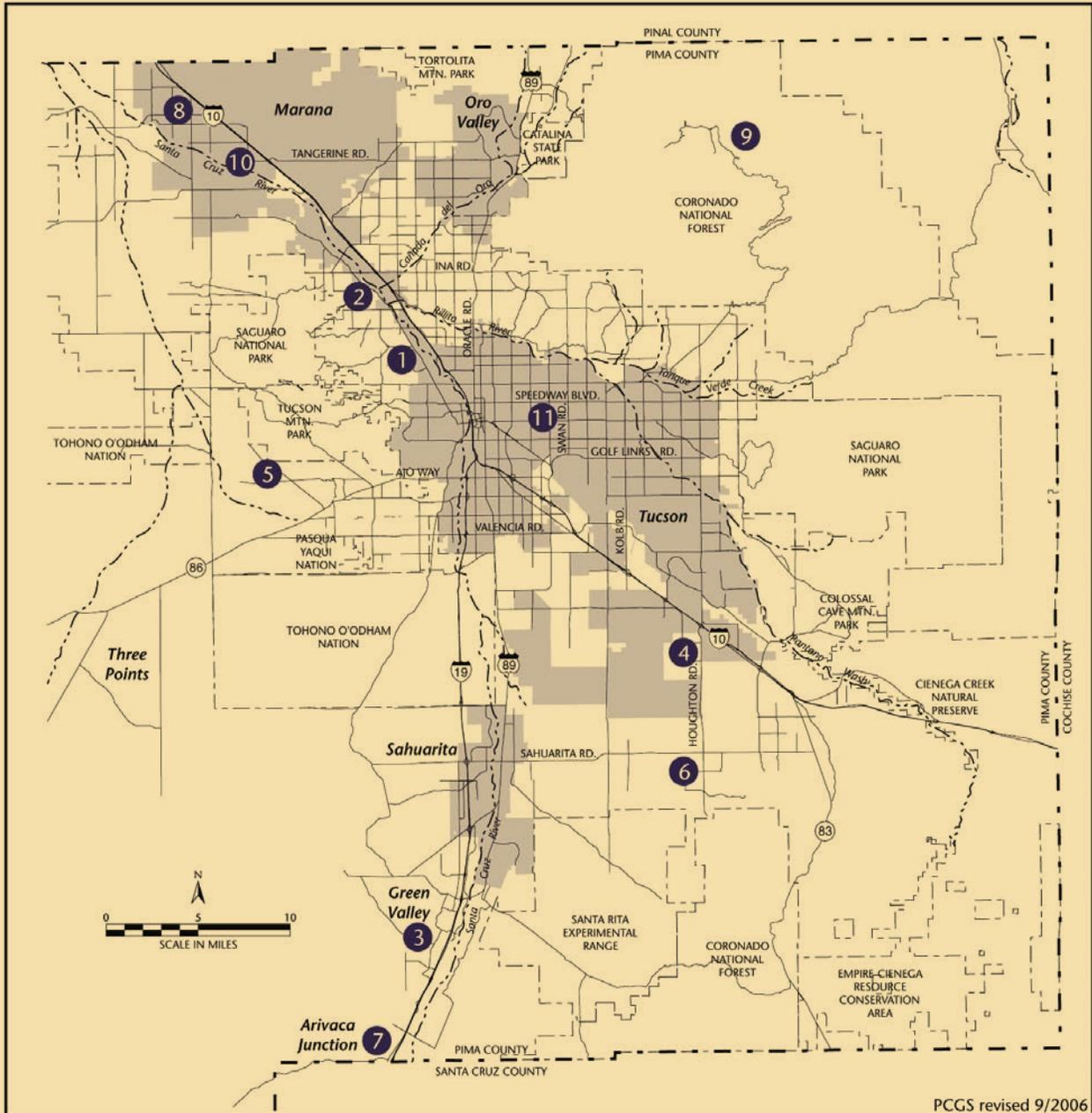
The Treatment Division oper-

ates eleven treatment facilities in Pima County. The two largest facilities (the Roger Road Wastewater Reclamation Facility and the Ina Road Wastewater Reclamation Facility) treat flows originating in the urban area. A third metropolitan facility, (The Randolph Water Reclamation Facility) also treats urban-area flows. Eight sub-regional

facilities treat flows in areas where distance and topography make it difficult or impossible to convey flows to one of the metropolitan plants.

OPERATIONS AND MAINTENANCE

All RWRD's facilities have operations staff who receive, process and dispose of wastewater in compliance with state, federal and local



Legend

● Treatment Facilities

- | | |
|--------------------------------|-------------------------|
| 1. Roger Road WRF | 7. Arivaca Junction WRF |
| 2. Ina Road WRF | 8. Marana WRF |
| 3. Green Valley WRF | 9. Mt. Lemmon WRF |
| 4. Pima County Fairgrounds WRF | 10. Rillito Vista WRF |
| 5. Avra Valley WRF | 11. Randolph Park WRF |
| 6. Corona de Tucson WRF | |

Pima County, Arizona
Wastewater Management Enterprise Fund
Statement of Revenues, Expenses,
And Changes in Fund Net Assets
Year Ended June 30, 2007

Operating revenues:

Sewer utility service	\$ 69,294,198
Engineering review and inspection fees	80,912
Permits and fines	77,979
Other income	<u>330,201</u>
Total operating revenues	<u>69,783,290</u>

Operating expenses:

Employee compensation	29,681,294
Operating supplies	8,579,373
Utilities	6,519,653
Sludge and refuse disposal	1,649,131
Repairs and maintenance	5,610,100
General and administrative	8,477,579
Consultants and professional services	7,144,575
Depreciation	<u>22,989,712</u>
Total operating expenses	<u>90,651,417</u>
Operating loss	<u>(20,868,127)</u>

Nonoperating revenues (expenses):

Intergovernmental revenue	7,290,545
Interest income	3,683,552
Sewer connection revenue	30,756,891
Loss on disposal of equipment	(1,453,933)
Interest expense	(6,498,914)
Amortization of deferred charges	<u>(108,751)</u>
Total nonoperating revenues (expenses)	<u>33,669,390</u>
Income before capital contributions and transfers	12,801,263

Capital contributions	25,216,806
Transfers out	<u>(653,646)</u>

Increase in net assets 37,364,423

Net assets, July 1, 2006 505,663,332

Net assets, June 30, 2007 \$ 543,027,755

Pima County, Arizona
Wastewater Management Enterprise Fund
Statement of Cash Flows
Year Ended June 30, 2007

Cash flows from operating activities

Receipts from customers	\$ 66,689,074
Miscellaneous receipts	330,201
Payments to suppliers for goods and services	(28,832,456)
Payments to other Pima County Funds for goods and services	(7,741,334)
Payments to employees	(29,482,485)
Net cash provided by operating activities	963,000

Cash flows from noncapital financing activities:

Intergovernmental receipts	555,407
Repayment of interfund borrowing	28,818
Net cash provided by non capital financing activities	585,225

Cash flows from capital and related financing activities:

Sewer connection receipts from customers	30,650,001
Proceeds from the sale of capital assets	128,290
Intergovernmental contact receipts	4,820,374
Purchase and construction of capital assets	(43,720,263)
Proceeds from issuance of sewer loans	51,429,022
Principle payments on revenue bond and loans	(13,737,957)
Interest payments on revenue bonds and loans	(6,119,878)
Net cash provided by investing activities	23,449,589

Cash flows from investing activities:

Interest received on investments	3,275,798
Net cash provided by investing activities	3,275,798

Net increase in cash and cash equivalents

28,273,612

Cash and cash equivalents, July 1, 2006

57,425,204

Cash and cash equivalents, June 30, 2007

\$ 85,698,816

(Continued)

Pima County, Arizona
Wastewater Management Enterprise Fund
Statement of Cash Flows
Year Ended June 30, 2007

(continued)

**Reconciliation of operating loss to net cash
Provided by operating activities:**

Operating loss	\$ (20,868,127)
Adjustment to reconcile operating loss to Net cash provided by operating activities:	
Depreciation	22,989,712
Changes in assets and liabilities:	
Decrease (increase) in assets	
Accounts receivable	(892,295)
Due from other governments	(1,871,720)
Inventory of materials and supplies	(80,149)
Prepaid expenses	(95,929)
Increase (decrease) in liabilities:	
Accounts payable	1,525,494
Due to other governments	57,205
Accrued payroll and employee benefits	<u>198,809</u>
Net cash provided by operating activities	<u>\$ 963,000</u>

Noncash investing and noncapital financing activities during the year ended June 30, 2007:

Developers conveyed capital assets with an estimated fair value of \$25,421,367 and other capital assets totaling \$36,000 was received from other governments. These transactions were recorded as capital contributions

Pima County Board of Supervisors approved Connection Fee Flow-Through Sewer Credit Agreements totaling \$282,311. This transaction was recorded as an increase to deferred revenue and a decrease in capital contributions.

The fund disposed of capital assets with a net book value of \$1,582,224.

The fund transferred to the County's general government the capital assets with a net book value of \$653,646.

The fund received fully-depreciated capital assets from the County's general government, \$79,638 and from other Enterprise Funds \$7,527.



Left to Right: Jeff Nichols, Deputy Director of Administration and Finance; E Management; Michael Gritzuk, Director; John Warner, Deputy Director



*Eric Wieduwilt, Acting Deputy Director of Engineering, Planning and Capacity
Director of Conveyance; Jackson Jenkins, Deputy Director of Treatment*

2007 ANNUAL REPORT

PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT



PIMA COUNTY BOARD OF SUPERVISORS

RICHARD ELÍAS, CHAIRMAN, DISTRICT 5

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COUNTY ADMINISTRATOR

C.H. HUCKELBERRY



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