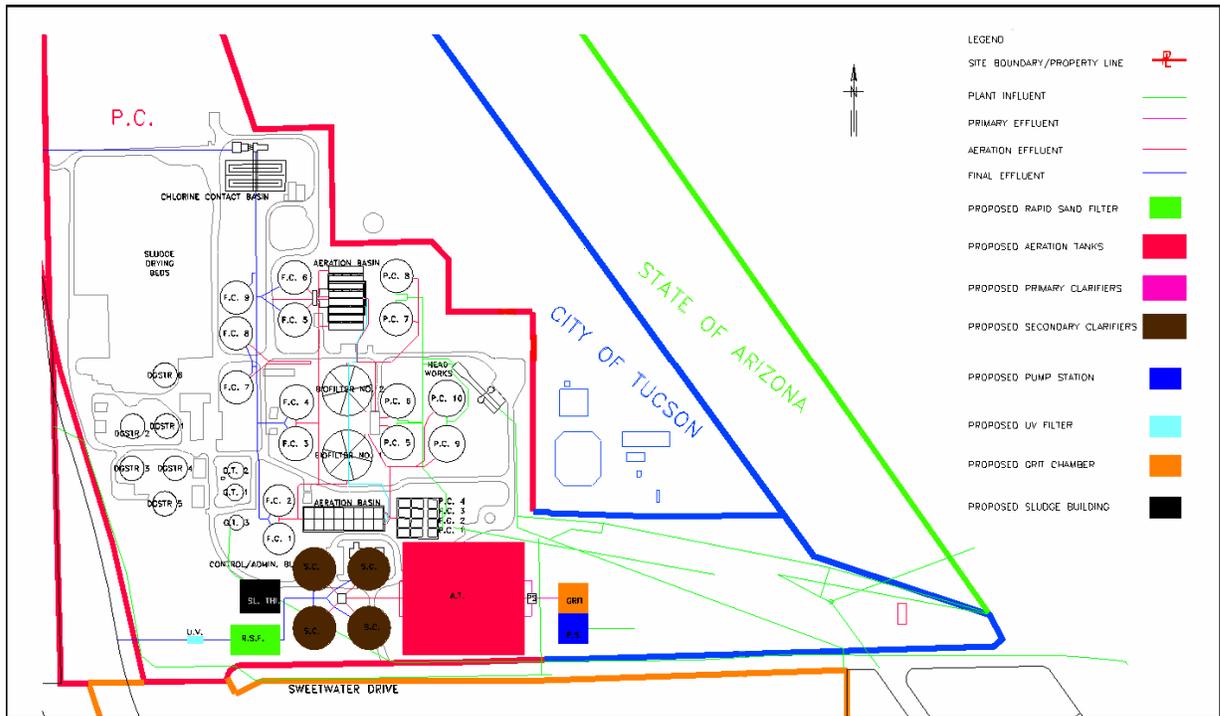




## REGIONAL OPTIMIZATION MASTER PLAN

The department, in conjunction with its team of consultants and stakeholders, has substantially arrived at a recommended plan for the Regional Optimization Master Plan (ROMP). In arriving at a recommended plan, the team analyzed a variety of alternatives for the future conveyance and treatment of wastewater in Pima County. The primary purpose of the ROMP is to develop a plan to meet ADEQ's regulatory requirement to reduce nitrogen concentrations in discharged effluent and to upgrade the treatment facilities to provide reliable operations and capacity for the future.

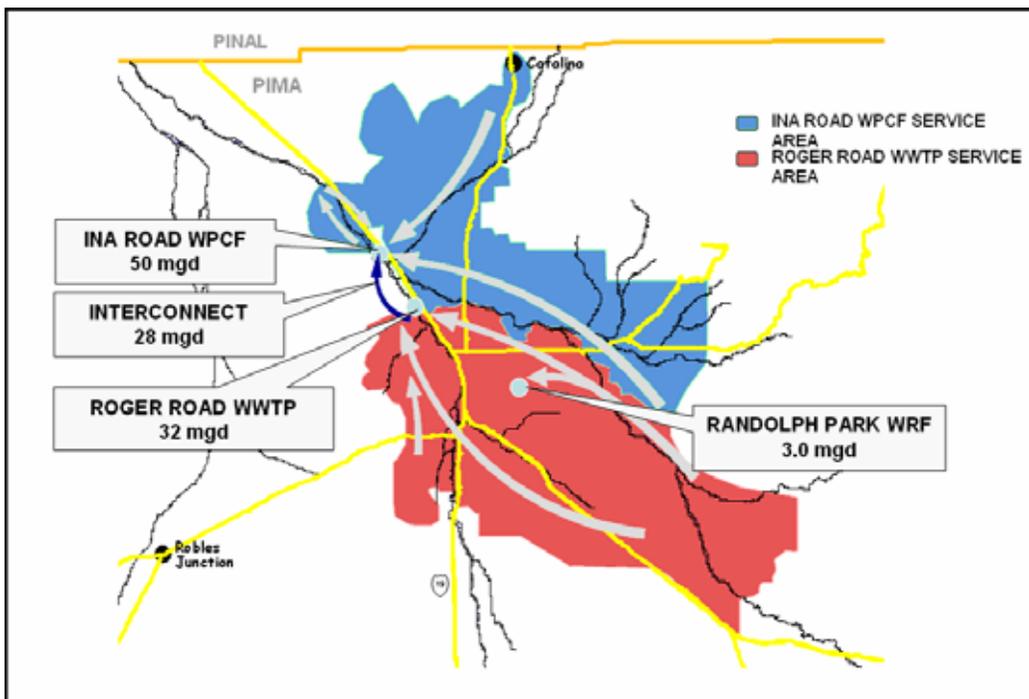


Projected Plant Configuration for Roger Road Site

The recommended plan consists of the following major components:

- 1) A new advanced treatment facility will be constructed adjacent to the existing Roger Road Wastewater Treatment Plant, which will be decommissioned when the new facility is operational.
- 2) The new facility will have a treatment capacity of 32 million gallons a day (MGD) and will meet all Aquifer Protection Permit (APP) and Arizona Pollutant Discharge Elimination System (AzPDES) Permit requirements. (The capacity of the existing Roger Road plant is 41 MGD.)
- 3) The Ina Road treatment facility will be expanded to treat 50 MGD and will meet all APP and AzPDES permit requirements. (The capacity at the existing Ina Road plant is 37.5 MGD.)

- 4) A plant interconnect line will be installed between the Roger Road and Ina Road facilities to convey 28 MGD of wastewater to the expanded Ina Road facility. The combined treatment capacity of 82 MGD for both plants will provide sufficient capacity to the year 2030.
- 5) The nitrogen reduction process that was selected for both facilities is known as the Bardenpho process. The Bardenpho process has a long-proven track record for nitrogen removal under various influent and operating conditions.
- 6) Effluent quality will be enhanced to reclaimed water quality which will be beneficial to the Tucson Water reclaimed water program and environmental enhancement projects envisioned by Pima County.
- 7) An implementation schedule has been developed to comply with the regulatory requirements of having the nitrogen-reduction treatment processes in operation within nine years (commencing on January 1, 2006) with other components of the ROMP completed within fifteen years.



Proposed plant interconnect will allow for increased flows to the Ina Road Facility

A comprehensive cost estimate was completed by the consultants which produced an overall cost estimate of \$501,270,000 for the recommended plan. The comprehensive cost estimate, which is based upon 2006 unit costs, includes associated costs such as engineering design, construction inspection and management, and demolition costs. The ROMP team is currently developing a conceptual implementation schedule for the proposed fifteen year program. In addition, a conceptual financial needs plan support the recommended ROMP program is being developed. Details of the recommended plan along with the

financial impacts will be presented to the Board of Supervisors at the January 16, 2007 public meeting.

The recommended plan also opens the door for the development of the recently discussed sports complex, environmental enhancement project and economic development along the 1-10 corridor and in nearby neighborhoods. This option also lends itself to a “water campus” concept which will provide bird watching opportunities, natural park environments, and the development of an education center. The riparian habitat that is already established will be enhanced and would draw more visitors because the effluent will be of a higher quality and the infrastructure proposed by Pima County Natural Resources Parks and Recreation Department would draw the public and other visitors to the site.

## **ODOR CONTROL PROGRAM**

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 sanitary sewerage conveyance system. The list was divided into two categories: Short term and near term projects. The short term efforts will take only a few months to complete, and some of these projects have been completed. The near term efforts could take up to 18 months to implement. Below are the projects the department’s odor control team is working on.

### **Short Term Efforts**

- Roger Road Headworks: Spray conveyors and storage vehicle with sodium hypochlorite solution. **(Completed)**
- Roger Road Gravity Thickeners: Optimize the quantity of chemical being used. Add sodium hydroxide to chemical scrubber solution.
- Roger Road Gravity Thickeners: Raise discharge stack.
- Roger Road Septage Dump Station: Evaluate alternate sites for receiving septage upstream of Headworks. Optimize quantity of chemical being applied. Add sodium hydroxide to chemical scrubber solution.
- Ina Road emergency Overflow Basins: Spray piles of debris with sodium hypochlorite solution. **(Completed)**
- Ina Road Primary Clarifiers: Optimize quantity of chemical being used.
- Ina Road Centrifuge Building: Change carbon filter. **(Completed)**
- Ina Road Centrifuge Building: Install dampers on vents to allow air in, not out.
- Conveyance System Anita Chemical Dosing Unit (CDU) Santa Cruz Central Interceptor: Modify chemical releases according to peaks in hydrogen sulfide levels. **(Completed)**
- Conveyance System Anita CDU (Santa Cruz East): Modify chemical releases according to peaks in hydrogen sulfide levels. **(Completed)**

- Conveyance System 18th Street CDU: Modify chemical releases according to peaks in hydrogen sulfide levels. **(Completed)**
- Conveyance System Wetmore CDU: Monitor daily to better understand control of chemical feed of bioxide into system.

### Near Term Efforts

- Roger Road Primary Clarifiers: Install covers over weir troughs, collect and scrub air.
- Roger Road Yard Structure Number 1: Collect and scrub air.
- Roger Road Headworks: Install new screenings washer compactor. **(Completed)**
- Roger Road Headworks: Enclose operation, collect and scrub air.
- Roger Road Biotowers: Reverse airflow and scrub exhaust air.
- Conveyance System Prince and I-10 Intersection: Use vapor treatment system.
- Conveyance System Alameda Siphon: Monitor current system to determine whether a new vapor treatment system is required.
- Conveyance System Santa Cruz Siphon Inlet Box (on Golf Course): Use vapor treatment system.
- Conveyance System Downstream of Anita CDU: Install a new CDU if dosing strategy cannot be perfected at current site.
- Conveyance System Prince Road CDU: Redirect capacity to sidestream(s) to reduce hydrogen sulfide loading.



Newly installed Washer Compactor at Roger Road will help to reduce odors.

Our consultants are working with staff to develop long term projects which will require several years to design and construct.

The Citizens Involvement Committee, established to provide input and participate in the odor control program, met on December 5, 2006.

## **CAPITAL IMPROVEMENT PROJECTS**

### **Treatment Plants Updates**

*Avra Valley Wastewater Treatment Facility* – Additional capacity of 0.4 MGD was completed in November. The full 1.0 MGD expansion will be completed by April 2007. Planning of an additional 4.0 expansion is underway. Construction of the 4.0 MGD expansion will begin in mid 2007.

*Corona de Tucson Wastewater Treatment Facility* - Construction of the expansion project at Corona de Tucson (1.0 MGD expansion) continued during the last quarter. The expansion is projected to be completed in mid 2007.

*Ina Road Water Pollution Control Facility* – During the last quarter, the new 12.5 MGD expansion at the Ina Road Water Pollution Control Facility continued to operate properly at full capacity. During this period, the facility met all regulatory permit compliance criteria.

*Marana Wastewater Treatment Facility* – Construction of the new 0.5 MGD expansion continued and is scheduled to be operational by March 2007. The department's design consultant is continuing design work on the 1.5 MGD expansion which is scheduled to begin construction in April 2007.

*Mt. Lemmon Wastewater Treatment Plant* - The department has conducted several meetings with the United States Forest Service, Pima County Department of Environmental Quality, and Catalina Mountains Partnership in regard to the Comprehensive Mt. Lemmon Service Area Watershed Study and Wastewater Management Plan. The result of this plan will be the upgrading/expansion of the wastewater treatment plant on Mt. Lemmon. The study which is scheduled to be complete by May 1, 2007 will provide a plan for future growth of the conveyance system and treatment plant on the mountain. Two public workshops are planned to provide information and receive input from Mt. Lemmon residents and property owners.

### **Conveyance System Updates**

**Carrillo Sewer Rehabilitation Project:** Construction continues on the Carrillo sewer rehabilitation project in the neighborhood south of the Tucson Community Center (Barrio Viejo). In addition to the point repairs which require excavation, the project has entered the phase where Cured-In-Place-Piping (CIPP) is taking place. The CIPP portion of this project disrupts sewer service to individual homes from four to twelve hours.

Wastewater Management's Community Outreach Coordinator continues to work closely with residents, businesses, schools and churches in the area to minimize disruption and provide accommodations where needed.

Substantial completion of this project is projected for February or March 2007. Final road repairs/paving will take place in April or May.

### **Santa Cruz Interceptor Project**

The construction contract for the Santa Cruz Interceptor was awarded by the Board of Supervisors on December 19. The cost of this project is nearly \$22 million. Disruption to local businesses and neighborhoods will be minimal because most activities will take place in Right of Ways and most tunneling will take place behind the Santa Cruz River bank protection. The construction period for this contract is approximately twelve months.



### **Santa Cruz Interceptor Phases II and III**



## **PROCESS IMPROVEMENT PROGRAMS**

The department continues to focus on continuous improvement through the Six Sigma and Balanced Scorecard programs. Pima County Wastewater Management Department is the first utility in the State to fully implement Six Sigma. Departmental savings realized through process improvements in 2006 were just over \$5.5 million.

In October, the department initiated a basic introductory course to the Six Sigma process, known as "whitebelt" training. By the end of December, a total of 65 managers and supervisors had received this training. Eventually every employee of Wastewater Management will be trained at the white belt level. Whitebelt training provides a basic understanding of the Six Sigma process. Greenbelt training culminates in the implementation of a project through the use of Six Sigma process.

In December, five additional Wastewater Management employees began Six Sigma "Greenbelt" training. This brings the total number of Greenbelts in Wastewater Management to sixteen. Due to the "hands-on" nature of this training, the department now has sixteen ongoing Six Sigma Greenbelt projects. Several of these projects are nearing completion.

In December, Wastewater Management's upper management team conducted a long-term strategic planning session to begin to formulate a roadmap for addressing issues that will affect the department over the course of the next five to ten years.

## **OPERATIONAL EFFORTS**

### **Capacity Management Operations and Maintenance - Permit**

On October 31, 2006, the department submitted an application to the Arizona Department of Environmental Quality (ADEQ) for a General Aquifer Protection Permit for Capacity, Management, Operations, and Maintenance (CMOM) of the Pima County Sewage Collection System. The department received notice of approval for the permit effective November 27, 2006. In the event of a sanitary sewer overflow, communities that officially adopt a CMOM program typically are allowed to direct funds toward areas that improve their performance as opposed to paying fines to regulatory agencies.

### **Sanitary Sewer Overflows (SSOs)**

As reported in the last update, the significant rain events that occurred last summer caused an increase in the total number of SSOs for 2006. The department ended the year with a total of 102 SSOs compared to 78 in 2005.

The department met with the Regional Office of ADEQ in December 2006 to discuss the rain events and our plans to prevent similar overflow emergencies in the future. ADEQ was satisfied with the plan, but requested alternative methodologies for the calculation of SSO volumes. The department will present these alternatives to ADEQ in January 2007.

## **Roach Control**

Customer roach complaint calls averaged twelve weekly during the months of October, November and December. With such small numbers of complaints, staff is able to respond to such calls within two working days or less.

The two-year vector control contract is now approximately 50% complete with more than 24,000 manholes treated. Quality checks of the work continue to show excellent results with no roaches found in the treated manholes. The department is on track to complete the treatment of 75% of the entire system by May 2007 when higher temperatures return.



## **COMMUNITY OUTREACH**

### **Grease Campaign**

The Community Relations Office kicked off its annual grease campaign to educate the public about the proper disposal of grease. During the months of December, January, and February, residential grease-related sanitary sewer overflows are at their highest. Increases in these types of overflows are believed to be related to the preparation of high-fat foods during the holiday season and improper disposal of fatty foods.

During the weeks of Thanksgiving and Christmas, the department ran public service announcements (PSAs) on local television stations. The PSAs educated the public about the proper disposal of grease. Advertisements were also placed in *Bear Essential News for Kids*, a monthly newspaper distributed to grade school children and their parents in the metropolitan Tucson area. The

advertisement which discussed the proper disposal of cooking grease ran in the November and December editions. Additional exposure about proper grease disposal was generated through the placement of posters on city buses. The posters illustrated the consequences of improper grease disposal and what residents can do to avoid the flushing of grease down residential drains.



On November 24, the department participated in a Day-After-Thanksgiving grease collection event. The advertisement of this event and information about the proper disposal of grease were included in November sewer/water bills (distributed to 250,000 households). In addition, the event and proper grease disposal were covered in local newspaper stories and television news broadcasts. Interviews and public service announcements about the event and grease disposal were aired on local radio stations. Four locations were set up to receive grease, with a total collection of 1400 pounds during the six-hour event. The collected grease will be used to make biodiesel.

### **Public Input on ROMP and Odor Issues**

On October 17, a public open house was held to educate the public about the following issues:

- New environmental regulatory requirements and how these requirements will impact the future of the Ina Road and Roger Road Wastewater Treatment facilities
- Odor control efforts (both short term and long term)
- Impacts of Pima County's plans on the City of Tucson's reclaimed water system and Sweetwater Wetlands facility
- Opportunities for an international sports complex at the current Roger Road plant site and surrounding area
- Impacts to the riparian habitats created by current effluent discharges into the Santa Cruz River at the Roger Road and Ina Road facilities

- Potential for economic development along the I-10 corridor in the vicinity of the Roger Road facility

Representatives from PCWMD, Natural Resources Parks and Recreation, Tucson Water, and our consultant were in attendance and answered the public's questions. The event received widespread media coverage.

More than 30 members of the public attended and provided both verbal and written feedback. The department has also generated comments through an automated comment line. Constituents can record their opinions, comments and concerns at (520) 622-2020. Information about the comment line was provided in the November and December sewer bills through Tucson Water and through the media coverage of the Open House.



*Open House Attendees listen to ROMP Project Manager Ronald Riska*

## **ADMINISTRATIVE CONCERNS IMPACTING CIP AND OPERATIONS**

### **Staff Shortages**

The department has been experiencing a very difficult time filling certain technical positions. Engineer, engineering assistant and engineering technician positions have been particularly hard to fill. Currently sixteen engineering positions are vacant, with some positions remaining vacant for more than a year. The department's inability to fill these positions has resulted in a lack of resources to effectively address a number of important issues. For example, the department's Capital Improvement Program has nearly doubled this fiscal year when compared to last fiscal year (approximately \$42 million in FY 2006/07 compared to approximately \$21 million in FY 2005/06). In order to move forward with the implementation of the departments Regional Optimization Master

Planning (ROMP) efforts as well as continued implementation of five year Capital Improvement Program the department's request for FY 2007/08 capital project funding will again more than double in FY 2007/08. The department's ability to implement a CMOM program and to achieve ISO 140001 certification is also compromised as engineering support is required for both CMOM and ISO certifications.

Due to the difficulty in filling engineering positions the department is requesting funding in their FY 2007/08 operations and maintenance budgets to hire engineering consultants to perform functionalities and tasks that would normally be performed in house. This will lead to an increase in costs to manage capital projects and a decrease in funding available to complete projects.

Finally, the department is also faced with a critical shortage of field inspectors. These inspectors ensure that newly constructed public sewer lines meet department standards and will operate properly, safely, and in an environmentally sound manner in both the near and distant future. The department will also be requesting additional funding in non-medical professional services in FY 2007/08 to address this shortage and maintain an inspection schedule that allows sewer improvements to be put into service when completed.

### **Connection Revenues Decreasing**

For the first five months of this fiscal year, the department has collected approximately \$11.3 million dollars in connection fee revenues compared to approximately \$15.6 million collected during the same period in FY 2005/06. This represents a 28% decrease in connection fee revenue. If this trend continues throughout the fiscal year, the department estimates it will collect approximately \$27.7 million in connection fees, or approximately \$10.4 million less than the adopted budget of \$38.1 million in connection fee revenues. The department had budgeted a reduction in this revenue source of approximately ten percent (10%) for FY 2006/07 when compared to FY 2005/06 actuals and will continue to closely monitor this and all other revenue sources to ensure that adjustments, if needed, can be made to address any shortfalls. This reduction in revenue limits the department's ability to fund capital improvements with System Development Funds and highlights the fact that one-time revenues should be used for one-time expenses and should not be used to fund ongoing operations and maintenance activities.

### **2007 Financial Plan**

For the past several years the department has brought forward its Financial Plan in the spring preceding the fiscal year to which it applies. After discussions regarding the timing of the Regional Optimization Master Planning (ROMP) efforts, consensus was reached to bring forward the 2007 Financial Plan to the Wastewater Management Advisory Committee, County Administration and the Board of Supervisors in the fall of 2007.

At this time the capital and financial planning efforts related to implementation of the recommendations of the ROMP are preliminary. The first goal of the master planning effort was to prepare two letters to the Arizona Department of Environmental Quality (ADEQ) detailing the treatment process the department would use in order to remove nutrients from its effluent at the Roger and Ina Road treatment facilities. After months of in-depth study and deliberation, the Bardenpho process was selected. With the selection of the nutrient removal process for both the Roger Road and Ina Road facilities, the first goal will soon be completed.

Between January and July/August of 2007 staff will be working closely with ROMP engineering and financial consultants to produce some other deliverables of the ROMP efforts. Those deliverables include:

- A technical memorandum that defines the elements, sub-elements and critical milestones of the program.
- Matrix criteria for evaluating project delivery methods as well as a recommendation of delivery method for program elements.
- A Capital Improvement Program with capital costs, schedule and funding strategy and project descriptions in a format suitable for inclusion in a bond information package.

Once complete, staff will be in a much better position to prepare a more accurate 2007 Financial Plan for the consideration of all concerned parties.