

# CONVEYANCE

## OUR GOAL

*Provide quality service, pollution prevention, and public health and safety protection for current and future generations of Pima County residents.*

*Enhance the sustainability of our community and our associated lifestyle through operations and maintenance of the Conveyance System.*

## VISION FOR THE FUTURE

The vision for the Conveyance Business System includes maintaining its current status as an industry leader in low sanitary sewer overflow incident rates. This single indicator of success is a measurable result of the commitment to seamless customer service, regulatory compliance, and a proactive sewer maintenance program.

Staff is committed to working together to ensure coordinated, flexible, timely, and innovative responses to changing needs. Integrating the Conveyance Capital Improvement Program (CIP) functions into the Conveyance Business System in 2013 provided a critical step forward enabling a more cohesive approach to project delivery. Project managers are now involved at the outset in project prioritization, scoping and scheduling to ensure the timely allocation of resources according to projects' needs. The vision for the future involves further evolution of this kind of integrated approach to conveyance system maintenance and management. For example, partnering with the county's central Project Management Office will foster a more balanced and cross-departmental allocation of resources for timely CIP project delivery.

With the completion of all major components of the ROMP, the department is focusing its attention on the repair and rehabilitation of the conveyance system. Just as aging treatment facilities required repair and rehabilitation, reaches of the aging sanitary sewer system also are in need of repair and rehabilitation. The extensive Conveyance Rehabilitation Program planned over the next five years will support the community's capacity for economic development and growth and PCRWRD's vision to be an industry leader. The Conveyance Business System will build upon this momentum to ensure adequate annual revenue streams for on-going, proactive system maintenance and rehabilitation. This vision for infrastructure investment also includes the incorporation of state-of-the-art odor control and safety and environmentally-friendly features.

Finally, advancements in Closed Circuit Television (CCTV) technology will be used to identify hot spots in need of repair, improved prioritization, and scheduling of rehabilitation projects before failures occur. This in turn, will reduce budget allocation for emergencies.

## OPPORTUNITIES

### Equipment Downtime and Proactive Equipment Replacement

Equipment downtime is a major challenge to the efficient and effective maintenance of the sewer system. There is an opportunity to work in partnership with the Pima County Fleet Services Department to improve understanding of PCRWRD's need for timely and cost-effective repairs, reliability of service, and a "green" equipment replacement program.

### Added Capacity

Additional capacity is needed to serve future customers and fix bottlenecks in the system. Projected population growth in the southeast area and urban infill in central areas of Tucson are examples of locations where system capacity augmentation is needed.



## Repair and Replacement of Aging Infrastructure

To avoid system failure, the department must meet the challenge of repairing and replacing aging infrastructure. There is an opportunity to build on the momentum created with the ROMP to adequately fund the CIP and O&M budgets and to close the funding gap that has previously resulted in a lack of adequate investment in infrastructure maintenance and rehabilitation.

## Capacity Management Operations and Maintenance

Maintaining compliance with Capacity Management Operations and Maintenance (CMOM) regulations will remain a priority and an on-going opportunity.

## Facility Renovation and Expansion of Old Facilities

The renovation and expansion of the work space for the Conveyance Division's field crews and pump station staff are needed to provide adequate and appropriate workspace for these employees.

# MAJOR PROJECTS AND PROGRAMS

## Closed Circuit Television Assessment

Closed-Circuit Television (CCTV) Services provide a sub-surface assessment of sewer pipes. On a daily basis, CCTV activities provide data on existing conditions and maintenance needs of the community's sewer infrastructure. The department is on track to complete the state-mandated televised recording of the entire conveyance infrastructure by December 2016. Following that, the CCTV program will continue to televise the entire system over the next 10 years in compliance with ADEQ's Capacity Management Operations and Maintenance (CMOM) requirements. This data feeds the annual development of the CIP and Sewer Maintenance Programs fostering proactive and cost-effective maintenance of Pima County's wastewater conveyance system. The use of CCTV decreases disruptions to sewer service and traffic flow that would occur if other types of assessment had to be used.

## Continuous Improvement

Since 2007, the Conveyance Business System has implemented a rigorous, systematic and collaborative continuous improvement program that is consistent with national best management practices, including but not limited to ISO 9001 standards. In 2013, the CIP functions were incorporated into the Conveyance Business System's organizational structure, and a major continuous improvement effort to define and improve the efficiency and effectiveness of the CIP processes was implemented. Over the next five years, the comprehensive continuous improvement methods implemented to date (and now embedded in the CIP subsystem) will be continued and enhanced. Key activities will include conducting annual reviews of all processes; maintaining up-to-date process maps that define work flows and requirements; training staff on the use of the process maps to ensure consistency; identifying and resolving opportunities for improvement; and monitoring performance metrics for the timeliness, quality and cost effectiveness of all processes.



## KEY PERFORMANCE INDICATORS

- SSO Incident Rate
- Rodder / Vector Production
- Budget Tracking
- Work Order Rates
- Odor Complaints
- Vector Complaints



### Conveyance CIP: Rehabilitation Program

The purpose of the Conveyance Rehabilitation Program is to manage system assets through repairs, linings or replacements to mitigate expensive and potentially catastrophic events that could result in public exposure to raw sewage and sewer service disruption. Over the next five years, approximately \$109 million will be expended on projects system wide. Examples of major conveyance rehabilitation projects include the North Rillito Interceptor, the South Rillito West Central Interceptor, and the Continental Ranch Regional Pump Station. Additionally, a large number of smaller JOC projects also will be completed over the five-year planning horizon.

### Conveyance CIP Augmentation Program

The purpose of the Conveyance CIP Augmentation Program is to provide needed capacity to serve future customers and fix bottlenecks in the system. Several major projects are planned over the next five years: Southeast Interceptor Project, Aerospace Corridor and Speedway/UA Augmentation Project. Implementation of these projects will enhance the overall reliability of the conveyance system, provide service to new customers, and ensure PCRWRD's compliance with federal guidelines for CMOM.

### Wastewater Pumping Systems Rehabilitation Program

Over the next five years, approximately eight pump station projects will be completed at a cost of about \$9.2 million. Some pump stations will be rehabilitated while others will be taken off line after conversion to a gravity-feed system. Efforts to bring old systems up to current design standards will incorporate advanced odor control and energy efficient technologies. Many safety features, such as improving safe access (self-opening hatches) and installing safety equipment (safety nets, rails, and eye wash stations) will be included. Force main route studies are a major component of these projects and minimization of environmental impacts will play a critical role in decision making.

### Sewer Maintenance Program

The purpose of this program is to implement preventative maintenance protocols to support a fully functional and efficiently maintained conveyance system. A well-maintained system ensures regulatory compliance and the protection of the public health, protection of PCRWRD workers, and protection of the environment. To this end, investments will be made in new combo trucks to replace ones that have exceeded their useful life. A growing partnership with Pima County's Fleet Services Department will result in proactive and timely vehicle maintenance. On average, in the next five years, 350 miles of sewer pipes will be cleaned annually.

## BENEFITS

- Reduce Sanitary Sewer Overflow (SSO) incident rates;
- Maintain compliance;
- Increase energy efficiency;
- Reduce odor complaints;
- Increase safety of Conveyance Division employees;
- Contribute to PCRWRD's vision to be an industry leader; and
- Support Pima County's goals to sustain community growth and economic vitality.

# CONVEYANCE MILESTONES

PROJECT/PROGRAM	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19
<b>CCTV SERVICES</b>	550 Miles Televised	550 Miles Televised	350 Miles Televised	350 Miles Televised	350 Miles Televised
<b>CONTINUOUS IMPROVEMENT</b>	Release and Control CIP Maps				
	Training of Other Internal Users (in Other Divisions) Linked to Process Maps				
	Training of External Departments Linked to Process Maps				
	Monthly Metrics Review Meetings and System and Process Owners				
	Semi-Annual Process Improvement Plan Implementation Review				
	Semi-Annual Business Review (System and Process Owners)				
<b>CONVEYANCE CIP: REHABILITATION (\$109M OVER 5 YEARS)</b> • JOC: Job Order Contracts	\$15 M estimated JOC expenditures				
		South Rillito West Central Interceptor Completed	North Rillito Interceptor Completed		Continental Ranch Regional Pump Station Completed
<b>CONVEYANCE CIP: AUGMENTATION (\$41M OVER 5 YEARS)</b>	Southeast Interceptor (SEI) Design; Planning Studies Initiated for Aerospace Corridor and Speedway/UA Augmentation	SEI Construction Begins			SEI Completed
<b>WASTEWATER PUMPING SYSTEMS REHABILITATION</b>	Arivaca, Cardinal and Principal Pump Stations Scheduled for Construction	Silverbell and La Tierra Pump Stations Scheduled for Construction	State Prison Pump Station Scheduled for Construction		Silverado Pump Station Scheduled for Construction
<b>SEWER MAINTENANCE PROGRAM</b>	Rod / Vactor 200 Miles Per Month of Sewer Cleaning				