

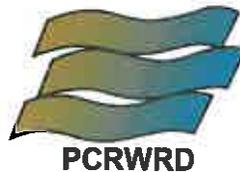
**PIMA COUNTY REGIONAL
WASTEWATER RECLAMATION DEPARTMENT**



**Jackson Jenkins
Director**

**CONVEYANCE DIVISION
CAPACITY, MANAGEMENT, OPERATIONS AND
MAINTENANCE (CMOM) PLAN**

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Conveyance Division**



June 2012 Revision

PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT

CONVEYANCE DIVISION

CAPACITY, MANAGEMENT, OPERATIONS AND MAINTENANCE (CMOM) PLAN

CMOM – June 2012

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Pima County Regional Wastewater Reclamation Department

Conveyance Division

CAPACITY, MANAGEMENT, OPERATIONS AND MAINTENANCE (CMOM) PLAN

CMOM – June 2012

1. INTRODUCTION

Pima County Regional Wastewater Reclamation Department (PCRWRD, or the Department) developed this CMOM Plan for its Conveyance Division (the Division) in accordance with the Arizona Administrative Code (AAC) R18-9-C305.

1.1. AUTHORITY

Pima County, Arizona, Government is authorized to operate a sewerage system, establish a system of user fees, lien property for the non-payment of system user fees, issue, sell and secure bonds for facility construction, and otherwise finance the operation of the public sanitary sewerage system.¹ Pima County Regional Wastewater Reclamation Department, as a department of Pima County Government, has been assigned the responsibility for carrying out these statutory authorities.

1.2. PERMITS APPLICABLE TO THE PIMA COUNTY SEWAGE CONVEYANCE SYSTEM

Prior to November 14, 2005, the effective date of AAC R18-9-C305, the wastewater conveyance system tributary to each of the several Publicly Owned Treatment Works (POTW) of Pima County were considered to be appurtenant to the applicable wastewater treatment facility. Consequently, the permits issued to each POTW, whether an AZPDES Permit or an Aquifer Protection Permit, were also applicable to the appurtenant sanitary sewage conveyance system. Copies of these permits are available for review from the PCRWRD Permit and Compliance Regulatory Affairs Office (CRAO).

1.3. THE PIMA COUNTY SEWAGE CONVEYANCE SYSTEM

1.3.1. Physical Characteristics

In developing the pertinent facets of this CMOM Plan, PCRWRD considered the age, complexity and size of the conveyance system. The PCRWRD conveyance system provides sanitary sewage collection, treatment and water reclamation for Pima County. As of February 2012, residential customer accounts totaled 250,326, commercial 12,618, industrial account 1,024. The total number of customer accounts was 263,968. In 2011, PCRWRD treated 62.74 million gallons per day of sewage influent for environmental reclamation recharge or reuse. The sanitary sewerage system consists of the following major elements:

- a. Two major wastewater treatment facilities (Roger Road WRF and Ina Road WRF)
- b. One urban water reclamation facility (Randolph Park WRF)

¹ Arizona Revised Statute (ARS) 11-264 et. seq.

- c. Seven outlying wastewater treatment facilities (Arivaca Junction, Avra Valley, Corona de Tucson, Green Valley, Mt. Lemmon, Pima County Fairgrounds, Rillito Facility).

Chart 1 - Conveyance Division Service Area Statistics

| | Units | Quantity |
|--|--------------|-----------------|
| Total Wastewater Service Area, Square Miles | Sq. Mi. | 420 |
| Length of Gravity Sewer | Miles | 3,441 |
| Number of Manholes | Each | 64,607 |
| Number of Cleanouts | Each | 8,529 |
| Distance to Most Distant Service Area | Miles | 45 |
| Total Number of Pumping Systems | Each | 28 |
| Total Length of Pressure (Force Main) Sewers | Miles | 29 |
| Number of Active Pumping Systems | Each | 25 |
| Distance to Most Distant Pumping System | Miles | 45 |
| Largest Pumping System – Continental Ranch | MGD | 1.8 |

The Department also considers several geographical, climatic and hydrological factors that affect the development, expansion, maintenance and management of the public sanitary sewage conveyance system. The principal factors are:

- a. **Subsidence.** Subsidence of land areas within the public sewerage service areas – caused by the withdrawal of ground water for water supply purposes – has been detected in the past and is being monitored, principally, by the U. S. Geodetic Survey. Subsidence, if it continues, could noticeably affect the proper gravity flow of the public sanitary sewage conveyance system. Since 2005, however, any subsidence that has occurred has not been sufficient to seriously disrupt the operation of any gravity flow sanitary sewers. The Division is monitoring this possibility through its capacity management and structural condition assessment inspection and maintenance programs.
- b. **Climatic.** The Tucson Metropolitan Area is situated in the Upper Sonoran Desert region with temperatures ranging from a low temperature average of 37° F in the winter periods to a high temperature average of 101° F during the summer². This relatively warm climate is reflected in the temperature of the sewage flowing within the public conveyance system. As the temperature of the sewage increases, the microbial activity within the sewage increases. This increase in microbial activity is responsible for the generation of sulfides which increase the potential for structural degradation. In order to reduce the odors associated with the public sanitary sewage conveyance system, the Division manually samples and determines the concentration of sulfides within the sewage flow. This information allows Division staff to apply odor controlling chemicals to the sewage stream.
- c. **Hydrological.** While the Tucson Metropolitan Area does not receive large annual rainfall amounts (about 11-inches of precipitation per year) it does experience sudden, intense rain storms; particularly, during the summer “monsoon” season. During these intense storms, storm water flow occurs along streets and washes. The storm water run off can inflow into the public sanitary sewage conveyance system via vent holes in manhole

² From Tucson Metropolitan Convention and Visitors Bureau Web Site.

covers. The Division has programs that identify manholes with a high potential for inflow into the sewage conveyance system and to install water control inserts beneath the manhole covers of those sewer access structures.

There are no sanitary sewage conveyance systems, owned by entities other than Pima County, Arizona, that are “downstream” of Pima County’s public sanitary sewage conveyance system³. The wastewater treatment facilities to which Pima County’s public sanitary sewage conveyance system are tributary are listed in the following table:

| Wastewater Treatment Facility | Owned By | Conveyance System Connection Point | | |
|-------------------------------|----------|------------------------------------|----------------------|--------------|
| | | Manhole ID | GPS Coordinate Point | |
| | | | X-Coordinate | Y-Coordinate |
| Ina Road WRF | Pima Co. | 1703-01 | 962386.664 | 484970.373 |
| Roger Road WRF | Pima Co. | 9718-INLT | 975915.023 | 467173.127 |
| Randolph Park WRF | Pima Co. | 3734-01C | 1010784.298 | 440601.476 |
| Green Valley WRF | Pima Co. | 7050-01B | 992947.572 | 328465.516 |
| Arivaca Junction WRF | Pima Co. | 1487-01 | N/A | N/A |
| Corona de Tucson WRF | Pima Co. | 7997-01 | 1047514.245 | 354757.827 |
| Avra Valley WRF | Pima Co. | 5475-01 | 929399.122 | 423520.346 |
| Rillito Vista WRF | Pima Co. | 6146-PMP | N/A | N/A |
| Mt. Lemmon WRF | Pima Co. | 5300-PMP | N/A | N/A |
| Pima County Fairgrounds WRF | Pima Co. | 5768-01 | N/A | N/A |

The map of Pima County’s public sanitary sewer service area⁴ may be accessed using the Pima County GIS maps and the Map Guide software that are available at <http://www.dot.pima.gov/www/maps/>.

1.4. On-Site Wastewater Treatment Systems: Connection to Public Sewerage System

The rules and requirements set forth in Pima County Code Title 7, Chapter 21, Liquid Waste, govern the design, approval, operation, maintenance and replacement of on-site wastewater treatment systems. These provisions also govern when an existing on-site wastewater treatment system must be connected to the public sanitary sewerage system.

2. ELEMENTS OF THE CONVEYANCE DIVISION CMOM PLAN

Pima County Regional Wastewater Reclamation Department and the Conveyance Division must properly manage, operate and maintain, at all times, all parts of the public sanitary sewage conveyance system that Pima County owns or over which Pima County has operational control.

2.1. PLANNING ELEMENTS

The Planning Elements provide the basis upon which the remaining elements are developed. The Planning Elements define the policy statements of the Department and the Division that give direction for the following elements. They set forth the legal authorities and the requirements that will govern the management of the public sewage conveyance system. They enumerate the physical assets and they quantify the resources available to maintain the public system and the system’s performance characteristics.

³ A requirement of R18-9-C305.C.1

⁴ See R18-9-C305.C.2

2.1.1. Mission Statements

The Mission Statements developed by the Department and the Division are:

2.1.1.1. Regional Wastewater Reclamation Department Mission Statement

The mission of the Pima County Regional Wastewater Reclamation Department is to protect the public health, safety, and the environment by providing quality service, environmental stewardship and renewable resources.

2.1.1.2. Conveyance Division Policy Statement

The policy statement of the Pima County Regional Wastewater Reclamation Department's Conveyance Division:

We are committed to the following:

- Protecting the public health & safety,
- Protecting the environment,
- Providing quality service, environmental stewardship and renewable resources,
- Preventing pollution,
- Complying with all applicable legal and regulatory requirements,
- Continuous Improvement,
- Conveyance Division is committed to using the Business Management System to fulfill this policy.

2.1.2. Legal Authorities

The legal authorities and requirements that govern the management of the public sewage conveyance system are embodied in several Federal, State and local statutes, regulations, and ordinances. These legal authorities both empower and mandate the management and staff of the Department and Division in their efforts to manage, operate and maintain the public sanitary sewage conveyance system.

2.1.2.1 Federal Legal Authorities

2.1.2.1.1. PCRWRD Permits

PCRWRD permits related to the Conveyance Division's management, operations, maintenance and capacity of the sewage collection are located in the attachment section under RWRD Downstream Treatment Facilities & Other Existing Federal & State Environmental Permits section.

2.1.2.1.2. National Pretreatment Standards Program

The Code of Federal Regulations, specifically 40 CFR 403.5, requires local sewerage management agencies to adopt national pretreatment standards for their public sanitary sewerage systems. Pima County adopted Pima County Code, ([Title 13, Chapter 36, Industrial Wastewater](#)), in order to administer and enforce the required pretreatment standards.

2.1.2.1.3. Storm Water Permits

Municipal Separate Storm Sewer System (MS4) Permits within the PCRWRD Conveyance System area are as follows:

| <u>Permitted Entity</u> | <u>MS4 Permit Number</u> |
|-------------------------|--------------------------|
| Pima County | AZS000002 |
| City of Tucson | AZS000001 |
| Town of Marana | AZ0024520 |
| Town of Oro Valley | AZG2002-002 |
| South Tucson | AZG2002-002 |
| University of Arizona | AZG2002-002 |
| Davis Monthan AFB | AZG2002-002 |
| Veterans Hospital | AZG2002-002 |

2.1.2.2. State of Arizona Legal Authorities

2.1.2.2.1. Statutes

The following Arizona Revised Statutes (ARS) provide for or control RWRD operations with respect to the Pima County Sanitary Sewerage System.

a. ARS §11-264, et. seq.

Provides Pima County, via its Regional Wastewater Reclamation Department, the authority to operate a sewerage system, establish a system of user fees, lien property for the non-payment of system user fees, issue, sell and secure bonds for facility construction, and otherwise finance the operation of the sewerage system.

b. ARS §13-1601 and ARS §13-1602

Provides Pima County the authority to pursue persons that interfere with or recklessly impair the functioning of the sanitary sewerage system.

c. ARS § 36-601 and ARS § 36-602

Specifically declares the discharge or exposure of sewage to or between any person or persons a public nuisance dangerous to the public health and a potential instrument or medium in the transmission of disease, and requires the abatement of and establishes civil penalties for such nuisances.

d. ARS § 49-104

Provides the Arizona Department of Environmental Quality (ADEQ) with the authority to prescribe reasonable rules regarding sewage collection, treatment, disposal and reclamation systems.

2.1.2.2.2. Arizona Administrative Code

The Arizona Administrative Code (A.A.C.) is the official compilation of the collected rules of the State of Arizona.

a. 2.05 General Permit

Pima County, the Department and the Division are allowed, under the terms of the 2.05 General Permit (see R18-9-C305) issued by the Arizona Department of Environmental Quality (ADEQ), to manage, operate, and maintain its sanitary sewage conveyance system in accordance with its CMOM Plan.⁵ Accordingly, the CMOM Plan must demonstrate how the Department and the Division will manage, operate and maintain Pima County's sanitary sewage conveyance system to meet the performance requirements of R18-9-C305.E.1 and provide instructions on:

- i. how to properly manage, operate and maintain all parts of the sanitary sewage conveyance system that are owned by Pima County and controlled by the Department under the operating permit;
- ii. how to maintain sufficient capacity within all parts of the sanitary sewage conveyance system to convey the base flow and the peak wet weather flow of a 10-year, 24-hour storm event;
- iii. take all reasonable and prudent steps to minimize infiltration into the sanitary sewage conveyance system;
- iv. take all reasonable and prudent steps to stop all releases from the public sanitary sewage conveyance system controlled under the operating permit; and
- v. establish and describe the Department's procedure for reporting releases.

⁵ R18-9-C305.B

2.1.2.3. Pima County Legal Authorities

2.1.2.3.1. For Treatment and Conveyance System Design and Construction Control

The documents identified below provide for treatment and conveyance design and construction control for the public sanitary sewage conveyance system. The provisions requiring sewers and connections to be properly designed and constructed are found within these documents:

- a. Pima County – City of Tucson Standard Details for Public Improvements, 2003 Edition. (Incorporated by Reference – Maintained Separately)
http://www.dot.pima.gov/transeng/stdspecsdet/standarddetails2003_scanned.pdf
- b. Pima County – City of Tucson Standard Specifications for Public Improvements, 2003 Edition. (Incorporated by Reference – Maintained Separately)
<http://www.dot.pima.gov/transeng/stdspecsdet/standardspecs2003.pdf>
- c. Pima County Code, Title 13, Chapter 12, Preliminary Sewer Layout Requirements and Standard Specifications
[chapter 13.12 preliminary sewer layout requirements*](#)
- d. Pima County Code, Title 13, Chapter 16, Design Standards for Public Sewerage Facilities.
[chapter 13.16 design standards for public sewerage facilities*](#)
- e. Pima County Code, Title 13, Chapter 20, Sanitary Sewer Construction, Connection and Fees.
[chapter 13.20 sanitary sewer construction, connections and fees**](#)
- f. Pima County Code, Title 13, Chapter 28, Mt. Lemmon Sewer Connections.
[chapter 13.28 mt. lemmon sewer connections](#)

2.1.2.3.2. For Conveyance System Installation, Testing, and Inspection Control

The following documents provide for installation, testing and inspection control for the public sanitary sewage conveyance system. Within these documents are provisions to ensure proper installation, testing, and inspection of new and rehabilitated sewers:

- a. Pima County – City of Tucson Standard Details for Public Improvements, 2003 Edition. (Incorporated by Reference – Maintained Separately)

http://www.dot.pima.gov/transeng/stdspecsdet/standarddetails2003_scanned.pdf

- b. Pima County – City of Tucson Standard Specifications for Public Improvements, 2003 Edition. (Incorporated by Reference – Maintained Separately)
<http://www.dot.pima.gov/transeng/stdspecsdet/standardspecs2003.pdf>
- c. Pima County Code, Title 13, Chapter 12, Preliminary Sewer Layout Requirements and Standard Specifications
[**chapter 13.12 preliminary sewer layout requirements***](#)
- d. Pima County Code, Title 13, Chapter 16, Design Standards for Public Sewerage Facilities.
[**chapter 13.16 design standards for public sewerage facilities***](#)
- e. Pima County Code, Title 13, Chapter 20, Sanitary Sewer Construction, Connection and Fees.
[**chapter 13.20 sanitary sewer construction, connections and fees****](#)
- f. Pima County Code, Title 13, Chapter 28, Mt. Lemmon Sewer Connections.
[**chapter 13.28 mt. lemmon sewer connections**](#)
- g. Pima County Code, Title 13, Chapter 36, Industrial Wastewater
[**chapter 13.36 industrial wastewater***](#)

2.1.2.3.3. For Infiltration and Connection Control

The following documents provide for infiltration and connection control to the public sanitary sewage conveyance system:

- a. Pima County – City of Tucson Standard Details for Public Improvements, 2003 Edition. (Incorporated by Reference – Maintained Separately)
http://www.dot.co.pima.az.us/transeng/stdspecsdet/standarddetails2003_scanned.pdf
- b. Pima County – City of Tucson Standard Specifications for Public Improvements, 2003 Edition. (Incorporated by Reference – Maintained Separately)
<http://www.dot.co.pima.az.us/transeng/stdspecsdet/standardspecs2003.pdf>
- c. Pima County Code, Title 13, Chapter 12, Preliminary Sewer Layout Requirements.
[**chapter 13.12 preliminary sewer layout requirements***](#)

- d. Pima County Code, Title 13, Chapter 16, Design Standards for Public Sewerage Facilities.
[chapter 13.16 design standards for public sewerage facilities*](#)
- e. Pima County Code, Title 13, Chapter 20, Sanitary Sewer Construction, Connection and Fees.
[chapter 13.20 sanitary sewer construction, connections and fees**](#)
- f. Pima County Code, Title 13, Chapter 28, Mt. Lemmon Sewer Connections.
[chapter 13.28 mt. lemmon sewer connections](#)
- g. Pima County Code, Title 13, Chapter 36, Industrial Wastewater
[chapter 13.36 industrial wastewater*](#)

2.1.2.4. Intergovernmental Agreements

The Pima County government has negotiated and approved several Intergovernmental Agreements (IGAs) for various reasons. Those IGAs which provide sanitary sewerage services to other governmental jurisdictions within Eastern Pima County are identified on the PCRWD intranet at <http://intranet.wwm.pima.gov/reports/IGAs.htm>

Other sources for Intergovernmental Agreements are:

- The Procurement Department stores more recent Intergovernmental Agreements at <http://www.pima.gov/econtracts/bytype.asp>
- Contact the office of the Clerk of the board to request a specific “Keyword” search.

2.1.2.5. Sewer Service and Other Agreements

Pima County government has routinely negotiated and approved Sewer Service Agreements (SSA) to provide private entities with sanitary sewerage service. The majority of these service agreements are with private developers. The SSA establish the nature of a development, the number and type of customers to be provided sewerage service, the extent of on-site and off-site sewage conveyance facilities to be added to the public system, and other details.

A few of the agreements between Pima County government and other facilities are for specific or general purposes and are titled as such. An example is the Silverado Hills HOA Special Facilities Agreement (SFA). Under the terms of this SFA, Pima County is to operate, maintain, repair and rehabilitate a wastewater pumping system located in the vicinity of Houghton Road and Speedway Boulevard for an annual or monthly fee.

2.1.2.6. Satellite Municipal Collection Systems

The Department is the major provider of public sanitary sewage conveyance system services within Pima County. The Town of Ajo, in Western Pima County, and the Town of Sahuarita, located between the City of Tucson and the un-incorporated area of Green Valley, provide separate public sanitary sewerage services (i.e., both sanitary sewage collection/conveyance and treatment/disposal/reuse services). These two public sanitary sewerage systems are isolated from the Pima County system, and are not tributary to the regional public sanitary sewerage system operated by the Pima County Regional Wastewater Reclamation Department or any portion thereof.

There are several minor satellite municipal collection systems tributary to the Pima County regional public sanitary sewerage facilities operated by the Department.

The minor satellite municipal collections systems tributary to the regional public sanitary sewerage facilities include sanitary sewage conveyance systems operated by the Davis-Monthan AFB, the University of Arizona (a public educational institution governed by the Arizona State Board of Regents), Tucson International Airport Authority and Ventana Canyon Golf Villas II.

| Satellite Municipal Collection System | Location of Connection to Pima County Public Sanitary Sewerage System | | |
|---------------------------------------|---|--------------|--------------|
| | MH ID | X-Coordinate | Y-Coordinate |
| Davis-Monthan AFB | 9838-26 | 1019352.254 | 435294.117 |
| | 1769-16 | 1016340.204 | 435249.072 |
| University of Arizona | 4187-01 | N/A | N/A |
| | 5958-13 | 1000806.532 | 449410.714 |
| | 5958-26 | 997909.117 | 447932.918 |
| | 5958-28 | 998602.849 | 447941.613 |
| | 5958-29 | 999126.313 | 447947.249 |
| | 6338-01 | 996810.328 | 448746.913 |
| | 6339-01 | 996823.030 | 448487.532 |
| | 6339-02 | 996835.270 | 448225.426 |
| | 6408-03 | 997553.067 | 450115.376 |
| | 6408-04 | 997844.008 | 450118.525 |
| | 6409-04 | 997261.674 | 450912.490 |
| | 7219-07 | 999735.040 | 448444.318 |
| | 8104-10 | 996804.216 | 449344.633 |
| | 8583-01 | 999489.287 | 449162.273 |
| | 8583-04 | 999493.443 | 448915.500 |
| | 8583-08 | 999496.963 | 448644.246 |
| | 8808-38B | 996805.863 | 449824.785 |
| | 8808-61A | 996810.132 | 448869.364 |
| Tucson International Airport | 9614-16 | 1003407.231 | 409872.431 |
| | 8044-18 | 998427.208 | 405512.519 |
| | 3747-01 | N/A | N/A |
| Ventana Canyon Golf Villas II | 4144-108 | 1032303.29 | 479093.431 |

2.1.3. Physical Asset Resources

The Department maintains resources for the operation and maintenance of the public sanitary sewage conveyance system. The public sanitary sewage conveyance system includes both gravity flow sanitary sewers and wastewater pumping systems that, in turn, include both the pump stations and the associated pressure force mains.

2.1.3.1. Gravity Conveyance System Resources

As noted above, the public sanitary sewage conveyance system carries wastewater to three metropolitan wastewater treatment plants and several outlying wastewater treatment facilities. These wastewater treatment facilities are operated by the Treatment Division of the Department. The combined conveyance and treatment facilities provide sanitary sewerage service to the regional Pima County wastewater service area. The three metropolitan wastewater treatment plants, i.e., the Roger Road WRF, the Ina Road WRF, and the Randolph Park WRF, all share a portion of the public sanitary sewage conveyance system serving the metropolitan Tucson area. The sewage conveyance systems tributary to the outlying wastewater treatment facilities are separated from each other.

The public sanitary sewage conveyance system of Pima County is summarized in **Chart 1 - Conveyance Division Service Area Statistics on page 6.**

2.1.3.2. Wastewater Pumping System Resources

The SCADA communications and alarm instrumentation system can provide the following information to personnel at the Central Control locations:

- which pumps are running;
- pump run-time – by pump
- pump operations failure alarm,
- high water and low water alarms,
- power failure alarms,
- communications failure alarms,
- emergency power on/off indicator,
- intrusion status / alarm
- discharge flow rate

The Computerized Maintenance Management System (CMMS) database provides descriptions, makes, and models of the instruments and equipment making up the

- Wastewater Pumping System (WWPS) mechanical systems, Pumps
- Other Associated Miscellaneous Equipment

2.1.3.3. Vehicle and Equipment Resources

It is to be noted that the Pima County Fleet Services Department is responsible for the periodic and unscheduled maintenance of all vehicular equipment used by the Division in the performance of its operations.

A listing of vehicles and maintenance equipment available to the Conveyance Division may be found within the CMMS database.

2.1.3.4. Flow Monitoring Installations and Resources

The Department operates and maintains 47± permanent flow monitoring sites within its multiple collection systems, with over 40 of these sites located in the areas tributary to Roger and Ina Road WRFs.

Each permanent flow monitoring site is identified in the CMMS by the identification number of the sewer access structure in which the flow monitoring equipment is installed. The address of each permanent flow monitoring site can be obtained using the identification number.

Depending on the flow monitoring equipment installed within the sewer access structure, the equipment measures either the depth of flow, or both the depth and the velocity of flow. In the latter case, the depth of flow and the velocity data, taken together with the shape (i.e., circular) can be used to determine the quantity of flow, Q_f , through the flow monitoring site.

Equipped with SCADA data logging and communications instruments, the permanent flow monitoring sites obtain new data every 5 minutes. This data is acquired and loaded into a SQL database for subsequent access by Department staff. The data is maintained within the SQL data base for a minimum of five (5) years.

The Department also operates and maintains 25 ± temporary flow monitoring sites within the collection system at any given point in time, and has sufficient equipment to operate up to 40 temporary flow monitoring sites at any given time. The temporary flow metering sites operate in the same manner as the permanent flow monitoring sites, except for how the data is transmitted to the SQL database.

2.1.3.5. Odor Control Assets

Permanent Conveyance System Odor Control chemical dosing sites have been established at locations throughout the sanitary sewage conveyance system serving Tucson. The primary chemicals employed to eliminate sulfide odors from sewers are Sodium Hypochlorite and Magnesium Hydroxide.

RWRD also employs several vapor treatment sites. The vapor systems extract the sewer headspace vapor to maintain the sewer headspace pressure lower than atmospheric pressure, thereby minimizing fugitive odor emissions. The vapor treatment is by granular activated carbon absorption or via engineered soil biofilter. Both systems effectively remove 95-99% of the volatile odorous compounds.

Odor Control Investigative and System Performance Monitoring required the use of state-of-the art field-deployable continuous monitoring instruments capable of capturing transient and pattern odor events characteristic of wastewater odor dynamics. These instruments include Electronic Nose Network at the Roger Road Reclamation Facility with onsite meteorological station to generate continuous dynamic odor emission plumes to the department intranet to monitor odor control system performance and emissions impacts.

2.1.3.6. Conveyance System Map Library

Pima County has created and continuously maintains a geographical information system (GIS) mapping database. This database contains a significant portion of the geopolitical and public infrastructure land-base data of interest to Pima County government and the involved public. Incorporated within this database is data that physically locates the public sanitary sewage conveyance system operated and maintained by the Division. This public conveyance system electronic map library is continuously updated by the Department's Mapping and Records staff. The electronic conveyance system maps are available to the Department and the public at <http://www.dot.pima.gov/gis/maps/>.

2.1.4. Pima County Regional Wastewater Reclamation Department

The Department is organized into divisions – all under the Director as the senior department official. The Director reports to the Assistant County Administrator for Public Works and has broad administrative authority to direct the operations of the Department.

Conveyance Division, under the direction of a Deputy Director, directs and provides overall guidance to the Conveyance Division. The direction and overall guidance given to the Development Services Department concerns the new and rehabilitative improvements to the public sanitary sewerage system including both the conveyance and the treatment systems of Pima County. The direction and overall guidance given to the Conveyance Division concerns the operation and maintenance activities associated with the public sanitary sewage conveyance system.

Treatment Division, under the direction of a Deputy Director – Treatment, operates and maintains the several wastewater treatment facilities, an EPA-approved wastewater laboratory, a regional septage receiving facility and the POTW Pretreatment Program mandated by the Wastewater Treatment AZPDES permits issued to Pima County.

Each of the outlying wastewater treatment facilities operated by the Treatment Division of the Department is associated with a public sanitary sewage conveyance system service area. The three metropolitan wastewater treatment plants, Roger Road WRF, Ina Road WRF, and Randolph Park WRF all share a portion of the public sanitary sewage conveyance system serving the metropolitan Tucson area.

Planning and Engineering Division, under the direction of a Deputy Director, provides the fiscal planning for new capital projects to augment,

replace or rehabilitate the existing public sanitary sewerage system. The projects include expansion and replacement of wastewater treatment facilities, as well as the augmentation, replacement and rehabilitation of public gravity sanitary sewage conveyance system components and of public wastewater pumping system facilities and appurtenances.

The physical expansions of the sanitary sewage conveyance system are not funded by the Pima County Regional Wastewater Reclamation Department. Expansions of the sanitary sewage conveyance system are funded and constructed by private entities (e.g., developers of new home subdivisions or commercial developments). Those private expansions of the public sewage conveyance system are approved by the Pima County Development Services Department and inspected by RWRD Inspectors.

The private expansions are constructed to Regional Wastewater Reclamation Department standards. Those that are acceptable are dedicated to the County (as extensions to the public sanitary sewage conveyance system and as additions to the asset inventory of the Regional Wastewater Reclamation Department Enterprise) to operate and maintain.

The Central Pima County Administrative Departments provide Human Resource Services, Budget, Financial and Payroll Services, and provide responses to customer inquiries and related services to and for the Pima County Customer Service Account; Automotive and Vehicle Maintenance Services are provided by other Pima County Departments in support of the Regional Wastewater Reclamation Department. However, the Special Assistants Office, under the Director, provide department-specific processing of requests to fill position vacancies, pay claims for services performed and equipment received; and other similar functions specific to RWRD operations.

2.1.4.1 Conveyance Division

The CMOM document will reside within the Conveyance Division of Pima County Regional Wastewater Reclamation Department.

2.1.4.1.1 Functional and Organizational Structure

The Conveyance Division accomplishes the operation, inspection and maintenance of the public sanitary sewage conveyance system. The Division functions under the direction of the Conveyance Division Deputy Director. The Division is comprised of eight (8) main operational groups as follows:

- a. Sewer Maintenance
- b. Pumping Systems
- c. Conveyance Management
- d. Technical Support/CCTV/Odor
- e. Environmental Planning & Safety
- f. Blue Stake Services

There are 108 approved positions (Full Time Equivalent Positions) authorized to the Conveyance Division for FY 2011 - 2012.

**2.1.4.1.2. Conveyance Operating Budget
(Current Fiscal Year 11/12)**

Administrative Services Manager for Administration tracks budget expenditures for the fiscal year. The budget year capital and operating budgets for the current fiscal year for each major center of the Division are as follows:

| UNIT | UNIT NAME | CAPITAL | O & M |
|---------------|---------------------------|---------------------|---------------------|
| 1196 | Administration | \$ 0 | \$ 1,467,103 |
| 1241 | Pumping Systems | \$ 0 | \$ 1,297,658 |
| 1233 | Sewer Maintenance | \$ 700,000.00 | \$ 3,487,683 |
| 1197 | Tech Support/Odor/CCTV | \$ 101,637.00 | \$ 3,767,182 |
| 1191 | Environ.Planning & Safety | \$ 0 | \$ 428,793 |
| 1239 | Blue Stake Services | | \$ 695,918 |
| TOTALS | | \$801,637.00 | \$11,144,337 |

The current budget is to provide funds to manage, operate, maintain, repair, and provide minor replacements to the public sanitary sewage conveyance system; including the capital acquisitions and equipment necessary to sustain the operations of the Division. The capital and O&M budgets, shown above, are for each of the 6 Units within the Divisions.

2.1.5. Operations and Maintenance Division Overview of Center Activities

The Division's Operations and Maintenance activities are described in three documents: the CMOM Plan, the Conveyance Division's Guidance Manual (CDGM) and the Division's Sanitary Sewer Overflow Emergency Response Plan (SSOERP 3.05.P10). The CDGM provides information describing the type and frequency of the involved maintenance programs, the purpose and operation of the equipment employed in each program, and the personnel training necessary to meet regulatory certifications and operational competence. The SSOERP provides direction and guidance for the activities of Division staff, first responders, and Division and Department management when confronted with situations requiring emergency operations. The decisions to be made and the actions to be taken as a result of those decisions are presented in a flip chart format. The SSOERP flip-chart is carried by supervisors in the Conveyance Division.

The CDGM and the SSOERP are incorporated within the CMOM Plan by reference but maintained separately.

2.1.5.1. Gravity Conveyance System

The Department has developed several maintenance programs for the gravity sewage conveyance system. The operations of these programs are described in detail in the CDGM. The programs are identified by title and by primary purpose in the following table.

| Program | Primary Purpose | Reference # of Process Maps |
|---|---|-----------------------------|
| Emergency Maintenance | Capacity Management | 3.05.P04 |
| Scheduled Maintenance (repetitive) | Capacity Management | 3.05.P04 |
| Area Rod | Capacity Management | 3.05.P04 |
| CCTV Inspection (Division Forces) | Structural Condition Assessment | 3.05.P09 |
| CCTV Inspection (Contract Forces) | Structural Condition Assessment | 3.05.P09 |
| CCTV Inspection (Quality Control) | Operational Performance Assessment; Acceptance of New Sewers | 3.05.P09 |
| SSIIP (Manhole and Other Structures) | Establishment of GPS Coordinates Structural Condition Assessment; Inflow Detection and Prevention | 3.05.P02 |
| Odor Abatement | Nuisance Control/Operational Performance Indicator | 3.05.P05 |
| Root Control | Capacity Management | No Process |
| Vector Control Contract | Vector / Nuisance Control | 3.05.P02 |
| SSO Emergency Response Plan | SSO Response | 3.05.P10 |
| Computerized Maintenance Management System (CMMS) | Asset Management, Operations Control, and Maintenance History | 2.05.P02 |

- a. Emergency Maintenance includes activities that are necessary to resolve an emergency, typically a release of sanitary sewage from either the public gravity conveyance system or a public wastewater pumping system, and includes all of the associated documentation and reporting activities. These activities are outlined in the SSOERP 3.05.P10 and in Non-Conformance Reporting 4.02.P01.
- b. Scheduled Maintenance includes maintenance activities, that are scheduled by CMMS-issued work orders. These work orders are issued on a designated schedule. The schedules are established by the Quadrant Supervisors and/or Operations Assistant Manager. After a period of time, the Supervisors/Assistant Manager may adjust the schedules; this process is called Review and Reschedule (RAR). The Supervisors/Assistant Manager may shorten or lengthen the time between maintenance depending on the amount of debris, roots and/or grease found during the past few maintenance cycles. The Supervisor/Assistant Manager may also specify pipe cleaning intervals based upon diameter and other characteristics of the sewer.
- c. Area Rod

The Area Rod program provides for systematic servicing of reaches with diameters of 15 inches or less of the Pima County public sanitary sewer system. The Area Rod program is on a 5 year cycle.

In addition to cleaning the public sewer, the Area Rod program allows crews to detect reaches of sewer where grease, roots, or other deposits are slowly accumulating. When such reaches are found, pertinent information can be entered into the CMMS and the reach of

sewer placed on a Preventive Maintenance cleaning or CCTV inspection schedule.

d. **CCTV Inspection and Quality Control**

The RWRD CCTV Inspection and Condition Assessment Program goal is to inspect the public sanitary sewer conveyance system, using video recording equipment to create an inspection record, every 10 years.

The CCTV Quality Control Inspection Program can be accomplished by either Contract CCTV crews or Division CCTV staff.

CCTV Inspection and Quality Control - Division Staff

Closed Circuit Television (CCTV) Inspection is an internal condition assessment program performed by Division CCTV staff and equipment. The CCTV Inspection Program was developed and implemented so that the Division and the Department could be made aware of the structural, operational and exfiltration conditions of the public sanitary sewage conveyance infrastructure as it is used and as it ages. The purpose of this CCTV Inspection Program is to:

- i. perform regular structural and maintenance assessments in order to plan for and fund repairs, replacements and rehabilitations of the public sanitary sewerage infrastructure, and to
- ii. visually inspect to create a visual record of the interior of the sanitary sewage conveyance pipe to
 - determine the effectiveness of pipe cleaning programs,
 - detect accumulations of grease and other deposits and the intrusions of roots – any of which can constrict the flow of wastewater in the conveyance system and ultimately lead to releases of wastewater to the environment; and to
 - measure the progression of structural deterioration in areas where such physical degradation exists. When warranted, the involved reaches can become candidates for CIP projects to repair, replace or rehabilitate sewage conveyance infrastructure.
 - results of CCTV inspections may also be used in the RAR process.

CCTV Inspection and Quality Control - Contract Services

The Contract CCTV Inspection Program is intended to supplement the capabilities of the Division's Internal CCTV Inspection Program with Contract CCTV Inspection and Evaluation services.

Contract Forces can be procured, using public bid and awarded contracts, on an as needed basis to meet established performance goals. The Contract Forces can inspect and create a visual record of public sanitary sewers with internal diameters of 15-inches or less and

for all trunk and interceptor sewers of greater than 15-inches internal diameter.

NASSCO - CCTV Inspection and Quality Control

An engineer, certified to assess the structural and operational conditions of sewers from a video record using a widely-accepted sanitary sewer condition assessment procedure (NASSCO), reviews the recordings and prepares a written evaluation. The condition assessment score and reference to the written evaluation is then entered into the CMMS database. The Division can identify and prioritize those sanitary sewers that need repair, replacement and/or rehabilitation. Those reaches can be scheduled for inclusion in the Department's Capital Improvement Program.

e. Infrastructure Survey Program for Growth and Capacity Planning (ISPGCP)

The Division originated the Sanitary Sewer Inventory and Inspection Program SSIIP and subsequent contract ISPGCP. The projects and Contract are now under direction of the RWRD's Engineering Division. Through these programs a physical, visual inspection of its sewer manholes, clean outs, and flow management structures, including inverted siphon inlet and outlet structures through the utilization of a Professional Services Contract. The contract will be completed fiscal year 2010-2011. Upon completion of this contracted program the following will be recorded and defined:

- i. performing a visual condition assessment of the structures,
- ii. inventory for asset management;
- iii. obtain GPS XYZ coordinates for the invert and rim of the sewer access structure to facilitate base mapping and hydraulic model needs;
- iv. obtain a pictorial record of the interior of the sewer access structure;
- v. identify buried structures that needed to be either uncovered or physically raised to ground surface elevation;
- vi. determine whether the sewer access structure was at risk from storm water inflow through the perforations in the manhole cover.

f. Inflow and Infiltration

The program's purpose is to monitor, evaluate, detect, verify and track all activities pertinent to establishing the cause of I&I occurrences. The validation of such events is to be recorded, identified and forwarded to the Engineering Division for consideration of long term corrective action(s).

g. Computerized Maintenance Management System (CMMS)

Computerized Maintenance Management System (CMMS) is used to track, manage and control the sanitary sewer network. The CMMS is an Asset Management tool for the Conveyance Division. Additionally the CMMS provides a comprehensive inventory of manholes, cleanouts, sewer mains and misc. structures, as well as a history of all work activities, field inspection results, preventative maintenance scheduling, including costing.

The CMMS is used to accomplish two primary functions:

- i. The CMMS database stores the information needed to physically describe the sanitary sewer asset structures and reaches of sanitary sewer pipe. This information is used to create the operation and maintenance work orders and supporting ArcGIS work maps for the various types of work accomplished by the Division. The database is also the information source for responses to various inquiries concerning the sanitary sewage conveyance system.
- ii. The CMMS software is used to input data into the data base and where it is used to track and create operations and maintenance Work Orders that are used to direct and document the field work accomplished by the Division's crews. Once the Work Orders are completed and approved, the information is used to update the CMMS database.

2.1.5.2. Wastewater Pumping Systems (WWPS)

The Pima County sanitary sewage conveyance system includes 25 ± active wastewater pumping systems (WWPS) and 4 inactive wastewater pumping systems (WWPS). These WWPS include wastewater pumping equipment, electrical power equipment, instruments and associated controls. The WWPS may include emergency power equipment, associated pressure sewers (or force mains) and SCADA equipment.

The Wastewater Pumping Section of the Division follows several maintenance programs specific to WWPS. These programs employ check lists, equipment specification sheets, and similar manufacturer's published material for the equipment, instruments, and controls installed within each WWPS; as well as the combined experience of the involved staff. The types of maintenance programs appropriate to the WWPS are identified by title and by primary purpose in the following table.

| Activities | Primary Purpose |
|---|---|
| Mechanical Equipment Maintenance | Capacity Management |
| Structure Maintenance | Structural Condition Assessment |
| Emergency Power and/or Electrical Panel Testing and Maintenance | Operational Performance Assessment |
| Instrumentation Testing and Maintenance | Operational Performance Assessment |
| SCADA System Testing and Maintenance | Operational Performance Assessment |
| Force Main Inspection and Maintenance | Capacity Management; Structural Condition Assessment |
| Force Main Appurtenances Testing and Maintenance | Operational Performance Assessment |

A summary of the WWPS activities is as follows:

a. Mechanical Equipment Maintenance

The Mechanical Equipment Maintenance Program applies to the pumps, valves, air compression equipment, and associated appurtenances installed within the WWPS. The Program is currently controlled by computer-generated work orders (scheduled by equipment needs) for the maintenance of the mechanical equipment at each pump station. The scheduled work is accomplished by Pumping Systems Section crews.

b. Structure Maintenance

The Structural Maintenance Program applies to the structure, typically reinforced concrete, of the WWPS, to any steel doors or hatches and any steel supporting structures within the WWPS concrete structure, and to the appurtenant security facilities. Pumping Systems Section crews perform a visual inspection of area fencing and gates and of walls, panels and hatches on a monthly basis in response to a computerized work order. Their findings are reported to Section Management and any needed repairs are scheduled.

c. Emergency Power and/or Electrical Panel Testing and Maintenance

This maintenance program are intended to ensure that emergency power facilities and/or equipment (whether installed emergency power generator sets or control panels that are built to accept power drops from mobile or movable emergency power generator sets) are adequately maintained and/or exercised and ready to perform as designed in a short period of time. A check of each generator is accomplished, in response to a CMMS-generated work order to ensure that they start and electrical power is generated sufficiently to operate the WWPS. The power transfer is recorded by SCADA. This generator check is completed on a monthly schedule and the results are recorded. The monthly maintenance work order covers fundamentals such as battery water levels, voltage, and charging system, and engine oil, other lubricants and coolant which are all checked or supplemented as necessary.

d. **SCADA System Testing and Maintenance**

This program is intended to ensure that the SCADA instruments and communications equipment that signal the status of the pumping operations and send alarms when necessary are maintained and operating properly. Daily, the SCADA reports to the HMI (Human Machine Interface or monitor) locations that have immediate maintenance needs are available to the technicians. If an alarm occurs, it is checked at the HMI and, if necessary, the SCADA Alarm Responder responds to the site. The SCADA instrumentation at the pump station monitors wet well levels, pump times and amperages. Real time conditions of the system are apparent and the history, trend and statistics are available at the HMI.

SCADA Alarm Responders are rotated weekly. The technician or operator is aware that an alarm will be generated weekly from a station and transmitted to the Responder's cell phone.

e. **Force Main Inspection and Maintenance**

The CMMS generates a work order for inspection of force main vacuum breakers and air relief valves on a monthly basis.

Critical force mains are pressure cleaned using a pig. This maintenance is performed regularly dependent on the system demands.

2.1.5.3. Siphons

The Pima County sanitary sewage conveyance system includes 20 inverted siphons.

Inverted siphon maintenance is out-sourced as needed, using competitive bid and award procurement procedures, to a contractor experienced in maintenance and cleaning of these conveyance structures.

2.1.5.4. Odor Abatement Program

RWRD provides a progressive System Wide Program which:

- begins chemical treatment from the upper tributary reaches and pump station,
- extracts excess vapor from the confluence sewers at intermediate junctions along interceptors, and
- chemical controls sulfides influent to the reclamation facilities and
- captures all process emissions across the treatment plants.

While, the overall odor management program goal is to abate odor generation in the conveyance and reclamation systems, program improvements are focused on:

- response and outreach to customer complaints regarding both private sewers and the public system;
- expanding the range of odor control and locating facilities accordingly
- defining a safer non-toxic and non-hazardous odor control chemistry that controls manhole and pipe corrosion,
- consideration of the benefits and/or impacts to the wastewater reclamation process, water quality and costs.

The program utilizes two processes which have been proven effective: chemical dosing and vapor-phase extraction.

2.1.5.5. Hydraulic Model

The hydraulic model is a dynamic snapshot of data that aids the Department in prioritizing CIP projects by identifying components of the sewage collection system that have insufficient capacity to convey, when properly maintained, the peak wet weather flow of a 10-year, 24-hour storm event. The Department periodically recalibrates the model to reflect current conditions. In 2010, the Department began an effort to inventory and model all lines tributary to the Roger and Ina facilities. A comprehensive recalibration effort is currently underway. The calibrated model will be used to comply with our Capacity, Management, Operations and Maintenance Plan see section 2.2.2.4.

In addition, to a model of the regional system, the Department has created a model of the Green Valley system and the Avra Valley system. A model of the Corona de Tucson system will occur as data becomes available.

2.2. IMPLEMENTING ELEMENTS

The primary purpose of the Implementing Elements is to identify those operations that are separately and collectively accomplished in order to reduce, to the maximum extent feasible, the occurrence of sanitary sewer overflows (SSO's) from the Pima County sanitary sewage conveyance system. It must be understood, however, that reducing the annual rate of SSO occurrence to zero is probably an unachievable goal. The State of Arizona recognized that such an achievement is not realistic when it stated in the November 14, 2005, issue of the Arizona Administrative Register that "Studies show that, on occasion, sewage is released from even the best operated sewage collection systems" and "Under the measures established in the CMOM Plan, SSO's onto the land surface and leakage out of sewer lines to the subsurface will be minimized, greatly reducing threats to public health and contamination of surface waters and groundwater by nitrate, pathogenic organisms, and other pollutants." ⁶

2.2.1. Emergency Response Operations

The Department's Sanitary Sewage Overflow Emergency Response Plan (SSOERP 3.05.P10) is implemented whenever the Division is notified of a release of sanitary sewage to the environment. The SSOERP was developed and is maintained separately from the CMOM Plan. The CMOM Plan references the SSOERP as necessary to fulfill the requirements of the ADEQ APP 2.05 General Permit.

⁶ Arizona Administrative Register, Volume II, Issue 46, November 14, 2005, page 4548.

The official copy of the SSOERP is maintained by the Conveyance Division. Copies of the SSOERP are issued to:

1. Division Management personnel and,
2. Division's Quadrant Supervisors.

The SSOERP is the Division's coordinated response to SSOs so that impacts of sanitary sewage releases on public health, the environment, surface and ground waters, and interruptions to customer service are minimized. The SSOERP includes provisions to ensure safety pursuant to the directions provided by local and state health agencies and notification and reporting within the guidelines of local, state and federal authorities.

Note: It is understood that the on-scene coordinator may modify or adjust the requirements of the SSOERP when experience and reasonable judgment indicates such modification or adjustment is necessary or beneficial in order to efficiently and effectively address a SSO event.

2.2.1.1. SSO Emergency Response Plan (SSOERP)

a. SSO File

When the Administrative Support Section of the Division is notified that an SSO has occurred, a file is created for that specific SSO. The file is identified by date and address of the SSO. The file may be flagged as a specific type of SSO (e.g., private-system SSO, contractor hit, vandalism, etc.). Private-system SSO files may be maintained separately from public-system SSO's. The file will be the repository of any and all forms, correspondence, photographs, accounting records, public notices and notifications, maps, and like paperwork relative to the SSO.

b. SSOERP

As noted above, the second part of the SSOERP includes the instructions and process map 3.05.P10 that guide Department and Division staff in the actions needed to respond to SSO's and toxic or hazardous spills. The process map SSO Emergency Response Plan 3.05.P10, provides guidance for the mitigation of SSO's and subsequent actions. The Highest Ranking Conveyance Division Staff (HRCDS) person on-scene is designated the Incident Commander. The HRCDS's initial responsibility is to assess the situation and determine either the release is within the capability of on-scene personnel and equipment to control and resolve, or additional supervisory, personnel, and/or equipment resources are required to control and resolve the release.

The Division provides a set of the SSOERP flip charts in each Supervisor's vehicle. For each public SSO, the HRCDS records his or her name, the location of the SSO, and the date and time of arrival on scene on the Supervisor's SSO Report Form for the SSO to the Division Compliance Section. The Supervisor's SSO Report Form is then filed with other relevant forms and records in the SSO file.

2.2.1.2. Reporting Procedures and Requirements

The reporting procedures for releases of sanitary sewage to the environment from the public sanitary sewage conveyance system shall comply with the requirements established by the 2.05 General Permit for the involved public sanitary sewage conveyance system. The procedures to report an SSO are followed in the Non-Conformance Reporting process 4.02.P01.

The following table summarizes the requirements for reporting releases of sanitary sewage to the environment from the public sanitary sewage conveyance system.

| Requirement | 2.05 General Permit | | |
|--|---------------------|-------|--------|
| | 24-Hour | 5-Day | Annual |
| Any release of sanitary sewage < 50 gallons | No | No | No |
| Any release > 50 gallons that is <u>not</u> an imminent and substantial threat to public health or the environment | No | No | Yes |
| Any release > 50 gallons that <u>is</u> an imminent and substantial threat to public health or the environment | Yes | Yes | Yes |

The reporting requirements for releases of sewage that are violations of the provisions of the AZPDES permits issued to the tributary public wastewater treatment facilities are stated in the applicable AZPDES permits.

The reporting requirements for releases of sewage to the environment from the public sanitary sewage conveyance system covered by a 2.05 General Permit written in R18-9-C305.E.

a. 24-Hour Report

The 24-hour report is to be sent (faxed) to ADEQ within 24 hours of the time that the Division is notified of the release. The 24-hour report is created using the Division's "SSO Facsimile Report" fax form 4.02.P01.R09. The 24-hour report is faxed to the telephone numbers of the ADEQ facsimile machine(s) as directed by the ADEQ. At a minimum, the 24-hour fax report should include the:

- location (i.e., street address) of the release;
- sewage conveyance facility (e.g., sewer pipe, manhole, wastewater pumping system) from which the release occurred;
- date and time the Division was notified of the release; and
- status of release (i.e., stopped and cleaned up, or stopped with cleanup in progress, or release is continuing).

b. 5-day Letter Report

The 5-day letter report is created using the format maintained by the Division's Administrative Support Services Section. The 5-day letter report is both faxed to ADEQ and mailed to the ADEQ as a first-class letter within 5 business days following the date that the Division is notified of the release. At a minimum, the 5-day letter report should include:

- the location (i.e., street address) of the release;
- the sewage conveyance facility (e.g., sewer pipe, manhole, wastewater pumping system) from which the release occurred;
- the date and time the Division was notified of the release;
- the status of the release (i.e., stopped and cleaned up, or stopped with cleanup in progress, or release is continuing), and
 - a. the date and time the release was stopped (i.e., when sewage stopped flowing out of the sewage conveyance system), and
 - b. date and time the mitigation efforts were complete (e.g., when all of the available liquid and solid debris is recovered, when all of the wetted area is disinfected, and when the Gravity Assistant Manager and/or the responsible Quadrant Supervisor inspects and approves all debris recovery and disinfection efforts).
- the estimated number of persons exposed to the release;
- the estimated volume of the release;
- if the release was estimated to be 2,000 gallons or less, the reason the release was considered an imminent and substantial threat to public health and the environment;
- where the release flowed and the distance covered;
- the efforts made to stop and contain the release;
- the amount and type of disinfectant applied to mitigate any associated public health or environmental risks;
- the cause of the release or effort made to determine the cause;
- any effort made to help prevent future releases at this location or any similar releases from other locations in the future.

If it is not possible to provide all of the information that should be included in the 5-day letter report, the report should say why that information is not available and provide an estimate as to when the information is expected to be available, if a firm estimate can be made. If a firm estimate cannot be made, the letter report should state why. The initial 5-day letter report, and any supplemental letter reports, must provide a firm date by which the next subsequent supplemental letter will be sent to ADEQ.

c. Reporting Responsibilities

The responsibilities for reporting releases of sanitary sewage to the environment are hereby established by the PCRWRD Deputy Director as follows:

- 24-Hour Report

Compliance with the 24-hour reporting requirements is the responsibility of the Conveyance Division Deputy Director/Manager/Assistant Manager.

- 5-day Letter Report

Compliance with 5-business days reporting requirements is the responsibility of the Deputy Director, Conveyance Division. When the Deputy Director is not available, the Conveyance Division Manager assumes the responsibility for the 5-day reporting requirements. The Division Manager shall contact the Deputy Director by telephone, if possible, to discuss the particulars of the 5-day report before it is finalized. The Division Manager shall electronically copy the draft 5-day letter report to the Deputy Director for review, if possible, before it is sent by U.S. Mail to the ADEQ.

The Deputy Director, Conveyance Division shall designate a person to sign the 5-day letter report, or any subsequent supplemental letter report if both the Deputy Director and the Conveyance Division Assistant Manager are unavailable to sign the document.

2.2.1.3. Annual Report

The Division shall create the Annual Report following the requirements provided in R18-9-C305.F.2. The Annual Report is transmitted to ADEQ under cover of a letter signed by Deputy Director, Conveyance Division. The Annual Report is created, finalized, and sent to ADEQ with sufficient time that the submittal can be postmarked no later than March 1st of each year.

The Annual Report requires:

- a tabulation of all releases from the permitted sewage conveyance system of more than 50 gallons per instance, and the date of any release that is an imminent and substantial threat to public health or the environment; and
- amended public sewerage system service area map showing any changes in the boundaries of the service area made over the previous year. The amended service area map is necessary if the Division wants to ensure that newly added areas are covered by the 2.05 General Permit and the CMOM Plan.

2.2.1.4. Public Notifications

Two sets of criteria direct the notifications to the public about releases of sanitary sewage to the environment. The first set provides for public notification activities that are to be initiated and accomplished for releases of sanitary sewage that are an imminent and substantial threat to public health or the environment. The second set of criteria provides for semi-permanent public notification postings at locations where three or more releases of sanitary sewage have occurred within a 12-month period of time.

2.2.1.4.1 Response to Releases of Sanitary Sewage

Supervisors verify the existence of a release of sanitary sewage from the public sanitary sewage conveyance system and begin mitigation efforts to control and resolve the release. During the initial mitigation efforts, a determination is made about the nature and magnitude of the risks that the release presents to the public. This determination is made following the guidance contained in a set of flip charts entitled: "Decision Matrix for SSO Public Health Notification". This set of flip charts uses the size of the release and the degree of risk to the public to select a Public Health Notification Procedure to be followed while the release is being mitigated.

2.2.1.4.2 Locations of Multiple Releases During 12-Month Period

Special public notification rules⁷ apply to locations where three (3) or more reportable (i.e., greater than 50 gallons) releases occur during any twelve (12) consecutive month period. These rules require the Division to post a semi-permanent, weather-proof sign at the place where public contact is most likely to occur, noticing the public that the location is susceptible to releases of sanitary sewage. The notice must warn the public of the potential health hazards that exists if contact is made with the sewage. The sign should ask the public to contact the Division by telephone and provide a contact telephone number if any release of sanitary sewage is observed.

The required sign is to be maintained at the location until:

- no releases occur at the location for a period of twelve (12) months, providing
- the Division has taken all actions specified in this CMOM Plan to prevent any additional releases from occurring.

2.2.1.5. SSO Records

The requirements to collect and maintain records pertinent to releases from the public sanitary sewage conveyance system (aka: sanitary sewer overflows, or SSO's) are found in several authority sources. The requirements established by the Department and the Division duplicate most, if not all, of the requirements from Federal and State authority sources.

2.2.1.5.1 AZPDES Permit Requirements

As noted previously, the AZPDES Permits replaced the prior NPDES Permits for the wastewater treatment facilities to which the public sanitary sewage conveyance systems are tributary⁸. The AZPDES Permits require any non-compliance with the terms of the permit to be reported orally (by telephone or other means) within 24 hours and by written report within 5 business days following the non-compliance to the designated office of ADEQ. The reporting requirements for each

⁷ See R18-9-C305.G

⁸ The Division must refer to the appropriate AZPDES Permit to be sure that all of the requirements of that Permit are followed when reporting non-compliance with the Permit regarding a release from the public sanitary sewage conveyance system.

AZPDES Permit are typically similar; they require the following information, at a minimum, to be reported in the requisite 5-day written report.

- a. a description of the non-compliance and its cause;
- b. the period of non-compliance, including dates and time;
- c. if the non-compliance has not been corrected, the expected date and time when the non-compliance will be terminated; and
- d. the steps taken or planned to reduce, eliminate and prevent reoccurrence of the non-compliance.

The Department's Compliance and Regulatory Affairs Office (CRAO) is to be an information addressee for any report of non-compliance with an AZPDES Permit.

2.2.1.5.2 2.05 General Permit Requirements

The 2.05 General Permit reporting requirements are more extensive than the AZPDES reporting requirements, and are listed in R18-9-C305.F. These reporting requirements are two-fold. They cover any release of sanitary sewage that is an imminent and substantial threat to public health or the environment, and they cover the Annual Report. Releases of sanitary sewage that is an imminent and substantial threat to public health or the environment are defined in R18-9-C305.A.

2.2.1.5.3 Pima County Regional Wastewater Reclamation Department's Requirements

The Department complies with both the AZPDES Permit requirements and the 2.05 General Permit requirements. They are established by the information required on the several SSO response forms used by the Division within the Non-Conformance Reporting process 4.02.P01. The file record for each SSO is maintained in chronological order, and becomes the depository for all forms and documentation. The files are maintained by date and street address of the SSO. Besides the requisite forms, the files may include, but are not limited to,

- the photos taken to visually document each SSO and associated operations, (if available)
- copies of the applicable work orders that collect personnel and equipment time and material data for each SSO,
- copies of any letters or correspondence relative to the SSO, and particularly, any correspondence with the Industrial Waste Control (IWC) Group of the Treatment Division, any correspondence with the County Risk Management Office or County Attorney Office, any correspondence with commercial or industrial entities that are believed responsible for the SSO occurring,
- file copies of any 24-hour and 5-day written reports that were sent to ADEQ.

2.2.1.5.4 Emergency Operating Lists, Forms

The several contact lists are maintained by the Customer Service & Support process 3.05.P01. Forms are maintained by the Non-Conformance Reporting process 4.02.P01. Both are used to support the emergency operations of the Division in response to releases of sanitary sewage to the environment.

The emergency operating lists include:

- Emergency Response Administrative Contact Information
- On-Call Lists – Gravity, Blue Stake and Field Engineering
- Emergency Response Contractor/Vendor Contact List
- Emergency Response Environmental Contact Lists
- Interagency Emergency Telephone Lists

The emergency operating forms include:

- ICS Forms
<http://www.fema.gov/>
- Conveyance Division SSO Forms – Non-Conformance Reporting 4.02.P01
- Conveyance Division Environmental Spill Forms – Non-Conformance Reporting 4.02.P01

The emergency operating plans and processes include:

- SSO Emergency Response Plan 3.05.P10
- Industrial Wastewater Control Group Emergency Response Plan
- Risk Management Information – Non-Conformance Reporting 4.02.P01

These emergency lists, forms, and operating plans are either updated as necessary or updated documents are requested and acquired by the Division's Non-Conformance Reporting 4.02.P01 personnel or the Customer Service & Support 3.05.P01 personnel.

2.2.1.5.5 Procedure for Completing the SSO File

a. SSO Paper Files

The Administrative Support Section of the Conveyance Division, the Quadrant Supervisors, and the Assistant Manager for Gravity Systems and for Pumping Systems all share responsibility for ensuring that the SSO paper files are complete. The Administrative Support Section has created and maintains checklists of all forms, correspondence, and other materials and photos that are maintained within each SSO paper file.

After all actions, mitigations and copies of all reports and correspondence concerning a specific release of sanitary sewage

are complete and have been placed in the SSO paper file, the file is ready for closure.

The SSO paper files are maintained within the offices of the Administrative Support Services of the Division. The SSO files may be stored and maintained for a minimum of twenty-one (21) years if, as a consequence of the SSO, human exposure to the raw sewage occurred, SSO files may be stored and maintained indefinitely if the potential for a tort liability exists.

b. **SSO Records Maintained within the CMMS Databases**

The Technical Support Section enters and maintains the electronic records of the work orders to address, resolve and mitigate each SSO within the work histories associated with each sewer segment, sanitary sewer access structure or wastewater pumping system.

2.2.2. Capacity Maintenance and Assessment

The instructions concerning the Division's capacity maintenance and assessment activities beginning with the Area Rod Program below, were developed to ensure that the capacity of the public sewage conveyance system owned or managed by Pima County or under Pima County's operational control is sufficient to:

- a. convey the base flows and the peak wet weather flows of a ten-year, 24-hour storm event in all parts of the conveyance system;
- b. take all reasonable and prudent steps to minimize infiltration (and inflow) into the sewage conveyance system,
- c. take all reasonable and prudent steps to prevent and, when necessary, to stop all releases from the conveyance system, and to
- d. meet the performance requirements of R18-9-E301.B.

The above requirements are established within the 2.05 General Permit issued by the State of Arizona to Pima County for its public sanitary sewage conveyance system.

2.2.2.1. Area Rod Program

The Area Rod Program is a capacity management program that was developed to routinely and systematically clean the Pima County public sanitary sewage conveyance system at least once every five (5) years. Crew assignments are controlled by work orders created by the Computerized Maintenance Management System (CMMS) and issued to the involved crews by the Second Shift Supervisor on a daily basis. Completed work orders are returned to the Supervisor. After the Supervisor reviews and approves the completed work orders, they are returned to the Technical Support Section for entry into the CMMS database.

The Area Rod Crews are to record on the work order the pertinent information relative to the reach of sanitary sewer that they have cleaned. The Area Rod Crews, also, are to note observations on the work order. Based on the entries made on each completed work order, the Supervisor

may place the reach of sewer on Scheduled Maintenance for the appropriate maintenance activity and frequency.

The conditions that the Area Rod Crews should document on the work order, with supporting documentation by digital photograph, if appropriate, include:

- grease deposits,
- root intrusions,
- deposition of granular debris,
- evidence of surcharging of the sewer,
- evidence of a high probability of storm water inflow through manhole openings,
- the condition of or the need to replace any installed inflow prevention device,
- any evidence of vandalism,
- any physical deterioration of the manhole structure,
- any condition that could limit access by maintenance vehicles,
- conditions that could cause the manhole to be buried by or made inaccessible because of stream flow sediment, erosion debris or fill material, or man-made improvements, and/or
- the existence of vegetation that made visually locating the manhole difficult.

2.2.2.2. Scheduled Maintenance Program

The Scheduled Maintenance Program complements the Area Rod Program. The Scheduled Maintenance Program provides cleaning maintenance when cleaning is required more often than the five-year cycle provided by the Area Rod Program.

The Scheduled Maintenance Program may include intervals ranging from 3 months up to 48 months.

The intervals for each Scheduled Maintenance Programs are controlled by work orders generated by the Computerized Maintenance Management System (CMMS). The Supervisor generally establishes the maintenance cycle used by the CMMS to generate the necessary work orders. In assigning a maintenance cycle to a particular reach of sanitary sewer, the Supervisor considers the nature of the maintenance requirement (i.e., grease; roots; grit, sand and gravel; etc.) and the maintenance history of the reach (i.e., how often has maintenance been required within the reach in the past). Usually, a reach of sewer is assigned a shorter cycle of maintenance, initially. After several cycles, if it appears that the cycle of maintenance can be increased, the Quadrant Supervisor may change the cycle via the RAR process.

Scheduled Maintenance is performed, generally, using either truck (or trailer) mounted rodding machines or truck-mounted combination (hydraulic and mechanical) cleaning equipment (aka: "Vactor" equipment).

As with the Area Rod Program, the sewer cleaning crew record on the assigned work orders the pertinent information relative to the reach of sanitary sewer that they have cleaned. In addition, the crews are to

observe and note on the work order any conditions that will require further maintenance attention.

2.2.2.3. Conveyance System Flow Monitoring Program

The Conveyance Flow Monitoring Program is a capacity assessment program conducted by the PCRWRD Conveyance Flow Monitoring Group of the Engineering Division. The PCRWRD Conveyance Flow Monitoring Group operates and maintains a system of permanent and short-term flow monitoring sites to measure the flow of sewage in the public sanitary sewage conveyance system and make recommendations on the basis of the data as necessary.

Flow monitoring data is collected and used for all of the following:

- Determining whether existing sewage conveyance facilities have sufficient remaining flow capacity to handle proposed up-stream development.
- Calibration of the Department's hydraulic flow model.
- Determining construction and repair bypass pumping needs.
- Inflow and infiltration studies.
- Determining whether changes at flow management structures are necessary and how the flows in the conveyance system have been modified by such changes.
- Odor control / chemical addition studies.
- SSO prevention (identification of sewer lines with operational capacities much lower than their designed capacities, and SSO quantification when applicable).

Flow monitoring data may also be used for billing certain satellite systems if applicable.

i. Permanent Flow Monitoring

The SCADA Conveyance Flow Monitoring Group operates and maintains 47 ± permanent flow monitoring sites year round, over 40 of which are located in the collection systems tributary to the Roger Road and Ina Road Wastewater Reclamation Facilities. All of these sites are equipped with data communications equipment so that sewage flow data can be recorded and transmitted in real time for remote data storage on the SCADA servers and alarm notification.

The SCADA servers have the ability to identify abnormal flow conditions based on the past flows, and generate alarm notifications (sent via text messages) to on-call maintenance personnel. The data which caused the alarm is then reviewed, and when necessary, a site visit is conducted to investigate the cause of the condition. Each alarm also generates an e-mail message, which is recorded in a log. These messages show the date, time, location, and basic information about the alarm.

Regular and frequent data verification / preventative maintenance site visits are made to each permanent flow monitoring site to ensure verify

the accuracy of the data being collected and the continued proper operation of the metering and communication equipment.

ii. Short-term Flow Monitoring

The PCRWRD Conveyance Flow Monitoring Group typically operates and maintains 25 ± temporary flow monitoring sites at any point in time. These sites are equipped with level or flow monitoring equipment for finite periods, typically from two to six weeks and in the case of I & I studies several months. Temporary Flow Monitoring Sites are typically activated in response to requests from Department Planning Staff, the Hydraulic Flow Model Staff, and the Department's construction managers.

The equipment installed at the temporary sites are typically manually downloaded to a portable computer once per week, during which the proper operation of the meter and the accuracy of the data being collected is also verified.

iii. Raw Flow Monitoring Data Storage

All raw flow monitoring data is collected and stored in a secure database, organized by monitoring site, prior to being reviewed, edited if necessary, and published.

iv. Final Flow Monitoring Data

The SCADA Conveyance Flow Monitoring Group provides reviewed and edited flow monitoring data in spreadsheet and/or hydrograph form via e-mail or mass storage device to the requestor of the data. The reviewed and edited flow monitoring data is then posted to the Department's GIS system, where it is accessible by all Department employees.

When sections of the collection system are found operating at or near its capacity, the Conveyance and Engineering Divisions are promptly informed, so that appropriate corrective actions can be taken.

2.2.2.4. Hydraulic Model

The Engineering Division has implemented a Hydraulic Model of the Pima County public sanitary sewage conveyance system. The model is dynamic and able to simulate the various hydraulic flow regimes found in the collection system: gravity flow, pressure flow (surcharged conditions), wastewater pumping stations, inverted siphons, flow management structures, and "backwater" conditions. The application program is the InfoWorks CS software published by Innowyze.

The model development process begins with the spine (large diameter interceptor system), and then methodically progresses through the basins and sub-basins of the sanitary sewer system. The segments will be calibrated to the diurnal flow, then run through a simulated 10-year 24 hour storm event to observe operational and capacity anomalies. Population projections will also be modeled to predict future capacity augmentation

needs. Current and future capacity needs will be transmitted to the Capital Improvement Program (CIP), where funding needs and project scope will be developed, prioritized and executed.

The InfoWorks CS model will utilize the existing and future data from the following sources:

- 1) Manhole survey data
- 2) Sewer asset data
- 3) Flow monitoring data
- 4) Population/land use/water use data
- 5) Rainfall data

The manhole survey data will need to be continually as new sewer systems are added to the system.

The sewer asset data will come from CMMS database, as it is continually updated through new sewer plan acceptance.

The flow monitoring data will be acquired from the Flow Monitoring Group at selected locations.

Population projections can be derived from several sources. Traffic Analysis Zone (TAZ) data acquired from the Pima Association of Governments (PAG) is one source. Land use data is another source and will be acquired from planning personnel. Water use data will be acquired from water purveyors.

Rainfall data will be acquired from OneRain. Design storm data will be acquired from NOAA.

2.2.2.5. Conveyance Analysis Team (CAT)

RWRD is committed to continuous improvement in the quality of our system management and in our role as environmental stewards. In working towards the goal of achieving sufficient flow capacity during peak wet weather flow of a 10-year, 24-hours storm event, RWRD has established a Conveyance Analysis Team (CAT). The team is composed of staff representing the following: Planning, Hydraulic Model, Flow Monitoring, Engineering and Conveyance. The CAT meets quarterly to discuss any changes within the system and identify improvement needs.

2.2.2.6. Request of Capacity Assurance

RWRD is responsible for responding to numerous requests for sewer capacity assurance by developers and others regarding assured capacity of the conveyance system. To meet assurance stewardship requirements under CMOM, the Department uses InfoNet; a capacity evaluation and tracking software. InfoNet software works seamlessly with the Engineering Division's Hydraulic Model (InfoWorks CS). The software is layered on top of a "snapshot" in time of the Hydraulic Model. Based upon both the InfoWorks CS hydraulic model and InfoNet software, RWRD engineers have the ability to:

- Provide capacity analysis and tracking for each new development
- Evaluate capacity constraints and available capacity before allocations are provided through Type III letters
- Incorporate tracking of assured capacities into future analyses.

Through the use of the capacity assurance software and RWRD's detailed request for information, the capacity request process allows for improvement in the quality and tracking ability of capacity determinations.

2.2.3. Structural Condition Assessment and Maintenance

The Division's structural condition assessment and maintenance activities have been developed to ensure that each component of the public sewage conveyance system is inspected for damage, deterioration, the action of deleterious gases, locations where exfiltration may occur, and other conditions that degrade the structural condition of the conveyance system.

2.2.3.1. Sanitary Sewer Pipe Structural Condition Assessment

The Division's CCTV Inspection and Condition Assessment Program goal is to inspect the sanitary sewer system using video recording equipment to create the inspection record, every 10 years. Staff qualified to assess the structural and operational conditions of those sewers, apply the Industry Standard sanitary sewer condition assessment procedure (NASSCO - PACP), to review the recordings and assess the pipe condition. From those assessments, staff provides recommendations for potential rehabilitation and maintenance activities.

2.2.3.1.1. Mainline CCTV Inspection

The Mainline CCTV Inspection Program (for sewers 15 inches or less inside diameter), should be accomplished by Division CCTV crews and contract CCTV services.

After the CCTV Inspection work orders are completed, the video recordings are submitted to the Sewer Rehabilitation Team (SRT) and the video recordings are then stored electronically for records retention purposes. The SRT performs a Structural Condition Assessment on the reaches of sewer contained in the video records.

2.2.3.1.2. Trunk and Interceptor Sewer CCTV Inspection

The large diameter CCTV inspections of large diameter (> 15-inches ID) trunk and interceptor sewer pipes are accomplished by Division CCTV crews and contract CCTV services. The Department has a base-line structural condition assessment data base of its large-diameter sewer pipes. Future structural condition assessments can be performed and the resulting condition assessments can be compared to the base-line files. This comparison can be used to determine whether active degradation is occurring within certain reaches of pipe.

The nature and degree of degradation is an indicator of the required corrective action or response necessary to halt or inhibit further degradation in the involved large diameter public sewers.

2.2.3.2. Manhole and Cleanout Structural Integrity Condition Assessment

The Department out-sourced a contract for the Sanitary Sewer Inventory and Inspection Project (SSIIP) to perform a structural condition assessment of manholes, cleanouts and similar structures installed within the public sanitary sewage conveyance system. Other purposes of the SSIIP were to obtain digital photos of the interior of the manholes and cleanouts, identify sewer access structures subject to storm water inflow, determine the sewer invert GPS XYZ coordinates to provide better mapping capability, identify and uncover those structures that had been buried either by paving projects or storm-flow sedimentation, and to look for evidence of surcharging or other indicators of sewer line blockages.

The Department has a base-line structural condition assessment of these sewer access structures. Future structural condition assessments can now be performed and the resulting condition assessments can be compared to the base-line files.

Changes in condition (i.e., trends in structural degradation) allow judgments to be made concerning when other structures will need to be included in repair, rehabilitation and/or replacement projects.

2.2.3.3. Siphon and Flow Management Structure Condition Assessment

The barrels of most of the siphons included within the public sanitary sewage conveyance system are constructed of restrained-joint ductile-iron pipe supported vertically and laterally on piles driven to a point significantly below the 100-year flood bed-suspension elevation. If Flow Capacity Testing or Siphon Cleaning Maintenance indicates the possibility of structural degradation affecting the siphon barrels, the Division would then, initiate contract services as needed.

The structural condition assessment of flow management structures (i.e., the concrete or brick manholes or box structures proper) is also included in the Manhole and Cleanout Structural Integrity Condition Assessment Program. For flow management structures, however, the structural condition assessment program extends to the weir boards or the gates and the channels in which the boards or gates operate.

As with the other condition assessment programs, the condition assessment of each siphon and flow management structure may then be documented and compared with the previous condition assessment for that structure. Inverted siphon and flow management structures may then be categorized for repair, rehabilitation and/or replacement depending on current structural condition. Minor point repairs are forwarded to Field Engineering for contracted services as required. Significant rehabilitation, repairs, replacement or augmentation projects are sent to the Engineering Division for evaluation, prioritization and inclusion in the Capital Improvement Plan.

2.2.3.4. Wastewater Pumping Systems (WWPS) Condition Assessment

The repair, rehabilitation and replacement programs for the structural and force-main components of the wastewater pumping systems are based on visual inspections and historic CMMS data relative to the WWPS.

The repair, rehabilitation and replacement programs for the structural components are typically identified, budgeted, funded and accomplished by out-source contract forces. When necessary, the force main repairs, rehabilitations and replacements may be designed by either Department engineering staff or by design consultants. The designs are then typically bid for accomplishment under the terms of an out-sourced construction contract.

2.2.3.5. Facility Maintenance, Repair, Rehabilitation and Replacements

Neither the Division nor the Department is authorized to perform minor construction operations. The Department has several special construction contracts that focus on special repair operations. These construction contracts are offered for competitive bid by the County's Procurement Department.

The Facility Maintenance, Repair, Rehabilitation and Replacement Activities are:

2.2.3.5.1. Manhole Adjustment and Repair Program

The Manhole Adjustment and Repair contract provides for minor construction work immediately needed to raise or repair manhole and cleanout structures or the involved rims and covers:

- a. following City and County repaving operations when these adjustments are not included within the City or County contract; and
- b. when sanitary sewer cleaning inspections and operations identify sewer access appurtenances that need to be raised to reduce the potential for storm water inflow, or above sedimentation from storm flow.

2.2.3.5.2. Gravity Conveyance Facilities Point Repair

The Gravity Conveyance Facilities Spot Repair contract provides for minor construction work required to repair or replace relatively short segments of the gravity sanitary sewer pipe that are:

- a. damaged by the actions of others; or
- b. in need of immediate repair or replacement because of previously undetected deleterious sulfide activity or other unusual, sudden destructive events.

2.2.3.5.3. Conveyance Facilities Rehabilitation

Conveyance Facilities Rehabilitation contracts generally provide for non-emergency, sanitary sewer rehabilitation work (e.g., the lining of a length of sanitary sewer with cast-in-place resin pipe) to repair or rehabilitate one or more lengths of sanitary sewer pipe. A Conveyance Facilities Rehabilitation contract typically consists of work that is identified, budgeted, funded, designed, bid and awarded for contract accomplishment due to the magnitude and complexity of the work. Conveyance Facilities Rehabilitation contracts typically result in improvements that extend the life of the facility, but do not necessarily increase the capacity of the facility.

2.2.3.5.4. Conveyance System Infrastructure Reinvestment

The Conveyance System Infrastructure Reinvestment dollars are indicative of the commitment of RWRD for assuring reinvestment in the utility through the use of financial alternative, i.e.; sewer revenue bonds, WIFA, system develop funds (SDF) and annual O&M funding. Conveyance System Capital Improvement projects typically consist of work that is identified as part of a 201 Facility Planning update, and is budgeted, funded, designed, bid and awarded for contract accomplishment due to the magnitude and complexity of the work. Conveyance System Capital Improvement projects typically result in rehabilitation that extends the life of a facility, provides for construction of new facilities, provides for increased capacity.

Since 2006 to date RWRD has recorded \$63,212,485 as infrastructure reinvestment. This is a combination of all relative Conveyance System construction related dollars, day to day O&M repairs and CIP projects.

2.2.4. Odor Assessment and Control

The Division's assessment and control activities are centered on trunk and interceptor sewers which have been suspected of generating odorous emissions. These trunk and interceptor sewers exhibit characteristics which promote anaerobic microbial activity. Such anaerobic microbial activity results in the production of sulfides which are released into the sewage. The Division's wastewater condition assessment and control activities goal is to oxidize the sulfides before they are released into the gaseous atmosphere above the sewage. The sulfides react with moisture to form sulfuric acid, which, in turn, is deleterious to unprotected concrete pipe and to iron and steel, and which create the odor of H₂S.

2.2.4.1. Chemical Dosing Program

The chemical dosing sites have been located to provide the maximum extent of odor and corrosion control for the major interceptors in the public sanitary sewage conveyance system.

This is currently accomplished through introduction of two (2) chemicals at varying locations. For over a decade Sodium

Hypochlorite has been dosed along the major interceptors within the last five miles of the Roger Road facility to control odors at the flow junctions and in the initial treatment processes – the headworks and primary clarifiers.

Magnesium Hydroxide is employed at the headwaters of the sewer basin and at originating pump stations to adjust pH to between 8 and 8.5, thereby reducing the volatile sulfide fraction by 95% for the first twenty-five to thirty-miles of flow.

To provide finer control on treatment for interceptors in the last 5 miles from reclamation facilities, Ferrous Chloride is dosed into the wastewater to eliminate volatile sulfides, by precipitating the dissolved sulfides.

Wastewater samples are collected downstream of the chemical dosing sites at locations established to measure odor control performance metrics.

Pilot projects for potential chemical compound effectiveness are anticipated as future program components.

2.2.4.2. Response to Odor Complaints

Complaints related to odors coming from the public sanitary sewage conveyance system tend to increase during the summer months with annual maximum in October when the ratio of sewer vapor to ambient temperature is the highest (higher emissions with lower ground level transport). Odor emissions and hence most public system complaints are a result of both elevated odor concentrations in the sewer headspace and a prevailing positive pressure relative to atmosphere driving the odors out of manholes and in some cases up home-sewer connections. Positive pressure in the sewer headspace are usually the aggregate result of vapor flow restrictions and volume reductions at junction manholes, flow management structures, inverted siphons, areas with sealed manholes (e.g. streets with inverted crowns) or low-lying areas prone to flooding and transient surcharging of lines.

When the Division receives complaints from citizens of Pima County about odors coming from the public sanitary sewage conveyance system, the complaint is logged into the CMMS database. The Division then follows CDGM procedures on emergency calls. If warranted, Division staff will perform a site investigation that may include wastewater and/or vapor monitoring.

2.2.5. Information Management

The Conveyance Division's Computerized Maintenance Management System (CMMS) is operated and maintained by the Technical Support Section. The CMMS essentially controls all aspects of the Division's operations except those elements that are controlled centrally by Pima County (e.g., procurement, human resource functions, and payroll).

The Division's CMMS is based on application software licensed from the Hansen Information Technologies, Inc. The Hansen software runs on a Microsoft SQL structure as the "reservoir" for the data that is maintained by the CMMS.

2.2.5.1. Sanitary Sewage Conveyance Database System

The database system contains two extremely critical sets of information. First, the database contains the data that physically describes the sanitary conveyance system and sewer access structures. Second, the database contains the asset history of the work completed on the system.

a. Physical System Database

The sanitary conveyance system reaches are identified by the manholes or cleanouts immediately upstream and downstream of the pipe. The physical attributes and location of all sewer collection system assets, pressure or gravity, is stored within the CMMS database. The physical characteristics for pipes and structures (e.g., manhole, cleanout, diversion structure etc) assets are transcribed from certified construction as-builts into the CMMS. Each asset is assigned a unique identification number (e.g., 1234-123) for work order and mapping purposes. Physical description of pipe assets include material type, diameter, length and date of installation. Survey data include measured and calculated values for elevation of manhole cover at ground level, elevation of manhole base structure at pipe invert, depth of structure from ground to base and slope percentage for pipes from manhole to manhole.

The Division has been working through contract, SSIIP, to obtain additional system information as it relates to manhole structures. Additional data added to CMMS from SSIIP includes State Plane (Arizona Central) XYZ coordinates, obtained through Global Positioning System methods, for center of manhole cover. Data within the CMMS is being updated by SSIIP for these XYZ values for manhole depth, invert elevation, as well as recalculated pipe slope length and percent grade. The SSIIP contract work also provides additional physical data for manholes including manhole condition, material, cover diameter, description of location, and photo documentation.

b. Maintenance History Database

CMMS controls the maintenance activities of and for the Division. When each work order is completed by Division staff and the work is approved by a Supervisor, the work order is returned to the Technical Support Section of the Division. The Technical Support Section updates the maintenance history for the involved sewage conveyance system components.

c. Database Backup System

Backup files are created and stored within Pima County's Central Information Technology (CIT) Department's centralized data repository.

This facility is designed to be secured against loss of electrical power or by fire occurring at or in their building.

All of the database storage files are fully backed up each night. Should it be necessary to recover data from a backup, the data tape will be duplicated before recovery/restore is attempted.

2.2.5.2. Computerized Maintenance Management System (CMMS) Work Order System

The CMMS work order system controls the maintenance activities of and for the Division. All of the maintenance and inspection activities of the Division, including the Scheduled Maintenance Programs, the Area Rod Program, the Vector Inspection and Control Program, CCTV Programs, Odor Abatement, Sewer System Inspection & Inventory Project (SSIIP), Wastewater Pumping Systems Maintenance Programs and the Geographical Information Systems (GIS) Programs.

When required the Technical Support Section can manually interact with the CMMS to generate special work orders. Special work orders are issued to control the accomplishment of emergency maintenance services, such as requests to adjust the flow splits at flow management structures, etc.

2.2.5.3. GIS Support for Computerized Maintenance Management System (CMMS)

Support to the CMMS is provided from within the Technical Support Section and from the Department's Development Services Division. The Technical Support Section and SSIIP Contract uses GPS position locating equipment to obtain the actual XYZ coordinates – using the Arizona State Plane Coordinate System as a basis – for the various sewage conveyance system access structures. These coordinates are then entered into the CMMS database for the appropriate structure. When a request is made of the CMMS to produce a map of a segment of the overall conveyance system, the elevations and positions of the involved structures can be printed adjacent to the structure's Identification Number. Even though the map itself may scale to a 1-inch to 400-foot accuracy, the structure elevations and coordinate positions are accurate to within ± 1 meter.

The Electronic Base Maps of the public sanitary sewage conveyance system are created by the Department's Development Services Division as a mapping layer of an overall Pima County Geographical Information System (GIS). Most of the layers of the overall Pima County GIS are created and maintained in ArcGIS by the GIS Section of Central IT. Once the Department's Development Services Division updates the public sanitary sewage conveyance system electronic base maps (primarily to add new subdivision sewers and new construction project "as-built" updates to the base maps) the ArcGIS files are transmitted to CIT to update the public sewer layers stored there, and to the Conveyance Division's Technical Support Section to update the CMMS Database.

When the Division's field crews find any inaccuracies in the Electronic Base Maps, or structures or pipes that are not shown on the Maps, or changes and/or updates in the descriptions of the sewer pipes and/or

structures, these findings are conveyed, usually on a completed work order, to the Division's Technical Support Section. The Technical Support Section performs a field check of the findings and, if appropriate, notes the necessary corrections in the CMMS Database. The Division's Technical Support Section then sends the updated information to the Department's Development Services Division with a request to correct the public sewer electronic base map layer. This procedure provides valuable feedback to ensure the electronic base maps are continually improved and made more accurate and useful.

2.2.6. Investigation and Enforcement Activities

A provision of the Arizona Administrative Code requires that Pima County, as a holder of a 2.05 General Permit for its public sanitary sewage conveyance system, establish procedures to investigate and enforce against any commercial or industrial entity whose flows cause or contribute to the release of sanitary sewage to the environment⁹. A subsequent provision of the Code permits Pima County to extend the investigative and enforcement activities to those who otherwise also cause or contribute to a sewage release by accident or intention¹⁰.

Pima County has established ordinances, based on past Federal and State statutes, which provide procedures for the investigations and enforcements noted in the paragraph above. These procedures address the following more common activities, but can be used to address other less common activities as well.

2.2.6.1 Sanitary Sewer Overflows Caused by Others

Periodically, the excavation actions of third parties (e.g., construction contractors) cause the unintended and unauthorized release of sanitary sewage to the environment. In these instances, the releases are usually from sewage conveyance facilities broken by construction equipment. When the Division is notified of a release of sanitary sewage caused by excavation activities, the Division responds, controls, mitigates, and sanitizes the release as provided within its Sanitary Sewer Overflow Emergency Response Plan (SSOERP).

The Division initiates actions (see below) to recover its costs from the responsible entity when the investigation of the cause of the release indicates carelessness or negligence.

Individuals or firms that need to excavate in order to construct are required by Arizona State Statute to request "Blue Stake" markings prior to digging. The Department provides "Blue Stake" locator services for all of Pima County Government. The Department's Blue Stake locators respond to Blue Stake requests to mark RWRD's underground facilities within the established timeframe. One of the determining factors necessary to establish carelessness or negligence on the part of the involved individual or firm is whether a "Blue Stake" request was initiated, and whether the Department had time to respond and did respond in a timely manner to

⁹ See AAC R18-9-C305.E.1.f

¹⁰ See AAC R18-9-C305.E.1.h

correctly mark the location of the County's underground facilities (i.e., public sanitary sewage conveyance systems and Pima County Department of Transportation storm drainage facilities).

If the Department's investigation determines that an individual or commercial or industrial entity carelessly and/or negligently excavated resulting in the release of sanitary sewage to the environment, the Department Director may take such actions as necessary and appropriate to recover the Department's costs in responding to the release of sewage. The authority to recover the Division's costs is provided by [ARS §13-1601](#) and [§13-1602](#), which provide Pima County the authority to pursue persons that interfere with or recklessly impair the functioning of the sanitary sewerage system, and in provisions of the Pima County Code at §13.20.025, which prohibits unauthorized access to the public sanitary sewage conveyance system, and §13.36.210, which establishes the liability for damages to the public conveyance system.

The Department has an established Memorandum of Understanding with the Pima County Attorney's Office for investigative services. The Department is assigned a full-time Detective to follow up on all SSO's and damages to the Public Conveyance System caused by third parties including vandalism.

2.2.6.2 Industrial Waste Disposal Violations

The General Prohibitions provision of the Pima County Industrial Waste Ordinance¹¹ prohibits disposing of any waste, via the public sewage conveyance system, that may have an adverse or harmful effect on the public sanitary sewerage system. The Pima County Code provides a list of prohibited wastes¹². The authority for Pima County to pursue persons that interfere with or recklessly impair the functioning of the sanitary sewerage system is provided by [ARS §13-1601](#) and [§13-1602](#), as noted above.

The Industrial Waste Control Section (IWC) of the Department's Treatment Division has the facilities and expertise to investigate and enforce. If appropriate, IWC may obtain recourse against individuals and firms (industrial or commercial), that misuse the public sewage conveyance facilities.

The Division provides written notification to the Industrial Waste Control Section when a release of sanitary sewage to the environment appears to have been caused by the improper disposal of grease or other materials. The notification is entered into a log of such notifications, and the entry remains open until the Division is notified that the IWC investigation is closed or that further proceedings have been completed.

2.2.6.3 Illegal Storm Water Connections to the Sanitary Sewer

The Division has an ongoing program to reduce to the maximum extent practicable the inflow of storm water into the public sanitary sewage conveyance system via the perforations in the sewer access structure lids.

¹¹ See Pima County Code §13.36.050

¹² See Pima County Code §13.36.060

However, storm water inflow from building roof drains is controlled by the Uniform Plumbing Code; the pertinent parts of which are incorporated in the Arizona Uniform Plumbing Code and used by the development services departments of the City of Tucson, Pima County and the other incorporated municipalities situated in Pima County. These departments approve the design and inspect the construction of residential, commercial and industrial buildings erected in Pima County.

Illegal storm drain connections to the public sanitary sewage conveyance system are difficult to detect once a building has been erected and occupied. However, if such an illegal storm drain connection is suspected, Department management can work with the officials of the appropriate development services department and, as necessary, the County Attorney to investigate and either prove or disprove – through the use of smoke testing or other techniques – the existence of any illegal storm drain connection. Once an illegal storm drain connection has been found and verified, the Division should formally request the Department and County management to take any and all necessary action to cause the owner of the involved property and structure to de-connect the offending storm water system from the public sanitary sewage conveyance system.

2.2.7. Management of Flow Received from Up-Gradient Conveyance Systems

Arizona Revised Statutes [§11-264](#), et. seq. provides Pima County the authority to own and operate a municipal sanitary sewerage system. The extent of Pima County's public sewerage service area is not all inclusive. There are areas of private sewage conveyance adjacent to or surrounded by the public sanitary sewerage service area. In addition, there are other areas within eastern Pima County where the sewage conveyance is owned and maintained by other governmental activities. When these "private systems" and "other governmental systems" are tributary to the Pima County public sanitary sewage conveyance system, they are designated Satellite Municipal Collection Systems as identified in §2.1.2.6.

Sanitary sewerage service is provided to these separate collection systems typically under the terms of a Sewer Service Agreement or an Intergovernmental Agreement. Each agreement was developed at different times and for separate purposes; consequently, each agreement is different.

If the flow readings or the quality indicators for a recent period of monitoring fall above or below the range of historic statistical norms, staff will try to investigate the cause for the variance. If the cause of the variance is uncertain, staff will follow normal channels of communication and seek assistance as deemed appropriate. The nature of the variance detected will dictate the timeliness of the assistance to be obtained (e.g., the detection of petroleum products may require immediate investigative assistance from City of Tucson Fire Department personnel).

2.2.8. Disposal of Physical Asset Resources

Pima County Board of Supervisors Policy D29.2 gives the Procurement Department Director the authority to dispose of the physical assets owned by

Pima County¹⁴. This authority extends to surplus and excess personal property and to surplus and excess equipment and materials. In particular, Pima County property that is considered to be a "fixed asset"; whether or not the property has been affixed with a "fixed asset inventory tag", must be disposed of in accordance with the Procedures approved by the Procurement Department Director (e.g., transferred to another department, given to a charitable organization, sold at auction for subsequent use or for scrap or demolished as part of a competitively bid construction or demolition contract awarded by the Pima County Board of Supervisors) so that the property can be removed from the appropriate departmental fixed asset inventory lists.

Items of personal property, office furniture and equipment and non-vehicular fixed-asset equipment should be disposed of when the item is no longer serviceable or when it is no longer needed by the Division or Department. Disposal may include the transfer of the article to another department, to a charitable organization or even to another government as directed by and in accordance with Pima County Procurement Department Procedures. The disposal of vehicles, vehicle chassis and radio equipment is typically governed by Pima County Board of Supervisors Policy¹⁵. Vehicle-mounted or trailer-mounted equipment, pumps, motors, engines, electrical gear, SCADA instrumentation and similar equipment should be replaced when the equipment is no longer economically repairable (i.e., when the cost to repair the equipment exceeds the depreciated value of the equipment); except when the circumstances of the moment require repair of the equipment. If the item is a component part of a larger complex (i.e., a pump installed in a pumping station that is being taken out of service or replaced) and it has a remaining serviceable life, the item should be salvaged, serviced and stored as a spare, or otherwise disposed of according to established Pima County Procurement Procedures.

3. Review and Update CMOM Plan

The Conveyance Division initiates an annual review and update of the CMOM Plan. Following the completion of the review and update of the CMOM Plan, the Conveyance Division Manager should endeavor to ensure that the updated CMOM Plan meets the requirements of ADEQ's R18-9-C305 rule.

3.1. Response To Changing Conditions

The Division's CMOM Plan is reviewed annually for outdated material and is updated whenever:

- a. Directed by the Director, the Deputy Director – Conveyance Division or the Manager of the Conveyance Division; or
- b. The revision of a major reference document requires an update of the CMOM Plan;
- c. The annual review identifies material needs to be updated.
- d. Governing statutes, ordinances, regulations or rules change.

¹⁴ See Pima County Board of Supervisors Policy No. D29.2, Provision IV.A.4.

¹⁵ See Pima County Board of Supervisors Policy No. F49.1, Provision 4.

3. 2. Response to ADEQ Findings

The provisions of the Arizona Administrative Code, at R18-9-C305.D.3, establish the actions to be taken by both ADEQ and the Department should ADEQ notify the Department that it has found the CMOM Plan to contain one or more deficiencies.

4. PLAN AVAILABILITY

When approved, the original and any subsequent updates to the CMOM Plan shall be made available to all RWRD staff, via the RWRD intranet Web Page. Any public entity and the public may request a copy of this document, by contacting RWRD – Conveyance Division.

THIS DOCUMENT HAS BEEN REVIEWD AND APPROVED BY:


DEPUTY DIRECTOR JOHN WARNER, JUNE 2012

THIS DOCUMENT HAS BEEN REVIEWD AND APPROVED BY:


RWRD DIRECTOR JACKSON JENKINS, JUNE 2012

ATTACHMENTS

- RWRD Downstream Treatment Facilities & Other Existing Federal & State Environmental Permits
- Recording
 - Service Area Map - January 2012
 - Service Area Map - October 2011
 - Conveyance System Basin Map – October 2011
 - Public Notice – Active Release Notice
 - Public Notice – Potential Release Notice
 - Conveyance Division Door Hanger

**RWRD DOWNSTREAM TREATMENT
FACILITIES & Other EXISTING FEDERAL &
STATE ENVIRONMENTAL PERMITS**

Amended 02/10/2012

RWRD Conveyance Division Permits

Pima County Regional Wastewater Reclamation Department

Type 2.05 General permit NOI attachment. **Amended 02/10/2012

| Name of Treatment Facility | Permit # AZPDES | Permit # APP | Permit # Reuse | Permit # Stormwater | Permit # Air Quality |
|----------------------------|-----------------|--------------|----------------|---------------------|----------------------|
| Ina Road WPCF | AZ0020001 | P100630 | R105455 | AZ0020001 | 1903 |
| Roger Road WWTF | AZ0020923 | P100655 | R105471 | AZ0020923 | 1913 |
| Corona De Tucson WWTF | N/A | P100644 | N/A | N/A | N/A |
| Green Valley WWTF | AZ0024937 | P100629 | R100629 | AZMSG-6894 | 891 |
| Fairgrounds WWTF | N/A | General | N/A | N/A | N/A |
| Arivaca Junction WWTF | N/A | P100640 | R105345 | N/A | N/A |
| Rillito Vista WWTF | N/A | General | N/A | N/A | N/A |
| Mt. Lemmon WWTF | AZ0022250 | General | N/A | N/A | N/A |
| Randolph Park WRF | AZ0025383 | P100635 | N/A | N/A | N/A |
| Avra Valley WWTF | AZ0024121 | P100642 | R105498 | AZMSG-6893 | N/A |

Other Environmental Permits

| | | | | | |
|------------------------|---|---------|---------|-----|-----|
| Pima County Stormwater | AZS000002 | | N/A | N/A | N/A |
| CMOM | AZ2006111 | General | N/A | N/A | N/A |
| PCDEQ Air Permits | PCDEQ Generator Permits 672- 677 | N/A | N/A | N/A | N/A |
| Septage Hauler Permits | Health Department Permit Number 3080 | N/A | N/A | N/A | N/A |
| ** Marana WWTF | AZ0024520 | P100631 | R100631 | N/A | N/A |

** RWRD is not currently operating the Marana WRF due to a transfer of ownership of the facility to the Town of Marana on January 03, 2012.

Recording



NOTICE OF RECORDING
FOR A TYPE 2.05 GENERAL AQUIFER
PROTECTION PERMIT

Facility Name: Pima County RWRD Sewage Collection System
Date: December 14th, 2011

Inventory No.: 20110278
LTF #: 55303

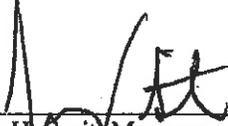
Permittee:
Pima County RWRD
201 N Stone Avenue, 8th Floor
Tucson, AZ 85701

The Engineering Review Section of the Arizona Department of Environmental Quality (ADEQ) has received your Notification of Intent (NOI) to discharge under a Type 2.05 General Aquifer Protection Permit for capacity, management, operation, and maintenance of a sewage collection system.

ADEQ received the NOI on December 14th, 2011 for the discharging facility described as Pima County Regional Reclamation Department CMOM. ADEQ's findings are as follows:

- The permittee IS AUTHORIZED to discharge from the facility at the location specified in the NOI under the terms of the general permit. The NOI and supplemental documentation satisfy the requirements in Arizona Administrative Code (A.A.C.) R18-9-A301(A)(2) and R18-9-A301(B). This authorization is recorded for 100162, 100630, 100635, 100640, 100641, 100642, 100644, 100655, and the generally permitted facilities of Fairgrounds, Rillito Vista, and Mt. Lemmon Wastewater Treatment Facilities. The permittee must comply with all design, installation, operation, monitoring, record keeping, reporting and closure requirements specified in A.A.C. R18-9-C305, and also with all other applicable requirements of 49 A.R.S. 2, and 18 A.A.C. 9, Article 3. The renewal date for this authorization is **FIVE (5) YEARS** from the date ADEQ received your NOI, or **December 14th, 2016**. If an NOI is not submitted by this date, the authorization to discharge will expire.

This authorization can be revoked and an individual permit required in the event the permittee fails to comply with the terms of the general permit described in the rules, or if the discharge activity causes or contributes to or has the potential to cause or contribute to the violation of an Aquifer Water Quality Standard at the applicable point of compliance.



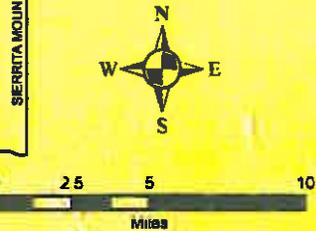
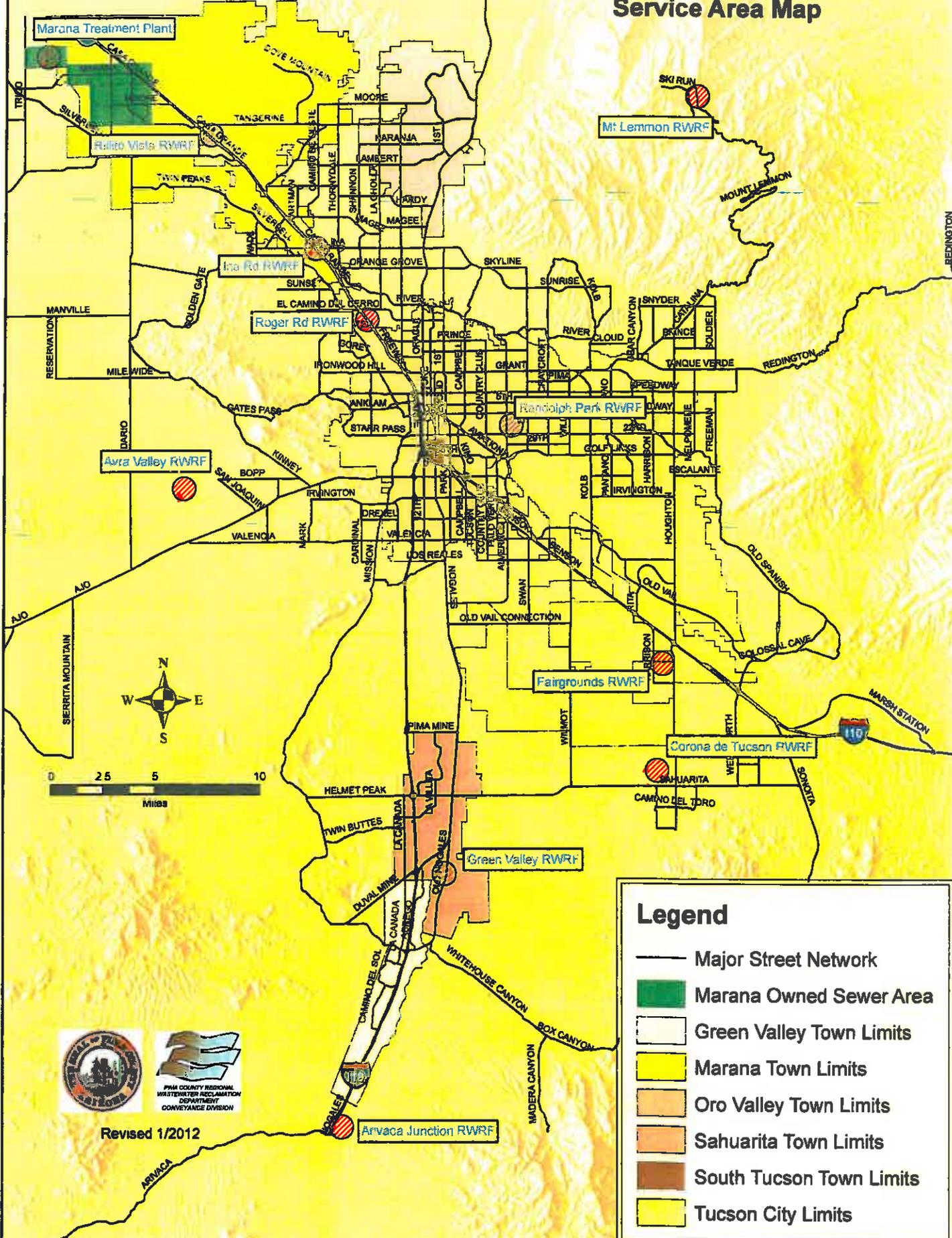
Jerry H. Smit, Manager
Ground Water Section
Water Quality Division

cc: Mindi Cross, Section Manager, WQD Compliance Section
Rita Mercer, Pima County RWRD
ADEQ File: 20110278

ERP: 11:0415

SERVICE AREA MAP
January 2012

Pima County Regional Wastewater Reclamation Department Sewer System Conveyance Service Area Map



Revised 1/2012

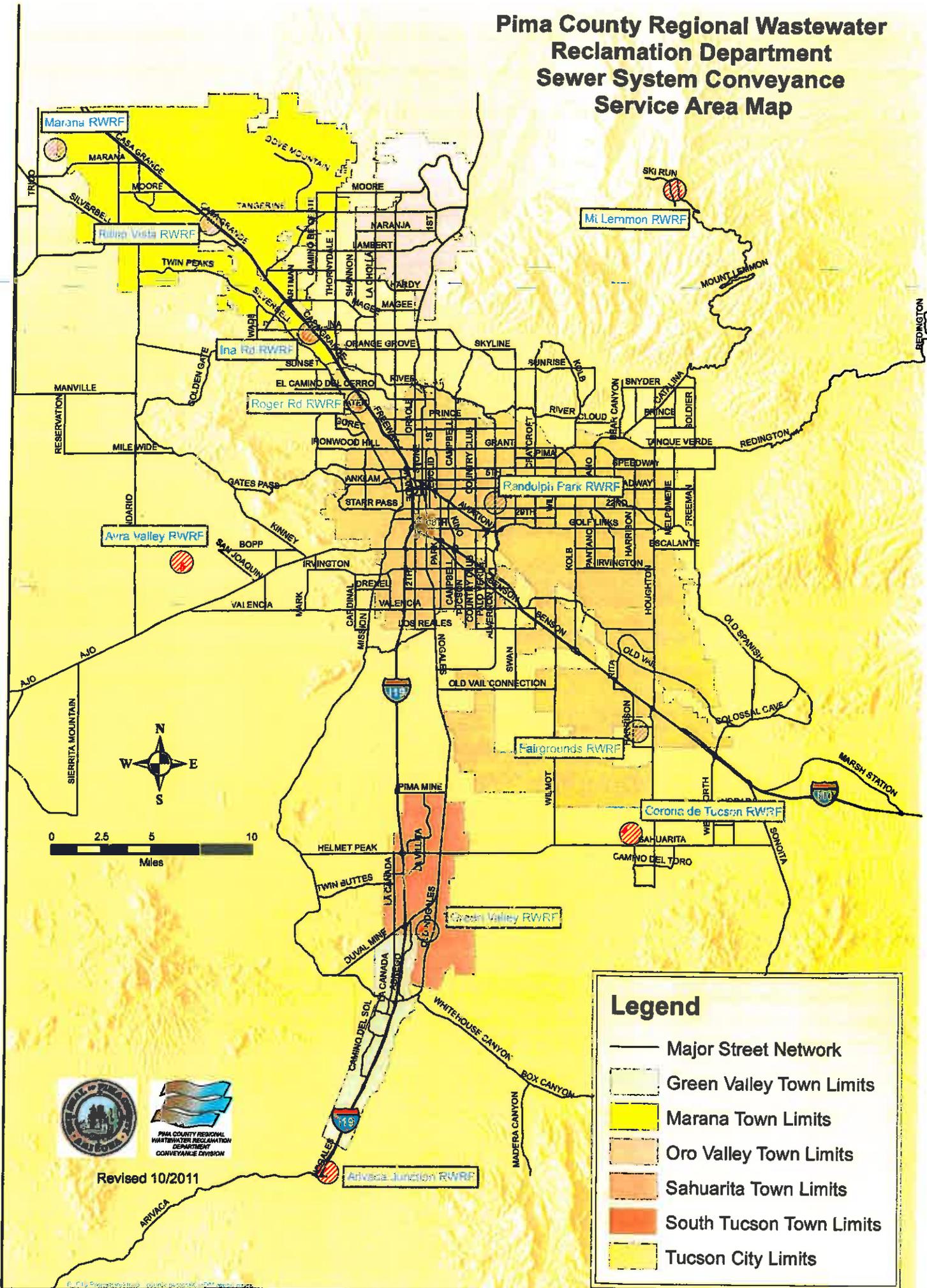
Legend

- Major Street Network
- Marana Owned Sewer Area
- Green Valley Town Limits
- Marana Town Limits
- Oro Valley Town Limits
- Sahuarita Town Limits
- South Tucson Town Limits
- Tucson City Limits

SERVICE AREA MAP

October 2011

Pima County Regional Wastewater Reclamation Department Sewer System Conveyance Service Area Map



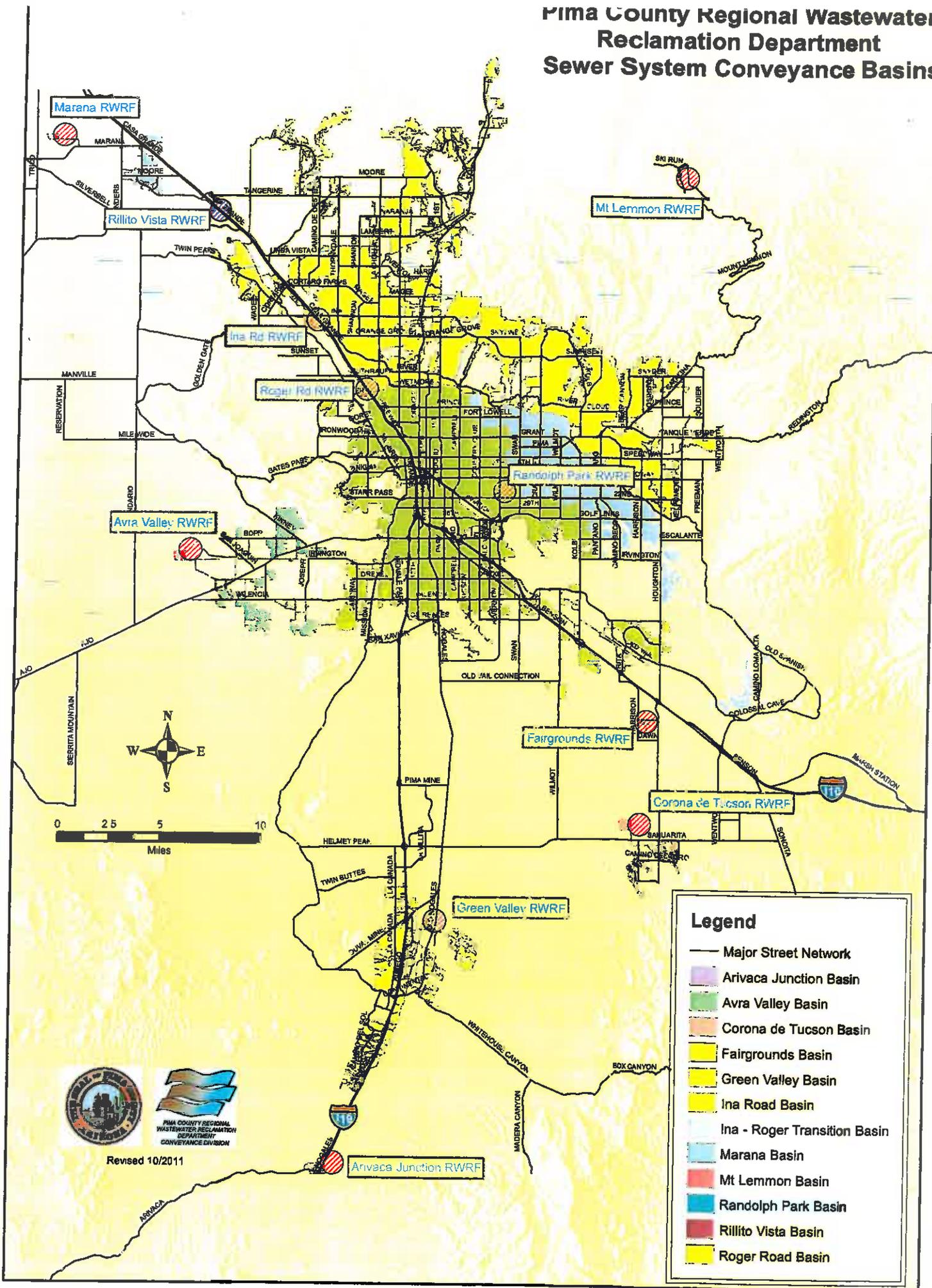
Revised 10/2011

Legend

- Major Street Network
- Green Valley Town Limits
- Marana Town Limits
- Oro Valley Town Limits
- Sahuarita Town Limits
- South Tucson Town Limits
- Tucson City Limits

**CONVEYANCE SYSTEM
BASIN MAP
October 2011**

Pima County Regional Wastewater Reclamation Department Sewer System Conveyance Basins



Revised 10/2011

Legend

- Major Street Network
- Arivaca Junction Basin
- Avra Valley Basin
- Corona de Tucson Basin
- Fairgrounds Basin
- Green Valley Basin
- Ina Road Basin
- Ina - Roger Transition Basin
- Marana Basin
- Mt Lemmon Basin
- Randolph Park Basin
- Rillito Vista Basin
- Roger Road Basin

PUBLIC NOTICE
Active Release Notice

PUBLIC NOTICE

Active Release Notice

In the event of a sewage release that is in a public area and has the potential for human contact, the Department shall post a cautionary notice around the quarantined area so as to assist in minimizing public exposure to sewage. These notices should be placed near all access points and clearly visible to passersby.



PUBLIC NOTICE
Potential Release Notice

Potential Release Notice

The Department shall post a public notice at any location which has encountered three or more releases from the sewage collection system during a 12-month period. The public notice posting must identify each release and clearly indicate the potential health hazards associated with sewage releases.

The notice must be placed in a location where the public is likely to come into contact with the release and the posting must be maintained for at least 12 months after the last release. Each documented SSO should be indicated on the sign using an indelible ink marker.

CAUTION
SEWAGE SPILLS POSSIBLE

In accordance with A.A.C. R18-9-C305

This location has been demonstrated to be susceptible to sewage spills. Sewage releases have occurred at this location on the following dates:

.....

.....

.....



Contact with untreated sewage can cause serious health effects and illness. Please avoid contact with sewage and immediately notify Wastewater Management anytime a sewage release is observed.

 For more information call (520) 740-6500
Property of Pima County Wastewater Management 

CONVEYANCE DIVISION
Door Hanger

Door Hangers

Conveyance Crews leave a door hanger when they respond to calls. It not only notifies residents of a sewer release it gives the resident information as to what the event was and what the crew did. It also has been expanded to include information on the resident can do to help control the roach population.

IMPORTANT CONTACT INFORMATION
Pima County Regional Wastewater Reclamation Department
Conveyance Division
3355 N. Dodge Boulevard
Tucson, AZ 85716
(520) 443-6500 – Weekdays 7:00 AM – 5:00 PM

SEWER EMERGENCY AFTER HOURS
(520) 443-6500
(520) 351-4595

ROACH CONTROL (AUTOMATED)
(520) 443-6501

We invite you to visit our website to take a short Customer Service Survey. <http://dot.pima.gov/www/apps/customersurvey/>



We are ISO Certified
9001 Quality
14001 Environmental
18001 Safety



**REGIONAL WASTEWATER RECLAMATION
CONVEYANCE DIVISION
SERVICE NOTICE**

Address: _____

Technician: _____ Date: _____

- SERVICED** the public sewer system in your area in response to:
 Stoppage Backup Overflow Odor
- INSPECTED** the public sewer system in your area and found the public lines to be clear. It is recommended that the property owner contact a plumber to service the private House Connection Sewer (HCS).
- INSPECTED** the public manholes in your area for roaches. Existing treatment is active and effective.
- INSPECTED** the public manholes in your area for roaches. A work order will be initiated for respray.
- TREATED** the public manholes in your area for roaches.
- TREATED** this area recently under our scheduled program.
- INSPECTED/TREATED** the public sewer system in your area for odors.

NOTE: Pima County Regional Wastewater Reclamation Department is responsible for all public sewer lines and manholes. The property owner is responsible for the house connection sewer (HCS) up to and including the connection onto the public sewer line.

We need your help. Working together, we can control the cockroach population. The information below will assist you in keeping roaches out of your home.

Barriers

- ▶ Maintain fluid in p-traps (you can see the p-shaped pipe under a sink). Add water at least once a week during hot temperatures; running the tap for a few seconds should be enough. Household bleach can be used and may evaporate less slowly than water for those drains not often used.
- ▶ Close drains when not in use, especially for those fixtures not often used or if the home will be uninhabited for a time. This includes sinks, showers, tubs, and floor drains. Alternatively you can use wire mesh baskets in drains. Cover overflow holes with tape until infestation is under control, but be mindful not to overflow sinks or tubs. This is a good practice when away on vacation or when the home will be closed-up for a time. If a shower or floor drain has no closing mechanism, a simple solution is to place a plastic bucket with a weight inside (bottle of shampoo for instance) over the drain.
- ▶ *Good Test* Seal all drains as described above in the evening. If you find roaches the next morning, they are probably coming in another way than through the sewer system.
- ▶ Ensure that the cap on your clean-out is fitted securely.
- ▶ Check for any gaps around the home and garage/carport, especially windows, doors and pet entrances, as the thickness of a coin is enough for roaches to enter through. If you can see sunlight shining around door edges, that may be enough space for insects to enter. Check door sweeps or add them to ensure there are no gaps at the threshold. Don't forget security/screen doors. Seal cracks/gaps around pipes, wires, vents, fireplaces, ductwork, coolers and AC units.
- ▶ Don't leave doors or windows open (including garage doors and chimney dampers) as it takes seconds for insects to enter, especially at night as they may be attracted to lights. Be careful of leaving doors open near food prep areas or dumpsters.
- ▶ Repair broken windows and screens.
- ▶ Check your exhaust and intake vents and pipes on the roof or gable ends. If they don't have screen coverings, apply a galvanized mesh of 1/4" or less. If you have vents under your eaves (often 2" rounds called bird holes), make sure the screening is intact.

Interior Care

- ▶ Don't pour grease down the drain. In addition to creating system clogs, it is food for roaches. You don't want to lure them into your home! Limit use of the garbage disposal; again it provides a food source.
- ▶ Avoid leaving dirty dishes in the sink, especially overnight.
- ▶ Keep food in the refrigerator or in containers with tight lids.
- ▶ Don't leave pet food out overnight.
- ▶ Be careful of bringing boxes into your home that once held produce, or were left outdoors or in storage for a time. Hitchhikers can hide in crevices.

Exterior Care

- ▶ Clear any debris, especially rotting organic material (gardening debris, palm frond piles, grass clippings, brush piles). Remove debris and/or vegetation that touches house siding.
- ▶ Move woodpiles a good distance from your home.
- ▶ Maintain open compost heaps a distance away, or consider a closed system.
- ▶ Garbage should be securely bagged in a tightly closed container. Rinse well all recyclables. Empty/remove bins/pails on a regular basis to keep pests from establishing themselves.
- ▶ Use yellow light bulbs that don't attract insects, especially in the summer.

Treatment Options

Treatment options to consider include traps, baits, dusts, chalks, liquids and sprays. There is no "one size fits all" as situations vary.

- ▶ There are many pest control/exterminator businesses which would be happy to speak with you and suggest treatment options.
- ▶ If you wish to do it yourself, there are retailers who specialize in pest control products, and may offer guidance and advice specific to your problems.
- ▶ Off-the-shelf products that are ready to go can be found at hardware, home improvement, department and grocery stores. Read the labels until you find a product that fits your needs.

We cannot recommend a particular business or product. It is suggested you seek personal recommendations from relatives and friends, and use phone books and internet as resources to locate retailers, products or exterminators. You may also choose to do background checks for service providers, perhaps using a resource such as the BBB (Better Business Bureau).

If you decide to apply insecticide, read the label carefully and follow directions as to personal protective gear, application guidelines, and other precautions. It is suggested that you treat the perimeters of your house (foundation), garage or carport, paying special attention to doors and windows. You may also want to include storage/garden sheds, privacy wall perimeters, and sidewalk edges.

Water Sources

- ▶ Like all desert creatures, cockroaches are attracted to and need water. Follow these simple guidelines to minimize water exposure:
- ▶ Repair any indoor leaks, and be sure gaps around pipes are sealed.
- ▶ Fix any outdoor leaks at faucets and irrigation systems.
- ▶ Check gutters, leaders, downspouts and roof drains to be sure water flows freely away from your home. Clear any debris that impedes flow. Pooling water attracts pests.
- ▶ Water features like pools, spas and fountains, along with pet bowls, bird baths and irrigation drips, can be attracting items.

