CITIZENS' WATER ADVISORY COMMITTEE (CWAC)

Wednesday, November 4, 2015, 7:00 a.m.
Director's Conference Room
Tucson Water, 3rd Floor
310 W. Alameda Street, Tucson, Arizona

Legal Action Report

1. Roll Call:
The meeting was called to order by CWAC Chair, Brian Wong at 7:01 a.m. Those present and absent were:

Present:

Brian Wong	Chairperson, Representative, City Manager
Mark Murphy	Representative, Mayor
Catlow Shipek	Representative, City Manager
Mark Taylor	Representative, City Manager
Mitch Basefsky	Representative, City Manager
Placido dos Santos	Representative, City Manager
Chuck Freitas	Representative, City Manager
Mark Stratton	Representative, City Manager
Ryan Lee	Representative, Ward 1 (arrived after roll call)
Amy McCoy	Representative, Ward 2
Bruce Billings	Representative, Ward 3
George White	Representative, Ward 4
Mark Lewis	Vice Chair, Representative, Ward 5
Albert Elias	Tucson Water, Acting Director, Ex-Officio Member

Absent:

Jean McLain	Representative, City Manager
Kelly Lee	Representative, Ward 6
Jackson Jenkins	Pima County Regional Wastewater Reclamation Department Director, Ex-Officio Member

Tucson Water Staff Present:

Sandy Elder	Deputy Director
Scott Clark	Deputy Director
Andrew Greenhill	Intergovernmental Affairs Manager
Melodee Loyer	Water Administrator
Pat Eisenberg	Water Administrator
Chris Rodriguez	Water Administrator
Wally Wilson	Chief Hydrologist
Rebecca Spry	Staff Assistant
Johanna Hernandez	Staff Assistant
Kris LaFleur	Staff Assistant

Others Present:

Chris Avery	City of Tucson, Attorney's Office
David Ortega	City of Tucson, Budget
Amy Stabler	City of Tucson, Ward 6
Michael Block	Metro Water
Albert Lannon	Avra Valley Coalition
Jim Barrier	Citizen

2. **Announcements –** Member Basefsky reminded the Committee about the joint CAP WRRC Sustainable Water for Southern Arizona event. The event takes place November 6, 2015 at 7:30 a.m., and members have all received email with detailed information.

3. **Call to Audience –** Member Freitas addressed the Committee regarding the 1995 Mayor and Council Water Policies, specifically in relation to Section III.A.1.c, and d, and Section III.A.5.e. Member Freitas related these polices to the ACC policy on the recovery of costs by private water providers. Mr. Albert Lannon and Mr. Jim Barrier addressed the Committee regarding the use of glyphosate on City property.

4. **Review of October 7, 2015 Legal Action Report and Meeting Minutes –** Committee Member Freitas motioned to approve the Meeting Minutes of October 7, 2015. Member Murphy seconded. Motion passed unanimously by a voice-vote of 13-0.

5. **Director's Report –**

a. **Mayor and Council Items –** On November 4th, Mayor and Council will consider an amendment to an existing Intergovernmental Agreement (IGA) with the City of Phoenix for additional water storage.

On November 17th, Mayor and Council will consider an amendment an IGA with the University of Arizona to expand an existing study to determine effective messages for the marketing of conservation program. They will also consider an amendment to an existing Oro Valley Effluent IGA establishing rates for delivery and excess use.

b. **Department Updates –** Tucson Water currently has 65 vacancies, 17 active recruitments and 13 pending new hires. The Utility is aggressively pursuing filling its vacancies.

c. **Informational Items –** Potable water production is down 4.7% for the Fiscal Year and down 7.1% for the Calendar Year. Reclaimed water production is down 7.3% for the Fiscal Year and down 15% for the Calendar Year. Recent rains have likely contributed to lower demands.

The Director's Recruitment has identified seven qualified individuals to proceed in the recruitment process. Finalists should be selected by the second week of December. A meet and greet for the finalists will be scheduled on December 10th that the CWAC will be invited to attend. The City hopes to extend an offer to a candidate by year's end.

6. **Subcommittee Reports –**

Technical, Policy, and Planning Subcommittee – Subcommittee Chair Murphy reported the TPP received a presentation regarding emerging contaminants.

Finance Subcommittee – Subcommittee Chair Billings reported the Subcommittee has reviewed the CIP and bonding process; O&M review is upcoming.

Conservation and Education Subcommittee – Subcommittee Chair McCoy reported they will be meeting today. Topics of discussion include Mayor and Council Water Policies, budget, and new programs.

Bill Redesign Ad-Hoc – Subcommittee Chair Freitas reported the Subcommittee has reviewed the proposed redesign mock-ups, related costs, and focus groups. The Subcommittee isn't due to meet again until January.

RWRAC Update – Member Taylor reported that RWRAC has returned to monthly meetings. A CIP Subcommittee has been formed, and Finance is working to review the budget. The next meeting is the 19th; RWRAC will be meeting monthly again until around May.

8. **Subcommittee Appointments –** Member Stratton requested to join Finance. Member Billings motioned to appoint members to subcommittees as requested. Motion seconded by Member Freitas. Motion passed unanimously by a roll-call vote of 13-0.

9. **Customer Service Update** – Tucson Water Deputy Director Scott Clark presented a PowerPoint on the status of improvements to the Customer Service Department. The department developed a timeline for the Excellence in Customer Service Project, divided up into eight categories: staffing, training, phones, process mapping, Naviline software, internal performance measures, recognition/compensation program development, and facilities. The staffing category is working towards reduced customer wait times, improved call handling. Improved customer experience, and identifying staffing levels and grades. The training category is working towards reduced call wait time, increased first call solutions, reduced employee turnover, and long term employee efficiency. The phone category is working towards decreased busy signals, decreased telephonic bill pay times, and identification of staff levels. Initially, these efforts will increase call wait times for non-bill pay customers. The process mapping category is working towards reduced work order processing time and cost, reduced customer wait times, and comprehensive and prioritized process improvement. The Naviline software category is working towards increased online bill pay, reduced process time for work orders, and improved online experience. The internal performance measurements are working towards identifying effectiveness of performance measures, refined policies and procedures, and improved customer experiences. The recognition/compensation program is working towards increased incentives, improved morale, and improved pride in service. The facilities category is working towards improved staff morale, reduced turnover, and improved customer experience. Deputy Director Clark discussed the progress made in each category to date. Detailed information was provided on the number of calls, the reason for calls, and the methods for processing calls. Adequate data is not available to establish an industry standard on which to compare Tucson Water processes. Extensive discussion was held on what the Utility is focusing on, and what other areas of focus should be.

Member McCoy departed at 8:05
Member Lewis departed at 8:05 and returned at 8:07

10. **Capital Improvement Program (CIP)** – Tucson Water staff members Pat Eisenberg and Melodee Loyer presented a PowerPoint on the CIP. Ms. Eisenberg discussed the status of current CIP projects and the difference between the planned CIP spending and the actual CIP spending. The imbalance is a result of delayed and/or deferred projects, as well as difficulties recruiting and retaining engineering staff. Ms. Loyer discussed the proposed 5-year CIP. New projects were discussed, as well as significant modifications to existing projects. The effects of the deferment of the Avra Valley Transmission Main, and considerations related to the development of the Sonoran Corridor were discussed. Brief discussion was held on the staffing of engineers and contracting engineers was held. Further discussion was held regarding the adequacy of the CIP budget, the prioritization of projects, and what happens to the funds carried over in a given year.

Chairperson Wong departed at 8:10 and returned at 8:12

11. **WaterSMART Program** – Eve Halper from the Bureau of Reclamation (BOR) presented a PowerPoint on the BOR's Water Conservation Field Services and WaterSMART grant programs. Water Conservation Field grants are focused on conservation and water management; they are capped at 50k and require a non-federal 50% cost share, which can include in-kind services. These grants are for the Phoenix area only. WaterSMART grants are focused on sustainable water strategies, awards vary, but the limits are higher than those of Water Conservation Field Services grants. There is also a non-federal 50% cost share requirement, which can be met with in-kind services. These grants are offered across 17 states, making competition higher and increasing the need for detailed justification for funding. Ms. Halper reviewed the four WaterSMART grants that were funded for FY15: Water & Efficiency Grants, Title XVI Recycling & Reuse Program, Basin Studies Program, and Drought Program. As grants are federally funded, NEPA is required. NEPA processes were discussed. The grant process was discussed in detail and best practices/tips for grant writing and application were reviewed.

Member Murphy departed at 8:32 and returned at 8:33
Member White departed at 8:48, returned at 8:52, and departed at 9:01

12. **Open Meeting Law** – This presentation was deferred to the December meeting.

13. **Staff Report on the Use of Glyphosate on City Property** – Tucson Water staff member Johanna Hernandez reviewed the staff report on the use of glyphosate on City property provided to the Committee,

and there was detailed discussion of the topic. Glyphosate is being used to control the presence and spread of invasive and noxious weeds, such as buffelgrass. These weeds pose extreme fire hazards and threaten habitat diversity. Mitigation is required by State and County regulations, as well as obligations to the federally administered Habitat Conservation Plan applicable to these lands. A background of the development of the City's aerial herbicide spraying program was discussed. Regional efforts by the City, County, Parks and Recreation, U.S. Bureau of Land Management, U.S. Forest Service, and the U.S. National Park Service resulted in the widespread use of glyphosate to control and eradicate noxious weeds. Tucson Water relied on experts in the management of buffelgrass and the aerial application of glyphosate to develop its program. The program is based on U.S. EPA designations for the application glyphosate. The specific safety measures taken when using glyphosate were discussed, including methods to reduce drift outside of the spray area. The Staff Report included a review of the alternative treatment options, and provided specific review for areas within close proximity to occupied structures. Tucson Water is developing a communications plan to inform area residents of when and where spraying will occur. This plan includes physical flagging of the area planned for spraying as well as posted and electronic notice of the time frames in which spraying might occur. The area residents will be included in the development of the communications plan, and TW will return to CWAC with a report on the plan in March. All possible safety measures will continue to be taken. The U.S. EPA is expected to release a new risk assessment later this year. The new risk assessment, along with emerging research, will be taken under consideration in the continued execution of the City's aerial herbicide spraying program. Until such time as circumstances change, the City will continue to execute its aerial herbicide spraying program.

14. Future Meetings/Agenda Items – See projected agenda.

15. Adjournment – Meeting was adjourned at 9:15 a.m.

Excellence in Customer Service Project

Scott Clark
Deputy Director
Scott.Clark@tucsonaz.gov
Nov 4, 2015

Excellence in Customer Service

- Bottom Line
  - In order to achieve industry standards for customer service, Tucson Water's Call Center requires comprehensive improvements in staff levels and training, phone and billing technologies, process refinement, facilities, and staff recognition and compensation.
- Problem Statement:
  - There are insufficient resources for staff to achieve industry standards in call center service.
    - Blocked calls – phone lines are busy 88% of the time
    - Service levels – average time to answer is 7:18 minutes
    - Abandonment rate – 20% of calls are abandoned by callers
    - Answer type – 40% of non-abandoned calls are answered by IVR

Excellence in Customer Service
Call Center Assessment and Priorities

- Staffing
- Training
- Phones
- Process Mapping
  - Turn off
  - Delinquent Billing
- NaviLine Software
- Internal Performance Measures
- Recognition/Compensation
- Facilities

Timing and Priority

What can be done now?

What can be done in the short term?

What will take capital investment?

Excellence in Customer Service Project

Date	Sept. 2015	Oct. 2015	Nov. 2015	Dec. 2015	Jan. 2016	Feb. 2016	Mar. 2016	Apr. 2016	May 2016	Jun. 2016	Jul. 2016

Staffing

- Background Checks for CSR is on going
- Create Water Training Customer Relations Specialist – HR Classification Process 10/09
- CSR Hiring – 4th Week in October
- Staffing Assessment – 10/30
- Staffing Plan to HR – Dec.

Effect
- Reduce customer wait time
- Improve staff call handling
- Improve customer experience
- Identify staffing levels and grades

Training

- Dedicate Trainer - Remove Additional Duties – 09/25
- Develop Training Syllabus – Six Weeks & Standards, Soft Skills – 10/23
- Implement New Entry Level Training - November
- Supervisor & Vendor Training - December
- Develop Professional Development Program – Jan.
- Implement Professional Development Program - February
- Review and Refine - March

Effect
- Reduce call waiting
- Increase first call solutions
- Reduce CSR turnover
- Sustain and increase CSR efficiency long term

Phones

- Busy Signal Analysis - 9/25 -10/25
- Added Phone Lines - 10/12
- Wait Time Analysis
  - Determine staffing
  - Determine Shift

Effect
- Decrease in busy signals
- Decrease telephonic bill pay time
- **Increase in Customer wait times for non-telephonic bill pay**
- Identify staffing levels

Process Mapping

- Turn On/Turn Off Complete
- Delinquencies – 10/09
- Same Day Turn On– 10/16

Effect
- Reduce work order processing time and cost
- Reduce customer wait time
- Comprehensive & prioritized process improvement

This is a Working Document

Excellence in Customer Service Project

Date	Sept. 2015	Oct. 2015	Nov. 2015	Dec. 2015	Jan. 2016	Feb. 2016	Mar. 2016	Apr. 2016	May 2016	Jun. 2016	Jul. 2016
Naviline Software		Naviline Training 10/1-10/10 Naviline Upgrade 10/14 Naviline System Testing 10/19 – 11/07 Click to Gov. Webpage Enhancements 10/23-11/06 Implement System Wide Upgrade 11/07-11/08 Implement Naviline and Click to Go, 11/09					**Effect** • Increase customer online bill pay • Reduce staff time to process work orders • Improve customer online experience			Initiate Cross Department Billing Software Needs Assessment 2nd Quarter 2016	
Internal Performance Measurements		Review Black and Veatch 10/08 Identify Potential Metrics 10/16 Implement Key Measures of Performance 10/30 Review Measure of Effectiveness 12/04					**Effect** • Identify if new performance measures were effective • Refine policies and procedures • Improved customer experience				
Recognition /Compensation Program Development		Immediate Recognition – Supervisor/Deputy Sustained Excellence (Six Months 10/16) Project Excellence 10/29 Team Excellence 11/05 Peer Nomination 11/05 Second Quarter						**Effect** • Increase incentives • Improved morale • Improved pride in service		First Quarter	
Facilities		Relocate 4 CSRs 09/22 Initiate Facility Study 9/28-11/13 Tour Fire/Police Call and Dispatch 09/30		Create CIP Placeholder for new call center 12/25			**Effect** • Improve staff morale • Reduce staff turnover • Improve customer experience				

This is a Working Document

Results to Date

Staffing	Training	Phones	Process Mapping	NaviLine Software	Internal Performance Measures	Facilities	Recognition/ Compensation
• Hired 11 CSRs • Staffing Assessment Complete • New Training and Customer Relations Specialist	• Interim Training Plan Developed	• Reduced Busy Signals by 88% • Added 23 lines	• Turn on/Turn Off • Delinquent Billing	• NaviLine upgrade to go live NOV. 16 • Click to Gov on NOV. 16	• Abandoned Calls • Service Level	• Relocated 4 CSRs to temp space • Initiated building study	• Immediate Recognition • Program budgeted

Customer Initiates Call

August 2015
67,000 Calls

Busy

STOP

Council Member

Tucson Water Management

Router

Several options are available Customer chooses "Request to Initiate Service"

On line Bill Pay - 32,500, 49%

Calls

34,500 - 51%
Answered 27,000 – 78%
Abandoned 7,500 – 22%

Customer Interaction

Request to Initiate Service

Customer Interaction

Clerk Takes Request from Customer

Customer Interaction

Is it a:
New Customer
or
Existing Customer

Customer Interaction

For Existing Customer:

Customer Interaction

Do a customer search in data base.

Customer Interaction

Update customer information

Customer Interaction

Attach to address (Physical Street Address)

Customer Interaction Complete

Set up appropriate services required.
EP = No work order
MS = Garbage container, Work order
SW = Pima County Waste Management, Work order
WA = Work order

Tucson Water Completes Request

Field office prints job orders & route them to the field crew

Field Crew performs work & Work order is turned in to field office

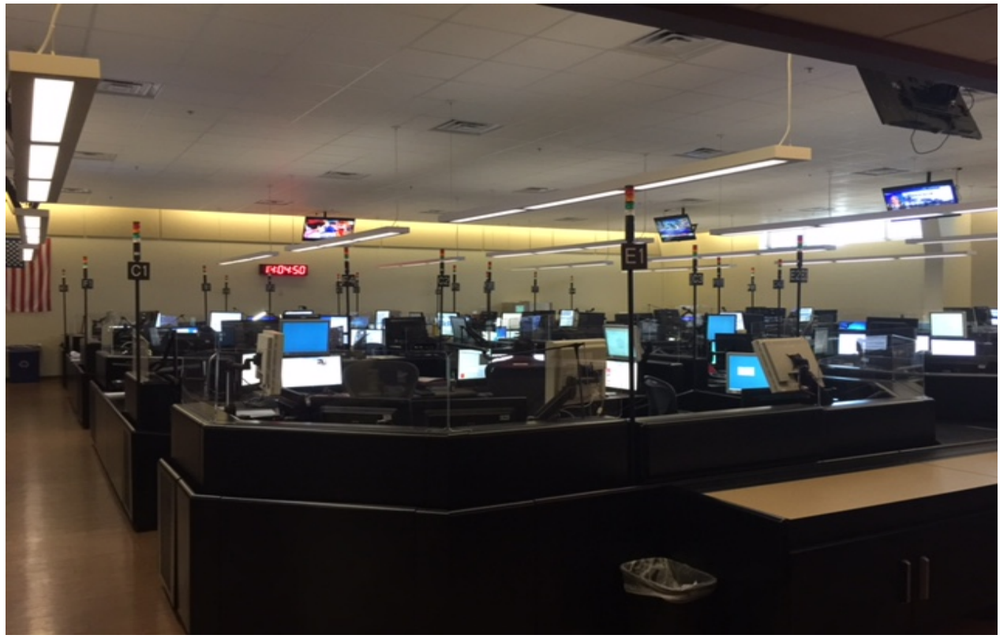
Tucson Water Completes Request

Field office returns Paper (physical) work order in to La Entrada Billing Office.

Work order is filed as complete. (the process should take 24-48 hours)

Break Down of Calls

Queues	Answered	Abandoned
36% Choose English	68%	32%
6% Spanish	88%	12%
19% Bill Inquiry	82%	18%
14%Turn Off	84%	16%
25% Delinquent Bill	85%	15%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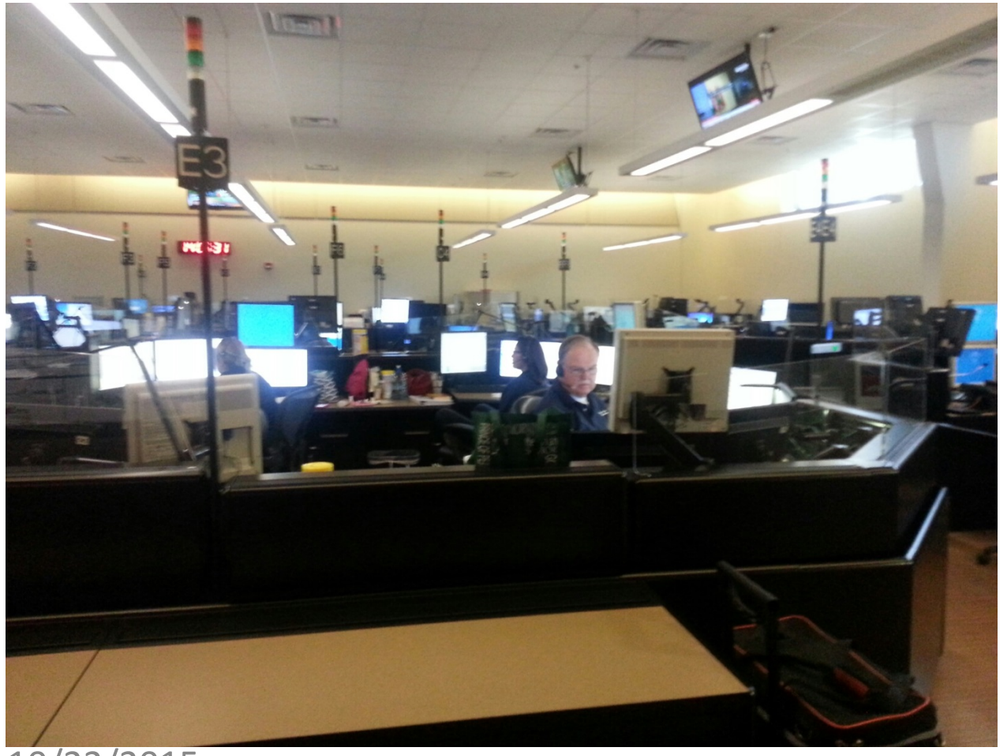
BACKS
Ubacks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Alma

9-11 Call Center Break Room
FREE

TW Break Room

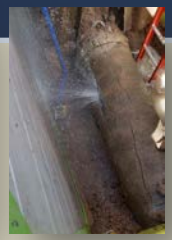
Tucson Water

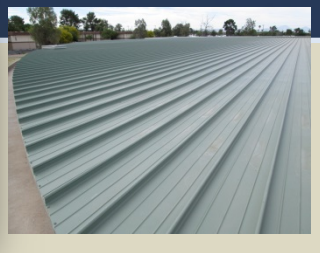
CWAC

November 4, 2015

Presenters:

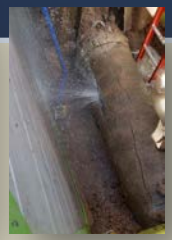
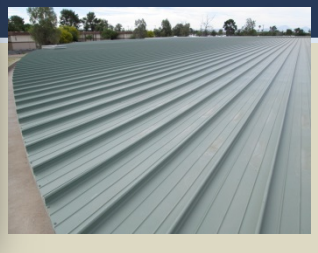
Pat Eisenberg, Chief Engineer
Melodee Loyer, Planning Administrator



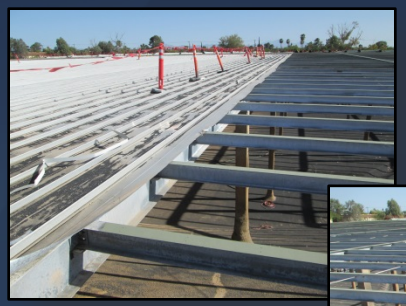


Overview

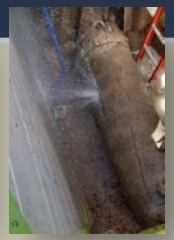
- How have we done?
- Proposed Capitol Improvement Program (CIP)
- Alternative Infrastructure Assessment (AIA)
- Upcoming Adjustments

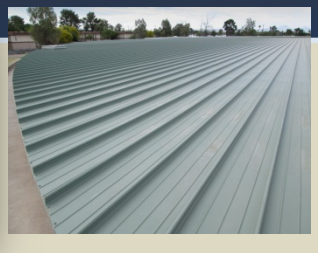



CIP- How have we done?



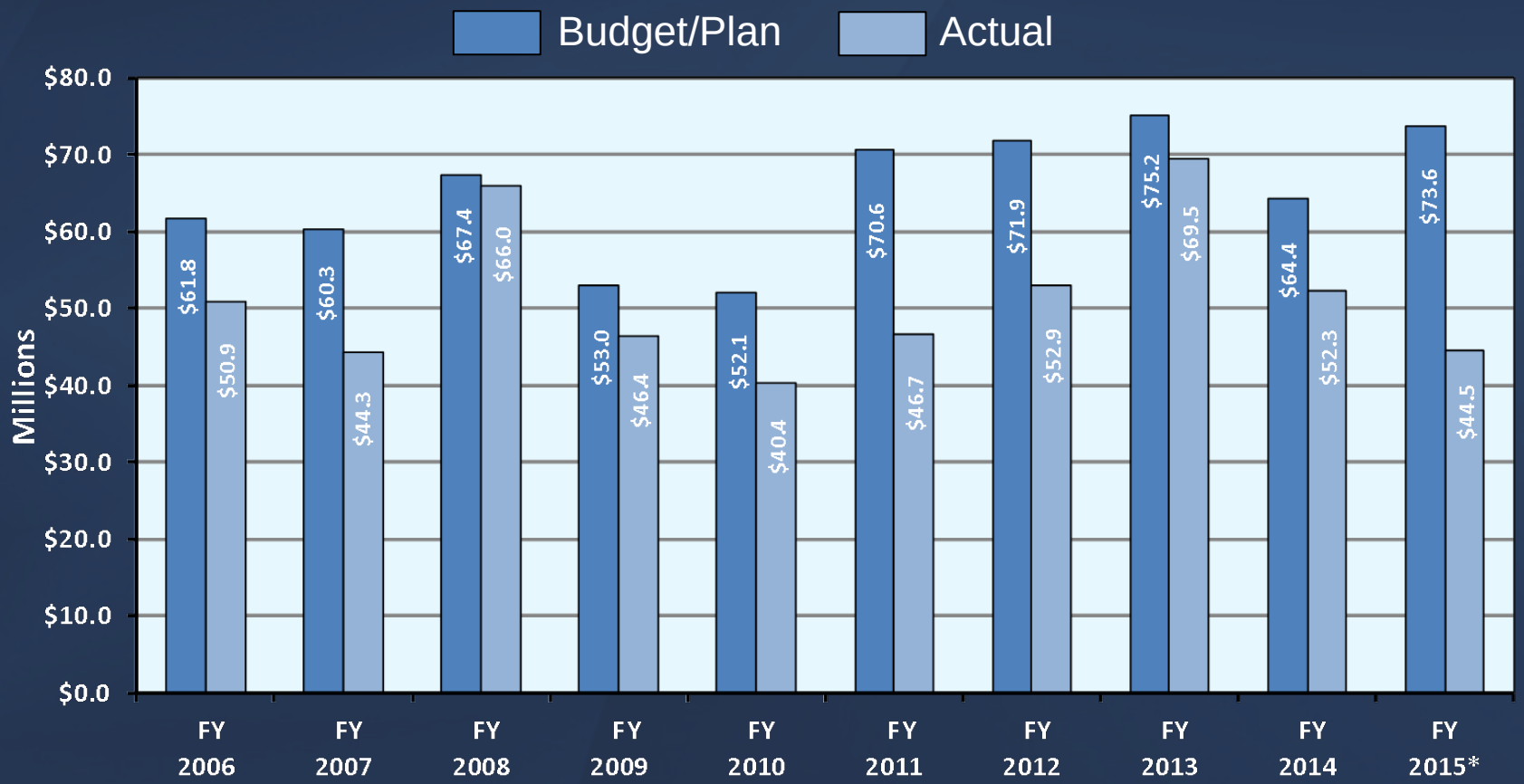
- 22nd Street Reservoir - $2.5M
- Dove Mt. 36" Reclaimed TM - $4.0M
- Kino Parkway Overpass - $1.6M
- Magee Road - $0.3M



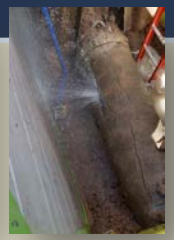


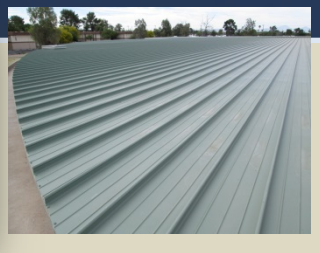
TUCSON WATER

CIP Trends: Planned vs Actual



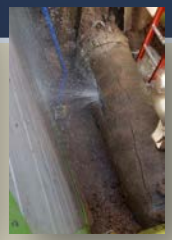
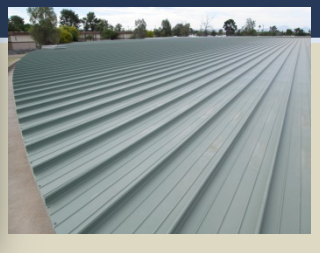
*Unaudited actual as of June 30, 2015



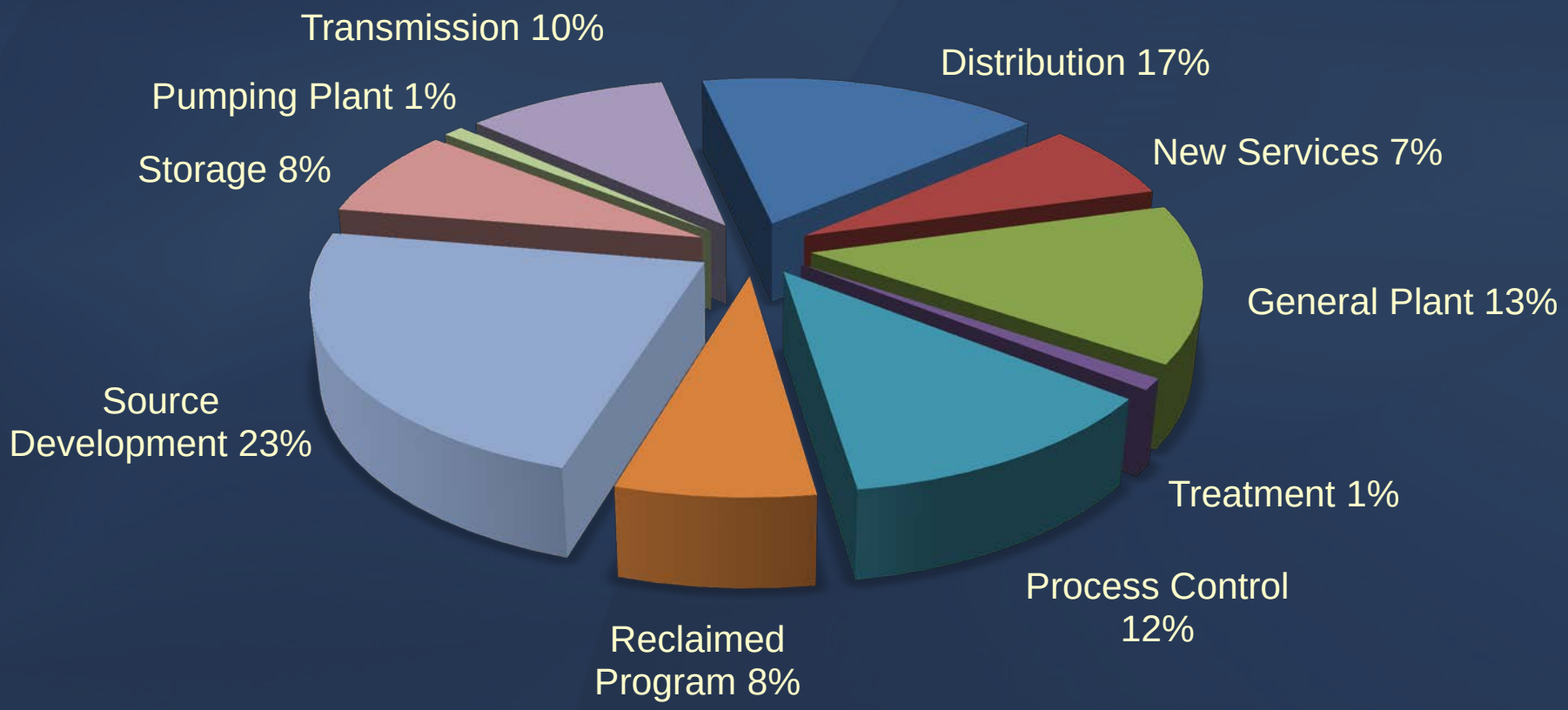


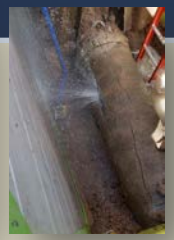
FY15 Planning vs Actual - Imbalance

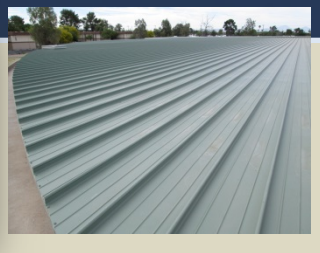
- Delayed Santa Cruz Treatment to support economic development
- Avra Valley Transmission Main (AVTM) work deferred for AIA evaluation
- Inability to retain engineering staff
- Reclaimed filters held back for possible favorable Arizona Department of Environmental Quality (ADEQ) permitting

FY2017 – FY2021
Capital Budget $280.1 Million

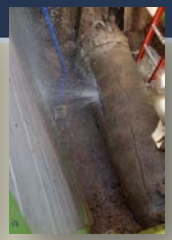
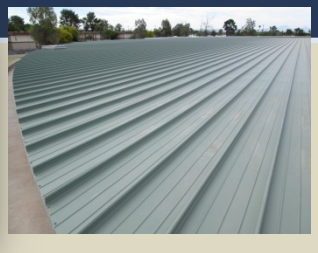






Proposed 5-Yr CIP (New Work)

- ~~Reclaimed Filtration - $4.8M~~ → Filter Bypass - $2.1M
- Valley View Reservoir - $2.7M
- Effluent Forebay Roof - $3.9M
- ~~Avra Valley Transmission Main (AVTM 7 Year Implementation)~~ → AIA
- Santa Cruz Wellfield

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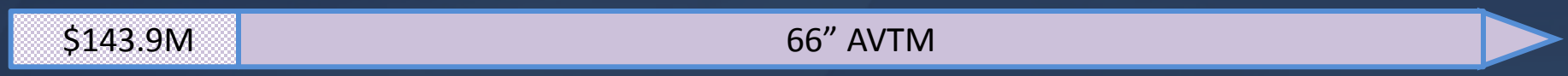
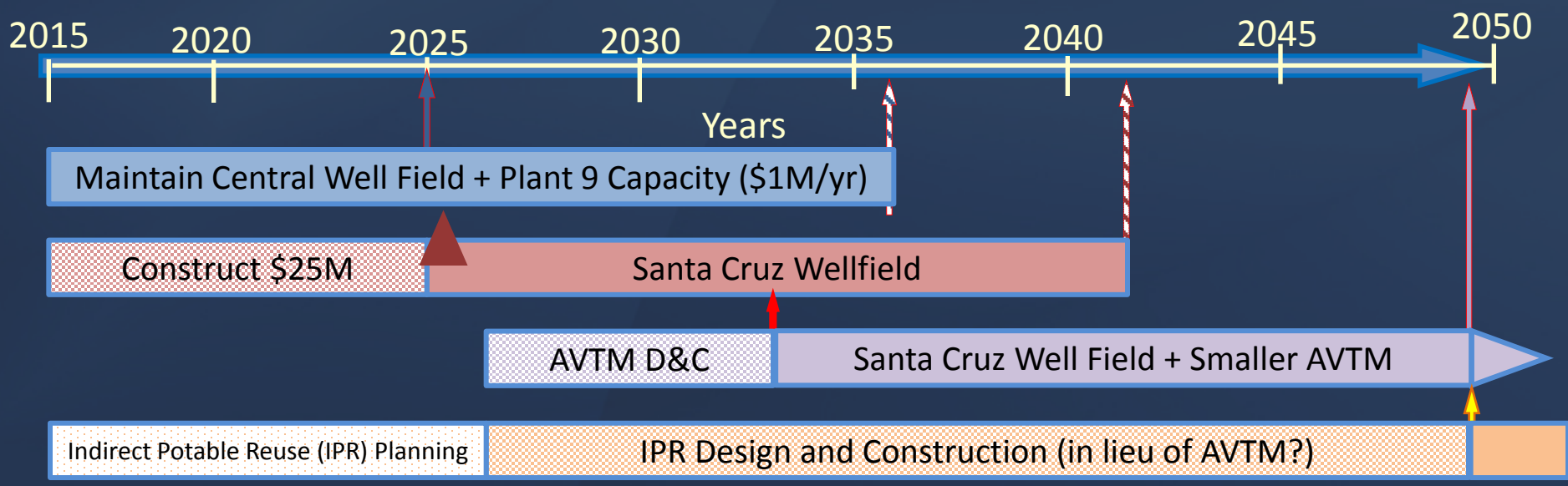
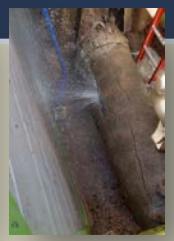
AIA Outcome

Original AVTM Plan

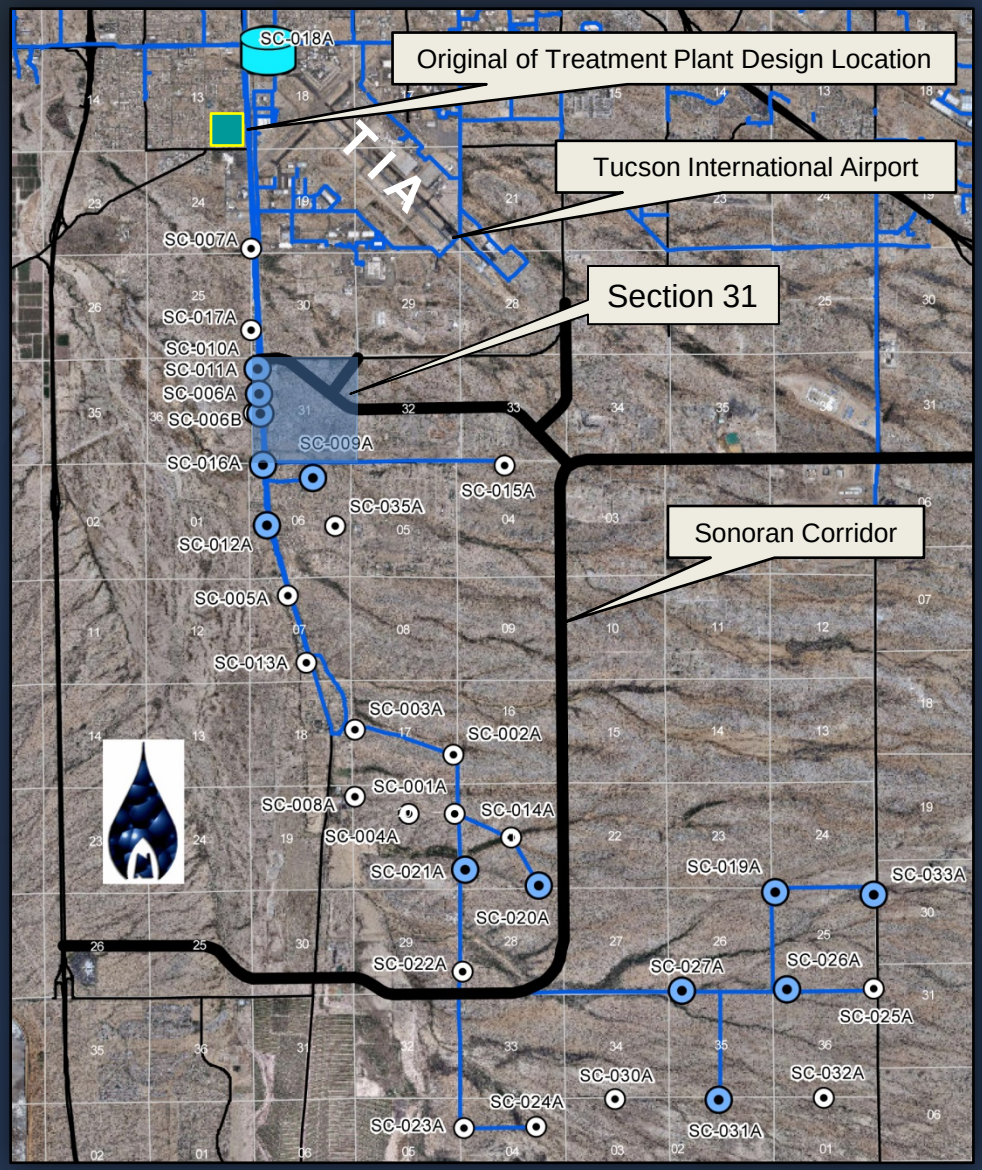


AIA Plan

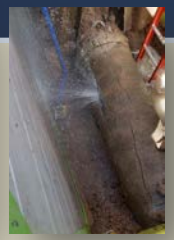


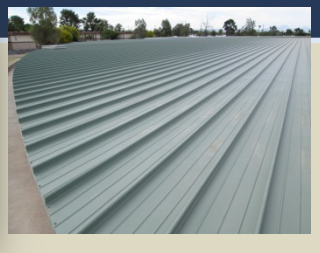


Sonoran Corridor
(West Side)



- Original treatment plant design location
- Section 31 is the most viable property for future development





TUCSON WATER

Upcoming CIP Adjustments

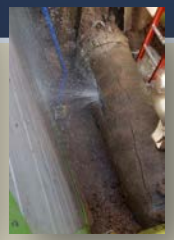
Relocate Treatment Plant to Support Economic Development

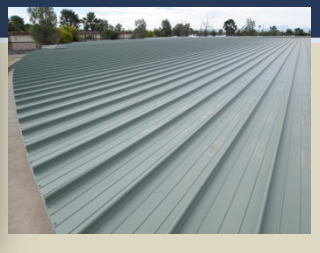
Existing CIP = $14.3M

- 28” slip liner
- Santa Cruz Treatment Facilities
- Martin Booster Upgrade
- 4,000’ – 36” line

Unfunded = $5.5M - $6M

- 37% shorter slip liner
- Treatment Relocation Cost
- Eliminate Martin Booster Upgrade
- Additional 5280’ – 36” line
- 10,000’ – 16” Hughes Main
- B-D Reservoir and Booster





TUCSON WATER

Questions?

Tucson Water

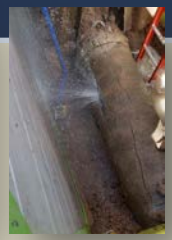
CWAC

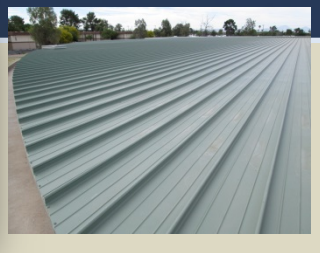
November 4, 2015

Presenters:

Pat Eisenberg, *Chief Engineer*

Melodee Loyer, *Planning Administrator*





RECLAMATION

Managing Water in the West

Water Conservation Field Services Program and WaterSMART

Grants

U.S. Department of the Interior
Bureau of Reclamation

Overview

- Reclamation Grant Programs
  - Water Conservation Field Services Program (Phoenix Area Office)
  - WaterSMART (Reclamation – wide)
- NEPA
- How do I get a grant?
- What's a Funding Opportunity Announcement (FOA)?
- Suggestions to improve your proposals

RECLAMATION

Water Conservation Field Services Program

- **Program Goals**
  - Encourage water conservation
  - Assist water agencies with water management and conservation planning
  - Foster improved water management

- **Technical & Financial Assistance**
  - Water Management Planning
  - Demonstration of Innovative Conservation Technologies
  - Implementation of water conservation measures

RECLAMATION

WaterSMART Program

Sustain and Manage America's Resources for Tomorrow

- Reclamation Wide program
- Working to achieve a sustainable water strategy to meet the Nation's water needs
- 50% cost-shared funding on a competitive basis
- Managed out of Reclamation's Denver Office

RECLAMATION

WaterSMART

- Water & Energy Efficiency Grants ★
- Advanced Water Treatment, Pilot & Demonstration Project Grants
- Climate Analysis Tools
- Title XVI – Water Recycling & Reuse Program ★
- System Optimization Review Grants
- Basin Studies Program ★
- Drought Program ★
- Cooperative Watershed Management Grants

★ Funded in FY 2015

RECLAMATION

NEPA Process

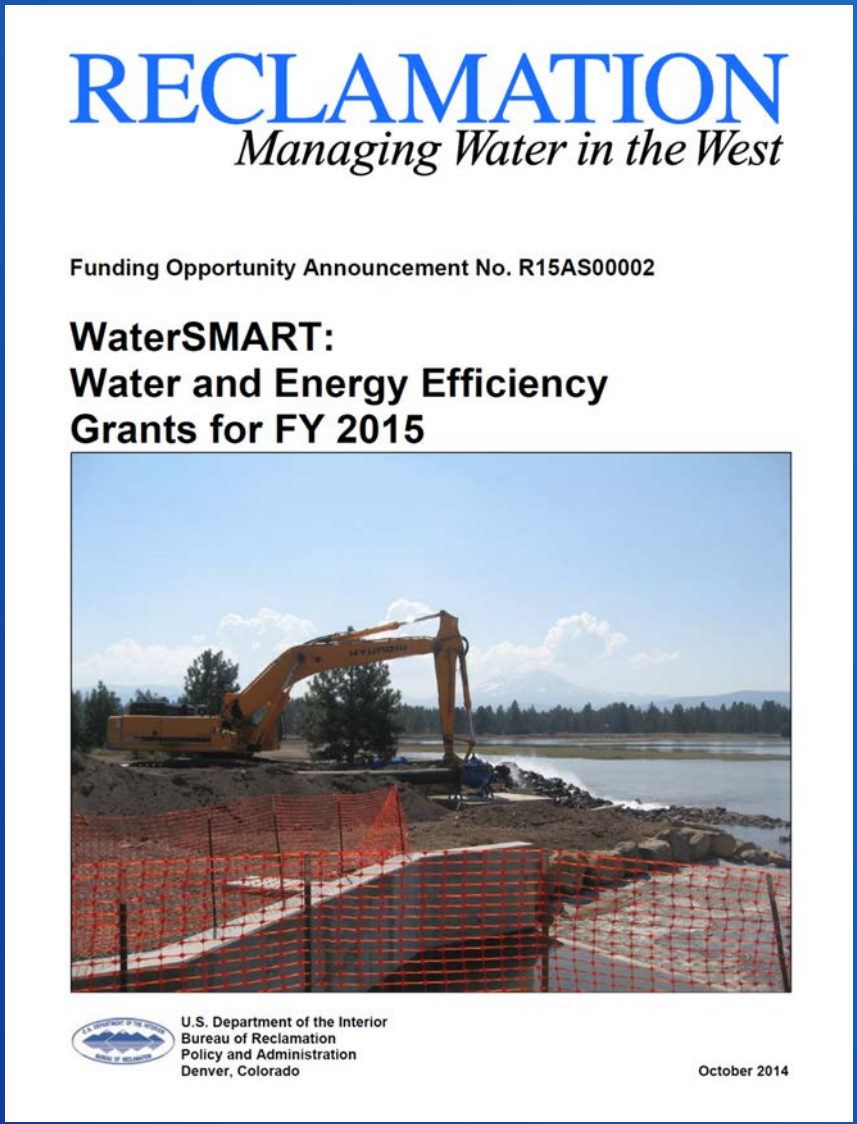
- NEPA- National Environmental Policy Act
- Requires evaluation and disclosure of a project's environmental impacts to the public
- All projects funded by the Federal Government require NEPA
- Extent of NEPA activities depends on type of project funded

RECLAMATION

Water and Energy Efficiency Grants (WEEG)

Example Projects:

- SCADA (supervisory control and data acquisition)
- Canal Lining
- Leak Detection
- Appliance Rebates



RECLAMATION
Managing Water in the West

Funding Opportunity Announcement No. R15AS00002

WaterSMART:
Water and Energy Efficiency Grants for FY 2015

U.S. Department of the Interior
Bureau of Reclamation
Policy and Administration
Denver, Colorado

October 2014

RECLAMATION
Managing Water in the West

Funding Opportunity Announcement No. R15AS0009

WaterSMART:
Title XVI Water Reclamation and Reuse Program Funding for Fiscal Year 2015

U.S. Department of the Interior
Bureau of Reclamation
Policy and Administration
Denver, Colorado

October 2014

Title XVI – Water Recycling and Reuse Program

RECLAMATION

Drought Program

RECLAMATION
Managing Water in the West

Funding Opportunity Announcement No. R15AS00047

WaterSMART:
Drought Contingency Planning Grants for Fiscal Year 2015

U.S. Department of the Interior
Policy and Administration
Bureau of Reclamation
Denver, Colorado

May 2015

RECLAMATION
Managing Water in the West

Funding Opportunity Announcement No. R15AS00046

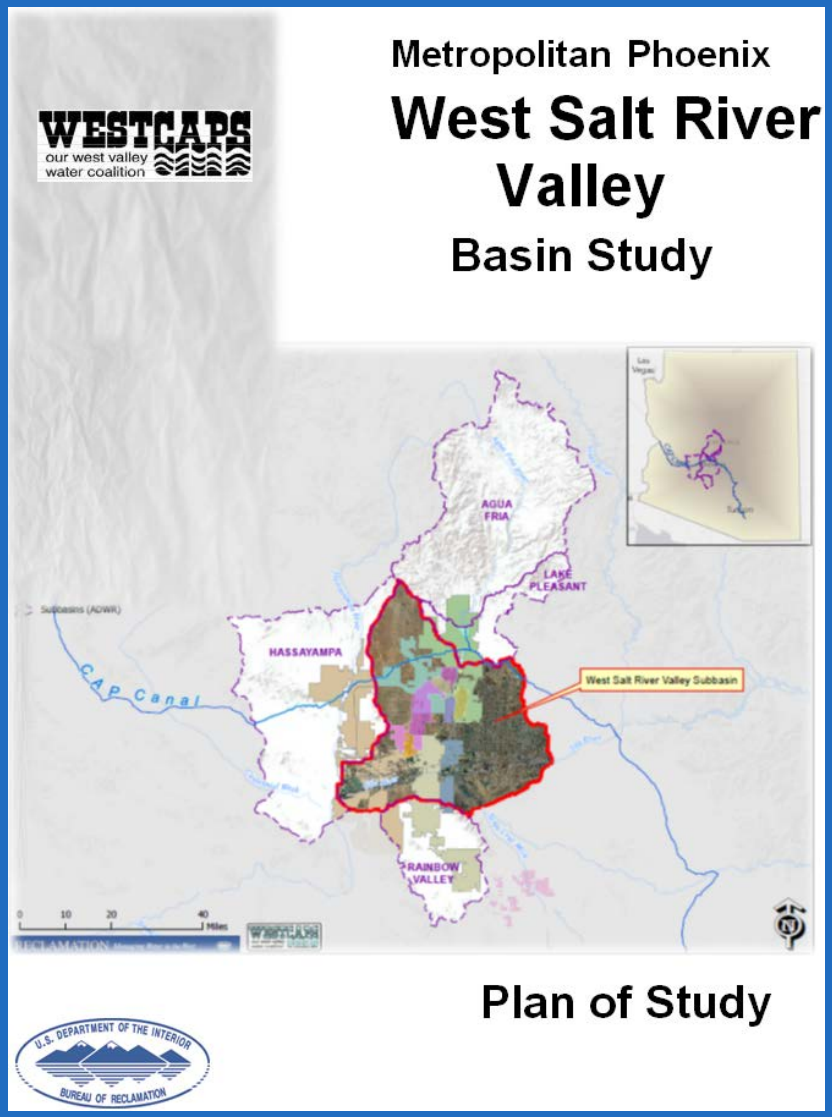
WaterSMART:
Drought Resiliency Project Grants for Fiscal Year 2015

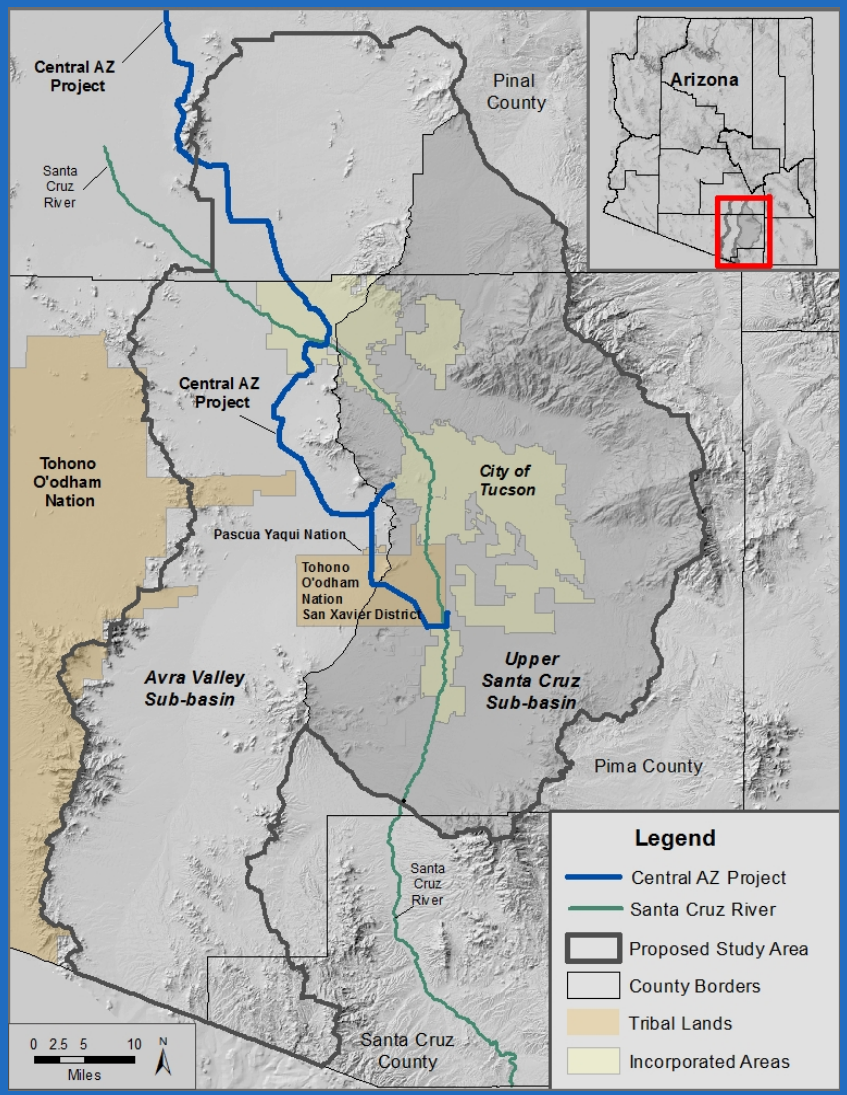
U.S. Department of the Interior
Policy and Administration
Bureau of Reclamation
Denver, Colorado

May 2015

RECLAMATION

Basin Studies Program





RECLAMATION

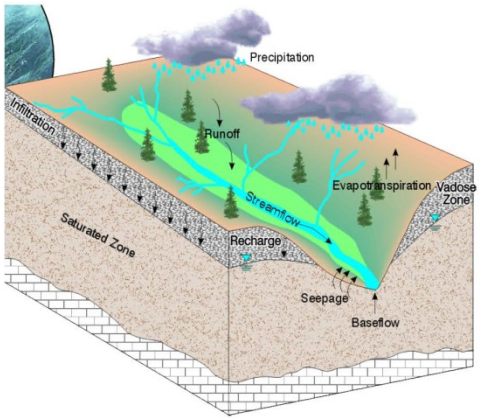
System Optimization Review Grants

RECLAMATION
Managing Water in the West

Funding Opportunity Announcement No. R12SF80123

WaterSMART:

System Optimization Review Grants for FY 2012

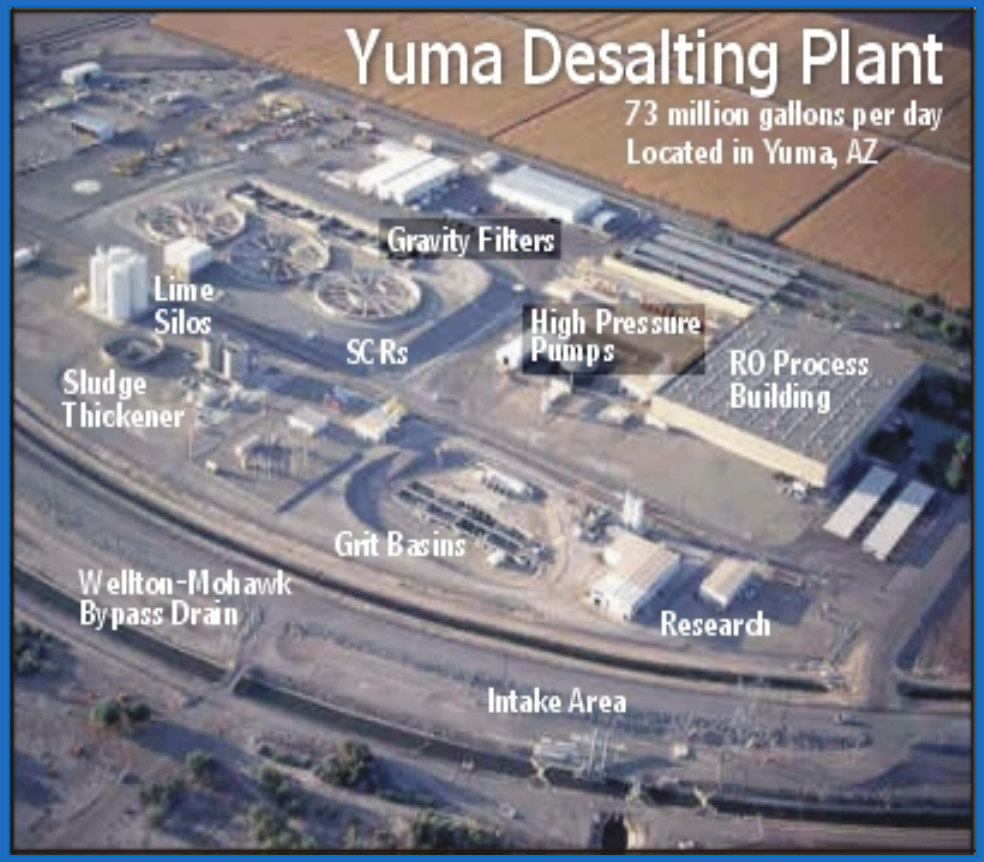


U.S. Department of the Interior
Bureau of Reclamation
Policy and Administration
Denver, Colorado

February 2011

RECLAMATION

Advanced Water Treatment Pilot and Demonstration Project Grants



RECLAMATION

Climate Analysis Tools

Seven Projects in Four States Receive $1.2 Million in WaterSMART Grants to Better Manage Water Resources in a Changing Climate

Projects Selected in Arizona, California, Nevada and Utah

Media Contact: Peter Soeth, 303-445-3615

For Release: July 26, 2011

Bureau of Reclamation Commissioner Michael L. Connor has announced the selection of seven applied science projects to receive $1.2 million funding for the enhancement of water resource management in a changing climate. Facilitating the development of new tools that allow better management of water resources is one of the strategies of the Department of the Interior's WaterSMART Program which paves the way to a sustainable water future. This funding will be leveraged to fund over $2.7 million in applied science projects in Arizona, California, Nevada and Utah.

RECLAMATION

Cooperative Watershed Management Grants

Sierra Streams Institute in north-central California

Land Trust of the Treasure Valley in Idaho

Flathead Basin Commission in western Montana

Clark Fork Coalition near Missoula, Montana

Blackfoot Challenge in western Montana

Hood River Soil and Water Conservation District in Oregon

Middle Colorado Watershed Council in Western Colorado

Western Slope Conservation Center in Colorado

Rio Grande Restoration, Inc. in northern New Mexico

Friends of the Teton River, Inc. in Idaho

San Juan Resource Conservation and Development in Colorado

RECLAMATION

How do I get a grant?

- Review available grant types and identify a project that is a good fit for the grant requirements.
- Most Reclamation FOAs do not change substantially from year to year – so look at previous year's FOAs to begin your proposal.
- Start grant development as early as possible to allow all parts of your organization to contribute to and approve proposal.
- If you have questions, contact Reclamation ASAP!

RECLAMATION

How do I get a grant?

www.grants.gov

****KEEP APPLYING****

Request for Proposals (RFP)/Request for Application (RFA)

Give yourself time to write the proposal!

RECLAMATION

IMPORTANT

READ THE FOA!!

Read everything in the Funding Opportunity Announcement and
ask questions if something doesn’t make sense.

RECLAMATION

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Tips

- Apply for multiple grants, if it is the same project selected for multiple awards, we all talk with each other and the grant opportunity providing the most benefit will be awarded.
- If it is a large project, consider phasing your project and applying for funding in sequential years.
- Don’t assume that the Grantor knows you. The committee is made up of people from all over the 17 western states.
- Focus on the Evaluation Criteria.
- Ask for help!

RECLAMATION

Tips

- Understand that the 50/50 cost share is non-federal funding, so you could apply for state funding for the same project. The state funding can count as your cost share portion.

- If your application does not get awarded, ask for a de-brief to help prepare a better proposal next year.

RECLAMATION

RECLAMATION

Managing Water in the West

Questions?

Presented by:

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Natural Resources Specialist
for
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U.S. Department of the Interior
Bureau of Reclamation

RECLAMATION
Managing Water in the West

U.S. Department of the Interior
Bureau of Reclamation

WaterSMART Program Funding Opportunities Fiscal Year 2016

The American West is now the fastest growing region in the United States and faces serious water challenges. Adequate and safe water supplies are fundamental to the health, economy, security, and ecology of the country. To achieve sustainable water management and maintain economic productivity in the western United States, aggressive action is required to address current and future water shortages; degraded water quality; increased demands for water from growing populations and energy needs; amplified recognition of environmental water requirements; and the potential for decreased water supply availability due to drought and climate change.

Federal leadership is critical to widespread acceptance and implementation of sustainable water development and management. Secretarial Order 3297, issued in February 2010, established the Department's WaterSMART (Sustain and Manage America's Resources for Tomorrow) Program to stretch and secure water supplies for future generations, coordinate across agencies, integrate energy and water policies, and ensure the availability of sound science and information to support decisions on sustainable water supplies. Reclamation provides cost-shared financial assistance to non-Federal entities, using a competitive process, through the following WaterSMART programs:

WaterSMART Grants (Water and Energy Efficiency Grants)

Through WaterSMART Grants Reclamation provides grants to irrigation and water districts, Tribes, States and other entities with water or power delivery authority. Projects should seek to conserve and use water more efficiently, increase the use of renewable energy, protect endangered species, or facilitate water markets. Projects are selected through a competitive process and the focus is on projects that can be completed within 24-36 months that will help sustainable water supplies in the western United States.

Drought Response Program

Reclamation's Drought Response Program supports a proactive approach for addressing drought by providing assistance to water users to conduct drought contingency planning and to take actions that build long-term resiliency to drought. The program consists of two funding areas. Drought Contingency Planning funding will be made available to non-Federal entities to develop a new drought contingency plan or update an existing plan. Drought Resiliency Project funding will be made available to implement small-scale projects to increase the reliability of water supplies; improve water management; implement systems to facilitate the voluntary sale, transfer or exchange of water; and benefit fish and wildlife and the environment.

Title XVI Program

Title XVI is Reclamation's water recycling and reuse program. Reclamation works with non-Federal partners to identify and investigate opportunities to reclaim and reuse wastewaters and naturally impaired ground and surface water in the 17 Western states and Hawaii. Entities with Congressionally authorized projects may also seek competitive, cost-shared funding to plan, design and construct projects.

Basin Studies

Basin Studies are basin-wide efforts to evaluate and address the impacts of climate change. Funding is available for comprehensive water studies that define options for meeting future water demands in Western river basins where imbalances in water supply and demands exist or are projected.

Cooperative Watershed Management Program

This program supports improved water quality, ecological resilience and reduced conflicts over water through collaborative efforts by local watershed groups. Financial assistance is provided to form new watershed groups, expand existing watershed groups and/or conduct one or more projects in accordance with the goals of watershed groups.

Landscape Conservation Cooperatives (Desert and Southern Rockies LCCs)

Landscape Conservation Cooperatives are partnerships of governmental and non-governmental entities who work collaboratively to identify best practices, connect efforts, identify science gaps and avoid duplication through conservation planning and design. Reclamation is involved in the management of the Desert and Southern Rockies LCCs. Funding is provided for non-federal entities to develop applied science tools for use by the LCCs or partner with other federal agencies in addressing science needs within a LCC.

Calendar

October 2015
- Title XVI Authorized Projects Funding Opportunity Open (Oct. 16)

November
- Water and Energy Efficiency Grant Funding Opportunity Open

December
- Title XVI Authorized Projects Application Deadline (Dec. 10)

January 2016
- Water and Energy Efficiency Grant Applications Expected to be due
- Drought Resiliency Projects and Drought Contingency Planning Funding Opportunity Open

February
- Basin Study Letters of Interest Due
- Title XVI Water Reuse Research Funding Opportunity Posted

March
- Title XVI Water Reuse Research Applications Due
- Drought Resiliency Projects and Drought Contingency Planning Applications Due

May
- Title XVI Authorized Projects Funding Selections Announced

June
- Water and Energy Efficiency Grant Selections Announced
- Title XVI Water Reuse Research Studies Selections Announced

July
- Drought Resiliency Projects and Drought Contingency Planning Selections Announced

September
- All funding awarded

For More Information

www.usbr.gov/watersmart

Dean Marrone
(303) 445-3577

R16-FOA-DO-003
WaterSMART: Title XVI Water Reclamation and Reuse Program Funding for Fiscal Year 2016
Department of the Interior
Bureau of Reclamation

GENERAL INFORMATION

Document Type:	Grants Notice
Funding Opportunity Number:	R16-FOA-DO-003
Funding Opportunity Title:	WaterSMART: Title XVI Water Reclamation and Reuse Program Funding for Fiscal Year 2016
Opportunity Category:	Discretionary
Funding Instrument Type:	Cooperative Agreement Grant
Category of Funding Activity:	Natural Resources
Category Explanation:	
Expected Number of Awards:	10
CFDA Number(s):	15.504 -- Title XVI Water Reclamation and Reuse Program
Cost Sharing or Matching Requirement:	Yes
Posted Date:	Oct 16, 2015
Creation Date:	Oct 16, 2015
Original Closing Date for Applications:	Dec 10, 2015
Current Closing Date for Applications:	Dec 10, 2015
Archive Date:	Jan 9, 2016
Estimated Total Program Funding:	$20,000,000
Award Ceiling:	$4,000,000
Award Floor:	$1

ELIGIBILITY

Eligible Applicants:	Others (see text field entitled "Additional Information on Eligibility" for clarification)
Additional Information on Eligibility:	Sponsors of water reclamation and reuse projects specifically authorized for funding under Title XVI of Public Law 102-575, as amended (43 United States Code [U.S.C.] 390h through 390h-39)

ADDITIONAL INFORMATION

Agency Name:	Bureau of Reclamation
Description:	Under Title XVI of Public Law 102-575 (Title XVI), Reclamation works to identify and investigate opportunities to reclaim and reuse wastewater and naturally impaired ground and surface water in the 17 Western States and Hawaii. Title XVI also provides authority for Reclamation to provide up to the lesser of 25 percent of, or the Federal appropriations ceiling (typically $20 million), for the cost of planning, designing, and constructing specific water recycling projects. The objective of this Funding Opportunity Announcement (FOA) is to invite sponsors of congressionally authorized Title XVI Projects to request cost-shared funding for the planning, design, and/or construction of those authorized projects.
Link to Additional Information:	
Contact Information:	If you have difficulty accessing the full announcement electronically, please contact: Mike Dieterich Grants Management Specialist Phone 303-445-2484 Grants Management Specialist

GRANTS.GOV℠

FIND. APPLY. SUCCEED.℠

Water Conservation Field Services Program

A. Eligible Applicants

Under P.L. 111-11, Section 9502, an eligible applicant is a State, Indian tribe, irrigation district, water district, or other organization with water or power delivery authority.
Those not eligible for financial assistance under this FOA include the following entities:

- Federal governmental entities
- Institutions of higher education
- Individuals

B. Eligible Activities/Projects

Proposed projects should seek to conserve and use water more efficiently.

Projects to be considered should address one of the following task component areas:

B.1. IMPLEMENTATION of Efficiency Measures

Implement more efficient water management/conservation measures with special emphasis on outdoor water management practices as part of its water management and conservation program. This component involves the implementation of best management practices or water conservation measures outlined in the entity's water management or water conservation plan. **Funding for implementation activities is restricted to water providers, which includes both agricultural and M&I type water providers and local units of government responsible for the soil and water conservation work within their boundaries, such as the conservation districts.**

B.2. DEMONSTRATION Projects

Demonstrate innovative technologies in water conservation to increase technical understanding of unfamiliar water management and conservation principles and practices that have not been previously used locally. A demonstration activity/project's purpose is to install or apply a particular technology in a new way, or in a new setting, with the intent of reporting the results to others for potential wider adoption. The proposed activity/project should not only "publicly" demonstrate a new or unfamiliar practice; it should contain a process for informing interested individuals and organizations about the outcome of the demonstration.

PLEASE NOTE: Reclamation recognizes that education is an important part of any water conservation program; however, education activities will not be funded until clear authority exists for education grants under WCFSP. Please assure that all education activities are removed from any proposals.

C. Ineligible Projects

Projects that do not meet the requirements of the WCFSP are not eligible under this FOA.

Projects that are considered normal Operations, Maintenance, and Replacement (OM&R) are not eligible. OM&R is described as system improvements that replace or repair existing infrastructure or function without providing increased efficiency or effectiveness of water distribution over the expected life of the improvement.

Examples of ineligible OM&R projects include:

- Replacing malfunctioning components of an existing facility with the same components.
- Improving an existing facility to operate as originally designed.
- An activity that is performed on a recurring basis even if that period is extended (i.e., 10-year interval).
- Sealing expansion joints of concrete lining because the original sealer or the water stops have failed.
- Replacing old or broken meters with new meters of the same type.
- Replacing leaky pipes with new pipes of the same type.

D. Length of Activity/Project

Applicants should propose activities/projects that can be completed within one year from the estimated project start date or propose separated annual funding for projects that last more than one year. Projects that are more than one year will be evaluated by management to determine whether the project should be funded in separate fiscal years, as described in the Project Funding Section (Section II.A.) above, and any proposals that extends beyond a two-year length shall provide an explanation for the need.

E. Cost-Sharing Requirements

Applicants must provide at least 50 percent or more non-federal cost-share of the total project costs. Cost sharing may be made through cash or in-kind contributions from the applicant or third-party partners. Cost-share funding from sources outside the applicant's organization, e.g., loans or state grants, should be secured and available to the applicant prior to award. Reclamation will execute a financial assistance agreement once non-federal funding has been secured or Reclamation determines that there is sufficient evidence and likelihood that non-federal funds will be available to the applicant subsequent to executing the agreement.

F. Funding Amount

Each project can be awarded up to $100,000 in federal funding.

WaterSMART Water and Energy Efficiency Grants

A. Eligible Applicants

Under P.L. 111-11, Section 9502, an eligible applicant is a State, Indian tribe, irrigation district, water district, or other organization with water or power delivery authority. Applicants must also be located in the western United States or Territories as identified in the Reclamation Act of June 17, 1902, as amended and supplemented; specifically: Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, Wyoming, American Samoa, Guam, the Northern Mariana Islands, and the Virgin Islands. **Those not eligible** for financial assistance under this FOA include the following entities:

- Federal governmental entities
- Institutions of higher education
- Individuals

B. Eligible Activities/Projects

Projects should seek to conserve and use water more efficiently, increase the use of renewable energy and improve energy efficiency, protect endangered and threatened species, facilitate water markets, or carry out other activities to address climate-related impacts on water or prevent any water-related crisis or conflict.

Tasks A-D, below, describe projects eligible for funding. Applications may include any one, or a combination, of the types of projects described in Tasks A-D. In general, if you are seeking funding for multiple projects (for example, a Task A project and a Task C project) and the projects are interrelated or closely related, they should be combined in one application.

Applicants may submit multiple project proposals; however, no more than $1,000,000 will be awarded to any one applicant.

Other projects that are similar to those listed below may be submitted for consideration and will be allowed to the extent consistent with program authorization and goals.

B.1. Task A – Water Conservation

Projects that result in quantifiable and sustained water savings or improved water management. Projects include, but are not limited to:

• Canal Lining/Piping: Projects that line or pipe canals, resulting in conserved water. Projects include, but are not limited to:

o Installing new proven lining materials or technology

o Converting open canals to pipeline

o Constructing conveyance improvements, turnouts, pipelines, or intertie systems

• Municipal Metering: Projects that install meters, resulting in measureable water savings. Projects include, but are not limited to:

o Installing water service meters

o Installing distribution systems meters associated with production and/or leakage quantification

• Irrigation Flow Measurement: Projects that improve measurement accuracy and result in reduced spills and over-deliveries to irrigators. Projects include, but are not limited to:

o Installing weirs, flumes, ramps, etc. in open channels
o Installing meters in pressurized pipes

• SCADA and Automation: Projects that install SCADA and/or automation components that provide water savings when irrigation delivery system operational efficiency is improved to reduce spills, over-deliveries, and seepage. Projects include, but are not limited to:

o Installing SCADA components that allow for remote monitoring of irrigation delivery system conditions (flow rates, water elevations, controls devices openings, etc.)
o Installing automation components that allow for remote operation of delivery system control features (gates, valves, turnouts, etc.)

• Groundwater Recharge: Projects that provide savings when surface water storage evaporation is reduced and/or surface runoff is intercepted for recharge. Projects include, but are not limited to:

o Installing recharge ponds
o Installing surface runoff interception systems
o Removing impervious surfaces

• Landscape Irrigation Measures: Projects that provide water savings by reducing outdoor water usage. These measures include turf removal, Smart irrigation controllers (weather or soil-moisture based) and high-efficiency nozzles (sprinkler heads). These measures are typically promoted by water entities through rebates or direct-install programs. Projects include, but are not limited to:

o Removing turf
o Installing Smart irrigation controllers
o Installing high-efficiency nozzles (e.g., sprinkler heads)

• High-Efficiency Indoor Appliances and Fixtures: Projects that promote installation of high-efficiency indoor appliance and fixtures to provide water savings for municipal water entities where there is significant potential for replacing existing non-efficient indoor appliances and fixtures. This is typically promoted by water entities through rebates or direct-install programs. Projects include, but are not limited to:

o Installing high-efficiency clothes washers, dishwashers, faucets, etc.

B.2. Task B – Energy-Water Nexus

Projects that increase the use of renewable energy sources in the management and delivery of water and/or projects that upgrade existing water management facilities resulting in quantifiable and sustained energy savings. Projects include, but are not limited to, those discussed in the following subsections.

Implementing Renewable Energy Projects Related to Water Management and Delivery

Renewable energy projects related to water management and delivery include, but are not limited to:

• Installing small-scale hydroelectric, solar-electric, wind energy, geothermal power systems, or other facilities that enable use of these or other renewable energy sources (e.g., replacing fossil fuel powered pumps with renewable energy based pumps, installing low-head hydrokinetic power generation units in a water system)

• Producing and using biomass or renewable fuels (including woody and herbaceous crops and residues, solid waste, sewage, and liquid fuels from agricultural products) (e.g., using technology that would transform algae into a renewable oil source)

Proposals including a renewable energy component typically require additional permitting not needed for other water management improvements (e.g., canal lining). In evaluating these proposals, Reclamation may consider the applicant's progress in obtaining a Federal Energy Regulatory Commission (FERC) license or a Reclamation Lease of Power Privilege (LOPP), depending on which is applicable. Applicants for a project including a renewable energy component are asked to include documentation of steps taken to date for obtaining a FERC license or a LOPP.

Note that improvements to Federal facilities that are implemented through any project awarded funding through this FOA must comply with additional requirements. The Federal government will continue to hold title to the Federal facility and any improvement that is integral to the existing operations of that facility. Please see Section III.H.1.

Applicants proposing renewable energy development may wish to contact Mr. Josh German at 303-445-2839 or jgerman@usbr.gov prior to the application deadline to discuss the requirements listed above.

Increasing Energy Efficiency in Water Management

Projects that increase energy efficiency in water management include, but are not limited to:

• Retrofitting or modernizing water management facilities or equipment to increase energy efficiency (e.g., installing Variable Frequency Drives, Advanced Meter Readings, or "smart grid" technology on pump and water systems)

• Quantifiably reducing energy consumption through water conservation projects that reduce pumping or diversions

B.3. Task C – Benefits to Endangered Species

Projects that benefit federally listed species (threatened or endangered) or designated critical habitat affected by a Reclamation facility or action as well as projects that benefit federally recognized candidate species. Projects include, but are not limited to:

• Improving habitat, including restoring habitat, making additional water available, and managing vegetation

• Installing fish bypasses and fish screens as well as improving hatcheries

B.4. Task D – Water Markets

Projects that implement or use water markets to make water available to meet other existing water supply needs or uses (e.g., agricultural, municipal, or dedication to instream flows). Projects include, but are not limited to:

• Projects that develop a water market that would provide a mechanism for willing participants to buy, sell, lease, or exchange water to avoid or reduce water conflicts

Note: Projects that simply include the sale of conserved water to an existing customer are not considered water marketing projects under this task area.

C. Ineligible Projects

C.1. Operations, Maintenance, and Replacement (OM&R)

Projects that are considered normal OM&R are not eligible. OM&R is described as system improvements that replace or repair existing infrastructure or function without providing increased efficiency or effectiveness of water distribution over the expected life of the improvement. Examples of ineligible OM&R projects include:

• Replacing malfunctioning components of an existing facility with the same components

• Improving an existing facility to operate as originally designed

• Performing an activity on a recurring basis, even if that period is extended (e.g., 10-year interval)

• Sealing expansion joints of concrete lining because the original sealer or the water stops have failed

• Replacing broken meters with new meters of the same type

• Replacing leaky pipes with new pipes of the same type

C.2. Title XVI Water Recycling and Reuse

Title XVI is Reclamation's water recycling and reuse program, focused on identifying and investigating opportunities to reclaim and reuse wastewaters and naturally impaired ground and surface water. Small-scale improvements that relate to an existing water recycling facility (that is not an authorized Title XVI project) may be considered eligible for funding.

Any projects or project elements that are part of a congressionally authorized Title XVI project of Public Law 102-575, as amended (43 United States Code 390h et seq.), are not eligible for funding. In addition, if a project sponsor is likely to seek funding for the activity through the Title XVI Program in the future (e.g., seeking congressional funding for the project or preparing a Title XVI feasibility study that describes the activity as part of a proposed Title XVI project) that activity should be pursued under the Title XVI Program.

C.3. Water Purchases

PA project that proposes using Federal funding primarily for the purchase of water is not eligible.

C.4. Building Construction

A project that proposes to construct a building is not eligible (e.g., a building to house administrative staff or to promote public awareness of water conservation).

C.5. Pilot Projects

A project that proposes to conduct a pilot study to evaluate technical capability, economic feasibility, or viability for full-scale implementation or to test an unproven material or technology is not eligible.

D. Length of Activity/Project

In general, Funding Group I projects should be completed within 2 years of award. Applications for projects requiring more time will be considered for funding only under limited circumstances. For example, some renewable energy project installations may require additional time to secure necessary permits.

E. Cost-Sharing Requirements

Applicants must provide at least 50 percent or more non-federal cost-share of the total project costs. Cost sharing may be made through cash or in-kind contributions from the applicant or third-party partners. Cost-share funding from sources outside the applicant's organization, e.g., loans or state grants, should be secured and available to the applicant prior to award. Reclamation will execute a financial assistance agreement once non-federal funding has been secured or Reclamation determines that there is sufficient evidence and likelihood that non-federal funds will be available to the applicant subsequent to executing the agreement.

F. Funding Amount

Each project can be awarded up to a range of $300,000 and $1,000,000 in federal funding.

MEMORANDUM

DATE: November 4, 2015

TO: Citizens' Water Advisory Committee

FROM: Sandy Elder
Deputy Director, Tucson Water

SUBJECT: Aerial Application of Glyphosate on Tucson Water (TW) Property

In response to the recent listing of glyphosate by the International Agency for Research of Cancer (IARC) as a "Group 2A – probably carcinogenic," TW began receiving inquiries regarding the application of an herbicide known as glyphosate on its retired farm properties in Avra Valley. Subsequently, the Citizens' Water Advisory Committee (CWAC) has been addressed by members of the public multiple times on the use of glyphosate on TW property, specifically the aerial application of glyphosate. At the Committee's request, TW has prepared this response.

Background:

TW owns 22,000 acres of land in Avra Valley, purchased for their water rights in the 1960's, '70's and '80's. Of those lands, about 40-45% are currently covered in buffelgrass, a highly invasive, noxious weed that has negative impacts to its environment. These impacts are of regional concern, as buffelgrass occurs not only on Tucson Water's lands, but also on federal, state, reservation, and privately-held lands in the region.

In the 1980's, after the failure of various other control efforts, buffelgrass was planted to mitigate conditions of extreme erosion and dust control needs on several these properties. This mitigation method was used along the Brawley Wash corridor on City and non-City properties alike. It was unknown, at the time, the future damage the buffelgrass would inflict on the lands and the environment.

By regulation, property owners are required to control buffelgrass because it adds to the rangeland's fuel load, and also poses an extreme threat to habitat diversity. Pima County Code (Section 1, Title 7, Chapter 33) and State Statute (48-2997.E) require the timely abatement and eradication of noxious weeds, including buffelgrass, subject to penalties. Additionally, TW's Avra Valley lands are covered by a federally-administered Habitat Conservation Plan (HCP). The HCP is an agreement between the U.S. Fish and Wildlife Service and the City of Tucson that protects Tucson from liability under the Endangered Species Act. The Plan identified the threat buffelgrass poses to the natural habitat and species found in the area, evaluated the application of glyphosate as a best management practice, and is predicated upon the continued targeted control of buffelgrass by either hand pulling or aerial application of glyphosate.

TW uses aerial spraying of glyphosate to control buffelgrass on rangelands because it is most cost effective given the large number of acres. The Utility has, over the years, explored other means of managing this noxious weed including, physical removal of the weed, manual application of herbicide, mowing, disking, revegetation, burning and/or grazing. Each of these methods are generally impractical as sole or "primary" methods of buffelgrass control for large areas and are cost prohibitive when compared to aerial spraying. Hand-pulling is practical only when dealing with relatively limited areas where buffelgrass occurs and is not a viable approach for thousands of acres of rangeland. However, some of these methods are used to complement current practice as "secondary" measures where deemed appropriate. Whatever set of approaches is utilized over time, weed management must be applied consistently and in a timely manner on impacted lands in order to maintain long-term control of buffelgrass to reduce its fire-load potential and its threat to the environment.

The City of Tucson developed an aerial herbicide spraying program in discussion with the U.S. National Park Service, Forest Pesticide Coordinators (FPC), researchers at the University of Arizona, members of the Southern Arizona Buffelgrass Coordination Center, and TW's contracted land manager – BKW. The FPC is a branch of subject matter experts that analyzes, completes risk assessments, trains, and advises the U.S. Department of Agriculture/U.S. Forest Service on the use of pesticides within the National Forest System. The program is based on the risk assessment of glyphosate by the U.S. Environmental Protection Agency(EPA). It

is designed to target the noxious weed during its green up phase when it is most susceptible to treatment. The City conducted aerial herbicide spraying to manage buffelgrass in 2009, 2010, 2013, 2014, and 2015 on selected Avra/Altar Valley lands.

The City's program relies on the use of glyphosate because it quickly dries upon application and it degrades rapidly in the soil. The glyphosate that falls onto the ground during aerial spraying binds tightly with soil particles. The bound herbicide particles will not runoff into drainages even if precipitation occurs within hours of application. The concentrations of glyphosate are diluted to follow manufacturer's label ratings for aerial application to minimize potential impact on non-target vegetation. As an added precaution, the herbicide is only applied when there is no precipitation forecasted for at least seven days. Furthermore, whenever wind speed exceeds four miles per hour, aerial applications are terminated to minimize the potential for spray drift. When judiciously applied, the use of glyphosate is a common and often preferred choice in buffelgrass abatement.

The City takes great measures to ensure the safe use of glyphosate on its properties. There are several factors that affect drift of applied herbicide to non-target areas, mainly droplet size, wind speed, release height and weather conditions. When said conditions are controlled for, studies show substantial drift is contained to 75 feet. The City's licensed contractors mitigate drift by controlling for as many of these variables as possible. In addition, glyphosate is the only herbicide that is used by TW in its buffelgrass management efforts.

Glyphosate:

Glyphosate has been determined to be environmentally safe when applied according to guidelines approved by the manufacturer and the U.S. EPA. A primary reference commonly used to establish product safety parameters and guide application considerations is the body of research summarized in the report *Glyphosate-Human Health and Ecological Risk Assessment* that was prepared for the U.S. Department of Agriculture and the U.S. Forest Service. Use of any chemical herbicide can be controversial and glyphosate is no exception. Only through extensive research and evaluation of mainstream scientific reports was the decision made to use glyphosate. Studies can be found that bring into question the safety of glyphosate. These studies need to be carefully reviewed to ascertain their specific scope and purpose, to evaluate their scientific rigor, and to determine their actual applicability to real world exposure conditions.

The recent listing of glyphosate by the IARC as a "Group 2A – probably carcinogenic" is based on a different interpretation of the same research that was used to determine the current U.S. EPA classification of "D – Not classifiable as to human carcinogenicity." Being classified as Group 2A indicates that the evidence of carcinogenicity is not conclusive, and one should take care with use of the product to mitigate possible negative consequences. A new risk assessment from the U.S. EPA is expected this year. All new information and classification changes will be fully considered in the continued execution of the City's aerial herbicide spraying program to support its buffelgrass management efforts on rangelands.

The following video by Andrew Maynard, a toxicologist and Director of the University of Michigan's Risk Science Center, will help clarify what the IARC label of probably carcinogenic means: *What Does "Probably Causes Cancer" Actually Mean?* https://www.youtube.com/watch?v=CbBkB81ySxQ

Methods for Buffelgrass Control:

TW analyzed the following methods for the control of buffelgrass on all of its lands, with special consideration for "sensitive areas" (561 acres of land in near proximity to an occupied structure):

- **Aerial application of glyphosate (baseline)**
  This is the current method, and forms the baseline for analysis. This method is supported by science, risk assessment measures, and cost effectiveness. It ensures compliance with regulations, as well as the HCP for these lands. The method can easily cover extensive acres within the treatment window.
- **Truck & boom spraying of glyphosate**
  This method increases costs about 5 times more than the baseline approach. It will further minimize any drift of the herbicide. Truck & boom applications increase the amount of glyphosate being applied from the baseline approach. Access to all treatment areas may not accommodate the necessary equipment, and obtaining access to all areas in need of treatment may cause damage to the properties. It is unlikely that this method can cover the roughly 10,000 acres inside of the treatment window.
- **Hand spraying of glyphosate**

This method increases costs 10 times more than the baseline approach. It will further minimize any drift of the herbicide. Hand applications increase the amount of glyphosate being applied from the baseline approach. All treatment areas may not accommodate foot access. It is unlikely that this method can cover the roughly 10,000 acres inside of the treatment window.

- **Reseeding with native seed**
  This method would be considered after mowing the buffelgrass, disking the land, and either aerial reseeding with culti-packing, or hand reseeding. This method increases costs about 24 times from baseline. There is a high risk of invigorating buffelgrass by disking the land and of native seeds failing to persist.
- **Reseeding with resilient crop**
  This method would be considered after mowing the buffelgrass, disking the land, and either aerial reseeding with culti-packing, or mechanical reseeding. This method increases costs about 12 times more than the baseline approach. There is a high risk of invigorating buffelgrass by disking the land and of resilient crop seeds failing to persist.
- **Grazing**
  This method does nothing to control the growth or spread of buffelgrass; rather, the method seeks to contain it. It contradicts the City's current no-grazing policy on these lands, and may pose risks to compliance with the HCP. Additionally, there are parties concerned with the health of the animals used for grazing, as there is no nutritional value for them in consuming buffelgrass. Relative costs were not assessed.
- **Control Burns**
  This method could be used to either contain or control buffelgrass. The control method would include either follow-up herbicide treatment or reseeding. Risks with this method include the invigoration of buffelgrass and the inability to treat within timeframe or failure for seeds to persist, and concerns about maintaining fire control. Relative costs could not be calculated due to undetermined required equipment and safety costs.

Next Steps:

TW is coordinating a communications plan regarding the noxious weed abatement schedule with our land managers. The communications plan includes physically flagging the area intended for aerial spraying, and an electronic and print notification reflecting the time-line for aerial spraying. To ensure the safe and effective application of the herbicide it is imperative that those applying it be responsive to changes in the environment in which they are spraying. As aerial spraying is dependent upon weather conditions up to the actual application, no specific dates can be provided or guaranteed.

Summary:

The coordination of multiple agencies is required if the greater Tucson area has any chance to successfully manage buffelgrass. The collective efforts of the City of Tucson, Pima County Natural Resources, City of Tucson Parks and Recreation, the U.S. Bureau of Land Management, the U.S. Forest Service, the U.S. National Park Service, U.S. Fish and Wildlife, and the University of Arizona work to control both the presence and dispersion of buffelgrass.

There are many factors to bear in mind when considering mitigation of buffelgrass on TW's retired farm properties. Amongst those factors are: human health, safety of the product/process, location/density/green-up of weeds (monitored weekly), rehabilitation of the land, effectiveness and efficiency of treatment, effects to the surrounding area, and associated costs. TW has considered alternatives for the mitigation of buffelgrass on its properties but has yet to find a reasonable alternative. The Utility will continue to consider alternatives to the current method of treatment and is open to suggestions. Any alternative solutions proposed for the mitigation of buffelgrass will continue to be reviewed.

As in all things, safety is our top priority. TW will continue to consider all of the variables associated with the treatment of buffelgrass and proceed in the manner best suited for the safe and effective mitigation of this highly invasive noxious weed. Taking into consideration all known variables, and present circumstances, the Utility will continue to execute its aerial herbicide spraying program, in conjunction with increased communication efforts.