



CITIZENS' WATER ADVISORY COMMITTEE (CWAC)

Wednesday, October 5, 2016, 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 7:03 a.m. Those present and absent were:

Present:

Brian Wong	Chairperson, Representative, City Manager
Mark Murphy	Representative, Mayor
Chuck Freitas	Representative, City Manager
Jean McLain	Representative, City Manager
Mark Stratton	Representative, City Manager
Catlow Shipek	Representative, City Manager
Ryan Lee	Representative, Ward 1
Holly Lachowicz	Representative, Ward 3
George White	Representative, Ward 4
Mark Lewis	Vice Chair, Representative, Ward 5
Kelly Lee	Representative, Ward 6 (arrived after roll-call)
Timothy Thomure	Tucson Water, Director, Ex-Officio Member
Jackson Jenkins	Pima County Regional Wastewater Reclamation Department Director, Ex-Officio Member

Absent:

Mark Taylor	Representative, City Manager
Placido dos Santos	Representative, City Manager
Mitch Basefsky	Representative, City Manager
Michelle Crow	Representative, Ward 2

Tucson Water Staff Present:

Sandy Elder	Deputy Director
Jeff Biggs	Water Administrator
Pat Eisenberg	Water Administrator
Britt Klein	Water Administrator
Melodee Loyer	Water Administrator
Andrew Greenhill	Intergovernmental Affairs Manager
Fernando Molina	Water Program Superintendent
Wally Wilson	Chief Hydrologist
Eric Bender	Water Control Systems Manager
Paul Pier	Project Manager
Johanna Hernandez	Staff Assistant

Others Present:

Chris Avery	City of Tucson, Attorney's Office
Amy Stabler	City of Tucson, Ward 6
Stephanie Holford	City of Tucson, City Manager's Office
Mike Block	Metro Water
Philip Gaberdiel	EMA, Inc.
Mark Day	Citizen

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2. **Announcements** – Member Freitas announced free tickets he has available for an upcoming event that can be obtained after the meeting. Member McLain announced a Low Income Rain Water Harvesting and water quality-monitoring program that has been funded, at \$2.2 million.¹ Member McLain will provide updates on the program as they become available.
3. **Call to Audience** – Mike Block expressed gratitude on behalf of the AZ Hydrological Society for Tucson Water's and various CWAC members' contributions to the Annual Symposium held in September.
4. **Review of September 7, 2016 Legal Action Report and Meeting Minutes** – Committee Member Freitas motioned to approve the Meeting Minutes of September 7, 2016. Member Stratton seconded. Motion passed unanimously by a voice-vote of 10-0.
5. **Director's Report** –

- a. **Mayor and Council Items** – Today, Mayor Rothschild will present two Crescordia Environmental Excellence Awards from Arizona Forward to Tucson Water, one for Tucson Water's Advanced Oxidation Process project and one for Tucson Water's Conservation programs.

On October 19th, Mayor and Council will consider modifications to the Peppertree and Dove Mountain service areas, this item was continued from the October 5th meeting to allow time to address additional questions related to the items. The Marana Town Council has already approved the proposed modifications. Mayor and Council will also consider an item related to the Oro Valley Reclaimed agreement.²

On November 9th, Mayor and Council will consider an Amendment to the Pima County Reclaimed Wheeling IGA to add additional sites to the IGA. Mayor and Council will also consider approval of a GSF agreement with Kai Red Rock.

- b. **Informational Items** – Director Thomure reported that vacancies are at about 52, there are 4 active recruitments, and 4 pending new hires. Current potable demand is 91 MGD, down 7.1 MGD from last month, and reclaimed demand is 15.4 MGD, down 3.6 MGD from last month. This is standard for the time of year. Progression on the employee survey will be shared with CWAC as the parts are completed. General fund transfers to Tucson Water were briefly discussed.

Member Ryan Lee arrived at 7:10 AM

6. **Subcommittee Reports** –

Technical, Planning, and Policy Subcommittee – Subcommittee Chair Murphy reported that the Subcommittee's September meeting was cancelled. The Subcommittee will resume meetings in October.

Finance Subcommittee – Subcommittee Chair Stratton noted that his report of the Subcommittee's actions is agendaized for today's meeting.

Conservation and Education Subcommittee – Subcommittee Chair Shipek reported the Subcommittee continues to discuss the Low Income Program and Rain Water Harvesting neighborhood scale stormwater pilot program. Upcoming discussion will revolve around the annual report for last year and proposed budget.

Bill Redesign Ad-Hoc Subcommittee – Subcommittee Chair Freitas reported that the addition of graphs to the Tucson Water website that represent the breakdown of budgetary items including the PILOT and City Administrative Services fees are expected to be completed by November. The Subcommittee will be disbanded upon formal completion of these items.

RWRAC Update – Director Jenkins reported that Pima County Regional Wastewater Reclamation Department is a finalist for the Arizona Water Prize Water Innovation Challenge. The project is related to recycling water to produce craft beers, and would receive \$250,000 if selected. Winners will be announced on November 3rd. Public comment on proposed rates is expected in November with Board consideration in January. The Financial Plan includes 3 consecutive years of 4% increases, the Committee has recommended a one-year

¹ Item taken out of order, during subcommittee reports

² This item was noted as a renewal of the agreement, the actual item is approval of an amendment related to capital improvements

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approval with evaluation of future year increases. The Committee also heard a presentation about efforts to lower operating costs.

7. **Financial Process Overview** – Finance Subcommittee Chair Stratton discussed the process the Subcommittee is undertaking to review and evaluate issues related to the Low Income Assistance Program, Conservation Programs and Incentives, and Rate Structuring. The Committee briefly reviewed the 2016-2018 Work Plan and discussed target completion goals. Process documentation, public and stakeholder involvement, and approval of plans were discussed. Chair Stratton noted that the timeline is subject to adjustments as the process progresses and the work plan is flexible to modification as becomes necessary.
8. **Control System Upgrade³** – Tucson Water staff members, City IT staff members, and Tucson Water consultant presented an overview of Tucson Water's Control System. References to specific names, locations, and personnel are general in nature to protect against targeted attacks of the system. Tucson Water staff reviewed how the utility uses the control system in the operations and maintenance of the utility. Tucson Water's consultant reviewed control systems in general, the structure of these systems, and the challenges related to maintenance of these systems. City IT staff reviewed issues related to cybersecurity. Tucson Water staff reviewed Tucson Water's program upgrades, which began in 2008 and extend to 2022, and including infrastructure, software, personnel, budget, and program goals.

Member White departed at 8:05 AM

9. **Drought Contingency Plan** – Tucson Water staff member Wally Wilson presented a PowerPoint on the Drought Contingency Plan (DCP). A graph reflecting the reductions proposed under the DCP was provided and reviewed. Staff noted that Arizona cannot agree to the DCP without legislation. Assuming the DCP is approved by all parties, impacts to CAP Orders in the Tucson AMA were reviewed. Under the current proposal M&I users would not see cuts until elevation 1030. Costs related to water under the DCP are as yet unknown. CAP recently launched the Protect Lake Mead program in conjunction with the DCP.

Member McLain departed at 8:40 AM

10. **Future Meeting / Agenda Items** – See projected agenda.
11. **Adjournment** – Meeting was adjourned at 8:53 a.m.

³ Vice Chair Lewis departed at 8:08 AM and returned at 8:10 AM; Member McLain departed at 8:10 AM and returned at 8:12 AM; Member Shipek departed at 8:15 AM and returned at 8:18 AM

TUCSON WATER - FINANCIAL WORK PLAN MATRIX - 2016 through 2018

9/19/16

TASKS	Completion Target	PARTICIPANTS					
		TW Staff	RFC/GRG	CWAC	City Manager	Mayor/Council	External Stakeholders
2016							
Draft Work Plan List	August	P	P	I,R			
Low-Income Assistance Program	September	P	S	I,R	I,D	I,A	?
<ul style="list-style-type: none"> - Maintain a robust low-income subsidy while shifting to a base rate that recovers a higher percentage of fixed costs - Maintain a strong conservation signal - Avoid regressive rates for low income customers - Offer low income plumbing repairs - Avoid penalties for low income customers - Scheduled payment date - Develop a means for community to contribute toward low-income subsidy on utility statement 							
Conservation Programs & Incentives	October	P	S	I,R	I,D	I,A	?
<ul style="list-style-type: none"> - Maintaining a strong conservation signal through potential rate structure changes 							
Base-rate recovery of fixed costs	November	S	P	I,R	I,D	I,A	
<ul style="list-style-type: none"> - Review of base-rate alternatives to achieve long-term revenue stability & reduce volume-charge volatility - Review of other rate-structure alternatives 							
Reclaimed System & Rates		P	S	I,R	I,D	I,A	
<ul style="list-style-type: none"> - Analysis of program, future uses, subsidy policies 							
Inside/Outside Differential Rates	December	S	P	I,R	I,D	I,A	
<ul style="list-style-type: none"> - Analysis of differential rate structures - Legal analysis 							
2017							
System Equity / Economic Development / Equity Fee	January	P	S	I,R	I,D	I,A	
<ul style="list-style-type: none"> - Determine if current fee is recovering appropriate revenues from new development to fund existing capacity - Explore implementation of system equity fees that drive redevelopment and annexation 							

TASKS	Completion Target	TW Staff	RFC/GRG	CWAC	City Manager	Mayor/Council	External Stakeholders
Financial Plan / Rate Modeling - Develop multi-year rate planning process that ensures revenue stability, but provides ability to request adjustments as circumstances require	February	P	S	I,R	I,D	I,A	
Volume Rate Structure (SF Blocks / Tiers & MF) - Analysis of optimal rate-block structures for stimulating conservation and maintaining affordability	March/April	S	P	I,R	I,D	I,A	
Summer Tier - Optimization of tiers to promote conservation values; currently only Commercial & Industrial							
Other developing issues							
Pay / Technology - Reviews	May	P	P	I,R	I,D		
Rate Model Improvements/Redevelopment	TBD	I,D	P				
Brief CWAC	June	P	P	I,R			
Start 2018 Rate Process							
CIP Budget due to Business Services	September	P					
- Department O&M due	October	P					
- CIP Budget CWAC	October	P	S	I,R			
- Consumption	November	P	P				
- O & M Budget CWAC	November	P	S	I,R			
2018							
Financial Plan / Revenue		P	P	I,R	I,D	I,A	
- COS / Proposed Rates	January	S,I,D	P	I,R			
- Study Session / Financial Plan / COS / Proposed Rates	February	P	P	I,R	I,D	I,A	
- Sub-Committee Final - Recommendation to CWAC	February	S	S	P,I,R	I,D	I,A	
- Sub-Committee Deliberations	February	S	S	P			
- CWAC Deliberations	February	S	S	P			
- Public Notice	February	P	S				
CWAC Letter	March	P	S	P			
Public Process	March/April	P	S				I
Council Adoption New Rates	May	P	S			I,A	

P	Primary responsibility for preparing work product
S	Secondary responsibility for preparing work product
I	Provides input, advise and feedback

TASKS	Completion	TW Staff	RFC/GRG	CWAC	City	Mayor/	External	
	Target				Manager	Council	Stakeholders	
		R	Makes recommendation					
		D	Makes decision or provides recommendation					
		A	Approval					



Control System Upgrade



CWAC

October 05, 2016



Presentation Overview

- Control System Overview
- Challenges
- Cybersecurity
- Program Milestones
- Program Approach
- Program Roles



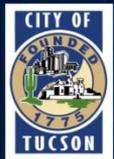
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Control System

An application of computer technology which

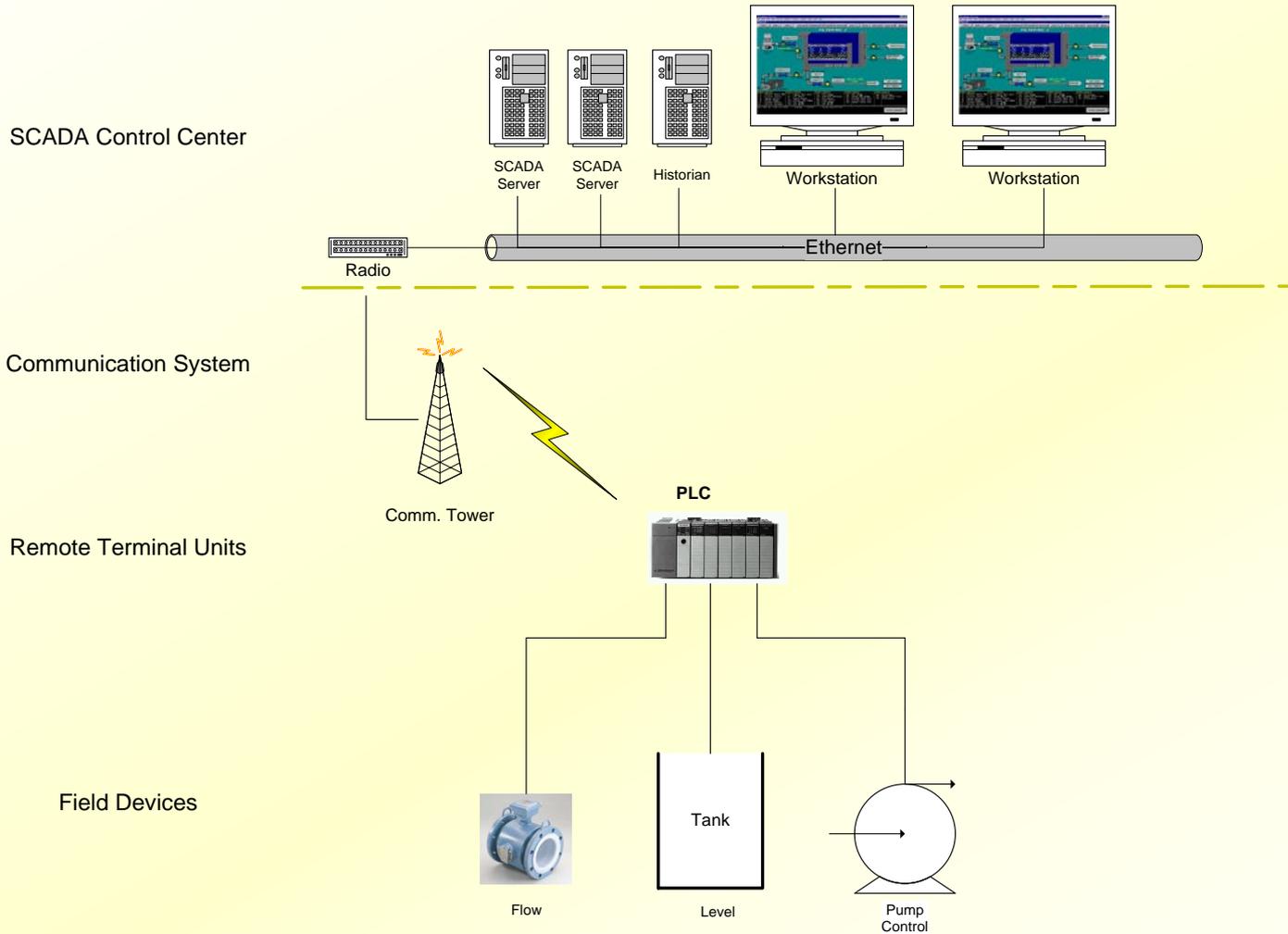
- gathers information from field devices
- displays it for use by an operator
- executes automatic control sequences
- stores and displays data for analysis.



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Control System Overview



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Challenges

- Currently system at 'End-of-Life'
 - Current from 1990's and earlier. Scope is to replace critical components.
- Technology has evolved
 - Current uses vintage technologies. New system implements today's established products
- Size & Complexity
 - TW has hundreds of facilities under control
 - TW system hydraulics are complex
- Cybersecurity



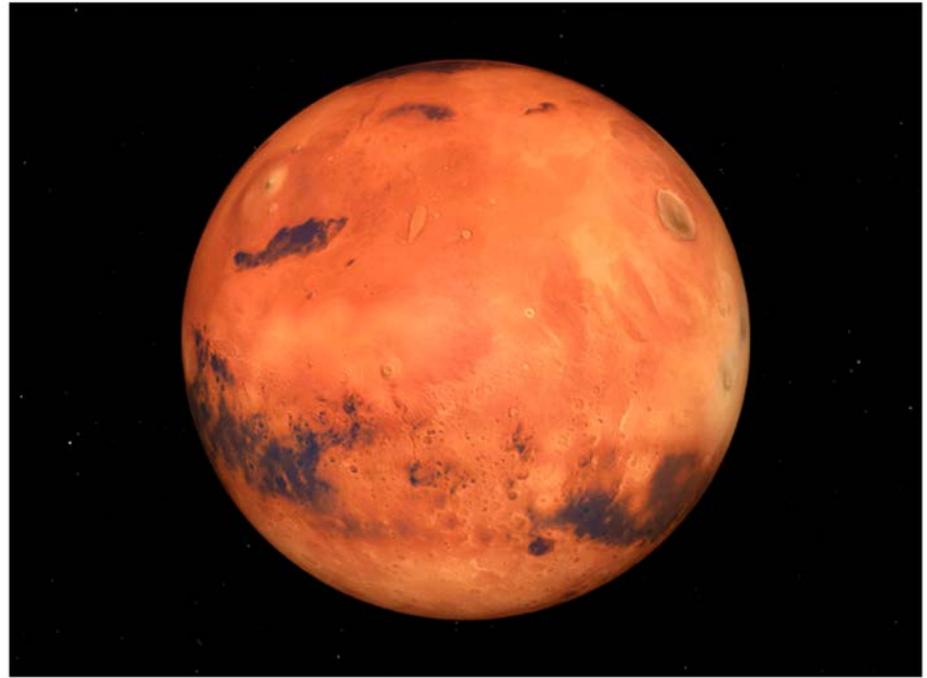
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Cybersecurity

Cyber Attackers:

- Nation-state
- Hactivism
- Cyber Terrorism
- Financial Gain
- Revenge
- Notoriety



Mars.Joke ransomware: you'll turn red with anger if you're infected.

Image: iStock

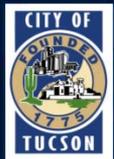
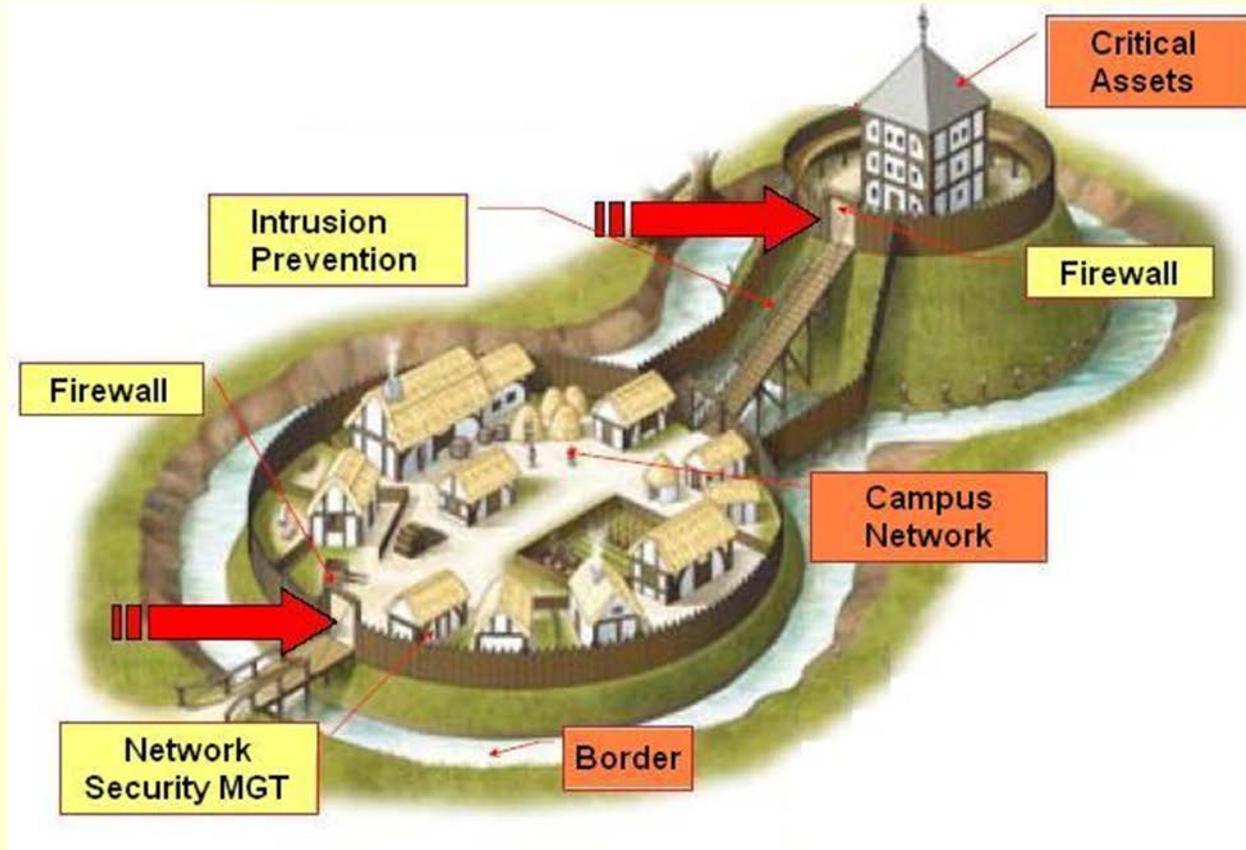
A new form of ransomware is targeting government agencies and educational institutions in the US, using emails claiming to be from airlines.



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Cybersecurity



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Past Milestones

- Master Plan - 2008 - 2010
- Implementation Planning - 2011 - 2015
- Software Vendor Contract - Late 2014
- Remote Pilot Sites Renovation - Mid 2015
- System Integrator Contract - Mid 2015

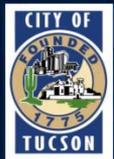


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Present Milestones

- Operational Control Centers built - Late Spring 2017
- Control System installation - Summer 2017
- Begin remote site upgrades (5 years) - Fall 2017 => 2022
- New Control System on line - Winter 2017



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Program Approach

- System Infrastructure
 - Update the hardware and software components of the TW Control System to state-of-art
- System Improvements
 - Implement organizational and procedural changes to fully leverage the upgraded Control System infrastructure



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System Infrastructure

- Upgrade HMI Software
 - System-wide upgrade of Human-Machine interface hardware and software components
- Operational Control Centers
 - Construct new control centers
- Treatment Plant Replacement
 - Replace obsolete DCU's
- Cybersecurity
 - Develop Cybersecurity Improvements Program



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System Infrastructure

- Communications Improvements
 - Upgrade communications networks to remote sites
- PLC Replacements
 - Replace 150 obsolete RTUs (over 5-year period)
- Control System Standards
 - Complete and maintain comprehensive set of Control System design and implementation standards



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System Improvements

- Organization Adaptation
 - Develop plan for long-term support and development Control System
- System Optimization
 - Define KPIs for Operational Improvements
- System Integration
 - Develop tools for presenting information needed for decision making
- System Automation
 - Utilize Control System to automate water system operations



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Project Status

- Operational Control Center's 100% plan design being reviewed
- Design & Implementation Standards: 4 of 11 completed
- Collaborating with consultants, outside sources, and City departments to implement "Best Practices"
- Communications improvements from remote sites
- Potable display graphics completed and Reclaimed displays are in progress
- Reviews by Department of Homeland Security



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New TW staff to support Control System

The screenshot shows two job listings from the City of Tucson website. The top listing is for a **WATER CONTROL SYSTEMS ENGINEER** in the **Tucson Water - Maintenance Division**. It specifies a grade of 816 and a salary range of \$53,206 - \$90,563 annually, with a note that the hiring salary depends on experience. The bottom listing is for an **ELECTRICAL ENGINEER** in the **Tucson Water - Planning and Engineering Division**. It also specifies a grade of 816 and a salary range of \$53,206 - \$90,563 annually, with a note that the hiring salary depends on experience. The background of the screenshot includes the City of Tucson logo, navigation links like 'Government' and 'Answers', and a search bar.

WATER CONTROL SYSTEMS ENGINEER
Tucson Water - Maintenance Division
Grade: 816, Salary Range: \$53,206 - \$90,563 annually
~Hiring salary depending on experience~

ELECTRICAL ENGINEER
Tucson Water - Planning and Engineering Division
Grade: 816 Salary Range: \$53,206 - \$90,563 annually
~Hiring salary depending on experience~

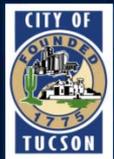


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Project Costs To-Date

- Upgrading the Control System and Remote sites is a multi-year process that will span another five years.
- Project Budget is \$28 million:
 - Software Upgrade & Integrator Design \$17 million
 - Control Site Upgrade \$1.5 million
 - Initial Remote Site Upgrade \$9.5 million
 - *More Remote Site Upgrades (\$11 million 2023 - 2025)*
- To date we have utilized:
 - 25% of the Software & Integrator budget
 - 18% of the total budget



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Roles

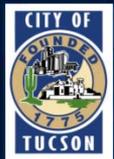
- TW staff
 - Operators, Control Systems Engineers, Civil Engineers, Managers
- City Departments
 - Information Technology, Facilities Design & Management, Procurement
- System Integrator
- Software vendor
- Panel Fabricators
- Electrical Site Contractors



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Silo Monitoring



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Situational Awareness



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Thank You!

Questions?



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Water **Reliability**

Drought Contingency Plan Update

Presenter:

Wally Wilson, Chief Hydrologist

CWAC

October 5, 2016

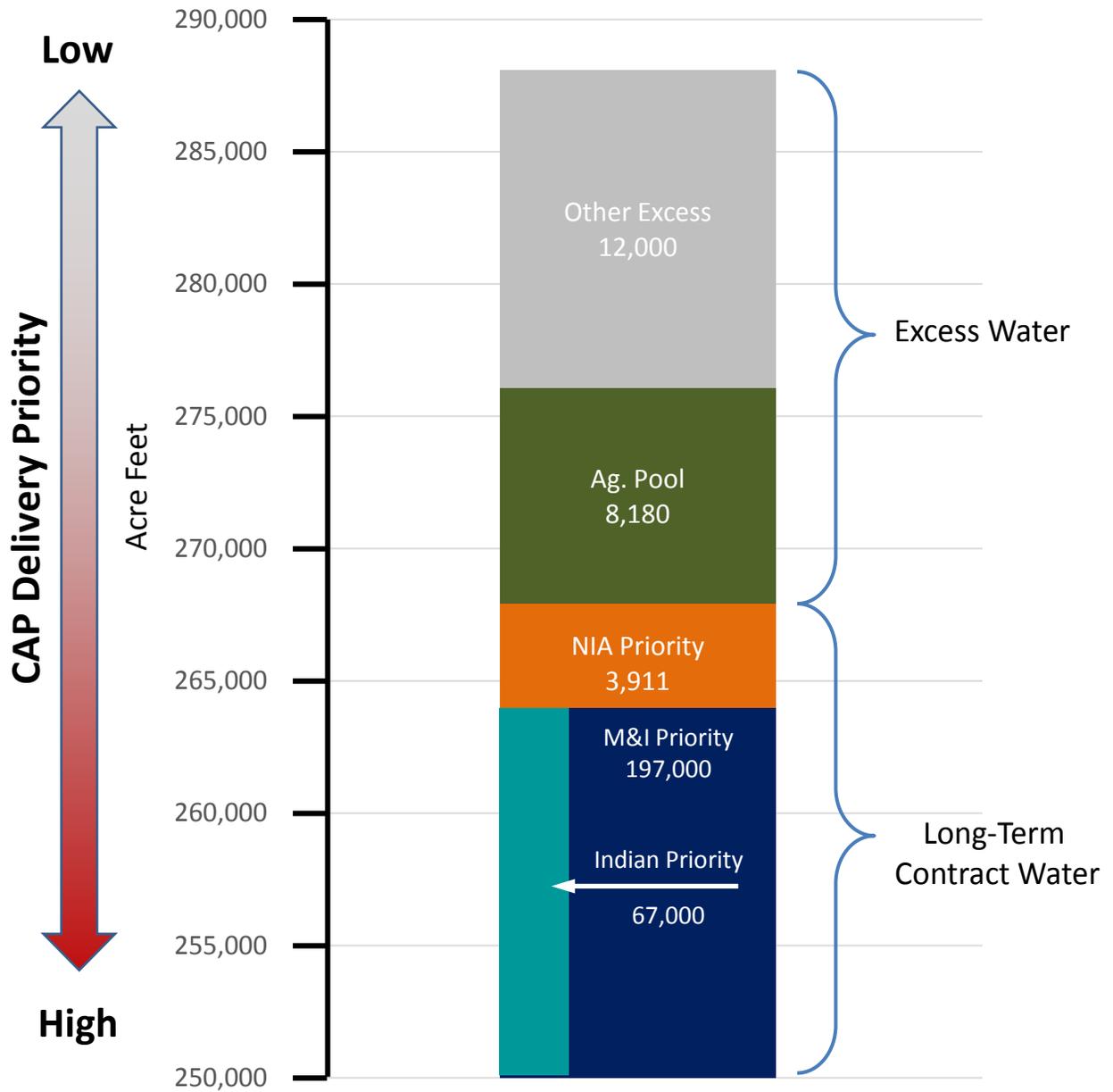


DCP Reductions

Lake Mead Elevation	AZ (2007)	AZ (Plan)	AZ Total	NV (2007)	NV (Plan)	NV Total	CA (2007)	CA (Plan)	CA Total	USBR	Mexico Minute 319*	Total
1,090-1,075	0	192,000	192,000	0	8,000	8,000	0	0	0	100,000	0	300,000
1,075-1,050	320,000	192,000	512,000	13,000	8,000	21,000	0	0	0	100,000	50,000	683,000
1,050-1,045	400,000	192,000	592,000	17,000	8,000	25,000	0	0	0	100,000	70,000	787,000
1,045-1,040	400,000	240,000	640,000	17,000	10,000	27,000	0	200,000	200,000	100,000	70,000	1,037,000
1,040-1,035	400,000	240,000	640,000	17,000	10,000	27,000	0	250,000	250,000	100,000	70,000	1,087,000
1,035-1,030	400,000	240,000	640,000	17,000	10,000	27,000	0	300,000	300,000	100,000	70,000	1,137,000
1,030-1,025	400,000	240,000	640,000	17,000	10,000	27,000	0	350,000	350,000	100,000	70,000	1,187,000
<1,025	480,000	240,000	720,000	20,000	10,000	30,000	0	350,000	350,000	100,000	125,000	1,325,000

*Minute 319 reductions extend through 2017. Assume reductions continue in Minute 32X.

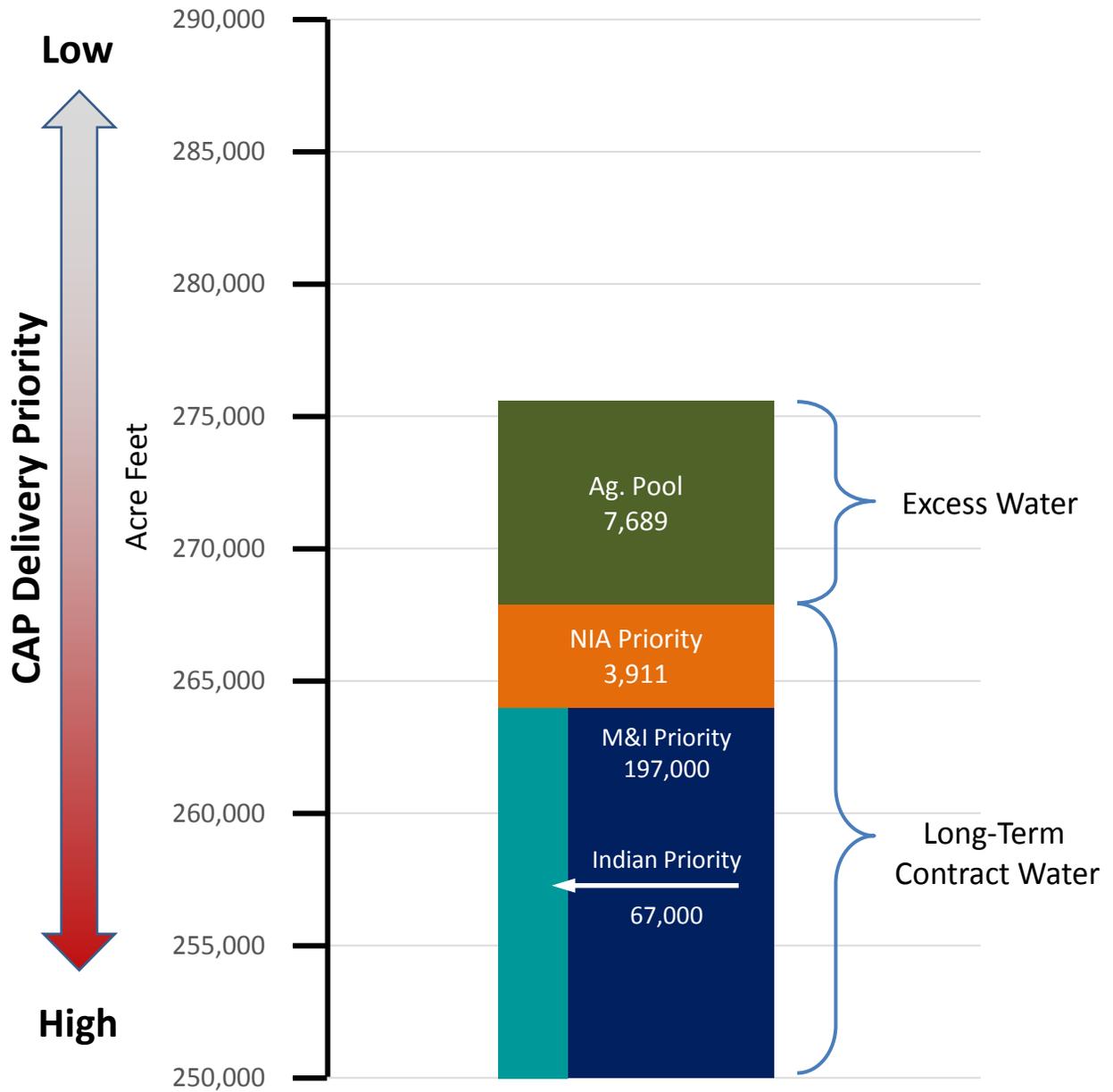
Projected Impact to CAP Orders with DCP for TAMA



Information Provided By:



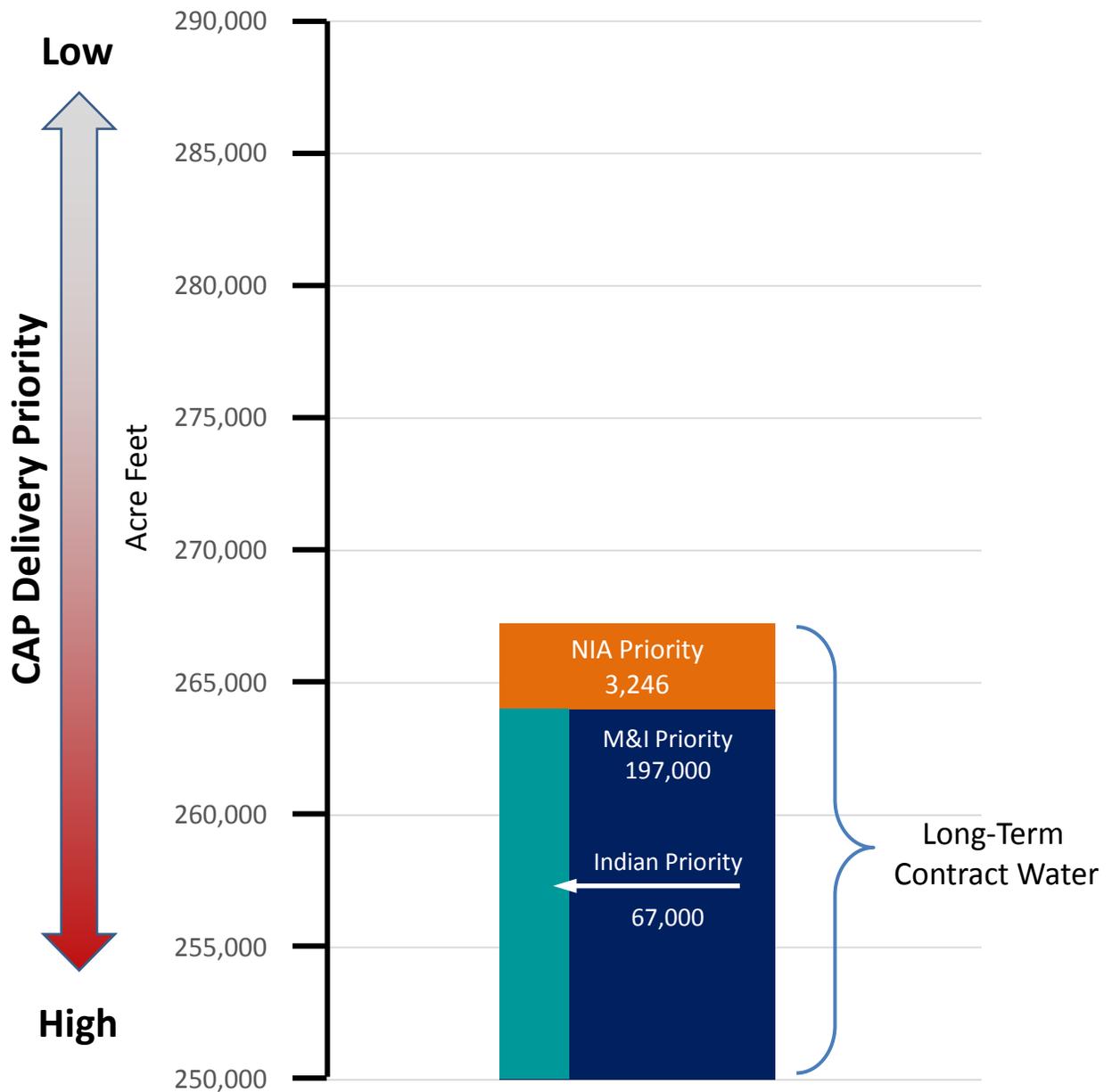
Projected Impact to CAP Orders with DCP TAMA 1090-1075



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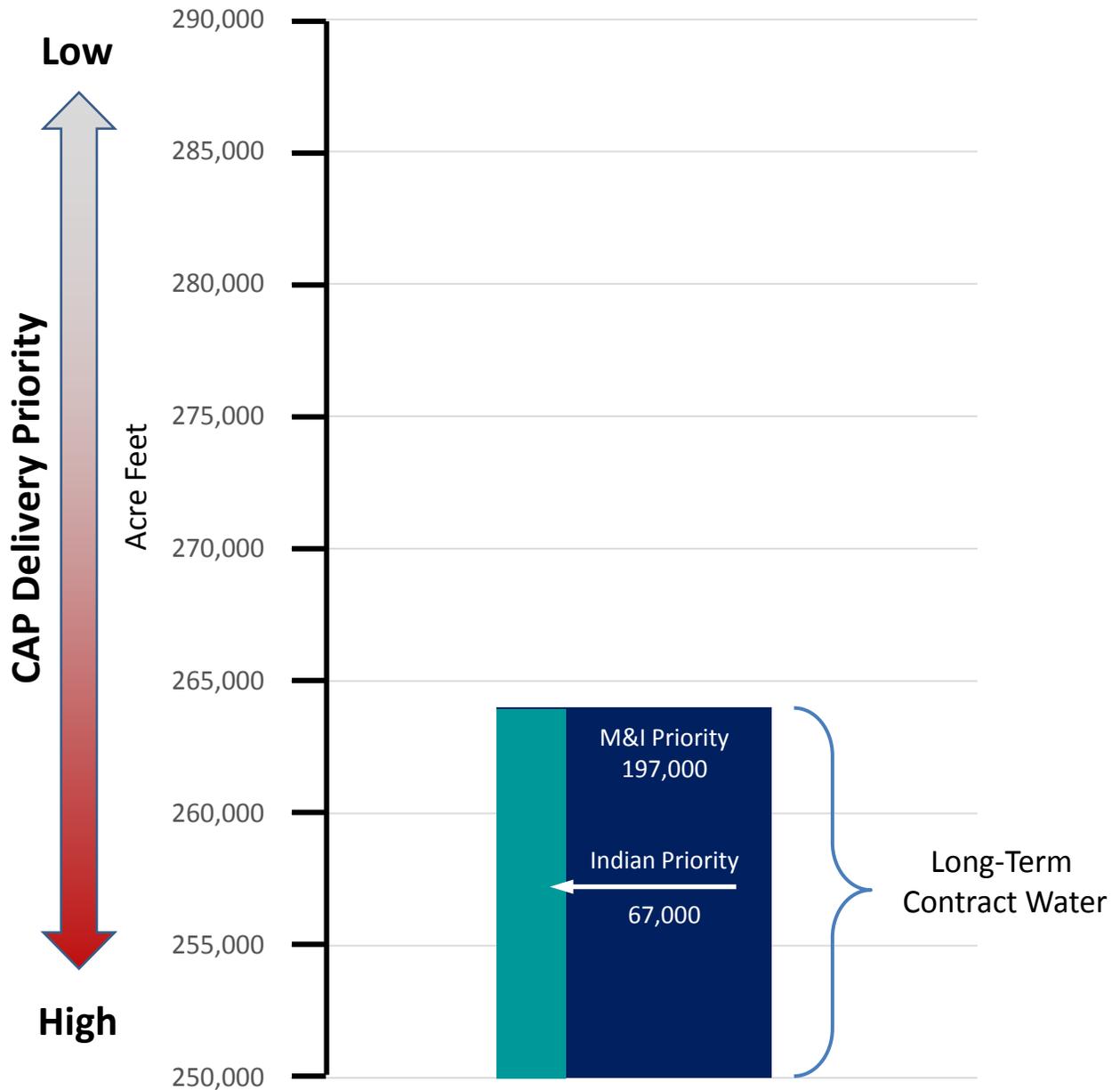
Projected Impact to CAP Orders with DCP TAMA 1075-1050



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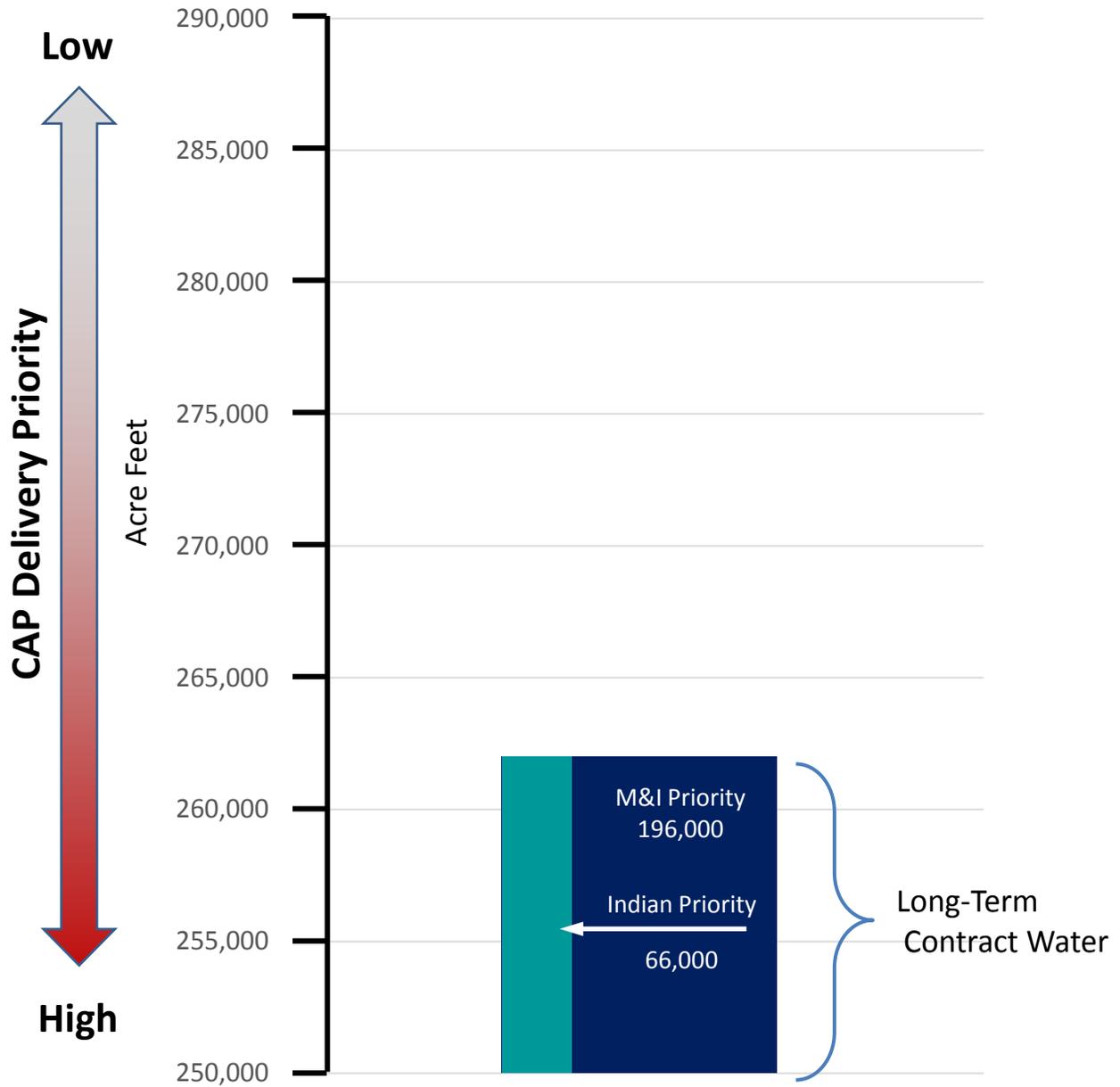
Projected Impact to CAP Orders with DCP TAMA 1050-1045



Information Provided By:



Projected Impact to CAP Orders with DCP TAMA 1030-1025



Information Provided By:





Citizens' Water Advisory Committee

Projected Agenda



Meeting Date/Agenda Items

Materials Deadline

November 2, 2016

- CIP Review
- Officer Election Discussion
- Ward 1 Perspectives, Steve Arnquist

October 26, 2016

December 7, 2016

- O&M Review
- C & E Update and Committee Discussion
- Swimming Pool Analysis Presentation (40 min)
- Officer Elections
- Approval of 2017 Schedule
- Ward 6 Perspectives, Amy Stabler

November 30, 2016

*January 4, 2017

- Water Bank TAMA Storage and Recovery, Virginia O'Connell/CAP
- Legislative Updates (w/M&C stance)

December 28, 2016

*February 1, 2017

- Ward 3 Perspectives, Tamara Prime

January 25, 2017

*March 1, 2017

- Legislative Updates (w/M&C stance)

February 22, 2017

*April 5, 2017

- Pending

March 29, 2017

*May 3, 2017

- Legislative Updates (w/M&C stance)

April 26, 2017

***Dates pending approval of 2017 schedule in December**

Future Agenda Items without a Date:

-California Conservation Efforts

Future Director's Report Items: