CITIZENS' WATER ADVISORY COMMITTEE
(CWAC)
Technical/Planning and Policy Subcommittee

Wednesday, May 27, 2015, 12:00 p.m.
Director's Conference Room
Tucson Water, 3rd Floor
310 W. Alameda Street, Tucson, Arizona

Legal Action Summary

1. Roll Call/Call to Order

The meeting was called to order by acting Subcommittee Chair, Brian Wong, at 12:04 p.m. Those present and absent were:

Present:

Mitch Basefsky	Representative, City Manager
Chuck Freitas	Representative, City Manager
Brian Wong	Representative, City Manager (acting Chair)
Placido dos Santos	Representative, City Manager

Absent:

Mark Murphy	Chairperson-Representative, Mayor
Alan Tonelson	Representative, Ward 1
Kelly Lee	Representative, Ward 6

Tucson Water Staff Present:

Jeff Biggs	Interim Deputy Director
Wally Wilson	
Fernando Molina	Water Program Supervisor
Allan Tarket	
Billie Powers	
Kris LaFleur	Staff Assistant
Johanna Hernandez	Staff Assistant

Others Present:

Chris Avery	City of Tucson, Attorney's Office
Laura Grignano	CAP
Bud Foster	KOLD-TV

2. Announcements – No action taken.

3. Call to Audience – No action taken.

4. Review & Approval of April 22, 2015 Legal Action Report and Meeting Minutes – Member Freitas motioned to approve the Legal Action Report and Meeting Minutes of March 25, 2015. Member dos Santos seconded. Motion passed unanimously by a voice vote of 4-0.

5. CAP Joint Recover Plan – Laura Grignano, Senior Policy Analyst for CAP, provided a PowerPoint presentation on Water Banking and Recovery in Arizona. Ms. Grignano

discussed what it means to bank water (recharge and store) and recover water (pumping stored water to augment, or firm, CAP supplies). There are two types of recharge: Direct and Indirect. CAVSARP, SAVSARP and Pima Mine Road facilities are examples of direct recharge in Tucson; Ground Water Savings plans are examples of In-Lieu, or indirect, recharge. The AWBA was created to store excess, or unused, CAP water. AWBA has stored 3.8 million acre feet of water thus far. The Funding Source, Storage and Purpose of stored water were broken down by AMA (Phoenix, Pinal, and Tucson). The Phoenix AMA holds approximately 45% of the total credits for water stored by the AWBA; Pinal holds 38% of the credits; and Tucson holds 17% of the credits. The use of stored credits is dictated by its funding source. CAP, ADWR, AWBA completed the Joint Recovery Plan in April 2014. The Plan discusses the framework, timing and volume of projected recovery, methods and partnering opportunities. Ms. Grignano discussed CAPs role in the Plan as the party responsible for determining shortages and triggering recovery. Instate Recovery is only triggered in circumstances when shortages affect users with AWBA firming agreements. Projected 2016 CAP deliveries were covered in depth. Hypothetical shortage scenarios reflected impacts to deliveries given Tier 1 and Tier 2 shortages, neither of which require recovery from the AWBA, were covered. Modeling of supplies and demands to predict future probabilities of recovery needs in likelihood, timing and magnitude were covered. The current planning period goes out to 2045, and is delineated in near-term, mid-term and long-term sections. Maximum annual recovery for each AMA, in each term was reported. Current events reflect that on-river recovery will not likely be necessary in the long term; however, Indian NIA recovery is probable. Recovery becomes more important with increasing likelihood of shortage. CAP, ADWR and AWBA are planning for recovery in multiple ways, including partnerships. Recovery partnerships would result in a third type of recovery, in the form of Credit Exchange, where subcontractors accept a portion of their order in previously stored water, or credits. Multiple examples of various types of recovery were provided. Brief discussion was held on the use of general funds in the Pinal AMA, where there is greater capacity for Ground Water Savings plans.

6. **Security of Open Water Sources –** Tucson Water staff member Allan Tarket provided a PowerPoint on Water Security Recharge Facilities. Basic security considerations involve ascertaining the what, who and where of threats, as well as compliance with regulatory mandates. Threats come in the form of vandals, computer hackers, terrorists, disgruntled employees/customers, and criminals. Threats can result in loss of potable water supply, loss of fire flow and contamination of water. Tucson Water monitors for threats at its various water storage, recharge, treatment, pumping, distribution, and support facilities. The Safe Drinking Water Act makes the sabotage of, or threat to sabotage, a public drinking water system a federal offense. Tucson Water facilities are secured with dual fence protection, ID card access, video surveillance, and security vehicle patrols. Redundancies are in place to protect against loss due to power failures. Video security is monitored 24/7, and is event driven. Security is also contracted for after hours, weekends and holidays. Security protocols are in place for real time responses to incidents.

7. **Future Meetings/Agenda Items –** See projected agenda for further information.

8. **Adjournment –** Meeting adjourned at 1:21 p.m.

CAP
CENTRAL ARIZONA PROJECT

YOUR WATER. YOUR FUTURE.

CWAC – Technical, Planning and Policy Subcommittee
May, 27 2015

Water Banking & Recovery in Arizona

Laura Grignano
Senior Policy Analyst
Resource Planning & Analysis

Water Banking & Recovery

- Water banking—recharging water (excess CAP) for later use

- During shortage, the stored water is pumped from wells (“recovered”) to supplement (“firm”) deliveries of CAP water

CAP
CENTRAL ARIZONA PROJECT

Direct Recharge

CAP
CENTRAL ARIZONA PROJECT

In Lieu Recharge

CAP
CENTRAL ARIZONA PROJECT

Arizona Water Banking Authority

- The state established the AWBA in 1996
- Has stored over 3.8 million acre feet
- Stores for a variety of purposes
  - To firm CAP Municipal & Industrial priority users
  - To firm certain on-River M&I users
  - To firm a specific portion of the CAP water held by tribes
  - To meet interstate water banking obligations with Nevada

CAP
CENTRAL ARIZONA PROJECT

Credits by AMA & Funding Source

Funding Source	Phoenix AMA	Pinal AMA	Tucson AMA	Total
4-Cent Ad Valorem Tax[1]	1,329,925	187,465	390,334	1,907,724
Withdrawal Fees	293,632	394,896	98,788	787,316
General Fund	42,316	306,968	54,546	403,830
Other Intrastate:				
Indian Firming Appropriation	-	-	28,481	28,481
Shortage Reparation	20,642	60,507	1,227	82,376
GSF Operator Full Cost Share[2]	-	14,125	-	14,125
Intrastate TOTAL	1,686,514	963,961	573,376	3,223,851
Interstate - Nevada	51,009	439,851	109,791	600,651
TOTAL	**1,737,523**	**1,403,812**	**683,167**	**3,824,502**

CAP
CENTRAL ARIZONA PROJECT

Funding Source and Purpose

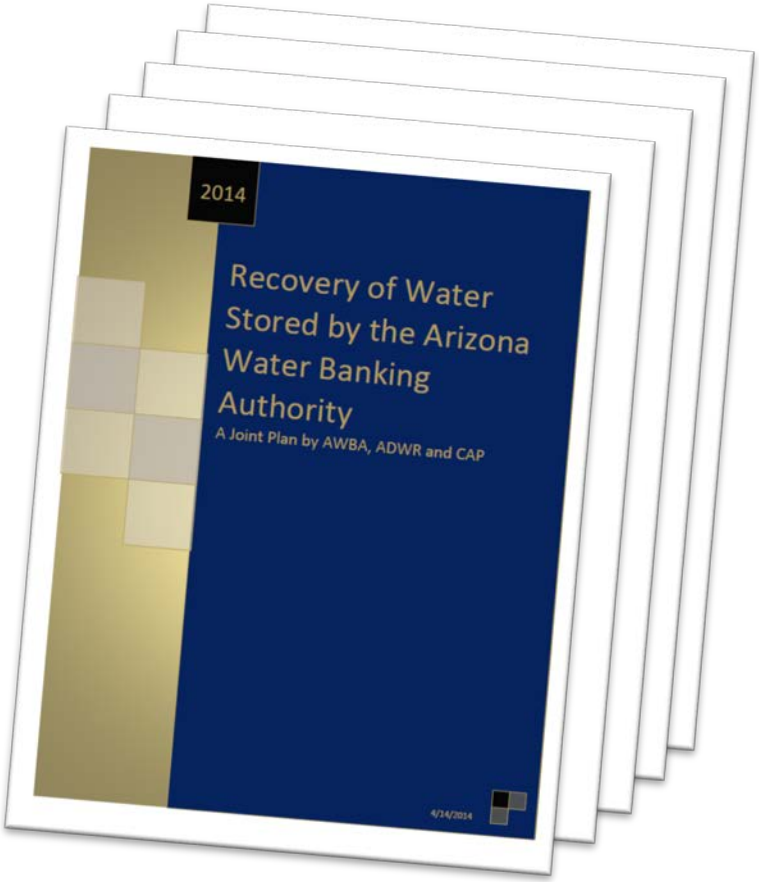
FUNDING SOURCE	Firming M&I CAP	Firming On-River M&I (P-4)	Firming Indian Settlements (NIA)	Fulfilling Water Management Objectives
Ad Valorem Taxes	X			
Groundwater Withdrawal Fees	X		X	X
General Fund	X	X	X	X
Shortage Reparations	X	X	X	X

CAP
CENTRAL ARIZONA PROJECT

Joint Recovery Plan

- A Joint Recovery Plan was developed by CAP, AWBA and the ADWR (April, 2014)

- Describes basic framework, timing and volume of projected recovery, methods, and potential partnering opportunities



CAP
CENTRAL ARIZONA PROJECT

CAP's Role

- CAP has significant responsibilities for recovering the water stored by the AWBA
- CAP is responsible for scheduling CAP water deliveries and determining the specific reductions to each class of user firmed by the AWBA
- CAP will make a request to the AWBA for credits to meet these shortfalls

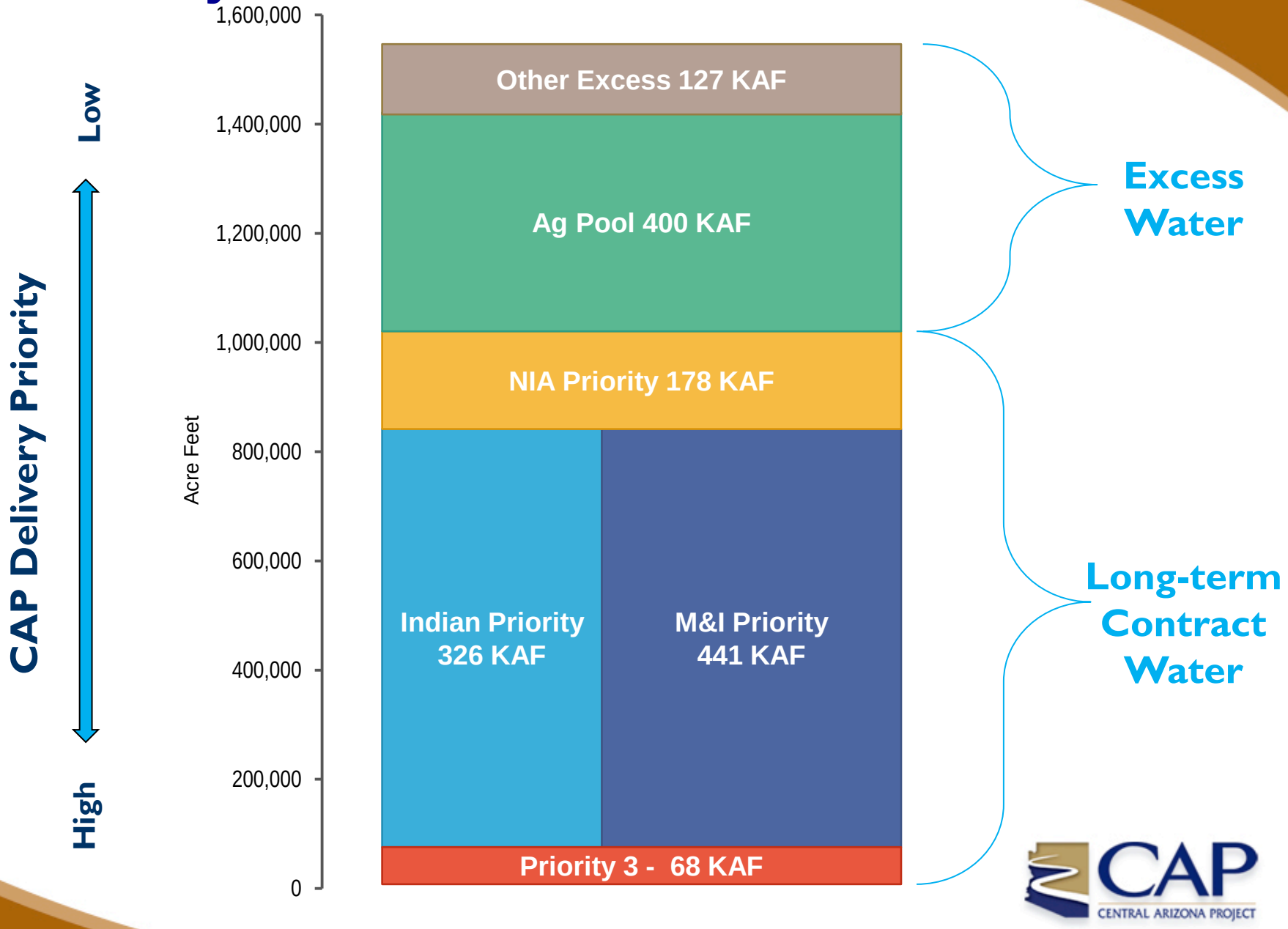
CAP
CENTRAL ARIZONA PROJECT

Instate Recovery Triggered…

when the reduction in Arizona's Colorado River supply intersects deliveries to users(CAP and On-River) for which the AWBA has firming obligations

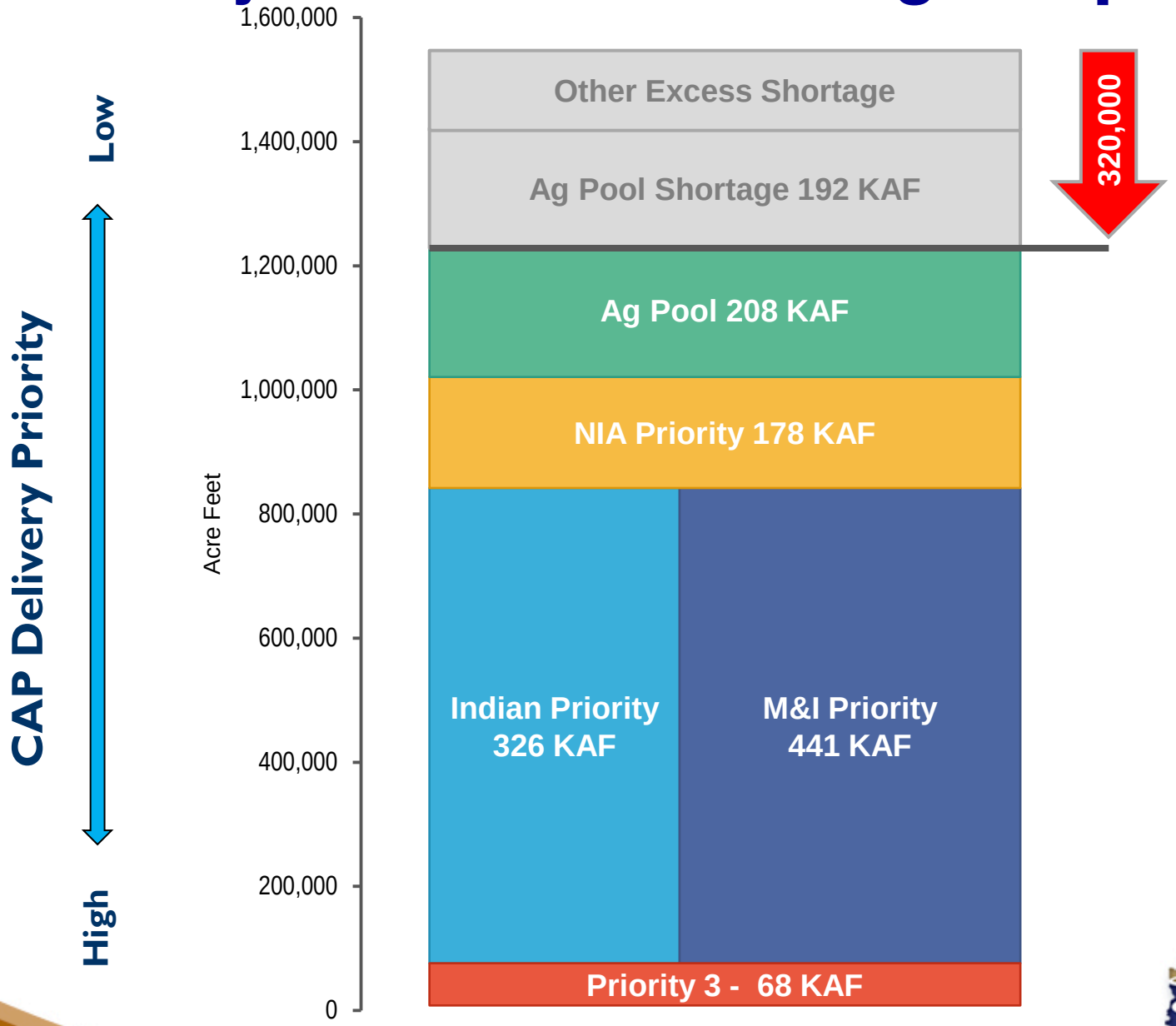
CAP
CENTRAL ARIZONA PROJECT

2016 Projected CAP Deliveries



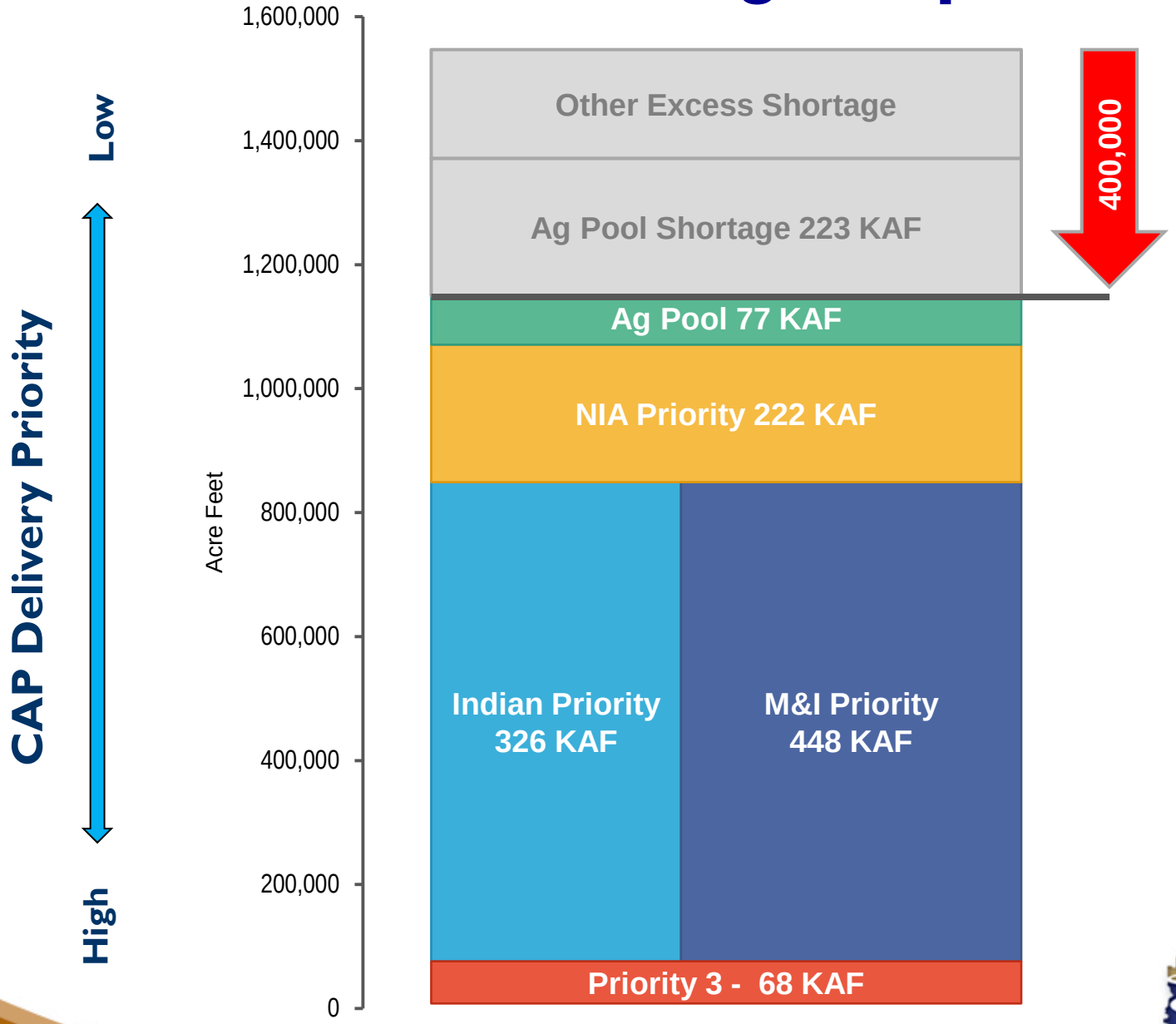
CAP
CENTRAL ARIZONA PROJECT

2016 Projected Tier 1 Shortage Impact



CAP
CENTRAL ARIZONA PROJECT

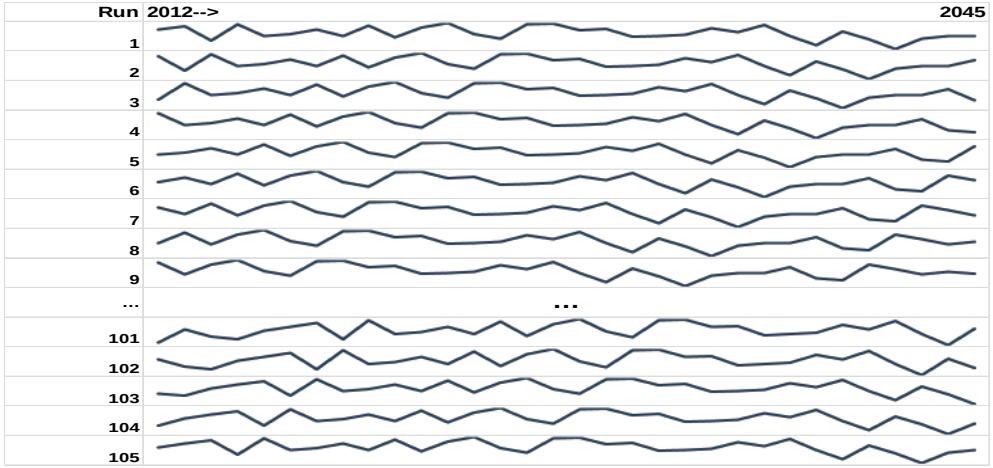
Near-term Tier 2 Shortage Impact



CAP
CENTRAL ARIZONA PROJECT

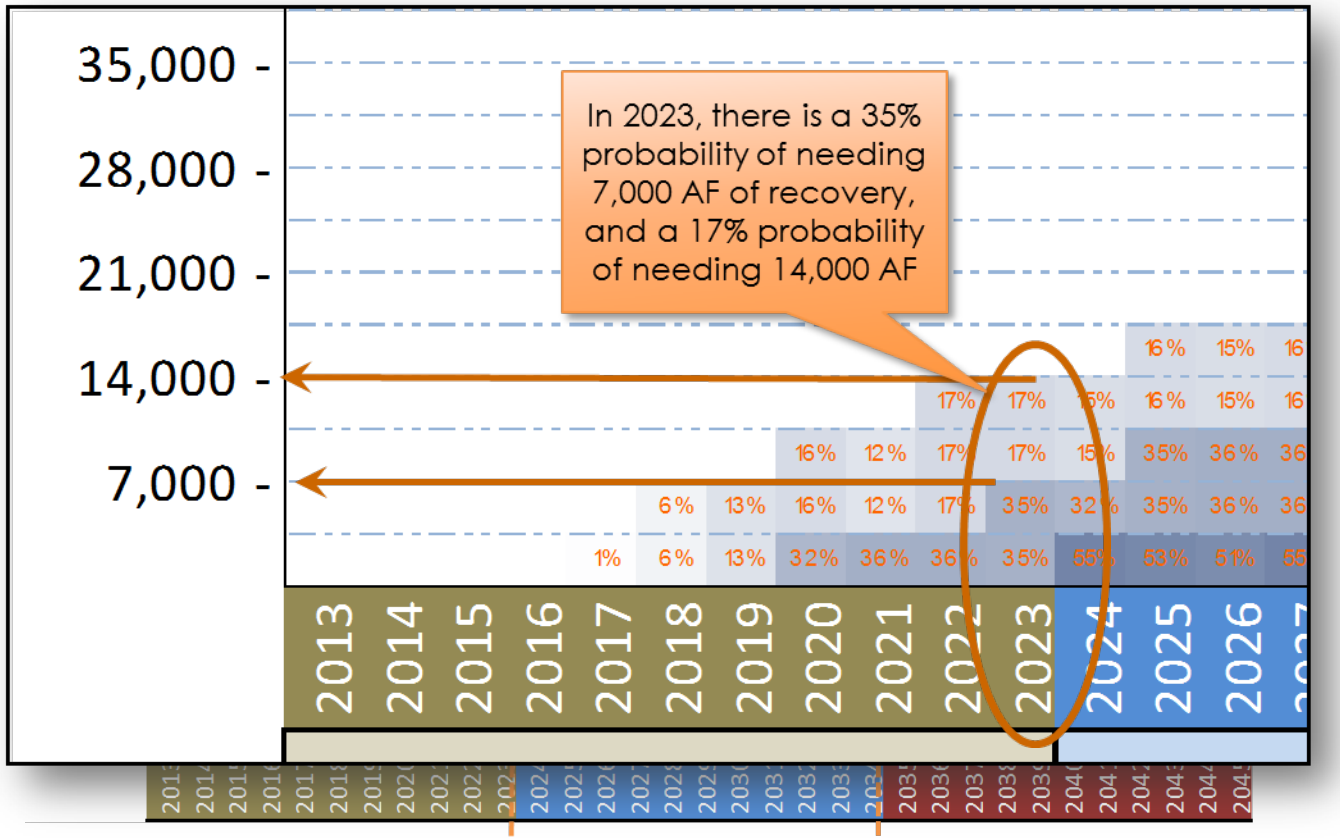
Recovery Model

The recovery model incorporates the 105 different water supply traces from the CRSS model and matches those against a range of projected on-River, CAP demands and requests from Nevada.



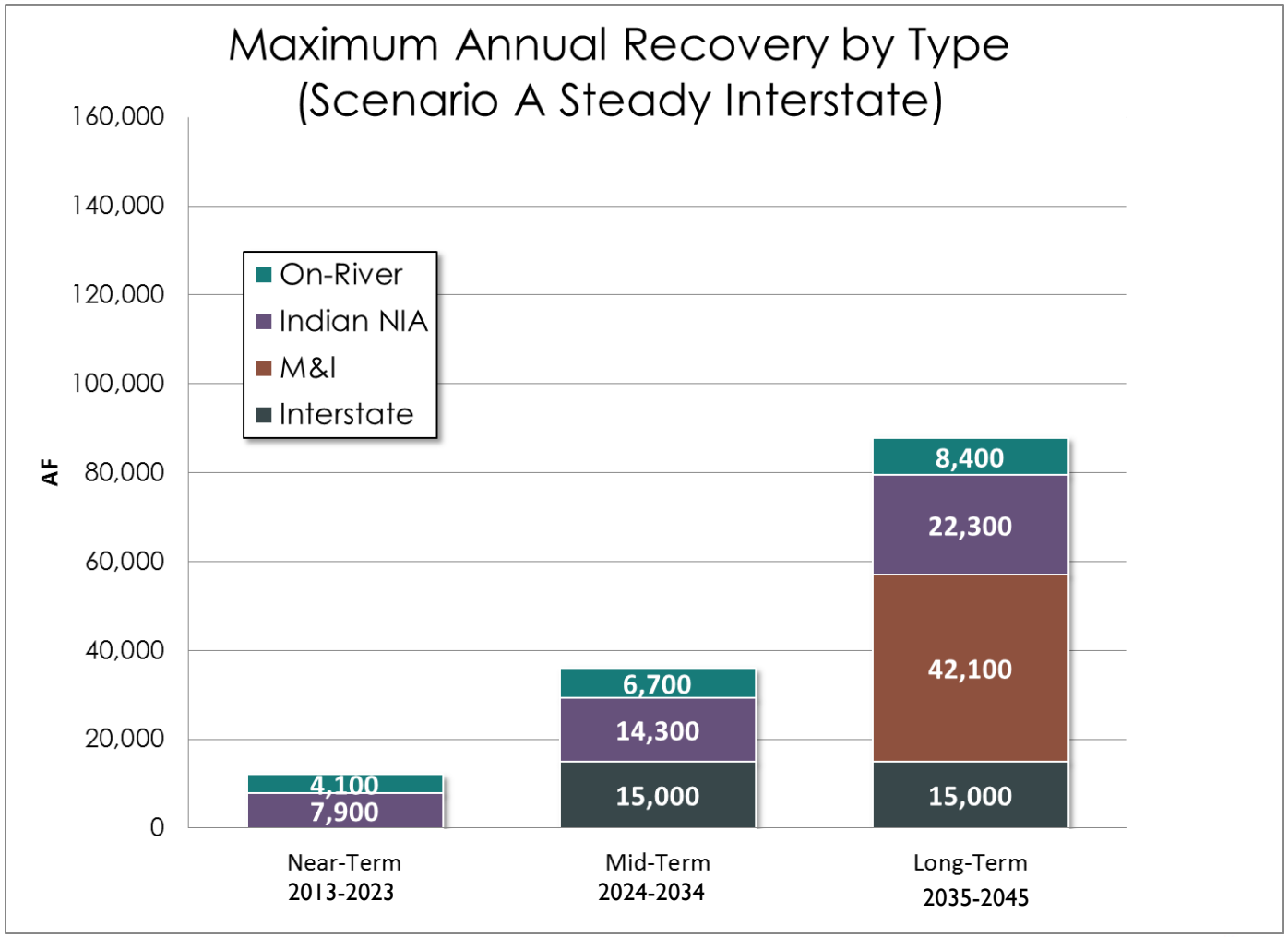
CAP
CENTRAL ARIZONA PROJECT

Likelihood, Timing & Magnitude



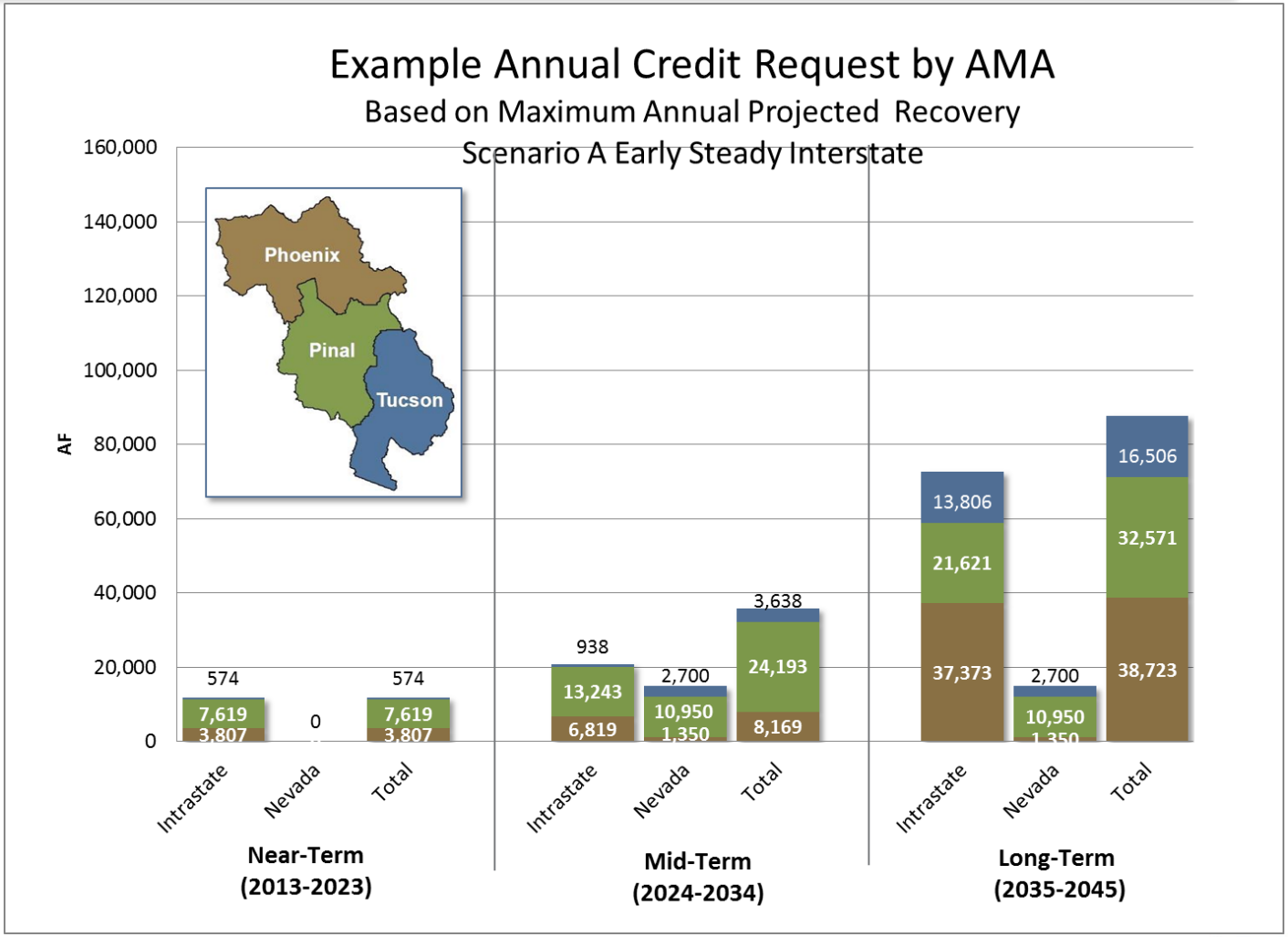
CAP
CENTRAL ARIZONA PROJECT

Max Annual Recovery–Scenario A



CAP
CENTRAL ARIZONA PROJECT

Max Annual Recovery-Scenario A



CAP
CENTRAL ARIZONA PROJECT

Recovery Partnerships

- Recovery can be accomplished by pumping water directly into the CAP canal, but preferred methods involve voluntary partnerships

- An individual CAP contractor or subcontractor agrees to accept some of their order in the form of previously stored water (credits)

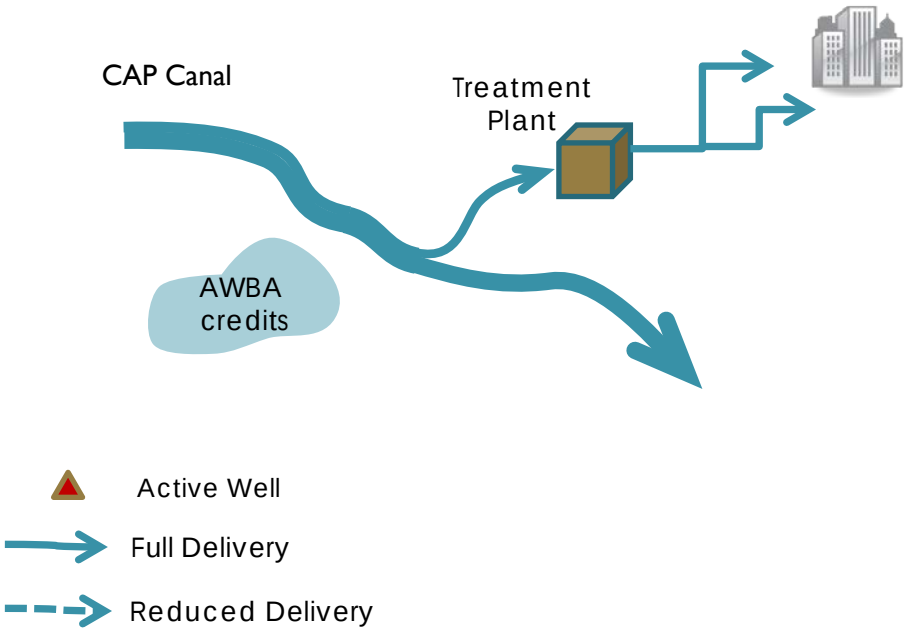
CAP
CENTRAL ARIZONA PROJECT

Types of Recovery

- **Direct** (requires new CAP well fields and use the CAP canal)
- **Indirect** (requires partnerships, use of existing wells & requires additional pumping above normal ops)
- **Credit Exchange** (requires partnerships, use of existing wells (ASR) but does not require additional pumping above normal ops)

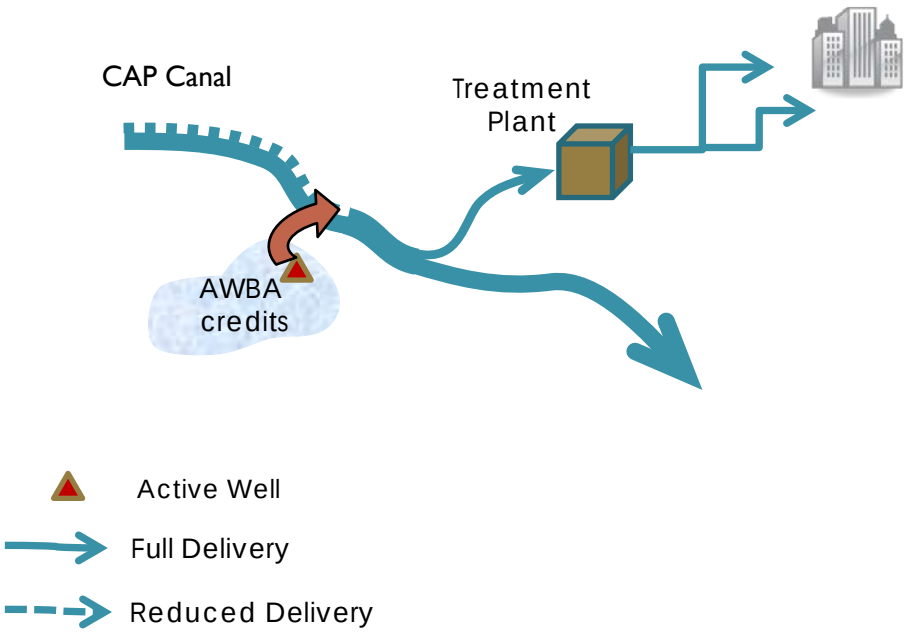
CAP
CENTRAL ARIZONA PROJECT

Normal Conditions

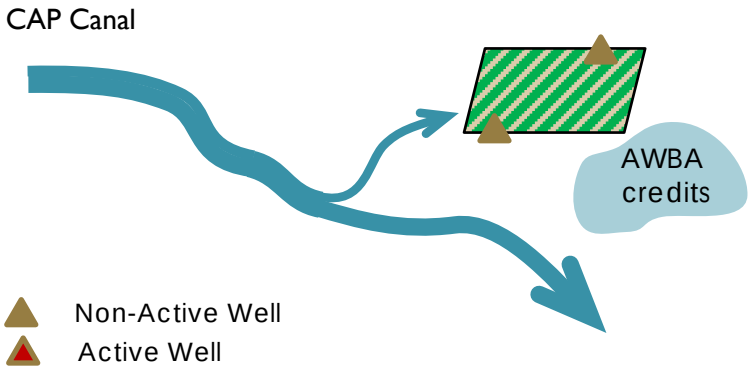


CAP
CENTRAL ARIZONA PROJECT

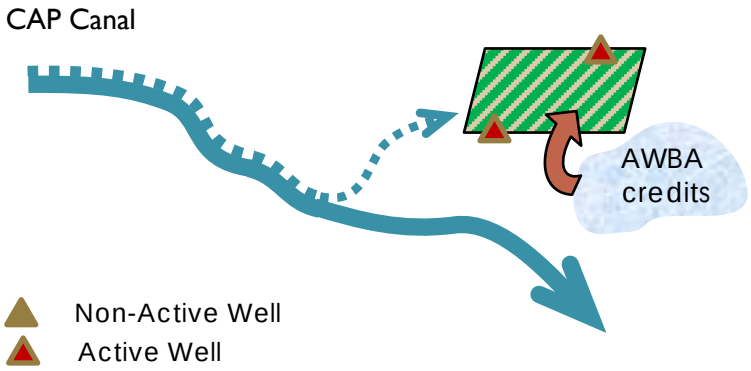
Direct Recovery



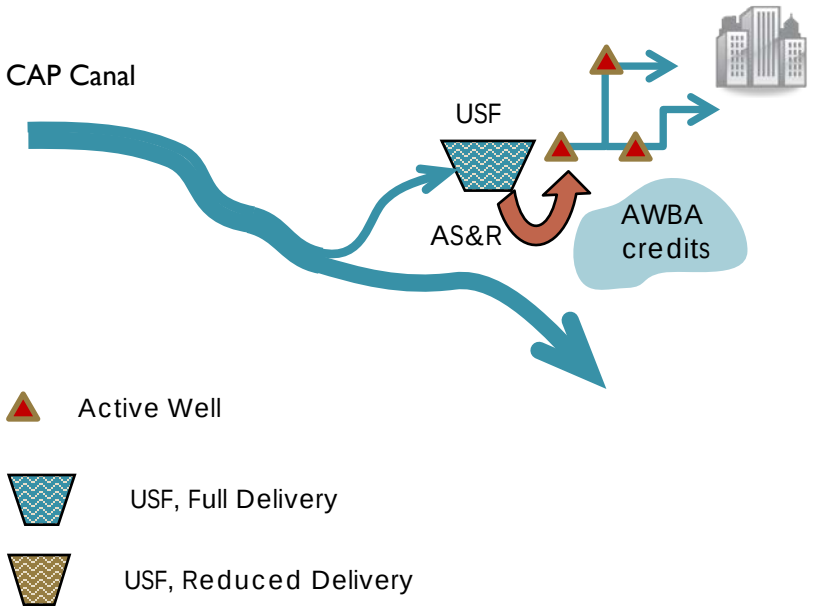
Normal Conditions



Indirect Recovery, Ag Pool

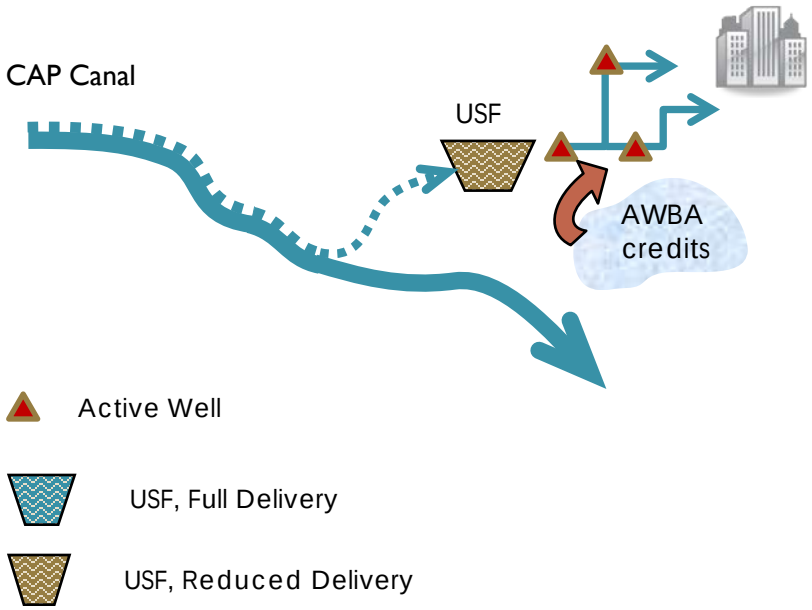


Normal Conditions



CAP
CENTRAL ARIZONA PROJECT

Credit Exchange



Potential Opportunities in Tucson

- Credit Exchange with providers performing ASR
  - Tucson Water
  - Metro Water
  - Oro Valley
  - Marana
  - Vail
  - Others

- Future infrastructure ?

CAP
CENTRAL ARIZONA PROJECT

Recovery Implementation

- CAP staff are working towards recovery agreements – meeting with interested stakeholders, developing framework and draft recovery agreements for partnerships

- Conducting additional technical work
  - Direct recovery studies (pumping into CAP canal)
  - Regional studies

CAP
CENTRAL ARIZONA PROJECT

Major Points

- As shortage approaches, the topic of recovery will become more prominent
- AWBA, ADWR and CAP are working to ensure that firming obligations can be met
- CAP has begun one-on-one meetings with potential partners, and would welcome further discussions with interested parties

CAP
CENTRAL ARIZONA PROJECT

CAP
CENTRAL ARIZONA PROJECT
YOUR WATER. YOUR FUTURE.

Questions

Joint Recovery Plan can be found on CAP's website at

http://www.cap-az.com/

Under Departments/Planning/Service Area Planning/Recovery

Water Security
Recharge Facilities

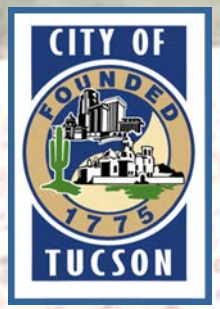
Allan Tarket

Risk Management Specialist

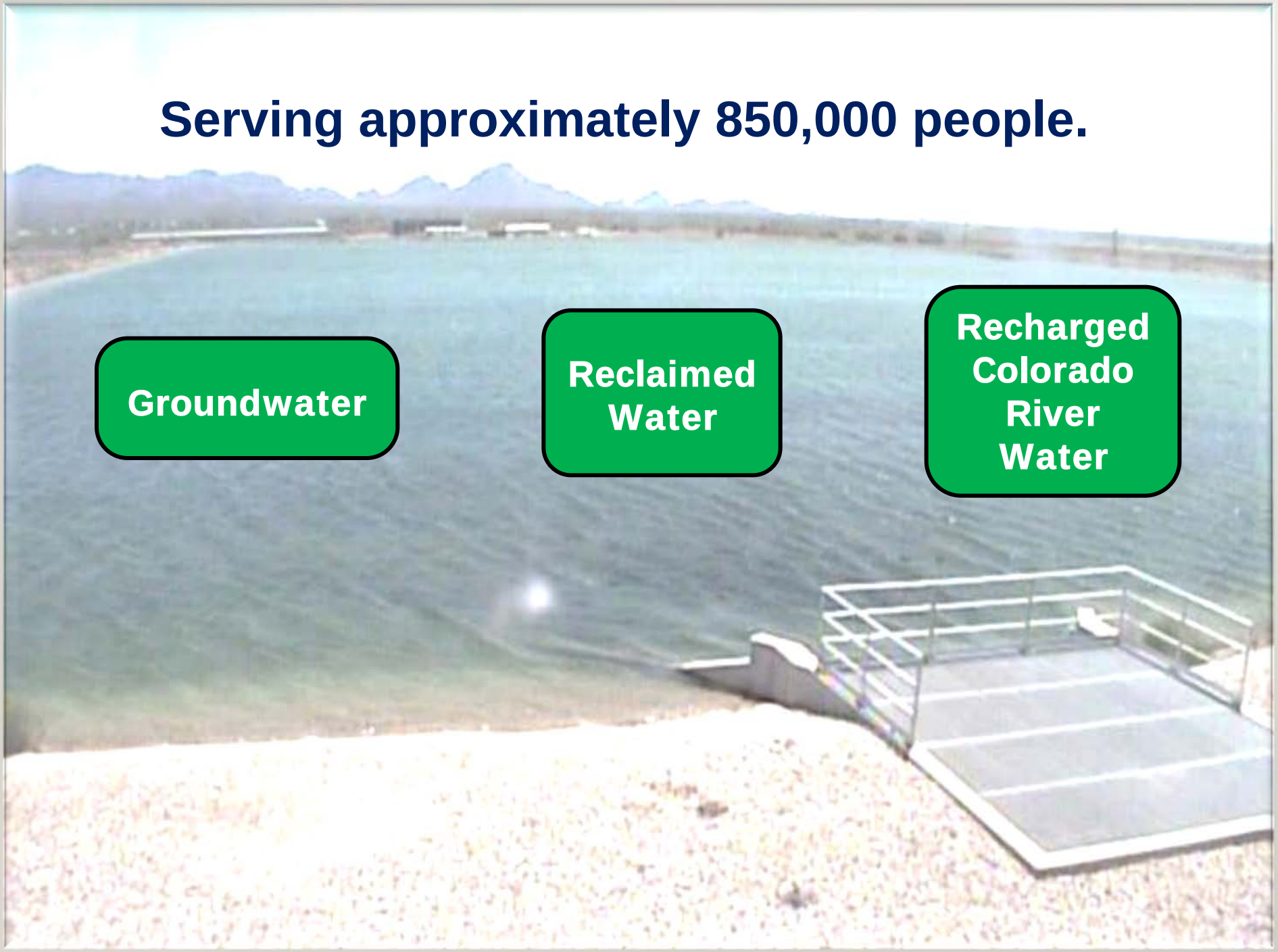
City of Tucson Water Department

TPP Subcommittee

May 27, 2015



Serving approximately 850,000 people.



Basic Security Considerations

- What is the threat
- Who is the threat
- Where is the threat
- Regulatory mandates

What is the Security Threat

Threats to System

- Consequences:
  - Loss of potable water supply
  - Loss of fire flow
  - Contaminated water
- Man-made/Evil-doers:
  - Vandals - Disgruntled employees
  - Computer hackers - Disgruntled customers
  - Terrorists - Criminals

Who Is the Security Threat

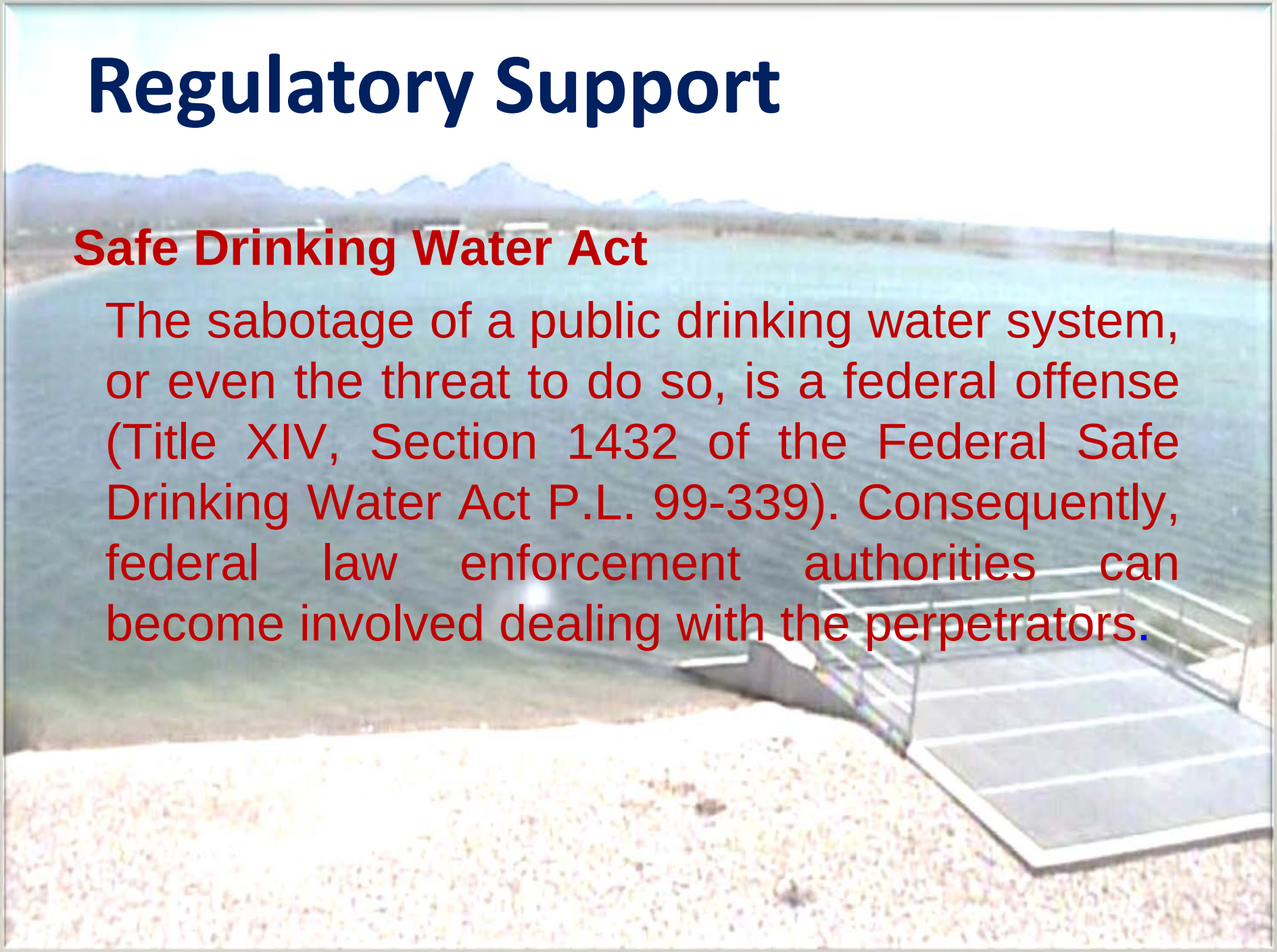
These are adversaries who intend to interrupt water treatment or delivery processes, contaminate water, or trespass on water utility property in order to commit a malevolent act:

- **Vandals-** Damage, deface, or destroy targets of opportunity
- **Criminal-** Theft of valuable assets
- **Saboteur-** Disruption, destruction, or contamination, destroy public trust in the utility/government
- **Insider-** Property damage, theft, disruption, destruction, or contamination

Where is the Security Threat

- Raw water facilities
- Recharge basins
- Wells and pumping stations
- Water treatment plants
- Finished water storage facilities
- Distribution systems
- Water system support facilities

Regulatory Support



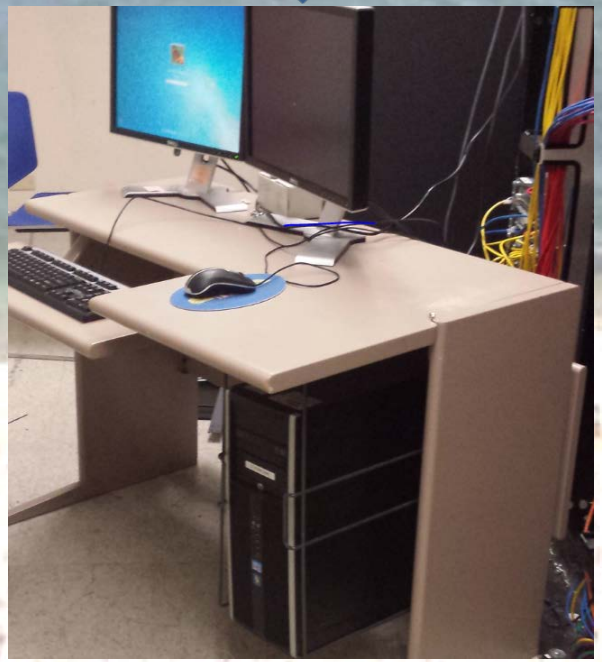
Safe Drinking Water Act

The sabotage of a public drinking water system, or even the threat to do so, is a federal offense (Title XIV, Section 1432 of the Federal Safe Drinking Water Act P.L. 99-339). Consequently, federal law enforcement authorities can become involved dealing with the perpetrators.

Technology Advancements

From

To



XP PC Analog Video Based System

To

Network IP Based System

Basin Physical Security

Duel Fence Protection

- Site perimeter fencing
  - Limited access
  - Card access control gates
- Basin perimeter fencing
  - Perimeter fenceline 6 foot chain link
  - Case hardened chains and locks

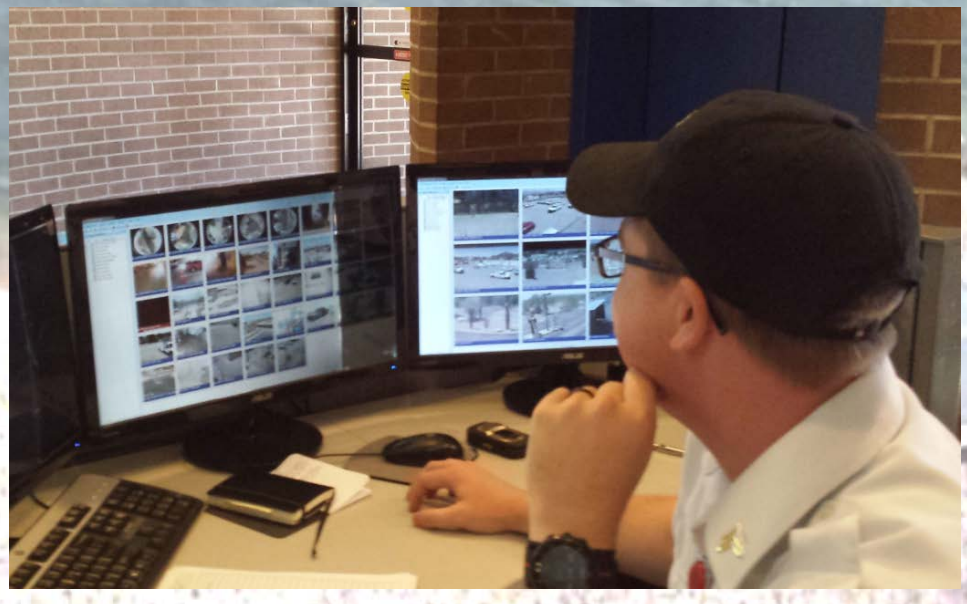
Video Surveillance

Security Vehicle Patrols

Basin Video Security

Video Security

- 24/7 Monitoring Station
- Analytical Video (Event Driven)
- Leading Edge Cameras (Internal Video Storage)
- Power over Ethernet
- Redundant Communication
- Hub Video Storage



Basin Perimeter Security

Basin Security Patrol

After hour, weekend and Holiday Patrols

- Rapid Dispatch
- GPS Tracking
- Electronic Reporting
- 24/7 Security Control Center Support
- Tucson Water On Call Support Staff

Response

Security during perimeter basin patrols

- Checks for fence damage
- Gate tampering
- Unusual activity

Reports observations immediately to Tucson Water security control center

- Tucson Water emergency contact notified immediately
- Emergency response evaluation begins
  - Emergency plan activated, if necessary

Response

Video Surveillance

- Detection or alarm event occurs
  - Tucson Water emergency contact notified immediately
    - Emergency response evaluation begins
    - Emergency plan activated, if necessary

Future Installations

- Security is incorporated into new facility designs
- Ongoing site evaluations
- Site threat Analysis
- Continued site threat reprioritization
- Communication requirements
- Security infrastructure required
- Utilize City Security Contract for installation

QUESTIONS ?