

Production & Treatment Operations

# Water Delivery Services

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Director, Production & Treatment Operations



Rates Advisory Committee

January 8, 2008



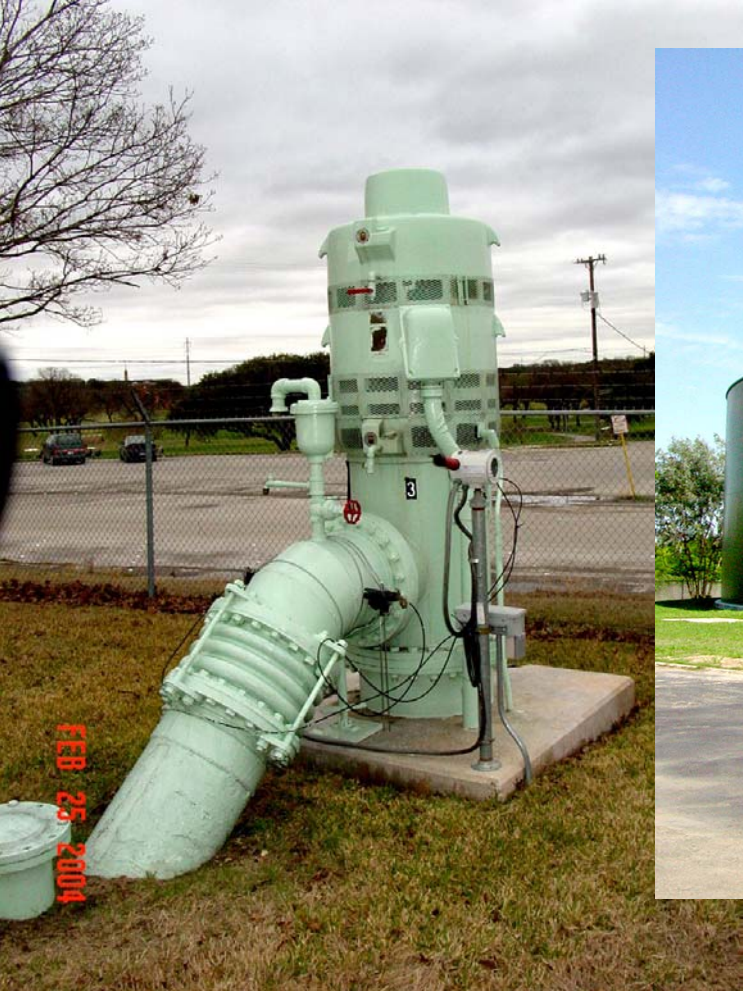
Our water. Our future.

# SAWS' Water Operations

- 347,612 connections
- 1.2 million customers
- 620 square miles
- 4,673 miles of water main
- 147 wells
- 76 pump stations
- 82 tanks



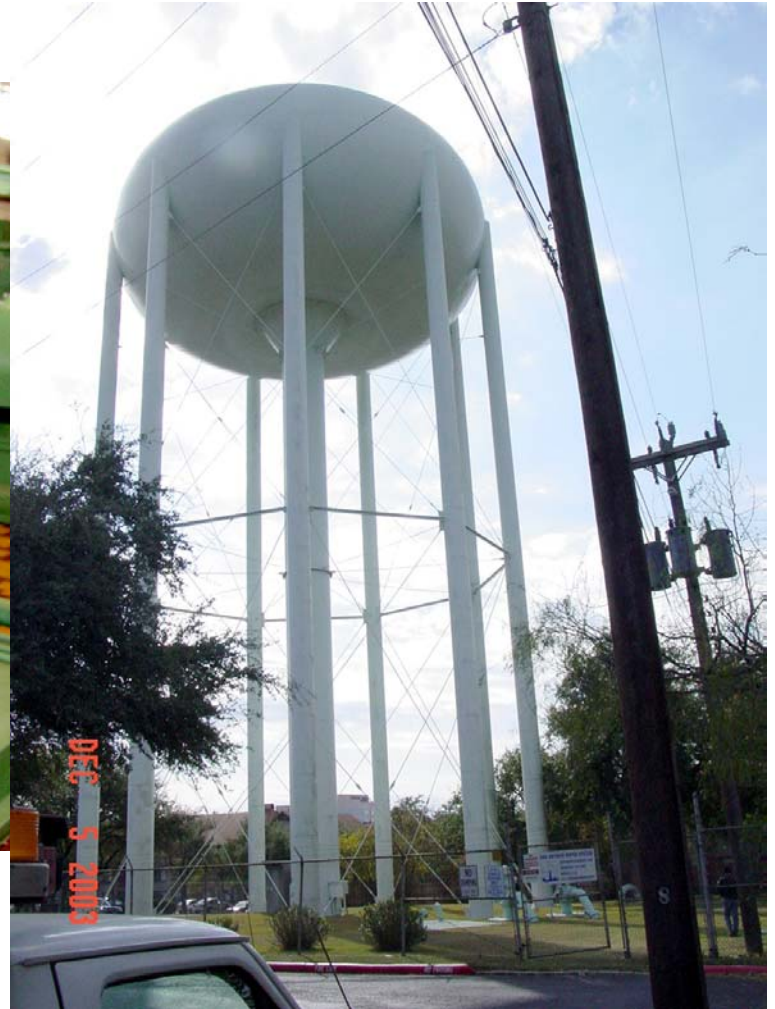
# Wells and ground storage tanks:



# Chlorine and Fluoride Added



# Pumped to elevated storage tanks

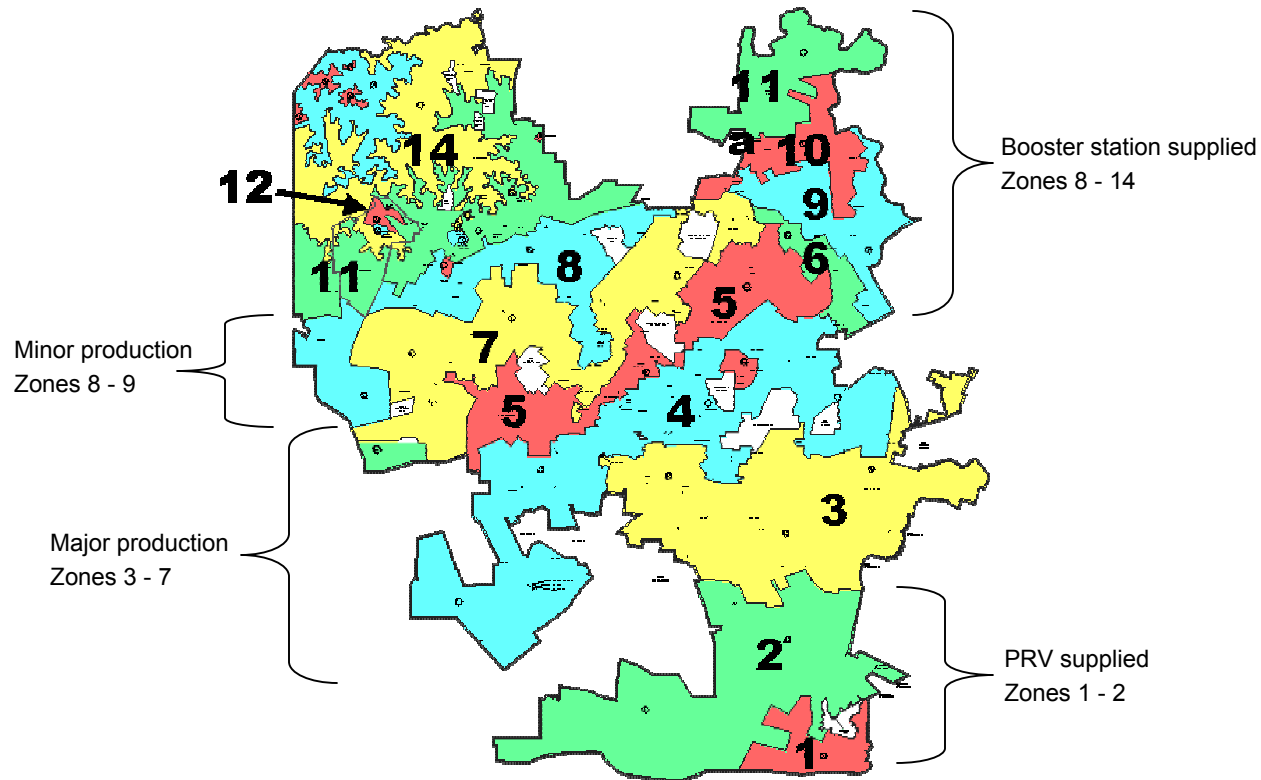


# Distinguishing Features

- Mostly groundwater
  - Largest utility in the nation on groundwater
  - One of the lowest cost systems
- Distributed Production Facilities
  - Difficult to integrate new sources because no central point of introduction
- Long term customer expectations of low cost, high quality service
- Multiple pressure zones and hilly terrain make northern expansion expensive and more complex to operate.

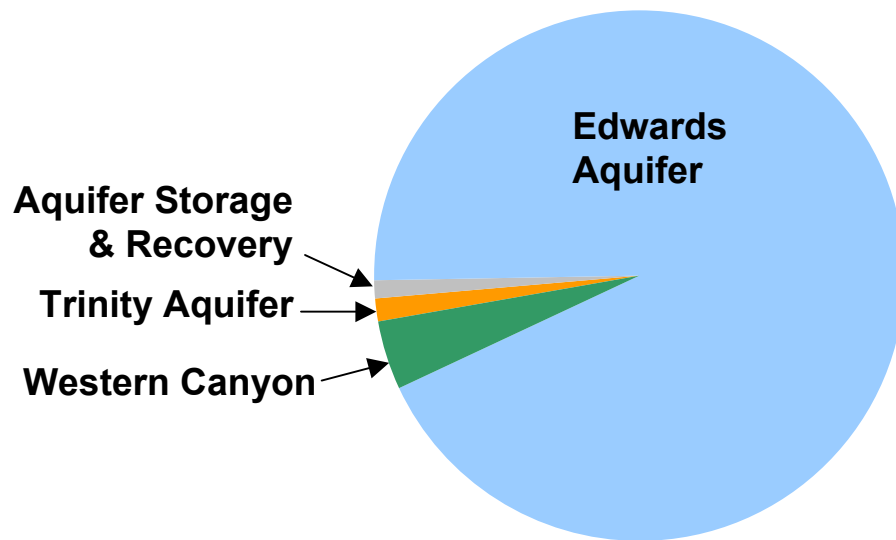
# Service Levels (Pressure Zones)

- Elevations range from 600' in S. Bexar county to 1500' in N. Bexar county.
- Water system is divided into "Service Levels" by ground elevation.
- Design complicates integration of new water resources.



# Current Water Supplies

- Diversification of supplies
- Adequate supply planned
- 2008 production  $\approx$  201,000 af



Source	Acre-feet
Edwards Aquifer	187,601
Trinity Aquifer	3,076
Western Canyon	8,509
ASR	1,752
Local Carrizo	63
<b>Total</b>	<b>201,000</b>

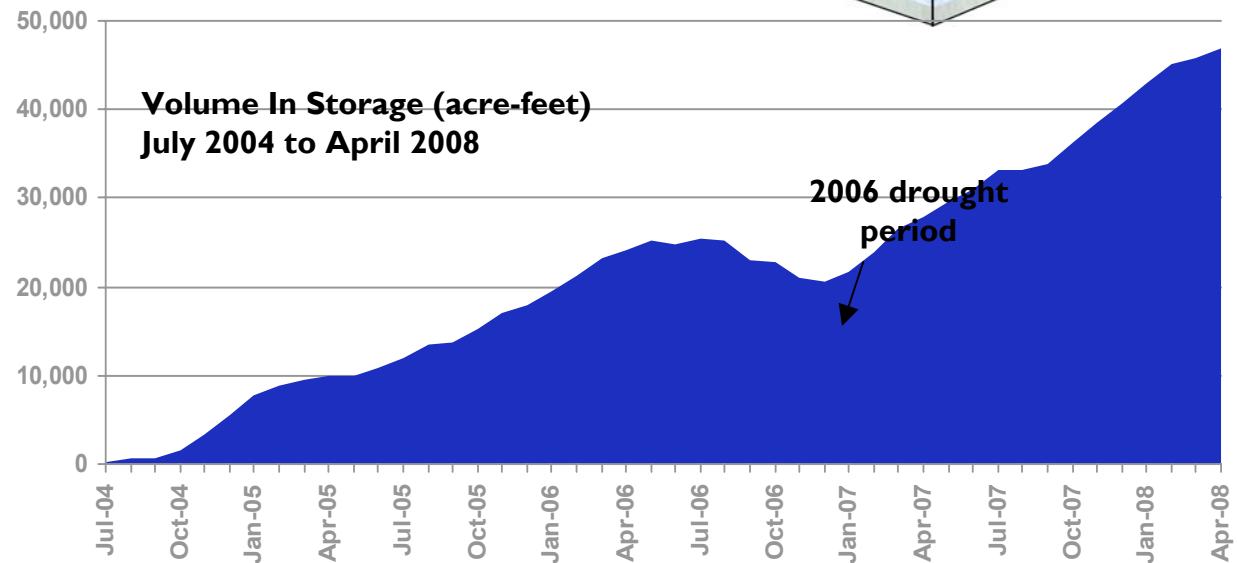
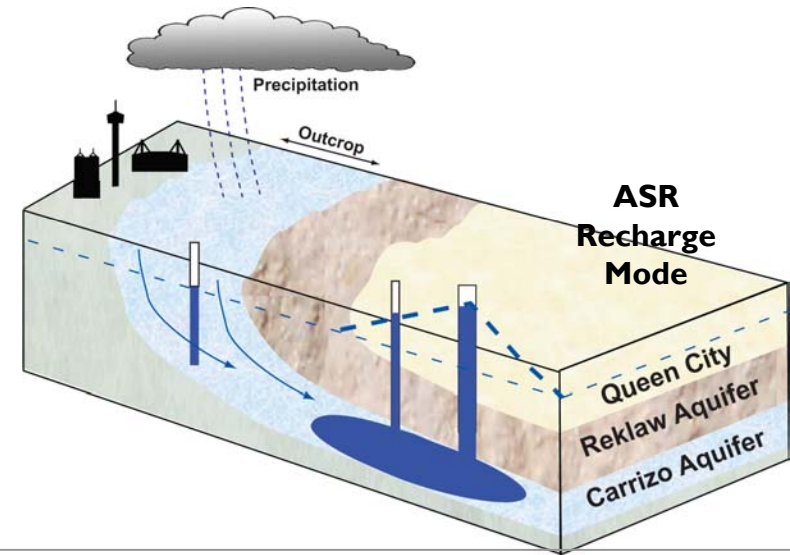
# Recent Highlights

- Expanded use of surface water supply with new Oliver Ranch facility
- Upgraded SCADA control system
- Acquired six small systems across rapidly growing northern San Antonio
- Developed Carrizo Aquifer supply
- National Groundwater Association Award



# Aquifer Storage and Recovery

- Reduces Edwards pumping during critical periods
- Provides operational flexibility
- Currently over 50,000 acre-feet in storage
- Phase II expansion



# Tank Maintenance Program

- Tank painting on 20 year cycle.
- Cleaning on 5 years (2 years for recycle tanks)
- Annual Inspections
- Replacing with composite and concrete tanks for lower PW cost



# SCADA Improvements



- New Backup Control Center and software
- Addition of lift stations into the SCADA system (3 in the system now)
- Overall Master Plan scheduled for 2010



# Chlorine Improvements Program

- First Phase improved 150 pound facilities to code.
- Market Street was converted to on-site generation.
- Other sites with ton cylinders being designed for enclosure and treatment



# Facility Rehab Program

- Improved chlorine system
- Upgrade electrical equipment
- Replace valves and piping
- Repaving
- Total cost of the program over \$50 million.



# CIP Program for Growth



- 7 new tanks under design or construction.
- One replacement tank under construction
- 5 new pump stations under design or construction.
- Multiple projects for rehabs and painting.
- Multiple developer projects

# Preventive Maintenance and Predictive Maintenance Programs

- Developing a formal program to inspect, align and rebuild.
- Predictive team uses instrumentation to anticipate failure.
- Requires increased training, staffing and equipment.



# Recycle System

- Distributes treated wastewater effluent up to the Medical center.
- Constructed using similar design to the water system.
- Same issues for maintenance and operations.



# Lift Stations



- Approximately 170 lift stations.
- Pump raw sewage from low areas to gravity lines.
- 4 phase assessment program to improve deficiencies.
- All stations to be added to SCADA

# Heating and Cooling facilities

- Centralized facility serves heating and cooling needs for downtown business district
  - Capacities - 19,000 ton capacity chilled water  
80,000 lbs/hour steam capacity
  - 2008 Grand Hyatt Hotel
  - Completing construction of 3,000 ton chiller expansion
  - O&M agreement for Brooks City-Base Central Plant
  - Own & Operate Port San Antonio Chiller Plants



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