SRWA
Southmost Regional Water Authority

OUTLINE

- Background
- SRWA Brackish Groundwater Desalination
- SRWA Microfiltration Project
- Benefits and Challenges
- Seawater Desalination
- Long-Term Water Supply Strategy

About BPUB

- Municipally-owned utility
- Commission appointed 7 Member Board with the Mayor serving as an Ex-Officio voting Member
- Full-service utility:
  - Electric, Water, Wastewater & Natural Gas
  - Approximately 600+ Employees
  - Approximately 50,000 customers
  - $190 million total revenue

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Water Supply (Prior to 2004) 100% Dependent on Rio Grande

- U.S./Mexico border
- Floods/droughts
- TCEQ Watermaster Program—water rights
  - 7 Days advance notice for travel time

July 26, 2010

Summer 2002

Southmost Regional Water Authority Partners

Brownsville Public Utilities Board
92.91%

Valley Municipal Utility District No.2
2.51%

City of Los Fresnos
2.28%

Brownsville Navigation District
2.10%

Town of Indian Lake
0.20%

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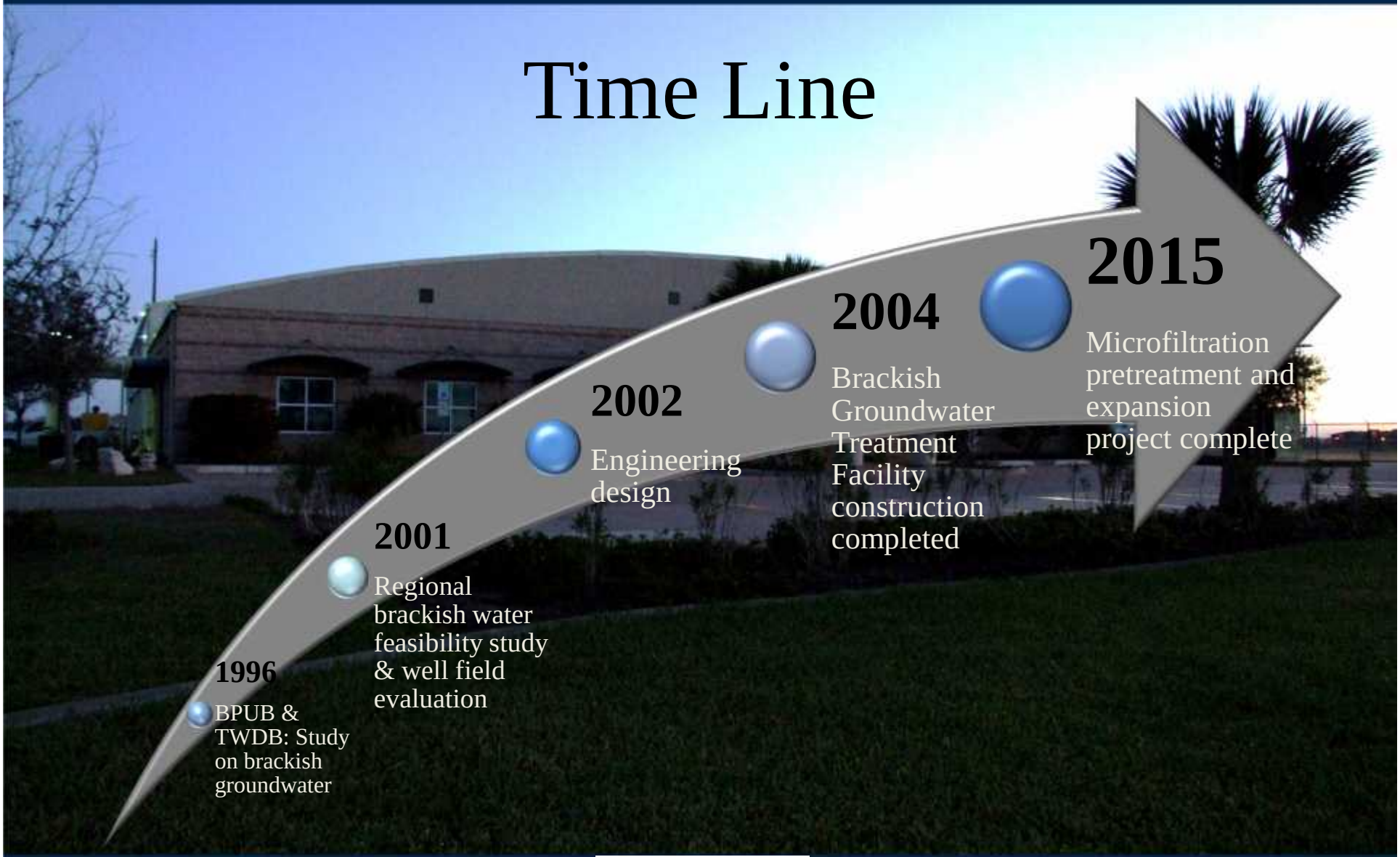
SRWA Background

- SRWA: Conservation and Reclamation District formed in 1981 to address long-term regional water supply issues for southern Cameron County
- Dormant until 2000, then resurrected in response to the extended drought of the late 1990's
- Partners came together to consider using brackish groundwater as an alternate water supply

Time Line



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SRWA Brackish Groundwater Treatment Facility

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Brackish Groundwater Desalination

RO Membrane Treatment Facility

- Construction completed in 2004
- 7.5 MGD Design Capacity
- 20 Brackish groundwater wells
- Groundwater: 3,000 mg/L total dissolved solids (TDS)
- Concentrate waste stream 13,000 mg/L TDS drain ditch
- TCEQ Discharge Permit: TDS Daily Max—35,339 mg/L

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SRWA Brackish Groundwater Wells

- 20 Brackish groundwater wells
- Well depth: approximately 250-300 feet
- Well pump rate: 330 – 400 gpm
- Groundwater: 3,000 mg/L total dissolved solids (TDS)

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SRWA Cost Summary

- Original Construction Costs:
  $29 Million
- Funding Source: Revenue Bonds
- 8,400 acre-feet of water rights savings (equivalent to $17 Million)
- FY 2014 O&M Budget: $3 Million
  - Electrical: 23% of operational costs
  - Chemicals: 40% of operational costs
- FY2014 Unit Costs:
  - $1.45 per kgals (O&M)
  - $2.62 per kgals (Debt Service and O&M)

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SRWA Microfiltration Project

Pretreatment for RO process

- USEPA reduced arsenic level in drinking water standards in 2006
- Install 12 MGD Pall microfiltration system for arsenic and iron removal
- Expands plant capacity to 10 MGD
- Cost - $13 million
  - $9,295,000 No-interest TWDB Loan
  - $3,795,000 Low-interest (below market) TWDB Loan
- Estimated construction costs: $11,614,099.87
  - Construction Start Date – May 2013
  - Completion Date – May 2015

GROUNDWATER DEVELOPMENT

BRACKISH WATER TREATMENT

CONCENTRATE MANAGEMENT AND DISPOSAL

DELIVERY OF POTABLE WATER

Chemical Pre-treatment

Concentrate Disposal

Energy Recovery Turbine

Collection and Conveyance System

Cartridge Filters

RO Membrane Array

Micro Filtration

Blending By-Pass

Treated Water Storage

Post-treatment Chemicals

Degasifier

Well Field

To Distribution System

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SRWA Benefits and Challenges

Benefits

- Alternate water supply
- Independent of Rio Grande
- Water rights savings
- Produces high quality water
- Modular design

Challenges

- Arsenic levels in groundwater
- Higher operating costs
- Discharge permit
- Specialized training (SCMA)

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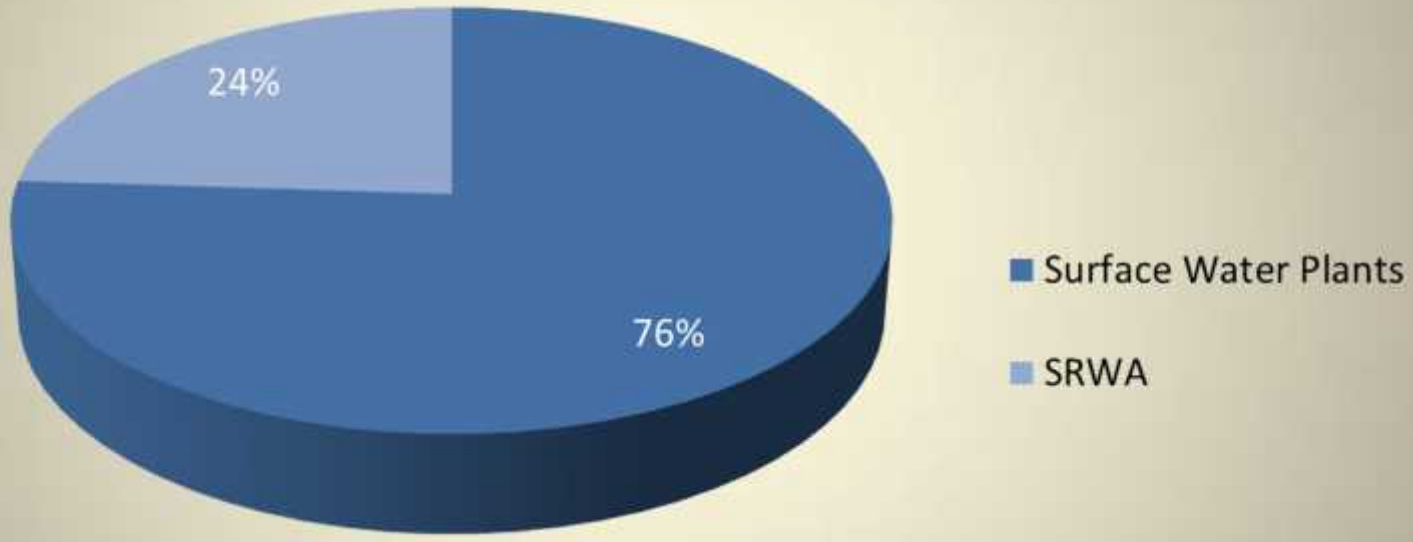
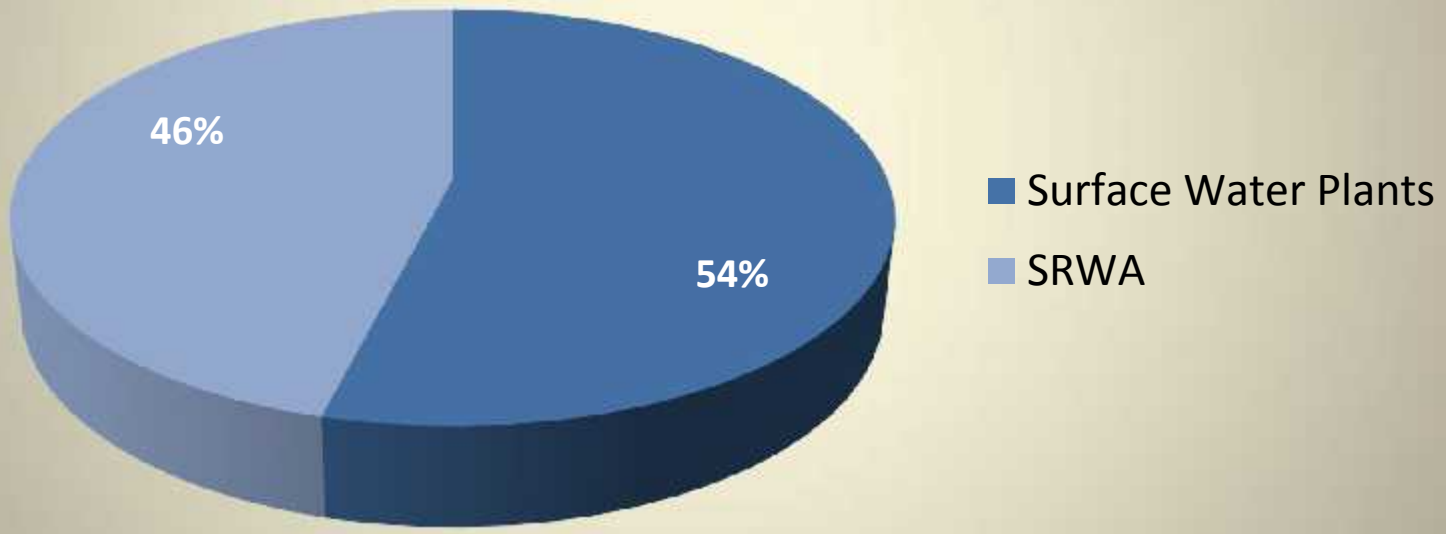
Brownsville Public Water Supply

2014 Average Water Consumption 20.3 MGD



Brownsville Public Water Supply

Projected Proportions after SRWA Expansion



Seawater Desalination

Pilot Study: $3,177,408 (Actual)

- TWDB Funding $1,340,000

25 MGD Full-scale facility: $151.4 Million

- (Feasibility Study Report, 2004)

25 MGD Full-scale facility: $182.4 Million

- (Pilot Study Report, 2008)

2.5 MGD Demonstration: $22.5 Million

- (Project Update, 2011)

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Long-Term Water Supply Strategy

Diversification

- Surface Water
  - Purchase water rights
  - Increase storage capacity in resacas
- Brackish Groundwater Desalination
  - Southmost Regional Water Authority RO Treatment Facility
- Seawater Desalination
  - Pilot plant – Port of Brownsville
  - Texas desal project – proactively identify environmental concerns
  - Phase 1: 2.5 MGD SWRO Plant
- Water Reuse – 8 MGD for Tenaska Project

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THANK YOU

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