Water Conservation and Management Projects in El Paso County Water Improvement District

Jesus Reyes

General Manager

EL PASO COUNTY WATER IMPROVEMENT DISTRICT No. 1
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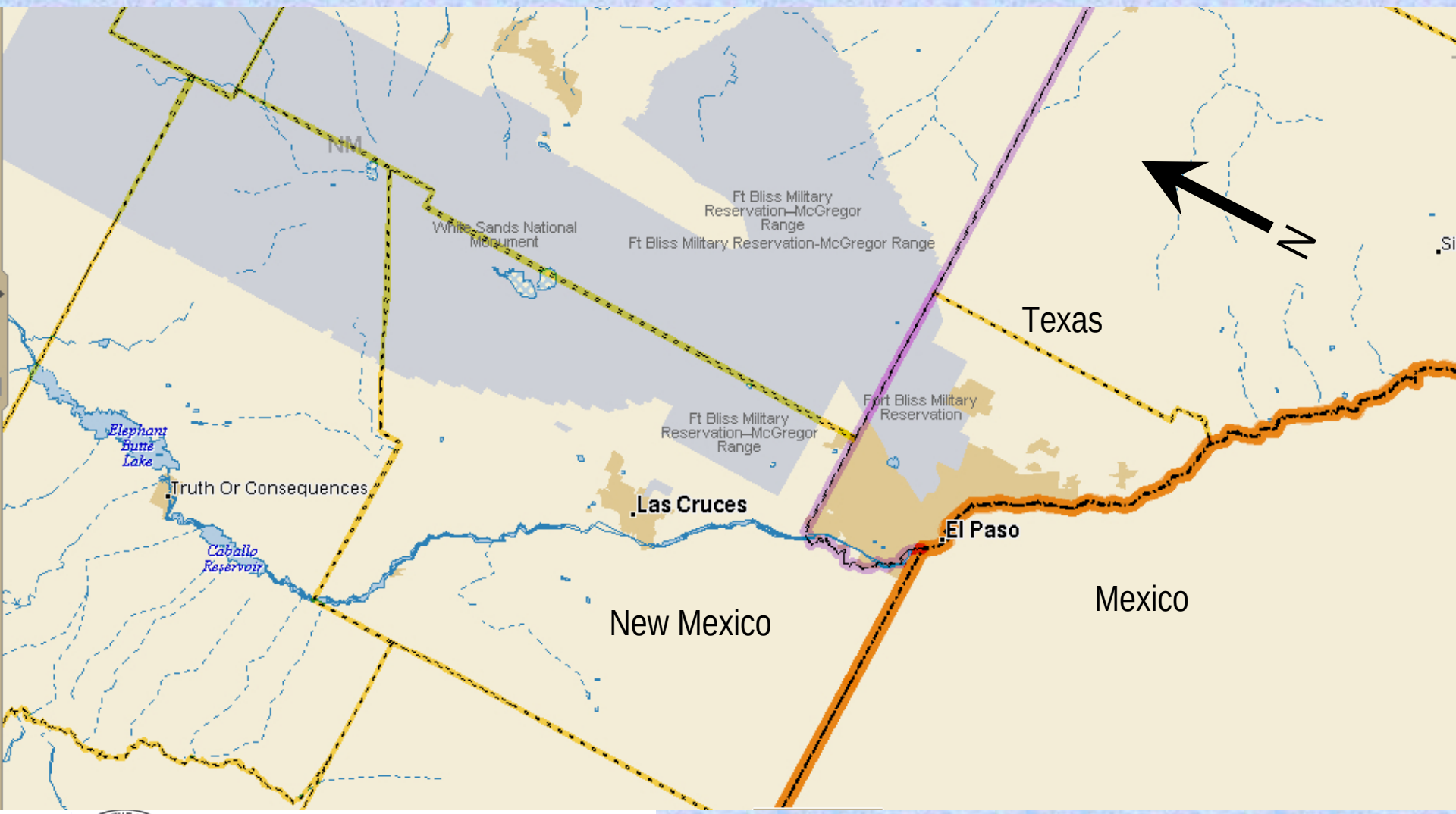
New Mexico-Texas-Mexico Border



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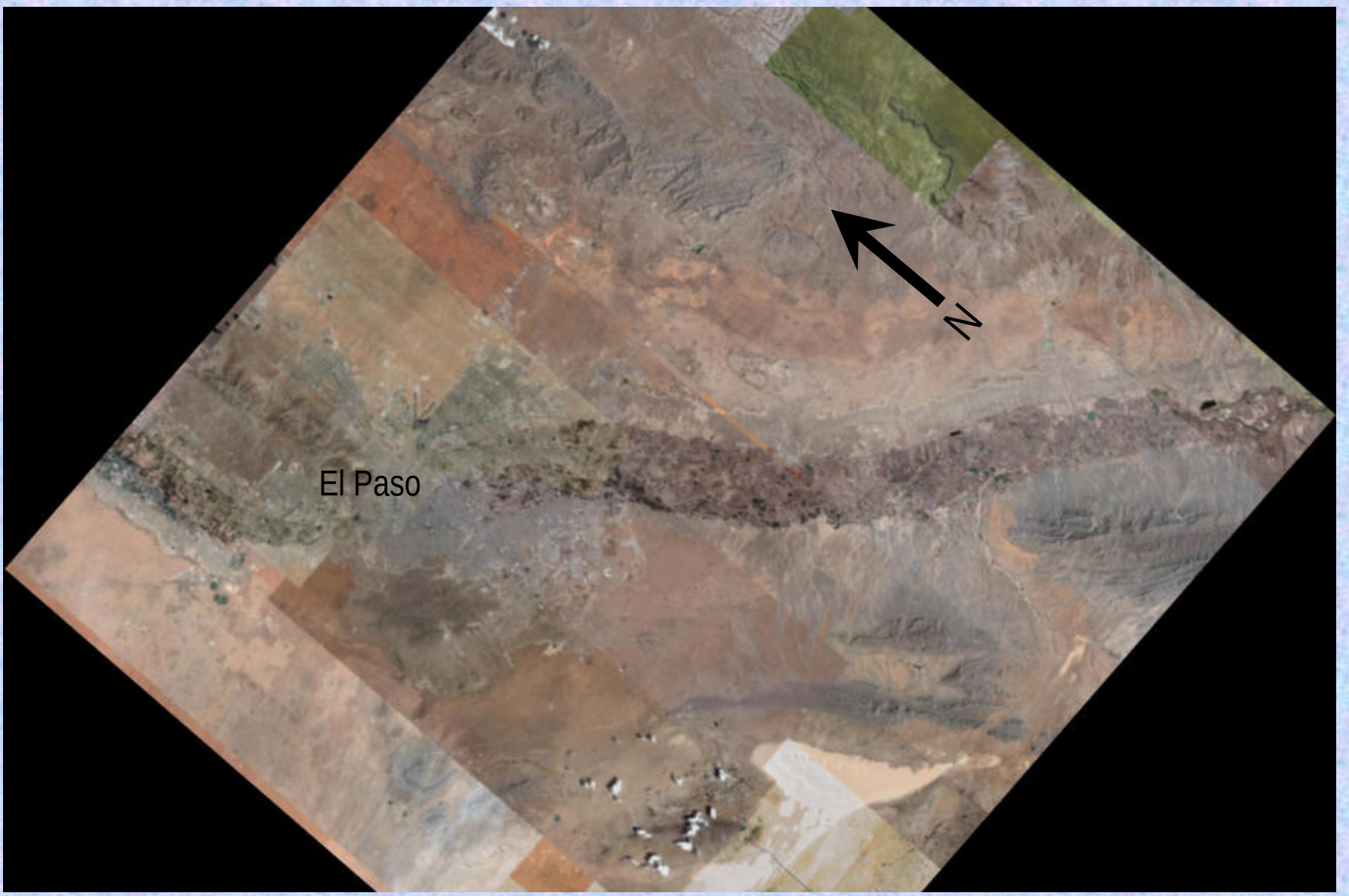

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El Paso County Water Improvement District No. 1

- Irrigation District – 400 miles of canals
- Created in 1917 – Includes international boundary
- Political Subdivision of the State of Texas
- Part of federal Rio Grande Reclamation Project
- Work closely with
  - Elephant Butte Irrigation District
  - Department of Interior - Bureau of Reclamation
  - United States Section of the International Boundary and Water Commission

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Purpose of District

- Supply Irrigation Water to Agricultural Lands
- Provide Groundwater Drainage of Agricultural Lands
- Supply Raw Water to Water Treatment Plants
- Provide Agricultural Stormwater Drainage

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Pecans

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Cotton

Corn and Wheat

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Chile and Onions

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Hay

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5 Major Water Conservation and Drought Mitigation Efforts

- Policy
- Construction
- Information Management
- Automation
- On-Farm

District Efficiency

- Ratio of Water Delivered to Charged to Water Users Diverted from the Rio Grande to Water (full allocation years)
  - District Efficiency = 100 x Delivered / Diverted
  - Municipal (Pipelines) Range from 90 to 96%
  - Surface Irrigation (Open Channels) Range from 40 to 80%
- 1918-1942 <50% (excess water, limited demand)
- 1950-1978 56% (drought)
- 1978-1991 60% (transfer of operation to district)
- 1991-2002 65% (systematic improvements)
- 2002 to Present 72% (drought and modernization)
- 2008 to 2013 75 – 80% (modernization)

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Policy

- Rio Grande Project – Operating Agreement
  - Conserved Water Stored in Reservoir for Future Use
  - Minimizes impact of drought on Texas
  - Address Groundwater Depletions in New Mexico
- 24 Hour – 7 Day a Week Operations
- Central Dispatch and District Owned Vehicles
- All Deliveries Metered
- Alcalde required for all small tract irrigations

Construction – Drought and Conservation Projects

- Development of 130 MGD – Supplemental Well Field
- Conversion of Open Channels to Pipeline
  - Expensive
  - Debris and Sedimentation Issue
  - Usually requires safety issue to justify
- Imprevious Lining of Canal
  - EPDM
  - Concrete
- Regulating Reservoirs
  - Federally Authorized Riverside Canal Improvement Project
- Automated Water Control Structures

62 Shallow Alluvium Aquifer Wells

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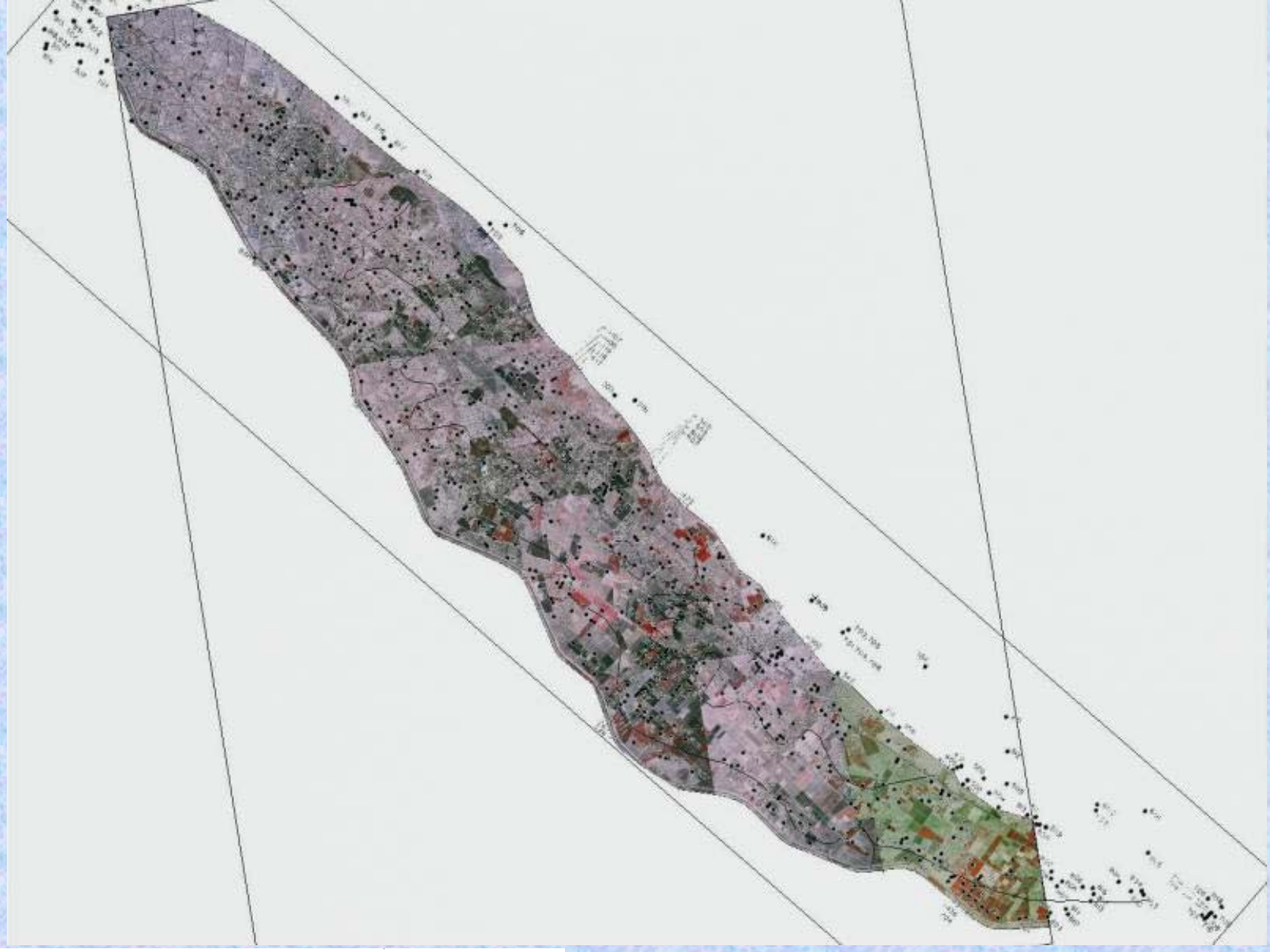

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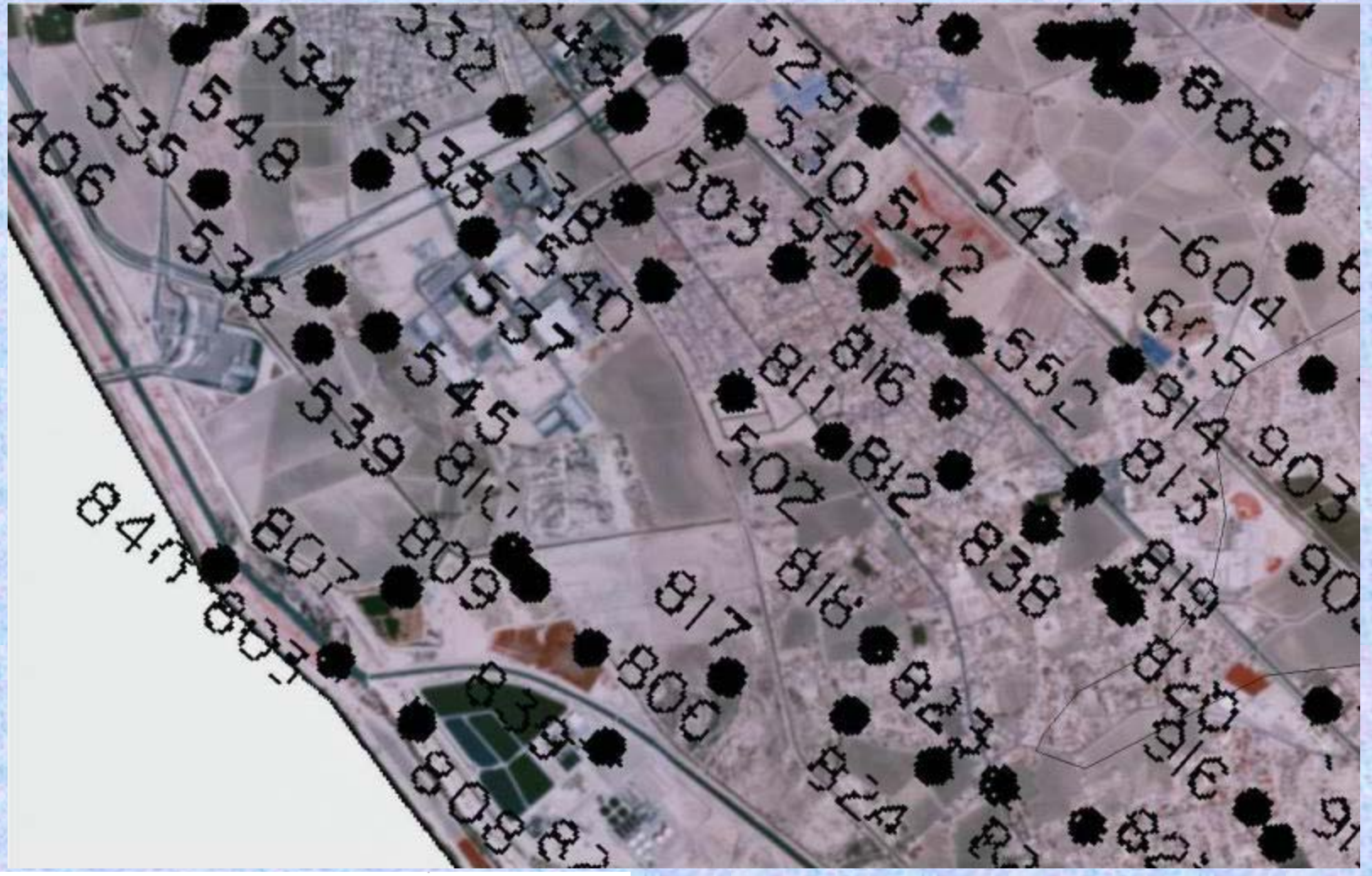
Existing Wells - 1978



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80 hp Diesel Powered - $32 acre-foot

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American Canal Extension

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Riverside Canal

Regulating Reservoirs

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Riverside Canal – Socorro Pond – 300 acres

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Information Management

- In – Vehicle Telemetry and Internet
- Web based – real-time flow information
- Water ordering and water account information
- Collection and metering of water flow information at 40 locations on Rio Grande and Canals
- Improved Drought Analysis and Forecasting

In Vehicle Telemetry and Internet

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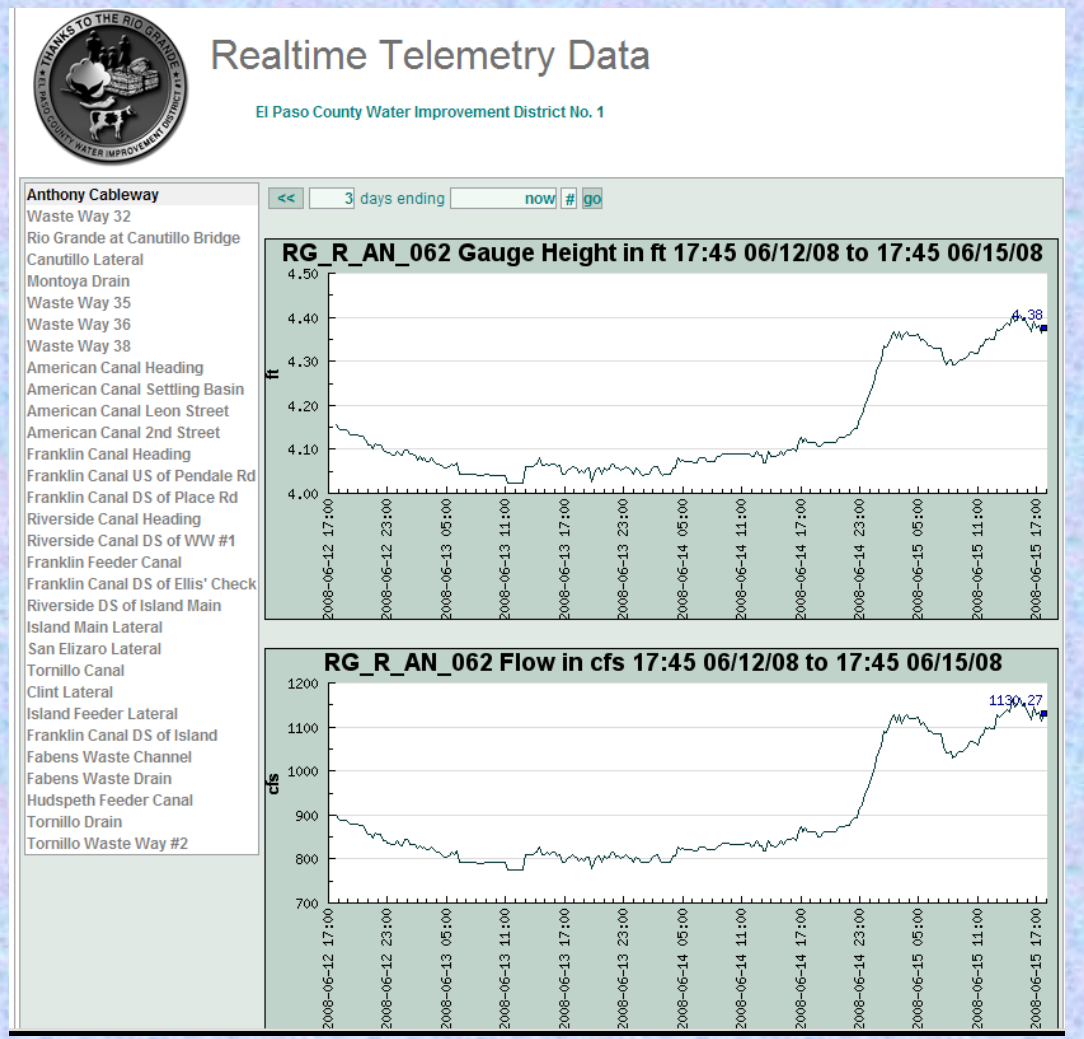
Anthony Cableway Station – Improved Accuracy Using Acoustic Doppler Technology

Simplified Access to Telemetry Data



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Automation

- Participant in Texas Water Development Board – Agricultural Demonstration Project
- Automatic Gate Control – American, Riverside, and Tornillo Canal Systems
- Automated Pumping Plant Proposed for Regulating Reservoir

Automation for Flood Control – American Canal Extension

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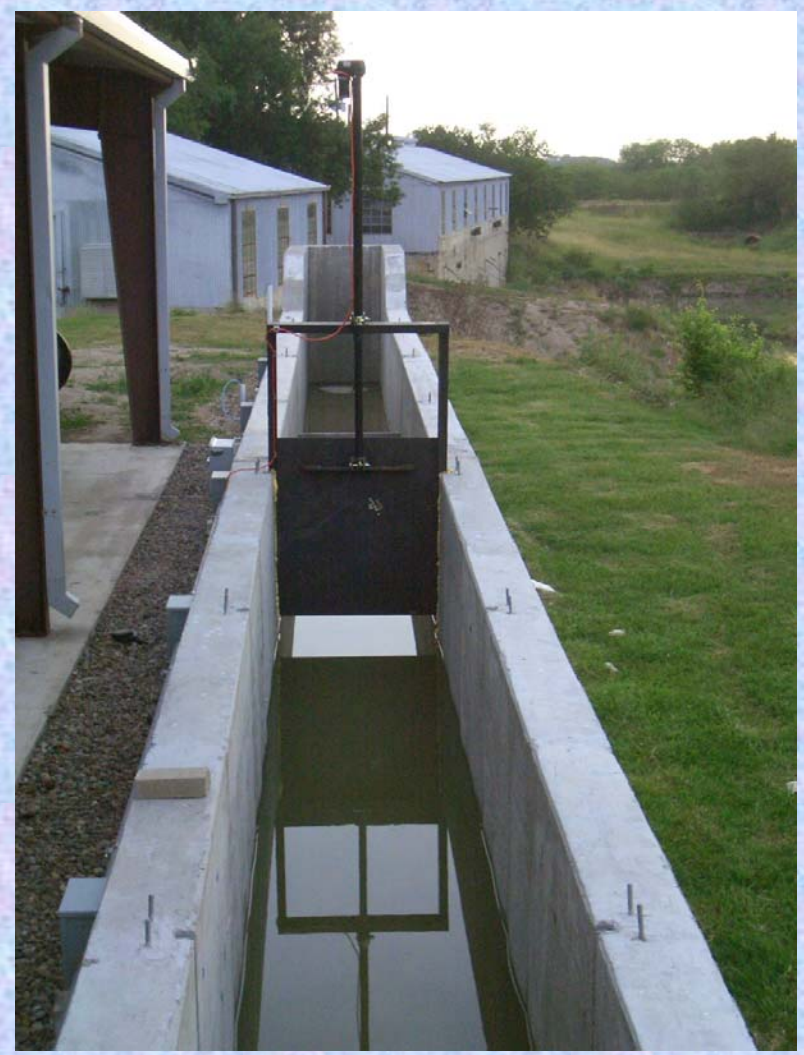
Work on Low Cost Automated Gate – TWDB and HID



On Farm

- Texas Water Conservation Task Force – BMP's
  - Laser Controlled Land Grading
  - Precision GIS Guided Cultivation
  - Minimum Tillage
  - Concrete Lined Irrigation Ditches

Laser Controlled Land Grading

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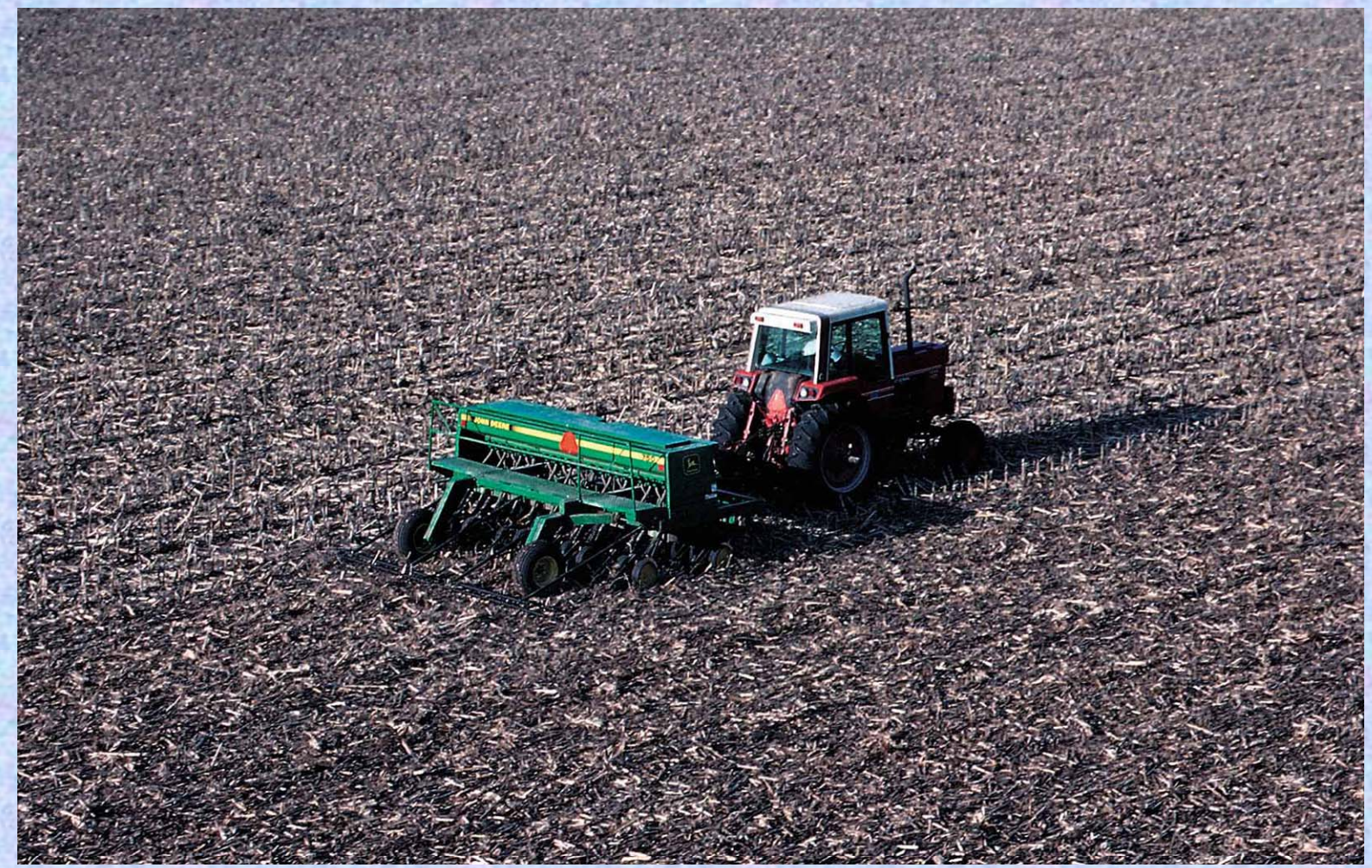
Minimum Tillage



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GIS Precision Agriculture

Concrete Lining of Lateral Canals

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