



# ***Water for Texas: Impacts of Failure to Implement the State Water Plan***

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## *Overview:*

- The Challenge at Hand
- State Water Planning
- Water Supply Options
- Water Supply Development Challenges
- The Cost of Doing Nothing

# ***The Challenge at Hand***

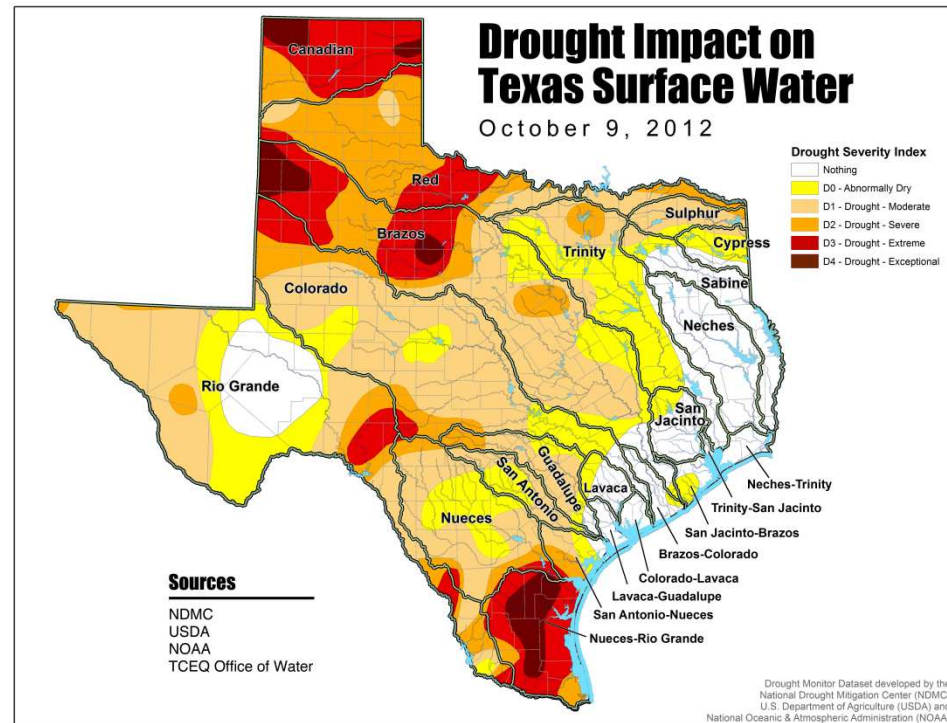


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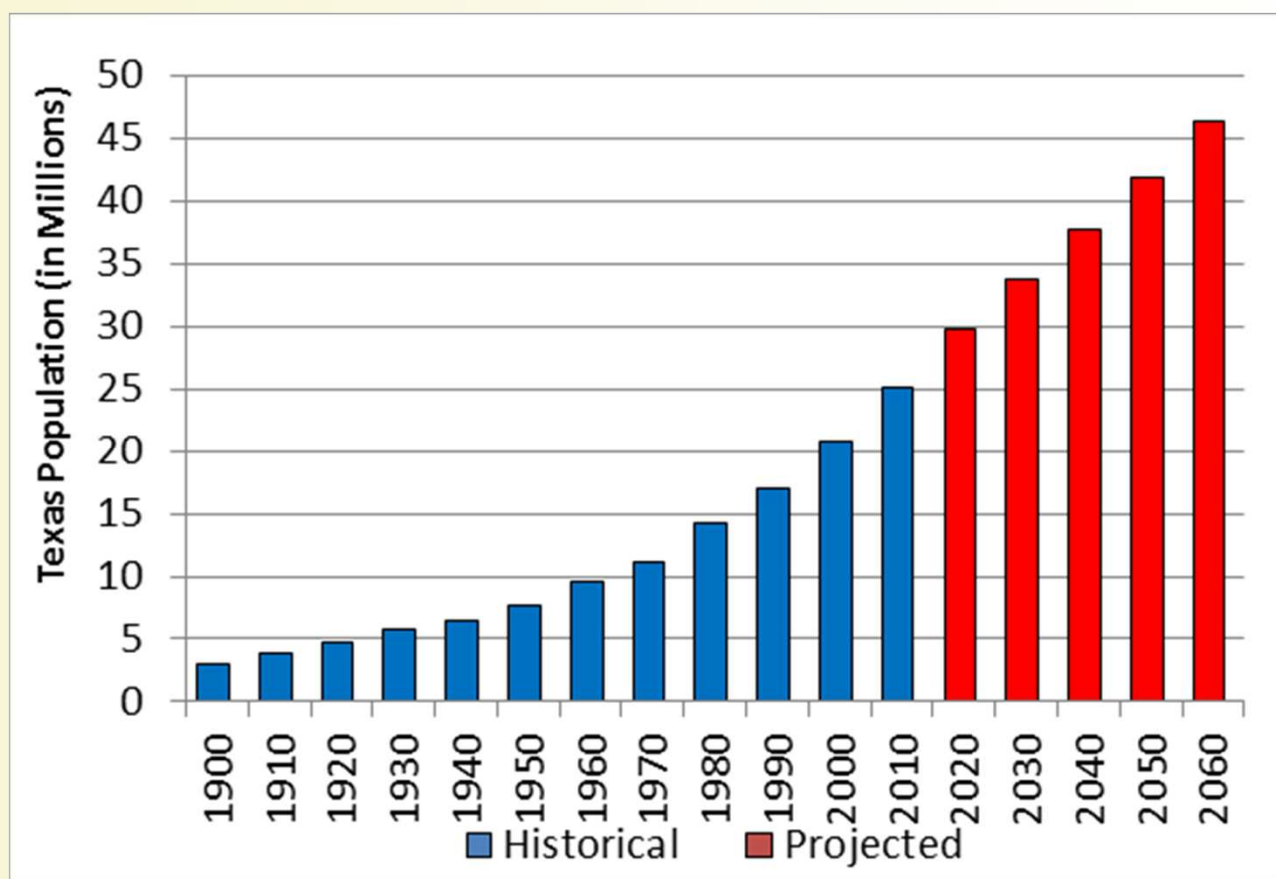
## *Recurring Drought*

- Hydrological impacts of recurring drought on current water supplies throughout Texas.
- State climatologist: drought cycle expected to continue for several years.

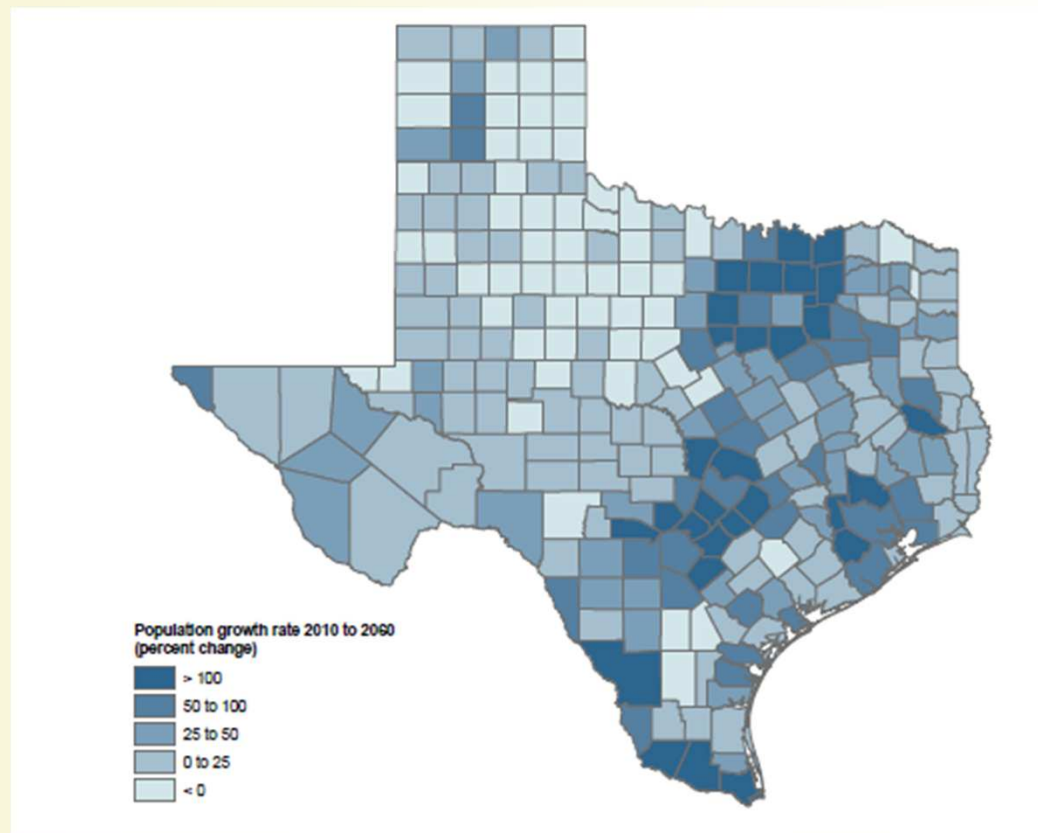




## *Statewide Growth*



## *Population Growth by County*



## State Climate

FIGURE 4.4. AVERAGE ANNUAL PRECIPITATION FOR 1981 TO 2010 (INCHES) (SOURCE DATA FROM TWDB, 2005 AND PRISM CLIMATE GROUP, 2011).

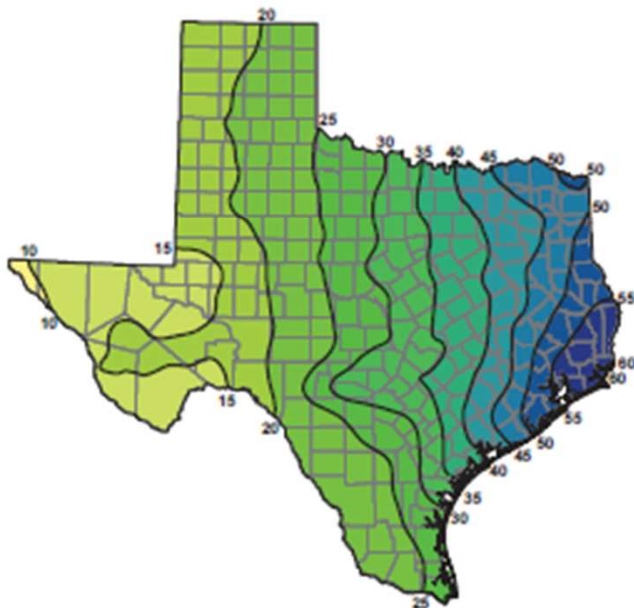
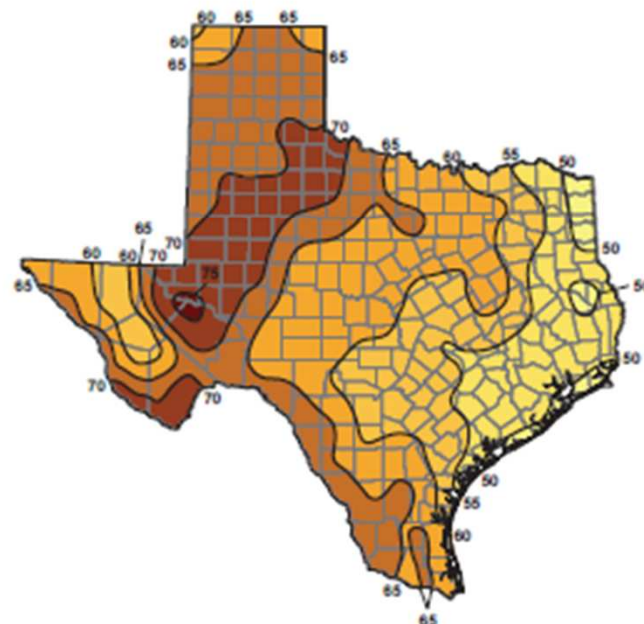
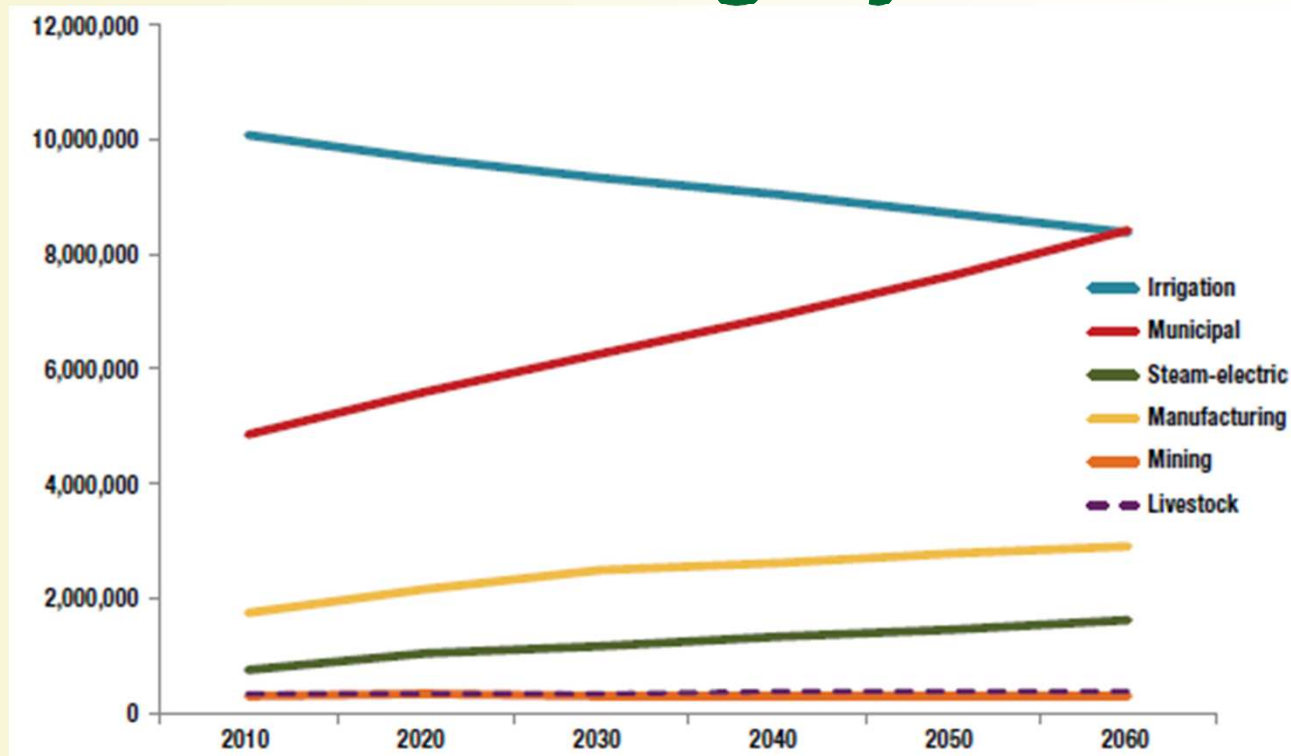


FIGURE 4.5. AVERAGE ANNUAL GROSS LAKE EVAPORATION FOR 1971 TO 2000 (INCHES) (SOURCE DATA FROM TWDB, 2005).



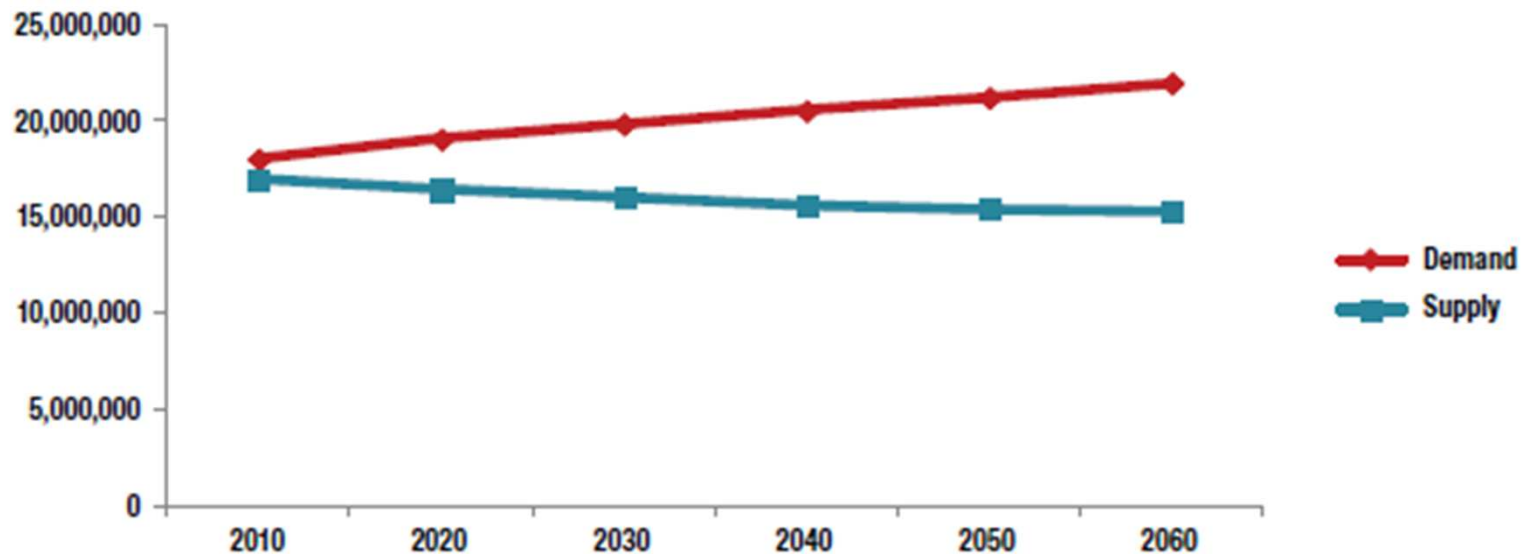
## *Projected Water Demand by Use Category*



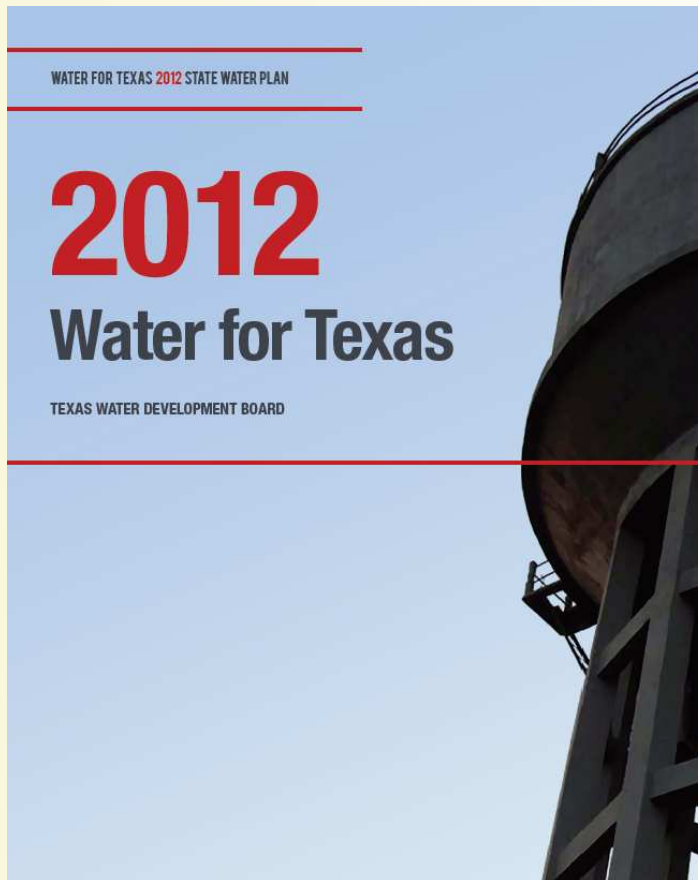


## *Supply and Demand through 2060*

FIGURE ES.2. PROJECTED WATER DEMAND AND EXISTING SUPPLIES (ACRE-FEET PER YEAR).



# ***State Water Planning***



## ***2012 State Water Plan***

- The ninth state water plan created for Texas.
- The third state water plan created utilizing the regional water planning process of SB 1.
- Water use in Texas projected to grow from 18 million acre-feet per year in 2010, to 22 million acre-feet per year in 2060.

## ***2012 State Water Plan, Cont'd***

- 562 water supply projects recommended to meet projected needs for additional water supplies for Texas.
- If implemented, SWP estimates that water supply projects will provide 9 million acre-feet per year in additional water supplies by 2060.
- Estimated total capital cost of the recommended water supply projects is \$53 billion.



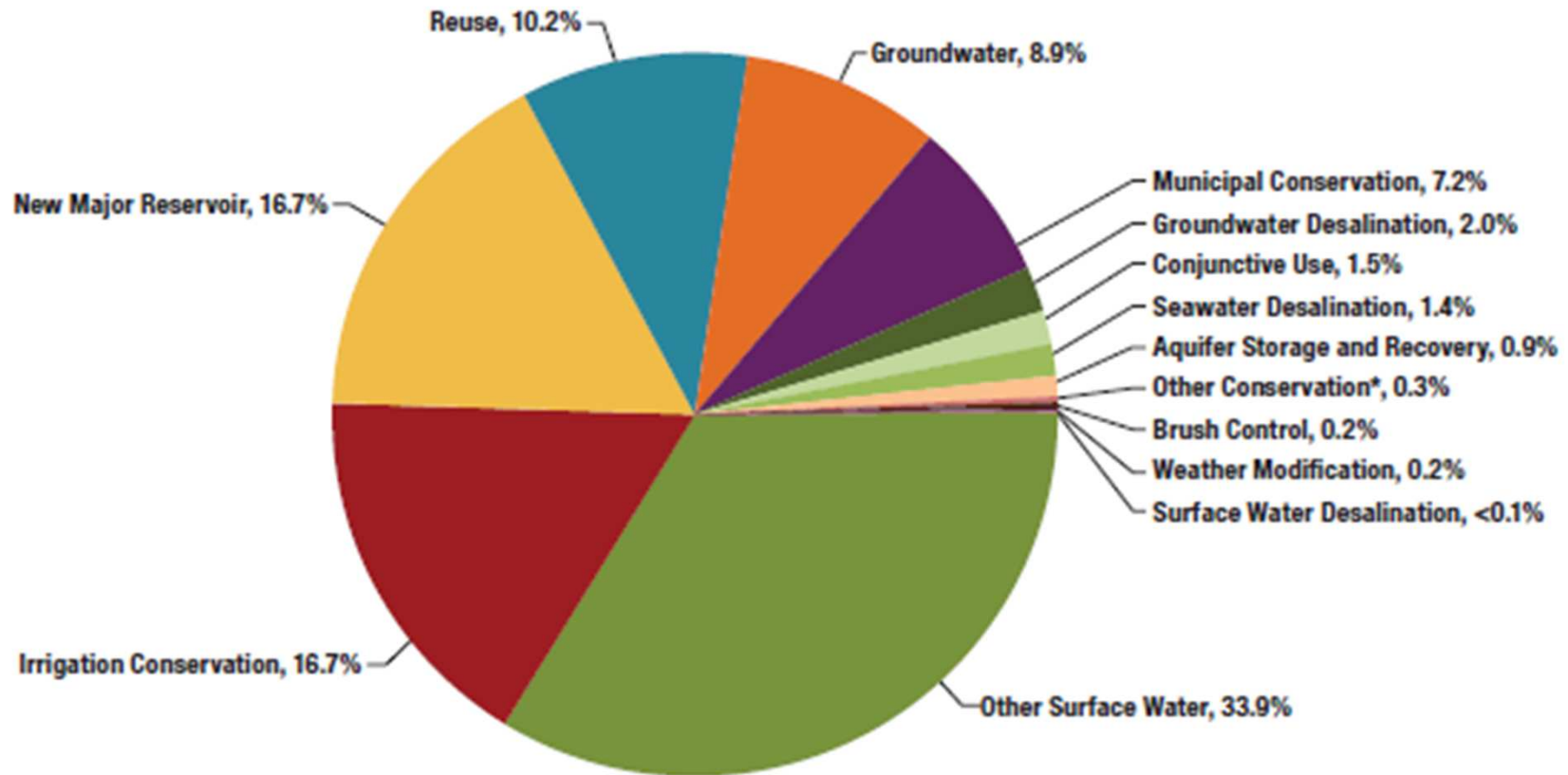
## ***2012 SWP Major Policy Initiatives***

1. Reservoir site and stream segment designation
2. Reservoir site acquisition
3. Interbasin transfers of surface water
4. Petition process on the reasonableness of desired future conditions
5. Water loss audits
6. Financing the State Water Plan

# ***Water Supply Options***



## ***SWP Recommended Water Management Strategies***



## ***Water Conservation***

- Focuses on efficiency of use and reduction of demands on existing supplies.
- Strategies:
  - Water-efficient appliances
  - Public education programs
  - More water efficiency in daily activities
  - Irrigation practices



## ***Water Conservation, Cont'd.***

- Supplies to be Generated:
  - Statewide, municipal conservation strategies are expected to result in approximately 650,000 acre-feet of supply by 2060.
  - Statewide, irrigation and other conservation strategies are projected to result in approximately 1.5 million acre-feet per year of additional supply by 2060.

# Lloyd Gosselink

ATTORNEYS AT LAW



## *Groundwater*

- Groundwater supplies include:
  - Installation of new freshwater wells
  - Increased production from existing wells
  - Temporarily overdrafting aquifers to supplement supplies
  - Desalination of brackish groundwater
- Groundwater strategies identified in the State Water Plan are projected to result in about 800,000 additional acre-feet per year in 2060.

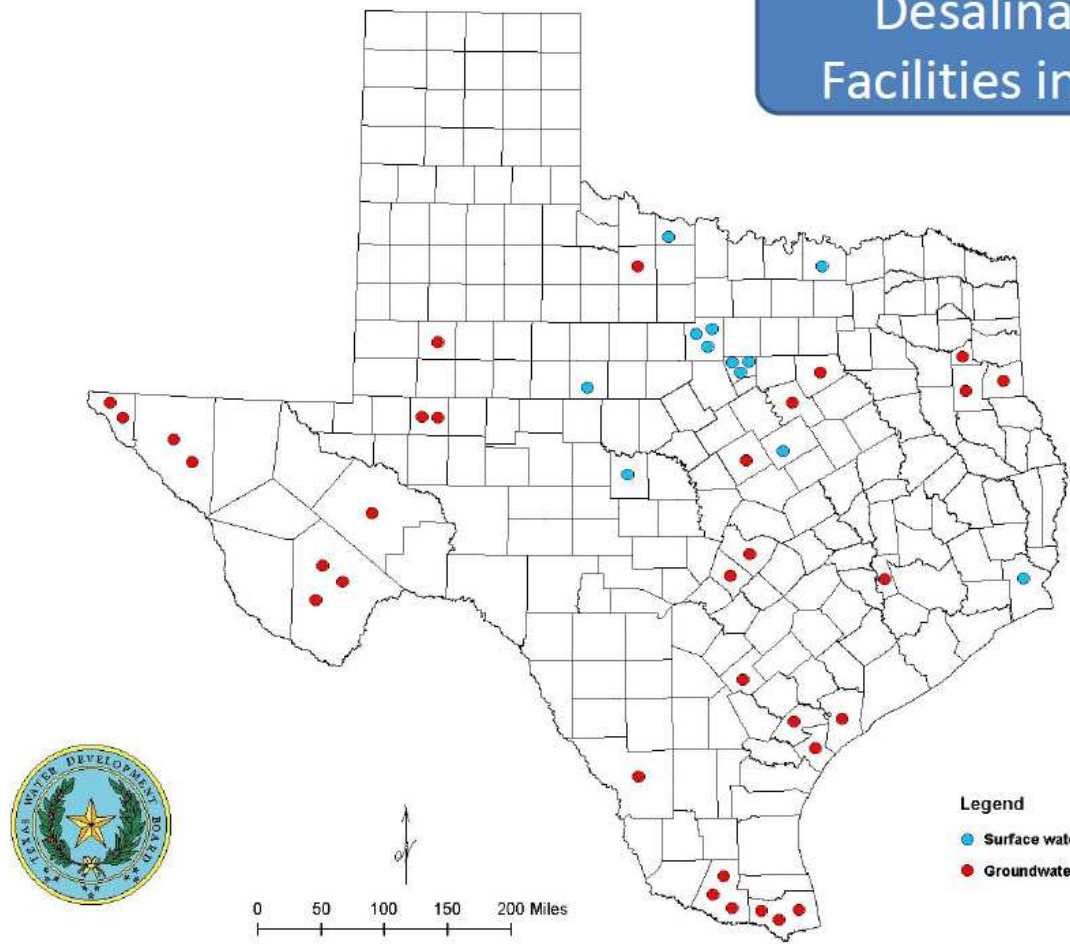
## ***Desalination***

- Includes desalination of brackish groundwater and seawater.
- Currently, desalination facilities throughout Texas produce approximately 138 million gallons of water per day.





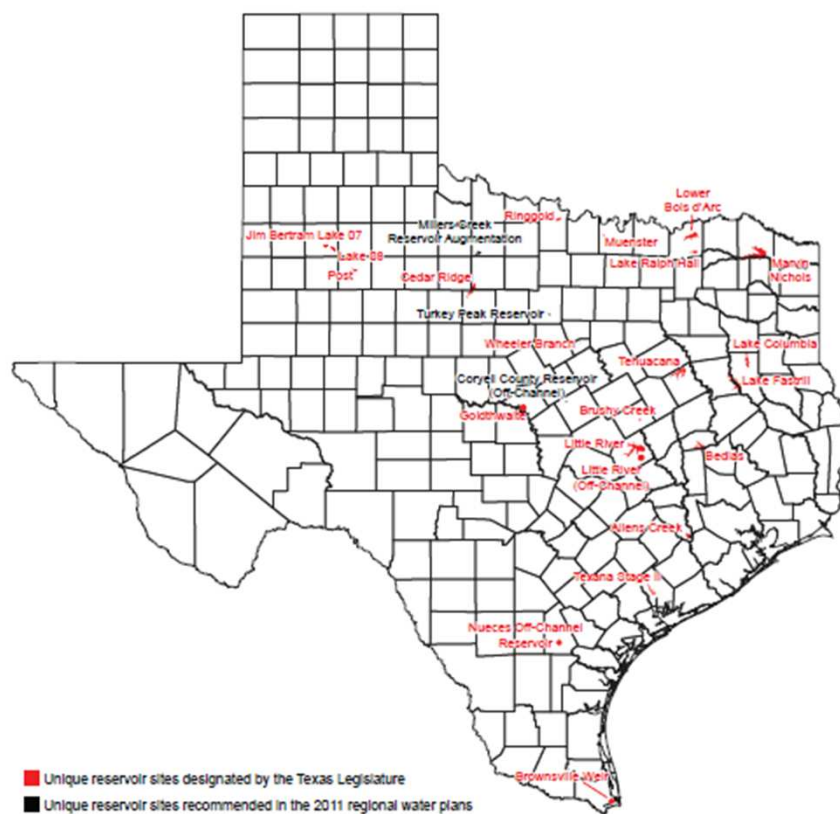
## Desalination Facilities in Texas



## ***New Surface Water Supplies***

- Includes:
  - Stream diversions
  - New reservoirs
  - New or expanded contracts or connection of developed supplies
  - Operational changes
    - See, e.g. BRA System Operations Permit, currently pending at TCEQ

## *Unique Reservoir Sites*



## ***New Surface Water Supplies, cont'd.***

- Supplies to be Generated:
  - 2012 State Water Plan recommends 26 new major reservoirs, projected to generate approximately 1.5 million acre-feet per year by 2060.
  - Other surface water strategies would result in 3 million acre-feet per year.

## ***Other Sources: Reuse***

- Direct reuse
  - Water conveyed directly from the wastewater treatment system through a pipeline to the point of use.
- Indirect reuse
  - Discharge of wastewater into a stream and later routing or diverting for treatment as water supply.
  - *Requires bed and banks permit from TCEQ.*

## ***Reuse Options – The New Frontier***

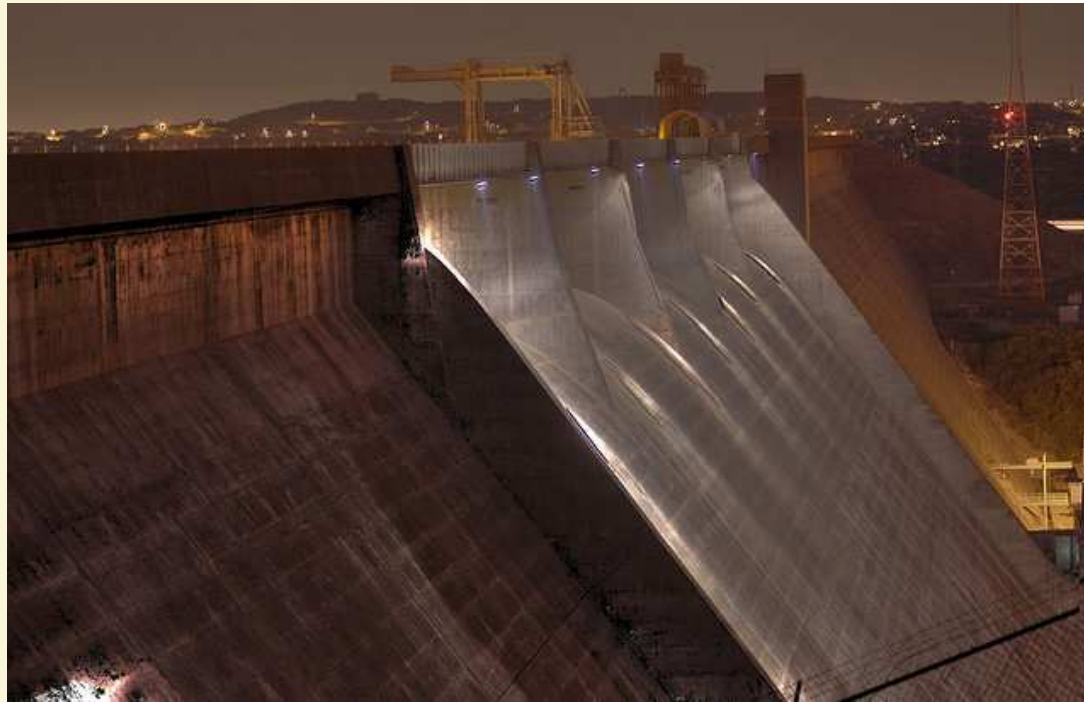
- *Indirect Potable Reuse*
  - Augmentation of a drinking water source with reclaimed water followed by an environmental buffer preceding drinking water treatment
- *Direct Potable Reuse*
  - “Flange to Flange” reuse of wastewater for potable purposes
  - Currently untested in U.S., research and potential regulations being considered



## *Other Supply Options*

- Conjunctive use
- Weather modification or “cloud seeding”
- Drought management
- Aquifer storage and recovery
- Brush control
- Rainwater harvesting

# ***Water Supply Development Challenges***



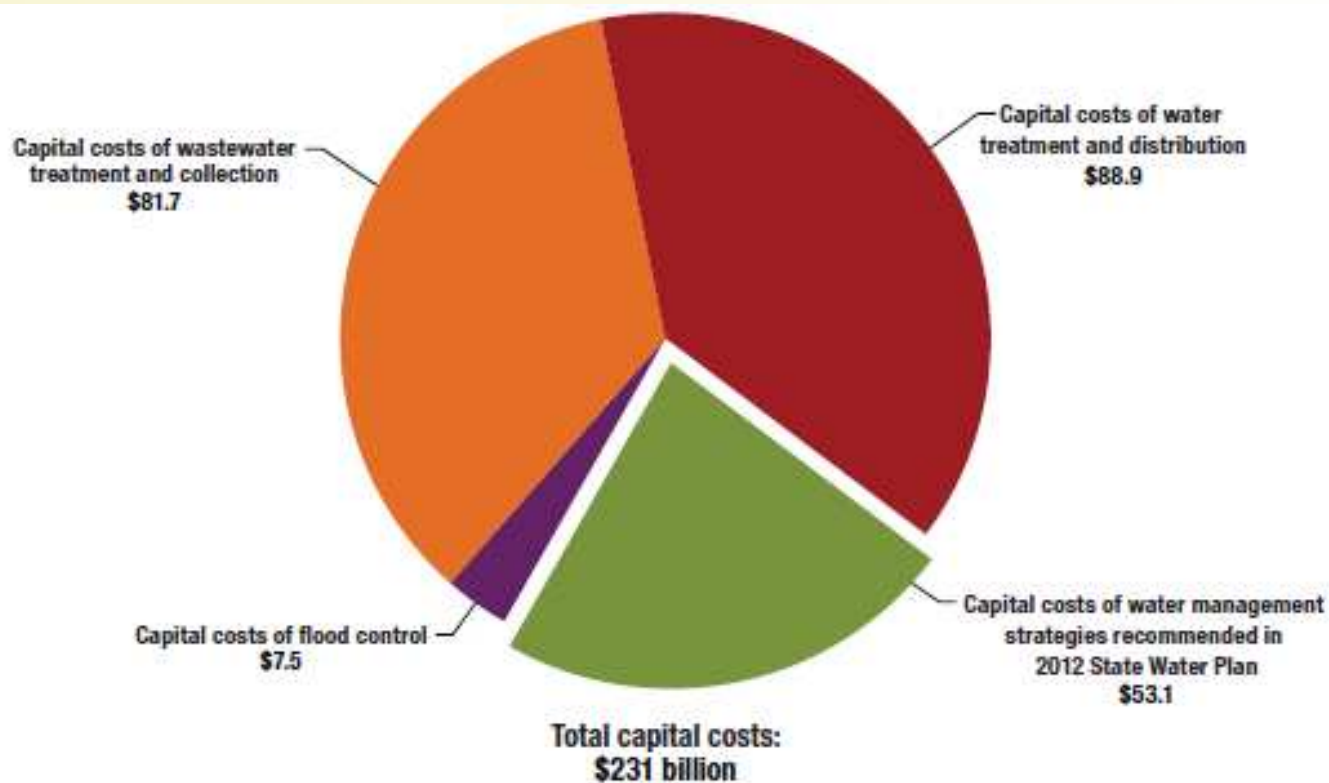
## *Challenges:*

- Recurring Drought
- Continued Population Growth
- Development of New Sources of Supply
  - Costs (State Water Plan = \$53 billion)
  - Regulatory Uncertainties
  - Impacts of Prop. 2
- Competing Interests
  - Needs of Man
  - Environment





## *Capital Costs to Implement SWP*



## ***Surface Water Supply Development Challenges***

- State Law Challenges:
  - Interbasin transfers (notice requirements, conservation standards, junior rights provisions)
  - SB 3 environmental flows standards
  - Permitting timelines



## ***Interbasin Transfer Statute***

- Texas Water Code § 11.085:
  - No person may take or divert any state water from a river basin in this state and transfer such water to any other river basin without first applying for and receiving a water right or an amendment to a permit authorizing the transfer.
- Requires demonstration, among other things, that the applicant has achieved the “highest practicable levels of water conservation and efficiency achievable within the jurisdiction of the applicant.”
- Notice requirements
- Interbasin transfer results in loss of priority for water transferred under an existing water right.

## ***Environmental Flow Standards***

- HB 3/SB 3 required TCEQ to adopt environmental flow standards for the “bay and basin” systems in Texas.
- Combined science and stakeholder process which seeks to balance human and environmental water needs.
- Requirements, developed basin-by-basin, apply to new appropriations of surface water in each of the major river basins and estuary systems.

## ***Federal Law Challenges***

- Compliance with Sections 404 and 401 of the Clean Water Act
- Endangered Species Act compliance
- NEPA compliance
- Lacey Act compliance
- Permitting/EIS timelines

## ***Clean Water Act § 404 Permit:***

- Authorizes the discharge of dredged or fill materials into 'navigable' waters
- Requires steps to avoid and minimize impacts to aquatic resources
- Requires mitigation for unavoidable impacts
- Public notice and meetings
- Reapplication allowed only if new and material evidence is offered

## ***EPA Veto Authority:***

- Authorized under CWA § 404(c)
- Public notice and comment opportunities
- Must be for an “unacceptable adverse effect” on i) municipal water supplies, ii) fish and wildlife, or iii) recreational areas
- 12 water projects vetoed since 1981
- “Arbitrary and capricious” standard of review

## ***Clean Water Act § 401 Water Quality Certification:***

- Issued by TCEQ to support issuance of 404 permit by USACE
- Certifies that the proposed 'discharge' will not violate state's water quality standards
- Requires an alternatives analysis



## ***NEPA Process:***

- Triggered for “major federal actions” impacting the environment
- In re § 404 applications, directs the USACE to prepare an Environmental Impact Statement before permit issued
- Drives an alternatives assessment based on the “purpose and need” for a project

## ***Lacey Act:***

- Lacey Act of 1900 created civil and criminal penalties for a variety of violations regarding plants and wildlife.
- Injurious species provisions prohibit the importation, transport, and possession of injurious species of plants, wildlife and fish between the United States.
- Has been amended several times – today primarily used to prevent importation or spread of invasive, non-native species.

## ***Endangered Species Act:***

- Requires federal agencies, in consultation with the U.S. Fish and Wildlife Service and/or the National Oceanic Atmospheric Administration Fisheries Service, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species.
- Prohibits any action that causes a “taking” of any listed species of endangered fish or wildlife.

## ***Endangered Species Act:***

- Currently over 1,200 species listed as either endangered or threatened by U.S. Fish and Wildlife Service.
- ESA Impacts on Water Supply Projects:
  - Identification of potential species in project area.
  - Habitat assessment conducted.
  - Species surveys if habitat is present.



## ***Expedited Listings under the ESA***

- Lawsuits filed by environmental interests prompted court settlements regarding 251 candidate species under the ESA.
- Settlement agreements mandate that USFWS make a final determination on the listing of 251 species as threatened or endangered by September 30, 2016.
- *21 species are alleged to be found in Texas.*
- Determinations being made on a staggered basis between 2012 and 2016.

## ***Current Timeline for Water Supplies:***

- CWA § 404 permitting can be major impediment to successful completion of water supply projects.
- EPA veto authority can be a concern.
- NEPA compliance can cost millions of dollars and add years to project development process.
- ESA listings impute uncertainty and additional cost to any project affected.



## ***Current Timeline for Water Supplies:***

- Decades-long timeline for issuance of federal permits and resolution of federal issues impairs development of water supplies.
- Endangered Species Act compliance, required studies, and possible mitigation may delay project implementation and could outright halt project development.

## ***Other Surface Water Supply Development Challenges***

- Cost
  - Site acquisition
  - Construction
  - Funding issues
- Public opposition
  - NIMBY
  - Environmental impacts



## ***Challenges in Groundwater Supply Development***

- Finite resource
  - Extremely slow recharge rate for most aquifers
- Increased regulation over time
  - Regulatory uncertainty as new groundwater conservation districts are created
- Desired future conditions designation as mandated by Tex. Water Code Ch. 36

## ***Desalination Challenges***

- Availability
- Technological limitations
  - Energy required for desalination process
- Cost
- Waste disposal options





# ***Cost of Doing Nothing***



## ***Economic Risk of Failure***

- If the major reservoir sites recommended for construction in the 2012 State Water Plan are not developed, the State will be short 1.5 million acre-feet annually of water supply in 2060.
- Bottom line:
  - ***Failure to meet the State's projected water supply needs in drought conditions could cost Texas businesses and workers up to \$115.7 billion annually in 2060.***
  - ***Over a million lost jobs projected for failure to implement the SWP.***



## *Opportunities for Impact*

- Continued policy development supporting creation of new supplies
  - Permitting timelines
  - Regulatory hurdles
- Funding of State Water Plan
- Technological Advancement
  - Desalination and other alternative strategies
- Continued Water Use Efficiency



***Questions???***





**Thank you for coming.**

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