Charting the Course
Overview of the
2007 State Water Plan

Bill Mullican
November 16, 2006
Why Plan?
Lake Lavon
-2006
Public Water Supply Systems Affected by Drought

DROUGHT 2006
Public Water Supply Systems Affected
as of September 1, 2006

- RESOLVED (1)
- WATCH - Voluntary (85)
- WATCH - Mandatory (171)

Legend:
- Resolved: A public water supply that has corrected production capacity deficiencies, or strengthened conditions to more readily respond to future water supply challenges.
- Notice: Voluntary - A public water supply that has reported problems with higher water usage and production, but has not yet taken action to adjust distribution system pressure. Cadillac water use restrictions have been implemented.
- Notice: Mandatory - A public water supply that has reported problems with high water usage and production, but has not yet taken action to adjust distribution system pressure. Mandatory water use restrictions have been implemented.

Texas Commission on Environmental Quality
Legislative Response to Drought

• Late 1950’s Drought of Record
  – 1957: Creation of TWDB
  – $200 million Development Fund
  – 8 State Water Plans

• Late 1990’s: Potential New Drought of Record
  – $6 billion estimated economic losses in 1996 - most in agriculture
  – Approximately 300 entities with threat to water supplies
  – 1997: Implementation of Senate Bill 1 (SB 1)
2007 Texas State Water Plan
Basic Steps in Water Planning

- 50 year planning period
- Projection of population
- Projection of water demands
- Determine existing supplies
- Determine future surplus or needs
- Evaluate and select water management strategies
Basic Steps in Water Planning

• TWDB resolution of interregional conflicts
• TWDB approval of regional water plans
• TWDB develops and adopts State Water Plan
16 Planning Regions
Water User Groups
Cities

- Cities: 956
- Cities: 956
- Utilities: 378
County-Others

- Cities: 956
- Utilities: 378
- County-Others: 254
- Cities: 956
- Utilities: 378
- County-Others: 254
- Manufacturing: 174
Steam Electric

- Cities: 956
- Utilities: 378
- County-Others: 254
- Manufacturing: 174
- Steam Electric: 83
Livestock

- Cities: 956
- Utilities: 378
- County-Others: 254
- Manufacturing: 174
- Steam Electric: 83

- Livestock: 254
Mining

- Cities: 956
- Utilities: 378
- County-Others: 254
- Manufacturing: 174
- Steam Electric: 83

- Livestock: 254
- Mining: 226
Irrigation

- Cities: 956
- Utilities: 378
- County-Others: 254
- Manufacturing: 174
- Steam Electric: 83

- Livestock: 254
- Mining: 226
- Irrigation: 239
Total = 2,564

- Cities: 956
- Utilities: 378
- County-Others: 254
- Manufacturing: 174
- Steam Electric: 83
- Livestock: 254
- Mining: 226
- Irrigation: 239
Regional Summaries

- Six basic steps in water planning (region specific information)
- Conservation recommendations
- Ongoing issues
- Select policy recommendations
Projected Water Demand & Supply

<table>
<thead>
<tr>
<th>Year</th>
<th>Water Demand</th>
<th>Water Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>18.3</td>
<td>17.9</td>
</tr>
<tr>
<td>2020</td>
<td>19.0</td>
<td>16.9</td>
</tr>
<tr>
<td>2030</td>
<td>19.6</td>
<td>16.1</td>
</tr>
<tr>
<td>2040</td>
<td>20.1</td>
<td>15.4</td>
</tr>
<tr>
<td>2050</td>
<td>20.8</td>
<td>15.0</td>
</tr>
<tr>
<td>2060</td>
<td>21.6</td>
<td>14.6</td>
</tr>
</tbody>
</table>
Supply: Surface Water

Surface Water Supplies (millions of acre-feet)

- 2010: 9.0
- 2020: 8.9
- 2030: 8.8
- 2040: 8.7
- 2050: 8.7
- 2060: 8.4
Supply: Groundwater

![Graph showing groundwater supplies from 2010 to 2060 in millions of acre-feet]

- 2010: 8.5 million acre-feet
- 2020: 7.6 million acre-feet
- 2030: 6.9 million acre-feet
- 2040: 6.3 million acre-feet
- 2050: 6.0 million acre-feet
- 2060: 5.8 million acre-feet
Projected Water Supply Needs

<table>
<thead>
<tr>
<th>Year</th>
<th>Water Needs (millions of acre-feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>3.7</td>
</tr>
<tr>
<td>2020</td>
<td>4.9</td>
</tr>
<tr>
<td>2030</td>
<td>5.9</td>
</tr>
<tr>
<td>2040</td>
<td>6.9</td>
</tr>
<tr>
<td>2050</td>
<td>7.8</td>
</tr>
<tr>
<td>2060</td>
<td>8.8</td>
</tr>
</tbody>
</table>
Water Volume from Recommended Water Management Strategies

4,500 Water Management Strategies

New supplies (millions of acre-feet)

<table>
<thead>
<tr>
<th>Year</th>
<th>Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>3.6</td>
</tr>
<tr>
<td>2020</td>
<td>5.3</td>
</tr>
<tr>
<td>2030</td>
<td>6.2</td>
</tr>
<tr>
<td>2040</td>
<td>6.6</td>
</tr>
<tr>
<td>2050</td>
<td>8.2</td>
</tr>
<tr>
<td>2060</td>
<td>9.0</td>
</tr>
</tbody>
</table>
# Water Conservation

## State Wide Totals

<table>
<thead>
<tr>
<th></th>
<th>2002 Plan</th>
<th>2007 Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>990,000 af/y</td>
<td>2 million af/y</td>
</tr>
<tr>
<td></td>
<td>14% of total WMS</td>
<td>23% of total WMS</td>
</tr>
</tbody>
</table>
Water Conservation

Municipal

**2002 Plan**
68,000 AFY
<1% of total WMS

**2007 Plan**
612,000 AFY
7% of total WMS
Water Conservation

Municipal
Dallas/Fort Worth Region has recommended 292,000 AFY of water conservation in their 2006 regional plan
Water Conservation Municipal

Thousands of acre-feet

Region

A  B  C  D  E  F  G  H  I  J  K  L  M  N  O  P  Texas

4   2   0  23  10  21  101 <1  51  73  24  2  10  0  *  617
Water Conservation
Irrigation
Water Conservation

Irrigation

Thousands of acre-feet

<table>
<thead>
<tr>
<th>Region</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>O</th>
<th>P</th>
<th>Texas</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>283</td>
<td>15</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>72</td>
<td>8</td>
<td>78</td>
<td>0</td>
<td>1</td>
<td>143</td>
<td>7</td>
<td>438</td>
<td>327</td>
<td>0</td>
<td>0</td>
<td>1,376</td>
</tr>
</tbody>
</table>
Water needs not met by the recommended water management strategies

Unmet needs (millions of acre-feet)

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
<th>2050</th>
<th>2060</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needs</td>
<td>1.8</td>
<td>2.1</td>
<td>2.5</td>
<td>2.7</td>
<td>2.8</td>
<td>2.7</td>
</tr>
</tbody>
</table>
Recommended Major and Minor Reservoirs
What will it cost to implement?

$30.7 Billion
91% funded locally
Policy Recommendations to the Legislature

- Financing water management strategies
- Reservoir site designation and acquisition and stream segment designation
Overall Funding Needs for Water Supply, Water and Wastewater Infrastructure, and Flood Protection by 2060

- $79.0 billion: Capital cost needed for water treatment and distribution projects
- $4.2 billion: Capital cost needed for flood control
- $59.1 billion: Capital cost needed for wastewater treatment and collection projects
- $30.7 billion: Capital cost needed to implement water management strategies in the 2007 State Water Plan
- $2.1 billion: Additional funding requested from the state to implement water management strategies for municipal water user groups

Total capital cost: $173 billion
Estimated Costs of Not Implementing Strategies in State Water Plan

Businesses and workers:
- $9.1 billion in 2010
- $98.4 billion in 2060

Lost local and state taxes:
- $466 million in 2010
- $5.4 billion in 2060
Percent of the state’s projected population without water during a drought of record

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>About 45 percent</td>
</tr>
<tr>
<td>2060</td>
<td>About 85 percent</td>
</tr>
</tbody>
</table>
The Legislature Should

- Designate all remaining viable reservoir sites of unique value for the construction of reservoirs under Texas Water Code, Section 16.05(g),

- Designate recommended river or stream segments of unique ecological value for protection under Texas Water Code, Section 16.05(f) as potential mitigation for future reservoirs, and

- Provide a mechanism to acquire viable reservoir sites and possible mitigation areas.
Unique Reservoir Sites

Unique reservoir sites
- Minor reservoir sites recommended
- Major reservoir sites recommended
- Already designated
Unique Stream Segments

Region E

Region H
Policy Recommendations to the Legislature

- Interbasin transfers of surface water
- Environmental water needs
- Water conservation
- Expedited amendment process
- Indirect reuse
Thank you

Questions and Answers

www.twdb.state.tx.us
Briefing to the 80th Legislature on the 2007 State Water Plan

Bill Mullican
November 16, 2006