MEETING THE WATER NEEDS OF A GROWING REGION

Planning for the Future Near and Long Term Water Supplies

NTMWD currently meets the water needs for over 1.6 million consumers within its service area. Through the state water planning process, it is estimated that the population is expected to more than double by the year 2060 to an estimated 3.7 million served. NTMWD has identified and is developing additional raw water supplies to meet the future water demands and population growth for the next 50 years. These identified water management strategies are included in the 2012 State Water Plan. The water supply strategies include a diversity of sources including: conservation and reuse, connecting to existing supplies and new reservoirs. The least expensive water supply is gained from conservation and efficient use of the current available water supply which comprises 22% of the future water supply planned for 2060. During this extended drought period, many questions have been asked regarding the near-term water supply strategies to meet the growing demands. The on-going drought, coupled with the loss of the Lake Texoma supply for five years due to zebra mussels, an invasive species, resulted in stressing our available water supplies and initiating the strictest regional outdoor watering restrictions. NTMWD’s lake level modeling has shown that Lavon Lake’s elevation would currently be six feet higher had the Texoma supply been available during this extended drought period. Listed below are the near-term water management strategies that NTMWD is actively pursuing and key points for each.

Near-Term Water Supply Strategies

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Million Gallons Per Day (MGD)</th>
<th>Yield</th>
<th>Online</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dredging Lakes Lavon and Chapman Intakes</td>
<td>11 MGD</td>
<td>2015</td>
<td></td>
</tr>
<tr>
<td>Dallas Interim Contract Extension</td>
<td>40 MGD</td>
<td>2016</td>
<td></td>
</tr>
<tr>
<td>Main Stem Pump Station Construction</td>
<td>50 MGD</td>
<td>2017</td>
<td></td>
</tr>
<tr>
<td>Lower Bois d’Arc Creek Reservoir</td>
<td>108 MGD</td>
<td>2020</td>
<td></td>
</tr>
</tbody>
</table>

Water Use Per Person and Supply Demand

Assumptions: Estimated average use = 175 gallons per person per day
Estimated average of 2.8 people per home

1,000,000 Gallons per day (1 MGD)
5,714 Estimated people supplied by 1 MGD
2,041 Estimated households supplied by 1 MGD

Water Demand and Supply Projections from 2015 to 2040

5-Year Initiatives
- Dredging Lake Intakes
- Dallas Water Interim Contract Extension
- Main Stem Pump Station Construction
- Lower Bois d’Arc Creek Reservoir Construction

Dredging Lake Intakes

Dredging of the reservoir occurs only at the intake channels to obtain water supply at deeper depths. Dredging the shoreline of a reservoir does not provide large quantities of water supply. NTMWD has dredging projects scheduled for both Lavon Lake and Lake Jim Chapman. In addition to the dredging at Lake Jim Chapman, NTMWD is also evaluating use of the Sedimentation Pool. Access to the Sedimentation Pool requires approval from the U.S. Army Corps of Engineers (USACE) Fort Worth District.

Lake Chapman Dredging

- Remove accumulated silt in one raw water intake channel.
- Conservation Pool (water supply) is elevation 415.5’ – 440’ msl (mean sea level).
- Access is currently limited to 420’ msl and above.
- Dredging to 412’ msl will restore 3.3 MGD of supply.
- Completion in summer 2015

Lavon Lake Dredging

- Remove accumulated silt in two raw water intake channels.
- Conservation Pool (water supply) is elevation 453’ – 492’ msl.
- Access is currently limited to 470’ msl and above.
- Dredging to 465’ msl will restore 7.2 MGD of supply.
- Completion in late 2015
About the Proposed Lower Bois d’Arc Creek (LBCR) Reservoir
The Lower Bois d’Arc Creek Reservoir is greatly needed! The growth that ranked NTMWD’s service area among the fastest growing regions in the nation for the past 50 years is projected to continue for the next 50 years. The LBCR, once completed, will be the first reservoir built in Texas in the last 30 years. It is being built to meet the growth needs through 2040. The LBCR will be owned and operated by the NTMWD. The primary purpose of the LBCR will be for water supply, and not for flood control and management. NTMWD is prepared to commence construction of the reservoir when the state and federal permits are received for the project.

Information about the proposed reservoir:
- Area: 16,526 acres
- Storage: 367,609 acre-feet
- Supply: 108 MGD
- Average Depth: 22 feet
- Maximum Depth: 70 feet
- Lake Elevation: 534 feet msl

Permitting:
- Water Rights (TCEQ) • Anticipated end of 2015
- Clean Water Act Section 404 (USACE) • Anticipated end of 2015

Property Acquisitions:
- Reservoir site property needed - 22,590 acres
- Acquired - 18,560 acres (82%)
- Riverby Ranch mitigation area - 14,949 acres
- North Water Treatment Plant site (Leonard) - 841 acres

Cost Estimates:

<table>
<thead>
<tr>
<th>Project Component</th>
<th>Cost Estimate</th>
<th>Expenditures (11/06/2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservoir (Land, Dam, Intake, Pump Station, Conflicts, Permitting, and Mitigation)</td>
<td>$413 M</td>
<td>$110.0 M</td>
</tr>
<tr>
<td>Water Treatment Plant (70 MGD) and Terminal Storage</td>
<td>$249 M</td>
<td>$0.2M</td>
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<tr>
<td>90-inch Raw Water Pipeline</td>
<td>$185 M</td>
<td>$4.4 M</td>
</tr>
<tr>
<td>High Service Pump Station and Pipeline</td>
<td>$145 M</td>
<td>$0.0 M</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$992 M</td>
<td>$114.6 M</td>
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</tbody>
</table>

Trinity River Main Stem Pump Station
NTMWD is contracting with the Trinity River Authority to purchase 50 MGD of treated effluent that flows in the main stem of the Trinity River. The Main Stem Pump Station and Pipeline will transfer the river water to the East Fork Raw Water Supply Project, commonly known as the "Wetland," for natural polishing by aquatic plants. The polished water will then be transferred to the northern area of Lavon Lake to augment NTMWD’s water supply.

Scope of Work
- 90 MGD Intake and Pump Station
- 17 Miles of 66-inch Pipeline
- East Fork Conveyance Pump Station Expansion
- Total Estimated Construction Cost – $99M
- Operational January 2017

Dallas Raw Water Contract
- Provides up to 40 MGD of water supply from the City of Dallas
- Current contract expires in May 2016
- Working with Dallas to extend the contract

February 11, 2015