Overview

• **Review**
  - Water Planning in Oklahoma
  - Reservoir Viability
  - Water Conveyance

• **Regional Systems**
  - Potential
  - Under Consideration
Water Planning in Oklahoma

1957 OWRB Created
1966 Potential Reservoirs Identified
1973 Extensive BOR Lake Studies
1980 Comprehensive Water Plan
1995 Comprehensive Plan Update
Water Planning in Oklahoma

OWRB Embarked on 2011 Comprehensive Water Plan in 2007
Reservoir Viability

**Literature Search (USACE, BOR, OWRB, NRCS)**

**Database Population (EEIs)**

**Weighted Matrix**

**Environmental-Screen Mapping**

**Map Reconnaissance**

**Cost Estimate**

**Gap Analysis**

**Evaluation Workshop**

---

**Reservoir Feasibility Analysis**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weighted Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit costs - 5 per acre ft of storage</td>
<td>10.0</td>
</tr>
<tr>
<td>Mitigatable environmental/cultural issues</td>
<td>19</td>
</tr>
<tr>
<td>Proximity to demand or conveyance</td>
<td>8.1</td>
</tr>
<tr>
<td>Quality of life impact</td>
<td>2.5</td>
</tr>
<tr>
<td>Sponsor(s) availability</td>
<td>10.0</td>
</tr>
<tr>
<td>Water quality</td>
<td>1.9</td>
</tr>
<tr>
<td>Beneficial use</td>
<td>8.0</td>
</tr>
<tr>
<td>Political support</td>
<td>8.8</td>
</tr>
<tr>
<td>Compatibility with State Plan</td>
<td>6.9</td>
</tr>
<tr>
<td>Level of net benefit</td>
<td>8.1</td>
</tr>
<tr>
<td>Ease of implementation</td>
<td>8.8</td>
</tr>
</tbody>
</table>

**Reservoir Data Report**

- **Resource Name**: Lake Name
- **Agency**: U.S. Army Corp of Engineers, State Dam
- **Location**: Graceland 10 miles southwest of Shiner, TX and 5.5 miles northeast of La Grange, TX
- **Primary Study (Research)**
  - **Stage**: Lower
  - **Type**: Secondary
  - **Performance**: Medium
- **Dissolved O2**: 5.5
- **Dissolved N**: 1.3
- **Discharge**: 280 cfs
- **Water Quality**: High turbidity and nutrients inhibit routine maintenance because of upstream pollution from cattle and agricultural runoff.
- **Proven Cost Estimate**: $125,000

---

**Engineers**  •  **Architects**  •  **Consultants**
Reservoir Viability

Category 4 – Apparently Feasible - 38 Sites

Category 3 – Possibly Feasible - 30 Sites

Category 2 – Sites with Fatal Flaws - 14 Sites

Category 1 – Insufficient Information - 29 Sites

Category 0 – No Information Available - 14 Sites
Reservoir Viability
Water Conveyance
Water Conveyance

16 inches

56 inches
Water Conveyance

Rainfall Distribution

Underutilized Existing Resources – Arable Land

Precedence – Atoka to Oklahoma City Pipeline

Increasing Demands

Political Resistance

Legal Issues

Costs
Viable Reservoirs & Original Routes

Legend
- Northern Route
- Southern Route
- Proposed Reservoirs
- Rivers
- Existing Lakes
- Land Suitable for Farmland
Reservoirs & Conveyance

Refine a business approach to “right-size” alternatives to the future demands, customer objectives and fiscal practicality; address reality.
Regional System - Potential

Legend:
- Lake_Forgan
- Proposed Reservoirs
- Panhandle Regional Route
- Rivers
- Existing Reservoirs - Used
- Existing Reservoirs - Other
- Hot Spot Basins
Regional System - Potential

Legend:
- Proposed Diversion Dams
- Alternative Southern Route
- Proposed Reservoirs
- Rivers
- Existing Reservoirs - Used
- Existing Reservoirs - Other
- Hot Spot Basins
Regional System - Enid
Regional System - Sunflower
Karl Stickley, PE
C.H. Guernsey & Company
405.416.8217
karl.stickley@chguernsey.com

Ken Senour, CEP, QEP
C.H. Guernsey & Company
405.416.8140
ken.senour@chguernsey.com