

## **Luce Bayou Interbasin Transfer Project**

### **David Miller**

Major Projects Manager  
Coastal Water Authority (CWA)  
Houston, Texas 77002.

The \$381 Million Luce Bayou Interbasin Transfer Project is the largest water supply project built for the Houston Region in the last 50 years. Completed in 2021, the LBITP will transfer up to 500 million gallons of water per day from the Trinity River to Lake Houston. The water is needed at Lake Houston in support of the \$1.7 Billion expansion of the City of Houston Northeast Water Purification Plant.

Across the Houston region two issues are driving the need for surface water supplies – subsidence caused by groundwater use and population growth.

#### **Subsidence**

Groundwater has been a critical source for the Houston region's municipal water. Overuse of this resource has resulted in land subsidence causing damage to infrastructure, loss of wetlands and increase in flooding.

The Houston Galveston Subsidence District has established statutory requirements to significantly reduce groundwater use by using available surface water supplies.

#### **Population Growth**

The Houston Region (Harris County plus 14 surrounding counties) is expected to almost double in population from 2010 to 2060 (6 million people to 11.3 million people).

Developing additional surface water supplies is required to support this growth.

#### **LBITP – 50 Years Ago**

The LBITP was originally conceived in the late 1960's by City of Houston leaders. A preliminary engineering report was prepared in 1972 detailing the location of a pumping plant, pipelines and canals which would transfer water from the Trinity River to Lake Houston. From the 1970s through 1990s the project was contemplated many times but never constructed.

#### **LBITP – Present Day**

In the early 2000s the project was resurrected due to subsidence and expected increases in population. A project of this magnitude which traverses 25 miles and two counties required a significant permitting effort including a full environmental impact statement and USACE Section 404 permit. The permit application was submitted in 2005 and it was finally approved by USACE in 2014.

Engineering and design of the pump station, pipelines and canal began in 2014 with construction breaking ground in 2017. Final construction, startup and testing of the entire system was completed in 2021 and the project is now fully operational and delivering water to Lake Houston. A final ribbon cutting was conducted with local leaders and participating agencies in June 2021.

Significant collaboration including many local and state government agencies/districts

was necessary to make this project a success. The entities include: City of Houston, Coastal Water Authority, Texas Water Development Board, North Harris County Regional Water Authority, West Harris County Regional Water Authority, Central Harris County Water Authority, North Fort Bend Water Authority, Liberty County and Harris County.

### **Capers Ridge Pump Station**

Located on the western bank of the Trinity River, the Capers Ridge Pump Station consists of an intake and pump station with 50-foot vertical turbine pumps each capable of pumping 55,000 gpm. The initial construction consists of 4 pumping units and will transfer 240 MGD. Within the next few years four additional pumps will be added boosting the pumping capacity to 500 MGD.

### **Dual 96-inch Diameter Pipelines**

Water is pumped through 2-96-inch diameter pipelines (3 miles) over Capers Ridge to a point where water can flow via gravity in a canal system.

### **Canal**

Water is then delivered to Lake Houston through 23.5 miles of earthen canal traversing through Liberty County and Harris County. The canal crosses over thirty roadways, pipelines and drainage crossings before out falling to Lake Houston.



**Capers Ridge Pump Station**



**Dual 96-Inch Pipelines**



**Earthen Canal**



**Lake Houston Outfall**



**June 2021 Ribbon Cutting**