REGION H WATER MANAGEMENT STRATEGY ANALYSIS TECHNICAL MEMORANDUM

STRATEGY TITLE: Transmission Line to WHCRWA Municipal WUG and WWP

DATE: September 3, 2009

SUMMARY

STRATEGY DESCRIPTION: The transmission of 62,500 acre-feet per year of Lake Houston surface water supplies to the West Harris County Regional Water Authority (WHCRWA) to meet projected shortages. Costs listed include treatment and connection costs.

SUPPLY QUANTITY: 78,800 acre-feet per year (does not include NFBWA shared capacity). Note that this is not a new supply but rather represents conveyance of a volume reflected under other WMS.

SUPPLY SOURCE: Surface water from Lake Livingston via WHCRWA Pump Station No. 1 via Northeast Water Purification Plant (NEWPP) until 2020 and then supplemented from Lake Livingston via Luce Bayou after 2020.

IMPLEMENTATION DECADE: 2010 – Lake Livingston
2025 – Lake Houston and Lake Livingston

TOTAL STRATEGY COST: $135,309,000 capital cost, 2010 Phase internal distribution
$340,470,000 capital cost, 2020 Phase internal distribution
$76,693,000 capital cost, 2030 Phase internal distribution

$45,110,000 capital cost, 2010 Phase shared transmission
$244,974,000 capital cost, 2020 Phase shared transmission

ANNUAL UNIT WATER COST: $338 per ac-ft for internal distribution, $178 per ac-ft for transmission

Water Management Strategy Analysis Description

Introduction:

The West Harris County Regional Water Authority was created by HB 1842, and the City of Katy consented to the creation of the WHCRWA on May 21, 2001, and the City of Houston consented on June 6, 2001. The WHCRWA was created to acquire and provide surface water and groundwater for residential, commercial, industrial, agricultural, and other uses, reducing groundwater withdrawals.

Since its existence, WHCRWA has designed, purchased, and constructed over 27 miles of new waterlines and Pump Station No. 1. WHCRWA continues to implement numerous surface water delivery projects to deliver water to utility districts, and the first surface water was delivered in September 2005. WHCRWA has produced a long-term water supply contract with the City of Houston.

Analysis:

The infrastructure required to transport the quantity of water requested will be built in two phases. For Phase I, the transmission line will be a 90-inch diameter pipe from the NEWPP to the WHCRWA and North Fort Bend Water Authority (NFBWA) to meet the future demands of the two Authorities. The 90-inch transmission line will travel from the NEWPP southwest along a Union Pacific rail easement to the Exxon pipeline easement already owned by the WHCRWA. The pipeline then travels due west along the

Exxon pipeline easement to the WHCRWA and NFBWA take point. This alignment was the least expensive of the routes studied.

For Phase II, the second take point will be from a proposed shared water supply line across the City of Houston (COH) that will be built and operated jointly with the NFBWA. The take point will be near the intersection of Clay and Peek Roads.

WHCRWA is also responsible for the construction of a transmission line to the take point and secondary surface water transmission system to its member districts.

Water User Group Application:

The water conveyed into the San Jacinto River Basin through this strategy would meet all projected shortages in WHCRWA and NFBWA throughout the planning period.

With the goal of reducing the consumption of ground water, the WHCRWA has completed the design, purchase, and construction of over 27 miles of new waterlines and Pump Station No. 1 (Jersey Village Pump Station) thus far. WHCRWA currently uses the Jersey Village Pump Station to fulfill demands. WHCRWA is participating in a cost sharing with NFBWA to construct a pipeline to bring water from the COH across town to the north of NFBWA. The preliminary estimate of capital costs are shown in Table 1.

Issues and Considerations:

Although the supply infrastructure (Lake Houston via NEWPP) is in place, the conveyance required for this transfer is not. The WHCRWA transmission line or similar transmission line must be constructed to move this supply into the San Jacinto River Basin.

References:

North Fort Bend Water Authority Groundwater Reduction Plan, North Fort Bend Water Authority, March 2008

West Harris County Regional Water Authority Website, www.whcrwa.org, assessed July 7, 2009.