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A HISTORY OF WATER CONSERVATION EFFORTS BY THE CITY OF HORSESHOE BAY STAFF

By City Manager Stan R. Farmer

As our State and region continues to suffer through an extreme drought, and with our hot Texas summer looming, the City of Horseshoe Bay will remain committed to conserving water and to assist residents in their efforts to conserve. The City wishes to remind everyone that our water supplier LCRA has a Water Management Plan that requires all firm water customers, such as the City of Horseshoe Bay, to issue mandatory Stage 2 drought measures wherein consumption goals are set at 20% reduction of normal use. To comply with the LCRA mandate, in September 2011, the City of Horseshoe Bay initiated Stage 2 of the City's Drought Plan which allows only two days of landscape irrigation per week. Stage 2 Restrictions have remained in effect for the past 18 months.



While the City of Horseshoe Bay continues to ask residents to reduce wasted water whenever possible, conservation measures within the City's Fire and Water Departments continue to escalate. There are two areas that the City staff measures water loss—known and unknown water losses. This article primarily focuses on known losses. This type is associated with water used by the City staff to primarily meet regulatory and/or water safety requirements and is where the staff can have a much greater impact on reducing usage.

For example, to ensure the City Staff is doing its part in conserving water, several water conservation programs have been initiated, saving approximately 3.9 million gallons of water per year thus far. These major on-going initiatives are reclaiming water previously lost to water distribution system flushing. One initiative converted the source of water for one stage of wastewater treatment plant wash-down from potable water to treated effluent, reclaiming approximately 2.4 million gallons per year. Another initiative at the water plant involved diversion of water utilized during backwash. Water Department Staff re-piped this backwash water to be recycled at the beginning of the water treatment process saving approximately 1.5 million gallons per year.

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The City's Water Department is required by the Texas Commission on Environmental Quality (TCEQ) to flush the water system daily, at key locations, to ensure sufficient disinfection is maintained. Flushing is mainly required in areas with fewer houses per mile where water ages to the point where disinfection residuals dissipate in the line over time. Flushing the water system accounts for several million gallons of water that is produced but not consumed by residents per year. Recognizing this enormous amount of water loss due to required water system flushing, the Water Department is currently testing new technology; an automatic mainline flushing device which may significantly reduce water loss associated with required flushing. If proven effective, the City will submit a grant application to LCRA as an alternative to city budget funding to offset the purchase and installation of numerous devices in key locations.

Another high technology measure currently being deployed throughout the system includes the installation of new digital water meters that track consumption on an hourly basis. Capturing and recording consumption data with this technology allows the City's Field Staff to work with residents on identifying and correcting irregularities in their consumption.

Another initiative underway includes reducing known water loss associated with the required testing of fire hydrants without endangering safety. There are over 800 hydrants in the City's Fire Department's contract service area. Most of these hydrants flow between 800 and 1,200 gallons per minute (GPM) and each hydrant is flow tested annually. A flow test performed correctly takes approximately 1.5 to 2 minutes, using a median flow of 1,000 GPM per hydrant for 1.5 minutes, this testing process will easily use 1.2 million gallons of water per year.

In an attempt to balance the hydrant testing requirements against the need to conserve water, the HSB Fire Department contacted the Texas State Fire Marshall's Office and the Insurance Service Offices (the insurance regulatory agency that sets your fire insurance premiums) and asked both regulatory agencies to consider this issue. As it turned out, other fire officials were asking the same question. As a result, a modified hydrant test program now allows for "spot checking" at various locations. This modified program allows the City to identify most problems without the large water loss as in the prior method.

Even small efforts can make a large impact. As of April 1, the Fire Department has suspended the use of a water hose when washing the large fire engines/trucks and equipment; instead staff is using a five gallon bucket to wash and rinse each vehicle. In addition, all other City vehicles will be washed less frequently in the summer too.

To help the citizens of HSB do their part and potentially save money, the Utilities Department provides landscape irrigation system audits to residents at no charge. Landscapes, lawns and gardens drink up more than half of all water that we produce during the summer, and automatic sprinkler systems may deliver twice the amount of water necessary. One audit identified broken sprinkler heads that the resident hadn't previously noticed because the system ran during the night. Participating in the audit process, making recommended changes and irrigation system

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repairs has reduced water consumption at several residences by as much as 30%. This represents a significant savings in both wasted water and consumer dollars. The audit also qualifies you for up to \$350 in rebates from LCRA on certain water-saving irrigation system equipment. Schedule your audit today by filling out a form on the City's website or by calling Utilities Customer Service at 830-598-8741, press 1.

By way of contrast, the City's unknown water loss which averages around 7% annually is considered low in relation to American Water Works Association's goal of 10 – 12%. This figure is monitored and a focus of discussion each month. Unknown water loss is mainly due to loss of accuracy of aging water meters and undetected leaks on older water main pipes. Current initiatives to reduce the annual average include an ongoing meter replacement program; aging water main replacement projects; utilization of leak detection services and equipment to locate undetected leakage; annual treatment plant production meter testing; and monthly water loss auditing.

We are very fortunate to look out on our constant level Lake LBJ and see water, but we should remember that the availability of water is limited. Our neighbors on lakes Buchanan and Travis see the devastating effects of the drought every day. The total combine water storage in these two reservoirs is at 41% of capacity; Buchanan is down 21 feet and Travis is down 40 feet. The City's staff and residents achieved a 15% reduction in water produced for sale from 2011 to 2012. The City of Horseshoe Bay's Staff is committed in its efforts to persistently address water losses and will continue to assist residents in their individual conservation efforts to meet the Stage 2 Restrictions goal of reducing consumption by 20%.

For more information about the conservation programs listed here, conservation tips and Stage 2 Drought Plan Restrictions please visit the City's website at <http://www.horseshoe-bay-tx.gov/website/WaterConservation.htm>. Updates to the website are performed as new information is made available, so please re-visit the site from time to time.