NFBWA DELIVERS WATER AHEAD OF SCHEDULE

North Fort Bend Water Authority (“NFBWA” or “Authority”) has delivered its first surface water to utility districts in northeast Fort Bend County more than two years ahead of its mandate from the Fort Bend Subsidence District.

Engineers opened a valve March 7 to connect Fort Bend County Municipal Utility District (“MUD”) 2 to water from the D-158 water plant, purchased from the City of Houston. Water delivery to Kingsbridge MUD (which also supplies Fort Bend Fresh Water Supply District 2) followed later this spring. North Mission Glen MUD received water in May, Fort Bend MUD 41 and Fort Bend MUD 119 in June, and Big Oaks MUD in October. The Authority expects to deliver water to FBC MUD 134A, 134B and 134C next month.

By beginning the important conversion earlier than required, the Authority earns valuable “early conversion credits” that can be applied toward meeting future conversion goals.

The Authority - which encompasses 61 utility districts and the city of Fulshear – is under mandate from the Fort Bend Subsidence District to reduce its dependence on groundwater 30 percent by 2013. Over-pumping of groundwater is responsible for subsidence across the region, which can cause flooding and foundation problems, and can permanently impact the aquifer as well. Under the Fort Bend Subsidence District’s mandate, alternate water supplies must replace a percentage of the groundwater now pumped by 140 permitted wells within Authority boundaries. Reducing groundwater 30 percent means replacing roughly 11 million gallons per day (MGD) of groundwater with an alternate water supply.

Authority engineer Melinda Silva, of Brown and Gay Engineers, says conversion credits, which are measured in thousands of gallons, serve as an “insurance policy” that can protect the Authority against unforeseen service interruptions or delays. The Authority’s goal is to have half a year’s worth of conversion credits, she said.

Conversion to surface water is a massive and expensive undertaking. In little more than a year’s time, the Authority has installed approximately 137,000 linear feet or nearly 26 miles of water line to connect the MUDs of north Fort Bend County with the...
As recently as a decade ago, how many of us would have thought we’d need to worry if we’d have enough water to keep up our lawns and landscape areas? This is Texas, isn’t it? Surely there’s enough water to go around? Perhaps not in years ahead, however, if you take a close look at the Texas Water Development Board’s State Water Plan. In fact, reading it is enough to make you concerned - very concerned - about having adequate water supplies for our children and grandchildren by 2050.

Forty years...seems like an eternity away, doesn’t it? It can take at least that long to realize the benefits of long-range plans when it comes to water infrastructure. Consider, for example, what would have happened if the City of Houston’s visionary planners in the 1950’s hadn’t been as forward looking as they were to build reservoirs and lakes. We most certainly would not be in as good a position as we are today relative to current water supplies. Thanks to their foresight, we’re able to rely on both ground and surface water to help meet the needs of our growing population.

So, back to the water problems at hand. Is it time to forfeit dreams of the coveted Yard of the Month award? To take on the homeowners association, strip the grass out of your front yard and maybe fill in with rocks and cactus? Don’t go to those extremes just yet. There may be a more positive alternate direction for you to consider. Fortunately, the folks at Texas A&M University Department of Soil and Crop Sciences have been working on this scenario for quite some time and can offer some real assistance - not only with new turfgrass products with great survivability properties, but by providing excellent information and education on the topic, as well.

According to Dr. David Chalmers, Texas AgriLife Extension professor and co-author (with Dr. James McAfee) of *Turfgrass Selection for Texas* and *Turfgrass Establishment for Texas*, “The bottom line is that people need to know more about which turfgrass they plant and how to care for it in the long-term.”

Dr. Richard White, also a TAMU Professor, mentioned that a survey of some 800 residents revealed that when it came to water usage, 25 percent of the respondents used 50 percent of the available drinking water. About 90 percent did not know how much water they...
consumed each month...yet 85 percent considered themselves to be “efficient irrigators.” That’s a pretty big disconnect; but wait, there’s more.

Water consumption by the group surveyed increased by as much as 400 percent during the summer months because of lawn and landscape watering. “By initiating some simple, more efficient watering practices the group could have realized a savings of 24 to 34 million gallons of water a year!” White explained.

So, what are those simple practices that will save that much water, and how do we implement them?

First, let’s accept the assumption that lawns don’t waste water, people do. The tried and true recipe for growing healthy grass while saving water is tied to selecting the right grass for the location, having really good soil, and understanding exactly how to take care of it. At the heart of the recipe is knowing when and how much to water!

In Texas, more than half the lawns are planted with St. Augustine grass, which many believe is especially “thirsty.” That might be a bad rap, says Dr. Chalmers.

“All grasses use about the same amount of water at the same rate when it is available in the soil. Much of the grasses’ persistence and survival if water is restricted,” he pointed out, “depends on their drought tolerance – or being able to survive without rainfall or irrigation. The better able a turfgrass variety is to adapt to the realities of a Texas summer, the better equipped it will be to ultimately survive.”

The soil is the fundamental component for growing a healthy lawn no matter which grass is selected. “It is more than just which turfgrass the resident decides to put in place,” the professor explained, “but which soil they have, how deep it is, and how appropriate it is in which to grow their choice of grass.”

Studies over the years have shown that the real key to survivability in a severe drought is the depth of the soil. One study, sponsored by the Turfgrasses Producers of Texas and San Antonio Water System, compared the results when planting 25 different varieties of turfgrasses in an agricultural native soil that was 16-18 inches deep to the same 25 varieties planted in soil with 4 inches of topsoil. In both years of the study (2006 and 2007) the first group – deep soil – all varieties survived 60 days without water. In the second group – with 4-inches of topsoil – none of the grass survived. Pretty convincing, huh?

Chalmers says it isn’t even necessary to have 16 plus inches of soil...that 10 to 12 will do nicely. One of his concerns, however, is what happens when new homes are built and the soil is compacted by all the heavy equipment that travels over the ground.

“When you pit heavy construction vehicles against a

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productive soil...the vehicles win every time. It is critical to put the soil back the way it was. Plants can’t do the remediation on their own,” says Chalmers. “They have to have good, noncompacted soil in which to grow. The best scenario for growing grass is having the deep soil well aerated through the root zone. When that’s the case, the grass can go longer between irrigations, gradually go dormant if no water is available, and persist longer through a drought.”

Another important maintenance tip in dry times is to cut the grass on the “taller side” of the recommended mowing height range – no scalping. A more generous height will help maintain a dense canopy, and provide for optimum root growth and development, he said.

“Some people just can’t stand to see their grass experience any ‘stress’ at all, and turn on the water at the first sign that the grass starts to wilt. Here we come to the most critical factor in having a healthy lawn...when do you water it...and how much?”

Fortunately, this topic is right down Professor Chalmers’ alley. Let’s start with the assertion that most homeowners could reduce the amount of irrigation water they apply to their lawns by half...and still have great looking lawns! He says that there are many variables to consider about how much to water.

Consider this conundrum: rain gauges measure rainfall in inches; irrigation recommendations – in the absence of rainfall – are usually stated in inches; but customers are billed for water use by gallons. Irrigation controllers or hose and sprinklers are usually set to water for a certain number of minutes. The challenge is to find the common denominator – to figure out how to get the irrigation system to apply the correct amount of water by relating both minutes and inches of water to the gallons that will be consumed in the process. Piece of cake.

Actually, if you know a few simple facts, it isn’t all that difficult. First, throw out the “inch of water a week” advice. That may – or may not – prove to be the formula that will work for your lawn. Here’s a clue: water moves into most clay soils at a rate of about 0.09 inches per hour...not very fast. Irrigation systems, on the other hand, may apply water at a rate of 0.25 to 1.5 inches per hour or more.

So...here’s the bottom line...for efficiency, the irrigation controller should be set to apply only about 0.10 inch of water at a time. Applying water faster than a soil can absorb in one setting results in water moving across the soil surface, running into the gutter, and down the storm drain. Setting irrigation to repeat this type of cycle every few hours allows water to move into the soil.

Try this approach...stop training your grass to be a water hog...and then allow enough time to give the grass a chance to adjust to the new water “diet”. The results will be deeper roots and longer survivability - just the results you had in mind!

There is a wealth of information about this topic on the TAMU website – go for a visit but be prepared to explore it for hours! [http://twri.tamu.edu/publications/txh2o/summer-2011](http://twri.tamu.edu/publications/txh2o/summer-2011).

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It has now been almost a year since we’ve had any appreciable rainfall…a few showers now and then, but not the gentle, soaking relief that we so desperately need.

“Who would ever think that Texans would be hoping for a hurricane or tropical storm?” folks are asking, shaking their heads in disbelief. Seeing clouds gather in the afternoon…the clouds that used to promise a shower or two…now just get our hopes up. Climatologists tell us that this isn’t over yet – not by a long shot.

As devastating and destructive as this current drought is – with its relentless, blistering temperatures, wildfires and the loss of billions of dollars in crops – Texas is no stranger to this climate phenomenon. In fact, paleoclimatologists have found that megadroughts, at least as bad as the 1950’s drought of record, have occurred numerous times over the centuries – some lasting 20 to 40 years.

Paleoclimatology is the study of past climate. The word comes from the Greek root paleo-, or ancient…and the term “climate”, meaning weather conditions over a period of time, usually decades. Paleoclimate, therefore, is the climate that existed before scientists began collecting weather data, such as temperature, precipitation, wind speeds, etc. These scientists reconstruct historical conditions, such as drought, from data that is preserved in tree-rings (which can extend back 300 – 1000 years), cores of sediments of sand dunes and lakes, and archeological remains. This proxy climate data, as it is called, can also be extended by written historical documents such as newspaper accounts and personal diaries and family records.

During medieval times, for example, it appears that Texas endured several megadroughts in the 1100’s and 1200’s; and another struck in the last half of the 16th century. Slightly earlier, when Spanish explorer Cabeza de Vaca arrived in Texas in the 1530’s, he encountered a population of Native American farmers near the site of present-day Presidio, where it had not rained for at least two years. He was treated as a god by the Indians, and they entreated him to “tell the sky to rain.” There is no record of whether or not he succeeded.

Droughts also occurred during Revolutionary War times – where tree rings reveal several extended periods of drought around the time when the Roanoke colonists (1587) disappeared, and when settlers were trying to establish Jamestown (1607). These droughts were extreme and lasted between three and
six years; unusual for that region of North America.

Stephen F. Austin’s early settlement was impacted by drought, as well. In 1822, the colony’s initial corn crop dried in the fields from lack of water. Drought struck again around the time of the Civil War in the 1860’s. After the state opened new land for immigrant farmers in 1883, one of the worst droughts in Texas history occurred in 1884-86, forcing most of the settlers to abandon their new homes, as they were unable to endure the lack of rain. This drought also had a negative impact on the already waning cattle drives, as the herds of longhorns were forced to travel over increasingly dry territory only to find traditional water holes dried up.

Historical records indicate that there has been at least one serious drought in some part of Texas during every decade of the twentieth century. The most catastrophic one occurred during the first two thirds of the 1950s in every part of the state. It began during the spring of 1949 in the lower valley...moved to affect the western parts of the state by the fall...and covered virtually all of Texas by the summer of 1951. The drought lasted until a slow soaking rain abruptly ended it in the spring of 1956, but only after water shortages had reached critical stages with lakes, rivers and streams drying up completely. Two hundred forty four of the state’s 254 counties were declared federal disaster areas.

Since then, several shorter and less severe droughts occurred in the 1970’s, usually ended by Tropical Storms. There was, however, a massive heat wave in the early 1980’s that was soon accompanied by a blistering drought over much of Texas.

The late 1980’s saw a three-year drought that was remarkable on several accounts: first, not only was it the costliest in U.S. history, but it was also the most expensive natural disaster of any kind to affect the U.S. at that time – with losses in energy, water, ecosystems and agriculture totaling almost $40 billion. It was during the summer of 1988 that massive forest fires burned across western North American, including the catastrophic Yellowstone fire.

In 2009, drought gradually crept across the state, with 88 percent of Texas experiencing abnormally dry conditions and 18 percent of the state in either extreme or exceptional drought conditions. While the widespread lack of rain was no laughing matter, folks still tried to maintain a sense of humor. Farmers were asking each other, “Heard the one about the Texas farmer whose land was so dry, his cow was giving powdered milk?”

In this case, a La Nina weather pattern settling over the central Pacific Ocean was behind the drought conditions, as it brought the likelihood of below normal rainfall and above normal temperatures.

Water providers agree that water conservation is the right thing to do. With the drought today, however, water conservation may be the only thing we can do. With that in mind, water suppliers are asking everyone to do what they can to use water efficiently to help stretch this precious resource. ✿
At the beginning of September, 2011, more than 95 percent of the state was experiencing critical or exceptional drought conditions, with our own area in the “exceptional drought” category. Climatologists are calling this the worst drought in more than four decades. Devastating wildfires have made headlines across the state, while drought conditions have hit agriculture and livestock especially hard, with recreation and the environment suffering, too.

According to Todd Staples, Texas Agriculture Commissioner, droughts are “unplanned, unexpected, unwelcome natural disasters.” He explains that this drought is destroying crops, and forcing ranchers to sell their livestock – unless they can afford to buy hay from as far away as South Dakota – because the state’s hay crop is virtually non-existent. He says that the state has experienced at least $5.2 billion in losses – that’s a conservative estimate – and the toll is still rising. That number only covers livestock losses ($2+ billion), cotton ($1.8 billion), and lost hay ($750 million).

*Breaking Old Records... Setting New Ones!*

Robert Mace, Texas Water Development Board Groundwater Resources Director, says we have the “perfect storm” in Texas – it continues to be too hot, too dry and too windy. He points out that it has gotten hotter in Texas, and says we’re back up to temperatures like those experienced during the Dust Bowl and drought during the 1950’s.

Houston received approximately 1.5 inches of rain between February and April; that’s about what the Sahara Desert might receive during the same period. According to Rep. Bill Callegari, R-Katy, “Water supply issues are bigger than just the drought.” He warns that “needed infrastructure repairs could be the Achilles Heel of the Texas economic miracle.”

State leaders have identified at least $53 billion in investments needed to repair and expand the state’s aging water infrastructure and $142 billion in capital costs for water treatment and distribution projects — just to keep pace with an anticipated doubling in population by the year 2050. Texas hasn’t opened a major new water reservoir since 1987 although many more are needed to be able to sustain the state’s economic growth.

One of the casualties of drought is the impact on the soil and everything in it. The ground dries out so much that the soil shrinks, leaving gaps around pipes and waterlines; causing the pipes to sag and crack. There have been reports of hundreds of system breaks in Houston’s clay-like soil – as many as 700 water line breaks a day – that make it difficult to maintain pressure. Austin is also experiencing twice the number of pipe breaks this year. Repairing broken pipes, which must be dug up from underground, is hugely expensive – up to $350 per foot.

With usage during the drought hitting all-time highs, water – racing through older, worn out pipes – bursts through spots where the soil has fallen away. The combination of these and other drought and high temperature-related factors are stressing even the best of systems...with little relief in sight.

In Houston, adding insult to injury is the plague of fleas and the potentially deadly introduction of the West Nile Virus, brought by mosquitoes being infected by birds that carry the disease.

*We can each do something!*

Residents don’t have to wait until official drought restrictions go into effect, however, to think about initiating their own water conservation measures. It is just common sense to use water more efficiently and avoid wasting it down a drain. These current conditions are a “wake up call,” reminding us that we take adequate supplies of precious water for granted! Sadly, much of the water “consumed” every day is wasted through well-meaning but careless behavior. No one wakes up and says, “I think I’ll waste some water today!” But it happens, nonetheless.

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There are actions that can be taken to help minimize the impact of prolonged periods without rain. Conservation now could help stretch precious resources for the months ahead.

Water efficiencies are possible at both the residential and commercial levels. End-users can examine how water is used in the home or facility, inventory water-using appliances or equipment, examine the habits of individual water users, and make any needed repairs or modifications. The blueprint for creating a water budget and increasing water conservation lie in these basic steps.

Meanwhile, here are a few timely and specific tips about one of the most critical ways to conserve – efficient watering of lawns and landscapes.

According to some studies, 80 percent of the water used at home during April through October is used for lawn and garden irrigation...and up to 50 percent of that water is wasted. We are so convinced that it takes a lot of water to maintain a lush, green lawn that we just water and water and water.

**Take Control**
When was the last time you checked the settings on your irrigation system controller? Maintaining healthy, attractive lawns and landscape areas requires much less water than you think. In fact, you can easily get by on one – maximum two waterings a week (if it doesn’t rain and if the grass needs it). This will help the turf grow deep roots and not be as “thirsty” during dry periods.

It is also important to set the system to complete watering cycles before 4 am, which cuts down on evaporation loss and doesn’t interfere with weekday morning “water rush hours,” when families need water for starting the day.

**Save the trees!**
Pay special attention to shrubs and trees. This high-impact greenery is the foundation of our landscape. Trees and shrubs need watering that reaches the roots, where moisture is most effective. Your automatic sprinkler system may not provide what is needed, so consider investing in a soaker hose and timer. This hose should be no longer than 100 feet, and should wind between your shrubs and trees.

Attach the timer to the closest outdoor faucet and connect the two with your garden hose. Turn it on to seeping – not spraying – strength and leave it on until an 8-inch screwdriver goes easily into the earth to a depth of 6-8 inches where the water has been applied. This “test” will help you determine how long to leave it on and can program your timer to do this deep watering once a week.

**Water deeply**
For trees older than 3 years that are not planted alone, use the garden hose about once a week. Placing the hose midway between the trunk and the edge of the canopy and roots, water slowly and deeply, avoiding any runoff. Move the hose around the tree until every quadrant has been soaked. Do this about once a month. Consider purchasing a (or making your own) Treegator, which is a slow release bag of water that will water the tree over a 5-9 hour period.

**Mulch Mulch Mulch**
The more you mulch, the better chance your colorful garden plants will survive extended dry periods. That extra layer can make all the difference! Garden beds with perennials and annuals also can use a soaker hose system. Adding mulch over the soaker hose and around the shrubs and tree drip line helps conserve moisture even more. The combination of sustained periods of brutal, triple digit temperatures – along with the relentless afternoon sun – can really take its toll on all plants, including those in containers. Hand-watering is your best bet to help them survive.

**Thirsty Lawns**
Lawns – especially those made up of St. Augustine grass
- are big drinkers. Consider limiting grassy areas as much as possible, by relying on smaller turf areas to contrast with your other landscape components.

Automatic sprinklers work best here, but there’s no guarantee they will keep your lawn green during a serious drought. Grass naturally goes dormant in dry conditions; conserving water for its roots. Your goal should be the same — water as infrequently but as deeply as possible.

During serious drought periods, it is best to scrub the Best Lawn Contest, and seek the rewards that come from conserving our precious water resources. Aim instead for landscape survival over the long term.

St. Augustine – on average – needs ¾ to one inch of water per week to stay green. Water long enough to dampen the dirt to a depth of 6 inches. (Use that screwdriver again to check moisture penetration). Avoid “scalping” the lawn – when St. Augustine is kept at about 3 inches, the grass can provide shade for its own roots.

Don’t water the concrete! Because conditions vary yard to yard, there is no absolute rule for how long to water. (See the Truth About Turf article, page 2.) A reasonable guide for sprinkler systems or manual watering is to water only as long as it takes to get moisture down into the soil – that is usually a maximum of 20 minutes per cycle. It will take at least 30 minutes for the water to percolate into the soil, so allow it to do this before adding any more water. Water that runs off into the street is wasted!

Promote healthy soil
During a drought, one important secret to survival is healthy soil, which protects and sustains the roots of your lawn. If you decide to add fertilizer, use only the organic kind that will encourage the roots and healthy soil your lawn needs.

Autos and Lawns...
Not only have Americans had a long-term love affair with their automobiles, for the past 50 years or so folks have also been wedded to their lush, sculptured, and manicured lawns. Today, however, thanks to the drought and significant requirements for chemical supplements and lots of water, many homeowners are seeking a divorce.

Some are going so far as tearing out their front lawns, replacing them with native plant gardens, or courtyards with ground covered, stepping-stoned seating areas. People returning from vacations abroad often report that they were surprised to see more naturally “landscaped” residential areas, some with seating alcoves, than you might encounter here.

Go Native!
Native plants, especially Texas Superstars and drought-tolerant greenery, are your best allies to minimize your landscape watering needs. Plant annuals in seasonal containers, and use them as an attractive focal point for your yard. Container plants can easily be sustained by hand watering or inexpensive drip irrigation options.
available at your neighborhood nursery or do-it-yourself store.

Here are some tips to help maximize water efficiency around the house:

**Find and fix leaks!**
A leaking faucet can waste up to 100 gallons a day! As long as faucets, toilets and showers are leaking, saving water is impossible. Don’t let those leaks intimidate you, either – you CAN fix them yourself. Help is available at your local home improvement or hardware store.

Collect information about the leaky item – such as serial or model number – and take a photo with you for reference if you have any doubts about make or model. Find a friendly plumbing department sales representative and ask for help with your situation. They can help you find the correct replacement parts, and can even give basic instructions on how to make the fix.

**Flush and Bathe**
Experts have calculated that almost two thirds of home water use is for toilet flushing and bathing. Don’t use toilets as waste baskets and fix any leaks immediately. Shorten your shower by 5 minutes and save up to 25 gallons each time you get clean! If you prefer a bath, consider filling the tub only half full...and save 10-15 gallons. Never allow water to go down a drain that can be used for something else, such as watering plants.

Please make a commitment to save 20 gallons of water every day; you will be amazed at how easy this is to accomplish!

**Education, Education, Education**
Whether you’re an educator, student, business leader, or a member of your homeowner association – please get involved in local water conservation efforts, or start your own program. Help educate others about the critical need to use water judiciously. Water efficiencies are possible in the commercial sector, as well.

Many manufacturing companies, hospitals, schools and food service businesses have already begun to implement aggressive water efficiency programs.

More and more restaurants are offering water table service on request only. And with the advent of critical education budget cuts, many campuses are retrofitting with low-volume flush toilets or using toilet tank water displacement devices to reduce their total water usage.

Other options in the school environment include adjusting ice machines to dispense only the amount of ice that is actually used each day, replacing old spray nozzles with more efficient varieties, and running washing machines with full loads. Schools can also fix toilet, faucet or locker room shower head leaks. Timers can be set to irrigate athletic fields during the earliest morning hours – before the residential water “rush hour” – and weather-based technology can be installed to factor in recent or predicted rainfall before allowing the system to come on at all.

If the experts are correct, and drought is the “new normal” with no relief in sight, it is up to each of us to do our part to lessen its impact. If we treat water as a precious resource today, we can enjoy that resource tomorrow. 

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**WATER**
Servings in Requests only...

**Saving water... one glass at a time**
What’s a WATER “FOOTPRINT” and How Big is Yours?

It sounds strange, but water experts have recently begun calculating water usage for individuals, households, communities and even whole countries by considering how much water they directly or indirectly consume in any given time frame. This includes “virtual water” — the amount of water needed to produce everyday things we rely on like food, energy, clothing and shelter.

Did you know that the water footprint of a pound of plastic is 24 gallons? That means that the container of bottled water, juice or soft drink uses three to five times as much water to create as the beverage it contains! Get the picture? Most folks have no idea how much fresh water they consume in a day. That’s where the water footprint concept comes in — it can remind us where our water comes from and its true value as the critical component in virtually everything in our lives and lifestyle. Consider all the ways you can use water more efficiently — taking shorter showers, running the dishwasher or washing machine only with full loads, and MOST IMPORTANTLY, water your lawn only when it needs it. Use less...save more!

If you think of your ‘footprint’ as how much water you use, are you a tip-toer...or a BIG FOOT? Here’s a quiz to see what you think “uses” a lot of water to grow, create or make! Guess how many gallons of water each of these items require. The answers are below...no peeking!

HERE ARE YOUR CHOICES: 25 gallons; 122 gallons; 5,000 gallons; 65 gallons; 400 gallons; 40,000 gallons; 1,400 gallons; 45 gallons; 100,000 gallons; 2,500 gallons.

loaf of bread  burger, fries & a drink  slow faucet drip  automobile  glass of milk

pair of blue jeans  1 pound of beef  5 minute shower  full load, washing machine  serving of chicken

ANSWERS: bread: 122 gallons; burger, fries, drink: 1,400 gallons; pound of beef: 40,000 gallons; faucet drip: 5 gallons; auto: 100,000 gallons; milk: 65 gallons; blue jeans: 40,000 gallons; pound of beef: 2,500 gallons; slow faucet drip: 5,000 gallons; 5 minute shower: 25 gallons; loaf of bread: 40 gallons; serving of chicken: 40 gallons.
Conversion... Continued from page 1

Authority’s new surface water system. That is approximately 55 percent of the waterlines required to meet the 2013 conversion deadline, says Silva.

So far, the Authority has designed 25 projects, with eight complete and twelve under construction. Construction cost of awarded projects is $52 million as of early October, 2011. The Authority has leased and reopened an inactive City of Houston water plant near Bellaire Boulevard and Synott Road to push water to the MUDs, while the Authority plans and constructs a permanent Bellaire Pump Station. Fourteen additional projects are in design.

Through August, 2011, the NFBWA has delivered 527 million gallons of surface water to its first MUDs, or 5.4 percent of total NFBWA demand. The Authority expects to convert approximately 15 percent by the end of 2011, and 30 percent by the end of 2012 – well ahead of the FBSD’s 2013 deadline.

Eventually, it will cost billions of dollars – not hundreds of millions – to convert the Greater Houston region to surface water, Authority officials say.

“We can no longer pump out of water wells in our neighborhoods,” said Houghton. “Very few people have heard that we need to convert to alternative water sources, such as surface water. It’s a massive effort to pipe surface water across Houston to Fort Bend county. Water rates will rise and will rise fairly dramatically. We want people to be aware of that.”

The NFBWA has issued $280 million in bonds to finance design and construction of a pump station, transmission lines, and storage facilities, for capital to the City of Houston for water supply facilities, and to acquire necessary property and easements.

These funds have provided the necessary financing to complete 2013 surface water conversion requirements. The bonds will be repaid through pumpage fees charged to the MUDs and cities within NFBWA boundaries and contract participants and water sales.

Houghton said the Authority – thanks to diligent effort and current market conditions – has been able to construct much of the first phase of new infrastructure at a cost significantly less than originally estimated. The $52 million in projects already complete or under construction has cost $8 million less than conceptual estimates.

Whenever possible, the Authority is routing new lines along existing utility easements.

“We took a very careful look at all our routing alternatives and selected the ones with the least impact on existing residents and which allowed us to construct as soon as possible,” Houghton said. “That combination enabled us to deliver water earlier than required.”

While reducing the more inconvenient and noticeable aspects of groundwater conversion is a plus for residents, the Authority also wants to make the process as transparent as possible. Silva said working with MUD representatives has helped smooth and speed the process.

“Complying with the conversion mandate involves a partnership between the Authority and the MUDs,” Silva said. “We’ve worked very hard to let the MUDs know what is going to happen, and to make sure that residents were aware of construction routes and informed ahead of time when construction would take place. I think that made all the difference in the world.”