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An Alternative to Expansion

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An adequate water supply for future city growth and prosperity is a prime responsibility of every city administration. And at least a few Texas mayors have been "run out of town" for allowing municipal water supplies to fall short of this goal.

Often cities with surplus water for their present populations and industries attract new industries until they become water-short cities. For this reason, many city administrators constantly search for additional sources of water--new well fields, new reservoirs, or new legal rights to surface water.

Texas cities are finding it increasingly difficult, however, to supply adequate fresh water for their growing, ever-thirstier, populations. Some of the reasons for their difficulties include:

- Texas is a water-short state. Texans currently use about 17 million acre-feet of water a year even though the safe annual yield of both groundwater and surface water is, according to the Texas Department of Water Resources, only 15 million acre-feet.
- Groundwater sources--on which a majority of Texas towns and cities depend--have diminished in quantity and quality because cities and other water users have removed more water in recent years than nature has replaced.
- Competition for surface water among cities and with other water users such as irrigators and power companies has become fierce in this water-short state.
- Water supply reservoirs are extremely costly to build and require more than a decade to complete.
- New stringent federal regulations for drinking water quality and wastewater treatment generally mean increased treatment costs both before and after water is distributed through a city.
- Soaring energy costs have also contributed to municipal water supply headaches.

An Alternative

A few city councils and city water departments around the state, however, are taking a new stand on solving their water supply dilemmas. Rather than selling voters on the need for bigger and better water supply, distribution, or treatment facilities, they are encouraging water customers to use less water by adopting more water efficient ways. By reducing water use per person, cities can at least delay the necessity of expanding supply, distribution systems, or treatment plants.

Cities encourage lower water consumption by: (1) promoting consumer education and awareness, (2) changing water metering and pricing systems, (3) adopting regulations in ordinances and building codes, (4) reducing waste in city water use, and (5) encouraging reuse and recycling.

Several Texas cities have consumer education programs underway to make water users aware of the value of the water resource and why it should be used wisely. Short brochures mailed with water bills contain facts and tips on how to save water and are the most common education method used by Texas cities. The Dallas Water Utilities conducted the most impressive program of this type of any city utility in Texas.

Other educational programs conducted by some of the larger water utilities in the state include television and radio interviews and programs presented by utility personnel. Programs presented to school and civic groups teach economic and environmental benefits of lower water consumption.

The El Paso Water Utilities Board conducts a unique program each year to encourage planting of native vegetation which requires less water than traditional lawns and gardens. The city cosponsors a contest with the El Paso Council of Garden Clubs to spotlight the most effective and attractive use of what they call "Southwestern Landscaping."

Metering and Pricing

Most Texas towns and cities meter the volume of water going to each individual residence and business, so charges can be based on the amount of water used rather than on a flat monthly rate. Cities which do not install meters to measure water use actually encourage water waste because the more water a consumer uses, the cheaper the price per gallon.

Some cities have reduced consumption by as much as thirty percent by installing meters and eliminating a flat rate billing system. A measure of just how effective metering can be was discovered by the Galveston Municipal Utilities when it conducted a comprehensive meter testing and repair program. Residential meters had been reading low by 11 percent and the commercial meters reading low by approximately 39 percent. As meters were replaced or repaired and customers began paying for the full amount of water used, Galveston water consumption was reduced by over 10 percent.

Costs of meter installation, maintenance, and billing may seem prohibitive to small towns with adequate water supplies, but cities that meter generally levy a minimum charge for all accounts to cover the billing costs and fixed service costs. On top of this minimum, cities have various structures which tend to encourage or discourage efficient water use.

All but a few Texas cities are still pricing water to give a break to the large water user. As one water superintendent described his city's water pricing: "Our rate structure is still directed by the old rule of the more a person uses, the cheaper the water is." The system, called a declining rate and designed to encourage industrial development, not only penalizes the small volume consumer now, but all future water customers. For as present water supplies are consumed, new supplies will be many times more costly than present sources.

Types of rate structure designed to encourage water conservation are the uniform, inclining, and lifeline rates. A uniform rate is easy to understand and administer: every customer pays the same price per gallon no matter how much water he uses.

Inclining rates mean that rates for water increase as volume increases and are generally used only in cases of water shortages. A more common rate structure is the lifeline rate charging a small amount per gallon for the amount of water necessary in a small home or apartment. Customers using more than this base amount pay more per gallon for the water consumed above the lifeline amount.

Ordinances and Building Codes

Few cities plan a cohesive water conservation program to include land use, design, and building restrictions. Such a program can require zoning provisions to make land parceling more amenable to low-water-use plantings. Minimum lot size, distance from pavement, and lot drainage requirements, for instance, can encourage water-saving landscaping.

City ordinances restricting the reuse of water should be reviewed and revised by all Texas cities in light of new wastewater treatment methods. Cities can and should encourage reuse of wastewater near the discharge points of municipal treatment plants. Examples of wastewater reuse in Texas include agricultural irrigation, power plant cooling, recreational lakes, and golf course irrigation.

A few cities have adopted ordinances requiring the installation of low-water-requiring fixtures and faucets in all new construction. San Antonio, for instance, adopted revisions to the plumbing code to require water saving devices in new construction and restrict the water requirements on plumbing fixtures such as flush toilets. Under the new code, adopted in September 1979, flush toilets in new buildings cannot use more than three gallons of water per flush; lavatory sink faucets and shower heads cannot permit more than three gallons per minute.

All residential water supply agencies should consider similar regulations. The Texas Department of Water Resources estimates that Texans can save more than 10,000 acre-feet of water each year for the next 20 years by installing water saving fixtures in new construction.

City Water Use

Cities can cut their own water use by eliminating waste and inefficient water use. Leaks in water distribution systems waste an average of ten percent of a city's water budget each year, so a regular maintenance program to detect and repair leaks should be implemented in every town and city in the state.

Cities can also evaluate their use of water in parks and around public buildings. Many cities create an image of "water to spare" by maintaining acres of lush green lawn and large water fountains in their parks, but present city planners must consider aesthetically pleasing alternatives to water-demanding park areas.

Water-short El Paso has initiated a program to reduce water waste in its existing city parks. The parks department has evaluated park irrigation practices and is now experimenting with irrigation scheduling and fertilizer applications in order to use the least amount of water to maintain green areas. El Paso has also recently eliminated a regular waste of water; by installing special caps on fire hydrants to prevent loss of water due to vandalism of fire hydrants.

Many Benefits

As much as 30 percent of a city's water consumption can be cut simply by adopting the preceding measures. Many of these measures will become mandatory for Texas cities seeking federal grants or loans as President Carter's National Water Policy is implemented. His administration views water conservation as a resource management technique that has never had the emphasis and priority it deserves. Conservation now has a prominent place in future water resources decisions. "Water conservation," according to the policy statement issued in 1978, "offers a means for making better use of existing supplies and avoiding unnecessary capital and operating costs for both water supply and wastewater disposal."

Some city administrators argue that a reduction in water use will actually force an increase in water rates. This is a very real problem because reduced consumption does reduce income from water sales. The following benefits, however, will far outweigh a temporary reduction in city revenue and will "buy time" for state water planners to solve major water deficiencies in the state. Those Texas cities successful in reducing per capita water consumption will:

- Add years to the present water supplies.
- Reduce the cost of wastewater treatment.
- Save energy--the fastest rising expenditure in city water budgets.

- Postpone or eliminate the expansion of water treatment and distribution systems.
- Discharge less wastewater into Texas rivers and streams.

For these reasons, water conservation is indeed an attractive alternative for any city in Texas…