



*Stewards of Water Resources
from Amistad to the Gulf*

Meeting Water Needs Along the Rio Grande

The Rio Grande region faces significant water needs over the next 50 years. Population growth and an aging irrigation infrastructure will combine to produce a deficit of nearly 600,000 acre-feet of water by the year 2060 . . . unless specific water supply and management strategies are implemented. Local buy-in and action are needed to implement several of the water supply strategies; for many, funding sources must be identified. Others require additional in-depth evaluation. What is clear, though, is that improving irrigation district systems to convey water from the Rio Grande to both farms and cities is the most economical means of stretching limited water supplies to meet all needs.

These are major conclusions of the Rio Grande Regional Water Planning Group (Rio Grande RWPG) in the first update to the long-range water plan of 2001 that addressed water demands and needs in Maverick, Webb, Zapata, Jim Hogg, Starr, Hidalgo, Willacy, and Cameron counties. The Rio Grande RWPG is one of 16 regional water planning groups established by the Texas Legislature in 1997.

Water projects must be consistent with the regional plan to receive state funding or secure a state permit.

The group is soliciting public comment on the *Initially Prepared Regional Plan* through September 30, 2005. The plan is posted on the internet at www.RioGrandeWaterPlan.org and is available for

review at local libraries and county courthouses (see back page). Public comments will be

A public meeting on the plan will be held 10 am Wed., Aug. 17, at the Holiday Restaurant in Zapata, 506 Highway 83.

addressed and the final plan submitted to the Texas Water Development Board (TWDB) by January 5, 2006. All 16 regional plans will be consolidated by the TWDB into the 2007 *State Water Plan*.



Rio Grande RWPG

Members of the Rio Grande RWPG are selected by the state to represent the range of stakeholders. Terms expire on a staggered schedule. Current members include:

Counties

Jose Aranda, Maverick County Judge
John Wood, Cameron County Commissioner

Municipalities

Roberto Gonzalez*, Eagle Pass Water Works
John Bruciak, Brownsville PUB
Adrian Montemayor, Laredo Water Utilities

Industry

Gary Whittington, Unifirst Linen Service, Harlingen

Agriculture

Robert E. Fulbright*, Hinnant & Fulbright, Hebbronville
Ray Prewett, Texas Citrus Mutual, Mission

Environmental

Vacant

Small Business

Donald K. McGhee, Hydro Systems, Inc., Harlingen
Xavier Villarreal, T&J Office Supply, Zapata

Electric Generating Utilities

Jaime Gomez, Central Power & Light, Laredo

Water Districts

Sonny Hinojosa, HCID No. 2, San Juan
Sonia Kaniger, CCID No. 2, San Benito

Water Utilities

Charles Browning, Vice-Chairman*,
North Alamo WSC, Edinburg

Other

Glenn Jarvis, Chairman*, Attorney, McAllen
James Matz, Mayor, Palm Valley

Public

Mary Lou Campbell, Secretary*, Mercedes

*Executive Committee

The Lower Rio Grande Valley Development Council serves as administrative agent; the planning process is managed by NRS Consulting Engineers.

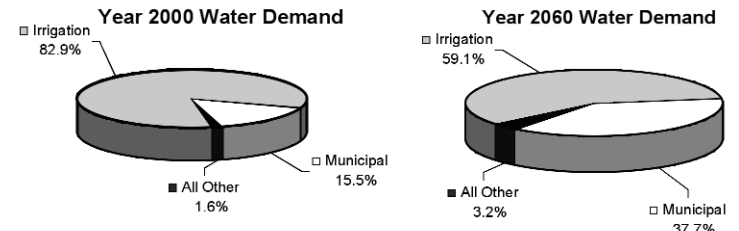
Population Growth & Water Demand

Population in the Rio Grande region more than doubled over the period 1950-2000, increasing from almost 399,000 to more than 1.2 million. By 2060, population is projected to total more than 3.8 million.

That growth in population will fuel increased demand for water for municipal purposes: drinking, hygiene, lawns and gardens, recreational use, etc. Municipal water demand, now about 230,000 acre-feet per year (AF/yr), is projected to swell to almost 626,000 AF/yr. (An acre-foot of water equals 325,581 gallons.)

Simultaneously, irrigation demand is projected to decrease, as land is converted from agricultural uses to urban uses.

Exhibit A. Changing Water Demand



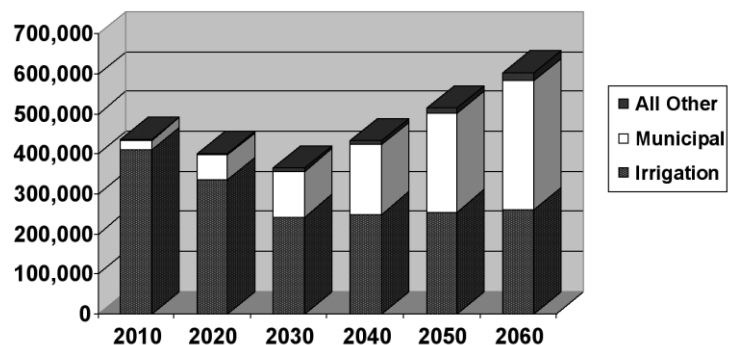
All other uses include manufacturing, steam electric, mining, and livestock.

Water Supply Needs

The vast majority of the water available to the region – more than 94 percent – comes from supplies stored in the Amistad and Falcon reservoir system. Because of sedimentation in the reservoirs, the amount of water available from the system is projected to decline from 1.12 million AF/yr in 2010 to 1.08 million AF/yr in 2060. In addition, the dependable firm water supply from the system during drought-of-record conditions is about 1 million AF/yr.

Analyses conducted by the Rio Grande RWPG show that the region in general faces significant water supply needs even though some users in some areas actually may have surplus supplies. Shortages in municipal supplies are projected to increase more than 13-fold from 2010 to 2060.

Exhibit B. Water Supply Deficits in the Rio Grande Region (in acre-feet)



All other uses include manufacturing, steam electric, mining, and livestock.

The Texas Water Development Board has estimated that unmet water needs could have considerable socioeconomic impacts on region: more than \$2 billion lost to decreased sales, \$2 billion in lost income, more than 26,000 lost jobs, and more than \$75 million in lost taxes by 2060.

Strategies to Meet Water Needs

Analyses conducted for the Rio Grande RWPG found that improvements to irrigation district conveyance systems and on-farm conservation measures can produce significant water savings at economical costs.

Conveyance system improvements could produce water savings of more than 243,000 AF/yr – about 40 percent of the total water shortage projected for the 8-county area in 2060 – at an annual cost of less than \$121/AF. On-farm conservation measures could produce annual savings of more than 274,000 AF/yr at an annual cost of about \$253/AF.

Recommendations for improvements to conveyance systems include:

- installing no-leak gates;
- installing additional water measurement weirs;
- converting smaller concrete canals in poor condition to pipeline;
- lining smaller earthen canals previously constructed of more porous soils; and
- implementing a verification program to monitor and measure the effectiveness of the efficiency improvements.

Technologies and methods available for on-farm conservation include plastic pipe, low energy precision application systems, irrigation scheduling using an evapotranspiration network, drip irrigation, metering, unit pricing of water, and switching to water efficient crops.

Water saved through these means also could help offset municipal shortages. The Rio Grande RWPG identified three primary strategies for meeting increasing domestic, municipal and industrial (DMI) needs:

- optimize the supply of water available from the Rio Grande;
- expand water conservation programs; and
- diversify water supplies for DMI use by developing alternative sources, including reused or reclaimed water, groundwater, and desalination.

The Rio Grande RWPG identified 10 municipal strategies for meeting water demand (see Exhibit C). The most economical is implementing advanced water conservation measures, such as retrofitting plumbing fixtures and installing water-wise landscaping.

Exhibit C. Summary of Water Management Strategies

| Municipal Strategies | Yield (Additional AF) | Annual Cost/AF | Total Annual Cost |
|--|-----------------------|----------------|-----------------------|
| Advanced Water Conservation | 43,766 | \$ 112.47 | \$ 4,922,399 |
| Groundwater Development | 49,204 | \$ 304.46 | \$ 14,980,650 |
| Urbanization | 15,345 | \$ 368.37 | \$ 5,652,638 |
| Non-Potable Reuse of Water | 38,532 | \$ 415.22 | \$ 15,999,257 |
| Contract Water Rights | 4,632 | \$ 455.56 | \$ 2,110,154 |
| Desalination of Brackish Groundwater | 62,339 | \$ 505.51 | \$ 31,512,988 |
| Brownsville Weir and Reservoir | 20,643 | \$ 537.27 | \$ 11,090,865 |
| Acquisition of Rio Grande Water Rights | 116,194 | \$ 542.74 | \$ 63,063,132 |
| Potable Reuse of Reclaimed Water | 1,120 | \$ 705.89 | \$ 790,752 |
| Seawater Desalination of | 889 | \$ 767.63 | \$ 682,423 |
| Total | 352,665 | | \$ 150,805,257 |

| Irrigation Strategies | Yield (Additional AF) | Annual Cost/AF | Total Annual Cost |
|--------------------------------|-----------------------|----------------|-------------------------|
| Conveyance System Improvements | 243,092 | \$ 120.68 | \$ 29,336,342.60 |
| On-Farm Conservation | 274,033 | \$ 253.38 | \$ 69,434,481.50 |
| Total | 517,125 | | \$ 98,770,824.10 |

Additional Issues & Recommendations

State rules require the water planning groups to report on how affected entities propose to pay for water management strategies. These analyses will be completed after the *Initially Prepared Regional Plan* is submitted to the Texas Water Development Board.

State rules also allow the Rio Grande RWPG to make recommendations for regulatory, administrative, or legislative action to address water needs. The *Initially Prepared Regional Plan* includes the following recommendations:

- The International Boundary and Water Commission should renew efforts to ensure that Mexico complies with Minute 309 and set in place means to achieve full compliance with the 1944 Treaty, including enforcement of Minute 234, which addresses the actions required of Mexico to completely eliminate water delivery deficits within specified treaty cycles.
- The State of Texas should consider factors other than merely population in funding the planning process in Region M because of the unique circumstances affecting water supply in the area.
- The State should continue financing brackish groundwater projects and the demonstration seawater desalination project as means to increase water supply alternatives in the region.
- The State should authorize the Rio Grande Watermaster to manage the Rio Grande WAM and should fully appropriate to the Texas Commission on Environmental Quality fees paid by Rio Grande water right holders as specified in Section 11.329 of the Texas Water Code for the purpose of fully funding Rio Grande Watermaster operations.
- The State should assist in finding new technical and financial resources to help the region combat aquatic weeds and salt cedar and thus protect its water supplies. The Rio Grande RWPG joins with the Far West Texas and Plateau RWPGs to encourage funding for projects aimed at eradicating salt cedar in the Rio Grande watershed and for ongoing long-term brush management activities.
- The State should continue providing technical and financial resources to fully develop the regional groundwater availability model.

TO COMMENT ON THE PLAN

Public comments will be accepted through Sept. 30, 2005.

Please submit comments to:

J. Kevin Ward, Executive Administrator
Texas Water Development Board
1700 N. Congress Ave.
Austin, TX 78711-3231

-or-

Kenneth N. Jones, Jr., Executive Director
Lower Rio Grande Valley Development Council
311 N. 15th Street
McAllen, TX 78501-4705

Opportunities for Public Review of the Draft Rio Grande Regional Water Plan

| COUNTY | LOCATION |
|-----------------|--|
| Cameron | County Clerk's Office, County Courthouse, 964 E. Harrison, Harlingen, 956-544-0815 Harlingen Public Library, 410 '76 Drive, Harlingen, 956-430-6652 Brownsville Public Library, 2600 Central Blvd., Brownsville, 956-548-1055 |
| Hidalgo | County Clerk's Office, County Courthouse, 100 North Closner, Edinburg, 956-381-2100 McAllen Memorial Library, 601 N. Main, McAllen, 956-682-4531 Lower Rio Grande Valley Development Council, 311 N. 15th St., McAllen, 956-682-3481 |
| Jim Hogg | County Clerk's Office, County Courthouse, 102 E. Tilley, Hebbronville, 361-527-3015 Jim Hogg County Library, 210 S. Smith, Hebbronville, 361-527-3421 |
| Maverick | County Clerk's Office, County Courthouse, 500 Quarry St., Eagle Pass, 830-773-3824 Eagle Pass Public Library, 589 Main St., Eagle Pass, 830-773-2516 |
| Starr | County Clerk's Office, County Courthouse, Rm. 201, 401 N. Briggton, Rio Grande City, 956-487-2101 Starr County Library, 700 E. Canales, Rio Grande City, 956-487-4389 |
| Webb | County Clerk's Office, County Courthouse, 1000 Houston St., Laredo, 956-523-4266 City of Laredo Library, 1120 E. Calton Rd., Laredo, 956-795-2400 South Texas Development Council, 1718 E. Calton Rd., Suite 14, Laredo, 956-722-2670 |
| Willacy | County Clerk's Office, County Courthouse, 540 W. Hidalgo Ave., Raymondville, 956-689-2710 Reber Memorial Library, 193 N. 4th, Raymondville, 956-689-2930 |
| Zapata | County Clerk's Office, County Courthouse, 605 N. US Hwy. 83, Zapata, 956-765-9915 Zapata County Library, Zapata, 901 Kennedy St., 956-765-5351 |



c/o Lower Rio Grande Valley
Development Council
311 N. 15th Street
McAllen, TX 78501-4705

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