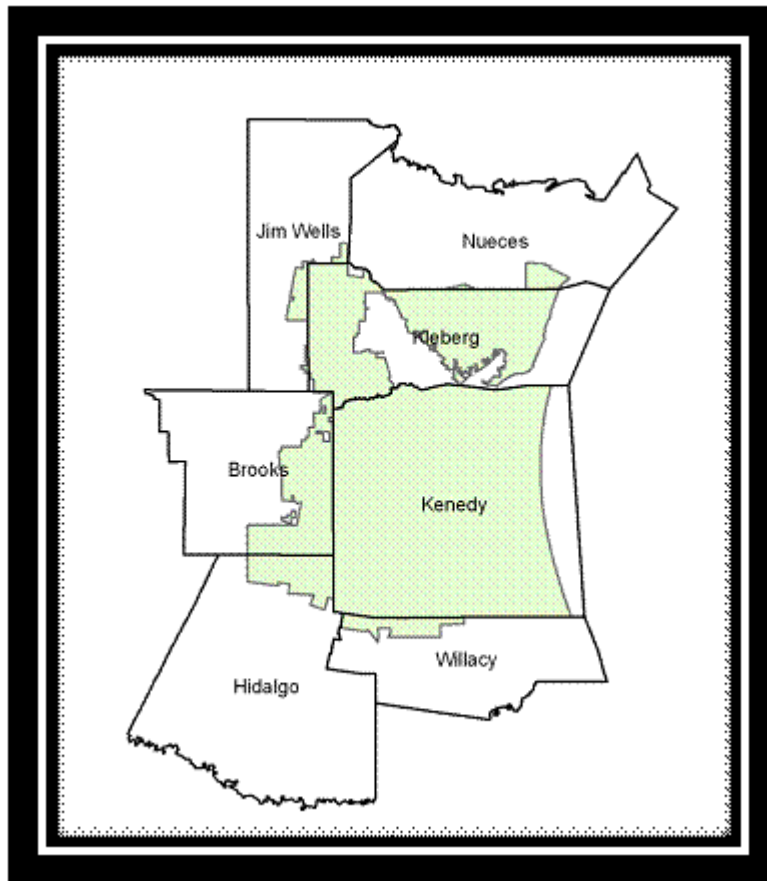


Kenedy County Groundwater Conservation District's Management Plan



Original Plan Adopted by KCGCD: July 6, 2007

Original Plan Approved by TWDB: September 11, 2007

2012 Plan Adopted by KCGCD: July 25, 2012

2012 Plan Approved by TWDB:

Board of Directors

Chuck Burns, President (Precinct 3)
Homero Vera, Vice-President (Precinct 1)
David S. DeLaney, Secretary/Treasurer (Precinct 5)
Daniel Y. Butler, (Precinct 4)
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APPENDIX D:	Estimated Historical Groundwater Use and 2012 State Water Plan Datasets – Kenedy County Groundwater Conservation District, Dated April 18, 2012 (Author: Stephen Allen, 2012)
APPENDIX E:	GAM Run 11-016: Kenedy County Groundwater Conservation District Management Plan (Author: Jerry Shi 2012)
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KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT'S MANAGEMENT PLAN

I. DISTRICT MISSION

The Kenedy County Groundwater Conservation District's (District) mission is to develop and implement an efficient, economical and environmentally sound groundwater management program to manage, protect and conserve the groundwater resources of the District, consistent with Texas Water Code Section 36.0015. The District's policies and actions will be consistent with the fact that a landowner owns the groundwater below the surface of the landowner's land as real property.

II. PURPOSE OF THE MANAGEMENT PLAN

Senate Bill 1 (SB 1), enacted in 1997, and Senate Bill 2 (SB 2), enacted in 2001, established a comprehensive statewide planning process, including requirements for groundwater conservation districts under Texas Water Code Chapter 36 to provide conservation, preservation, protection, recharging and prevention of waste for the groundwater resources of the State of Texas. This legislation requires that each groundwater conservation district develop a management plan that defines the district's water needs and supply within the district and establishes goals that the district will use to manage groundwater in order to meet those needs.

House Bill 1763, enacted in 2005, requires joint planning among districts that are in the same Groundwater Management Area (GMA). These districts must establish the desired future conditions of the aquifers within their respective GMAs. Through this process, the districts will submit the desired future conditions to the executive administrator of the Texas Water Development Board (TWDB). The TWDB will calculate the modeled available groundwater in each groundwater district within the management area based on the desired future conditions of the aquifers in the GMA. Once this has been accomplished, each district must include this information in its groundwater management plan.

Further, the District is required to adopt rules necessary to implement the management plan. The District must consider whether permits are consistent with the management plan. Production limits must be consistent with the plan.

III. DISTRICT INFORMATION

A. Creation

The District was created in 2003 by the 78th Texas Legislature under H.B. 3374. It was confirmed by an election held on November 2, 2004. As of January 2011, the District has received petitions from landowners in Brooks, Hidalgo, Jim Wells, Kleberg, and Willacy counties requesting annexation into the District. These petitions were approved by the Board. The maps on the cover and in Exhibit A depict the current boundaries of the District.

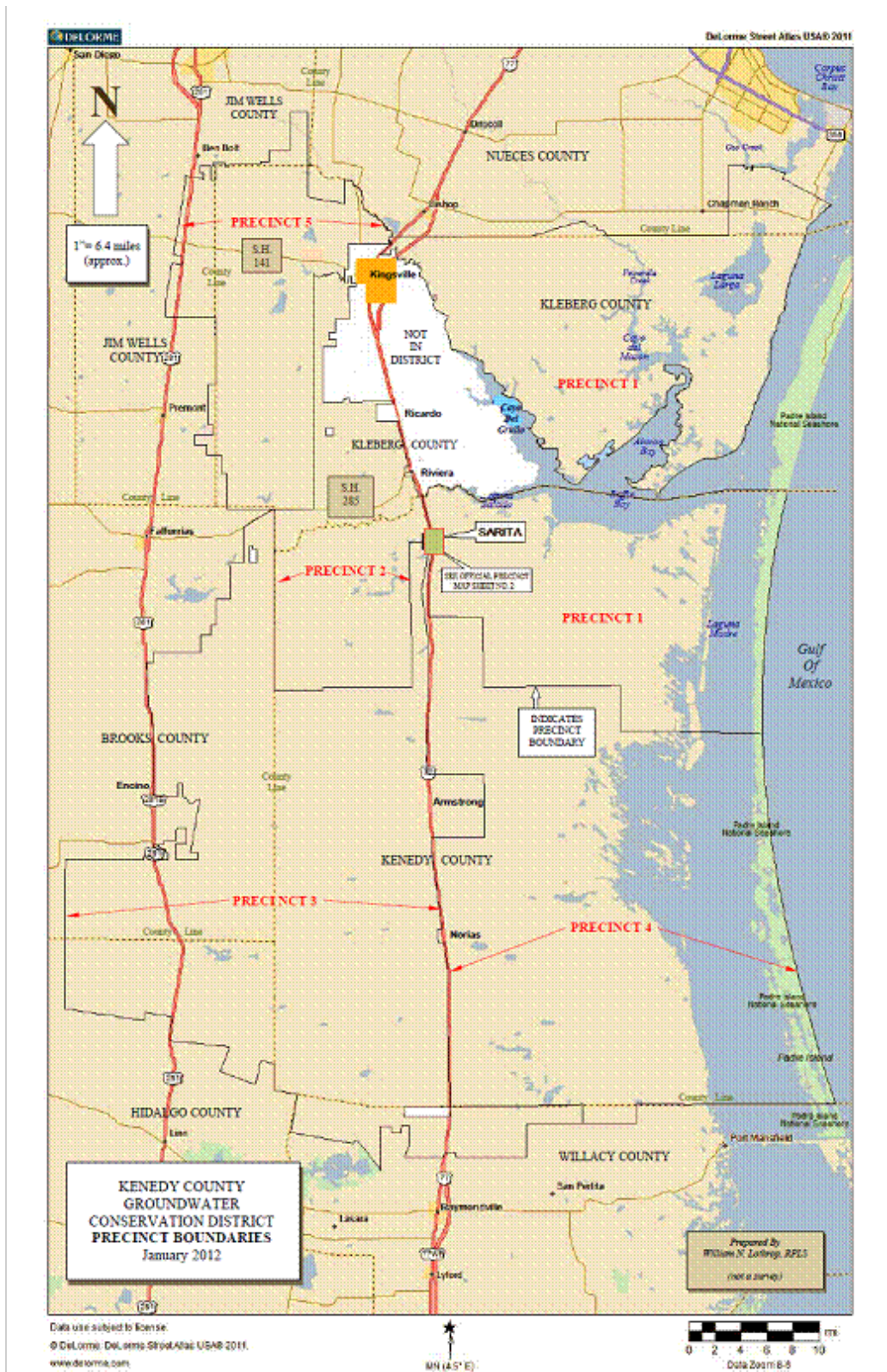
B. Directors

The Board of Directors consists of five members - one Director from each Precinct. These five directors are elected by the voters of their Precinct and serve four-year terms. Precinct 1 consists of Kenedy County's Precinct 1 and the King Ranch Laureles Division. Precinct 2 consists of Kenedy County's Precinct 2, part of Kleberg County north of Precinct 2, and the Southeast section of the Santa Gertrudis ISD. Precinct 3 consists of Kenedy County's Precinct 3 and all of the annexed tracts of land in Brooks and Hidalgo counties and westernmost part of Willacy County. Precinct 4 consists of Kenedy County's Precinct 4 and the annexed tracts of land in the easternmost part of Willacy County. Precinct 5 consists of the Santa Gertrudis ISD, less the southeastern section thereof, and all of the annexed tracts of land in Jim Wells and Kleberg County, except for the portion that is part of Precinct 2. Director four-year terms are staggered with a two year interval. Directors from Precincts 1 and 5 serve the same term, while directors from Precincts 2, 3, and 4 serve the same term. Elections are held in November in even numbered years. See Exhibit A for a map of the District showing the five Precincts.

C. Taxing Authority

The District has the taxing authority provided by its enabling legislation and Texas Water Code, Chapter 36, specifically section 36.020. The levy of a maintenance tax at a rate not to exceed 5 cents for each \$100 of assessed valuation was approved by the voters on November 2, 2004. To date, the tax rate has not exceeded 5 cents for each \$100 of assessed valuation.

Exhibit A: District Map Showing Directors' Precincts



C. Authority

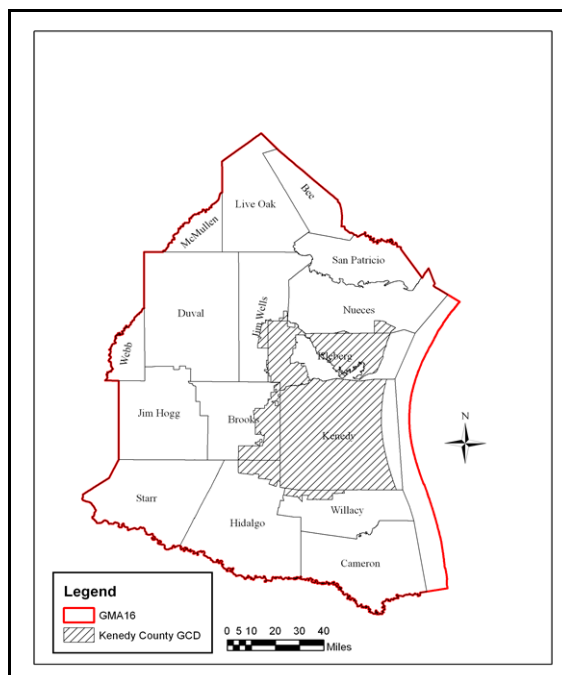
According to its enabling legislation, the District has all of the powers, authority, and duties of a Texas Water Code Chapter 36 groundwater conservation district. Therefore, it has the duty to provide for the conservation, preservation, protection, recharging, and prevention of waste of groundwater, and to control subsidence. Under Chapter 36 it has the duty to develop this groundwater management plan to express how the District will meet those duties.

Under Chapter 36 the District has the authority to adopt and enforce rules, including rules to limit groundwater production, to provide for conserving, preserving, protecting, and recharging groundwater, to control subsidence, to prevent degradation of water quality, and to prevent waste of groundwater. The District has many other powers that are enumerated in Chapter 36 allowing it to accomplish its duties.

D. General Description of the District

The District includes all territory located within Kenedy County and parts of Brooks, Hidalgo, Jim Wells, Kleberg, Nueces, and Willacy counties. The boundaries are shown in Exhibit B. The District encompasses approximately 3,028 square miles and is part of groundwater management area 16 (GMA-16). The primary economic activities within the District are oil and gas production and agriculture, primarily livestock. While the District does not include a large-sized city or township, it is close to the City of Kingsville, which has traditionally relied on groundwater supplies.

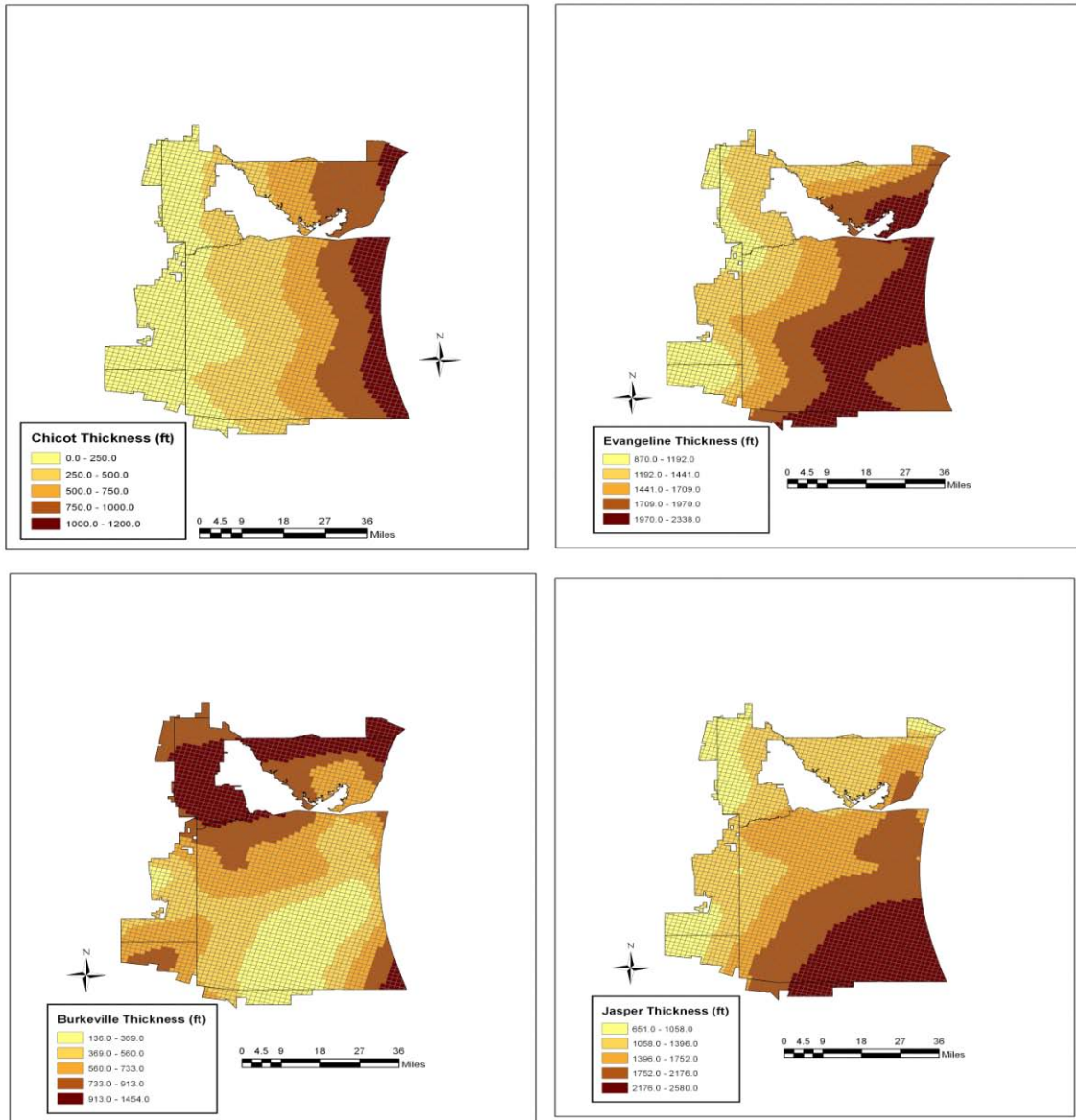
Exhibit B: Kenedy County GCD and GMA-16 (February 2012)



E. Aquifer and Stratigraphic Units

The District is underlain by the Gulf Coast Aquifer, which is a large, leaky aquifer system that spans along the Gulf of Mexico. The aquifer consists of interbedded deposits of sands, silt and clay. The Gulf Coast aquifer is sometimes further classified into four major aquifers: the Chicot, Evangeline, Burkeville confining unit and Jasper aquifers (Baker, 1979).

Exhibit C: Aquifer Thickness of the Gulf Coast Aquifer Units in Kenedy County GCD Based on Data in GMA-16 GAM Model (Hutchison et al. 2011)



The thicknesses of the aquifers found within the District are depicted in Exhibit C, which is based on the conceptualization used in GMA-16 GAM model (Hutchison et al., 2011). In addition, select cross-sectional maps and general information regarding the thicknesses of these aquifers, their variability and the extent of sand thicknesses have been summarized by Chowdhury and Mace (2007) and Waterstone (2004).

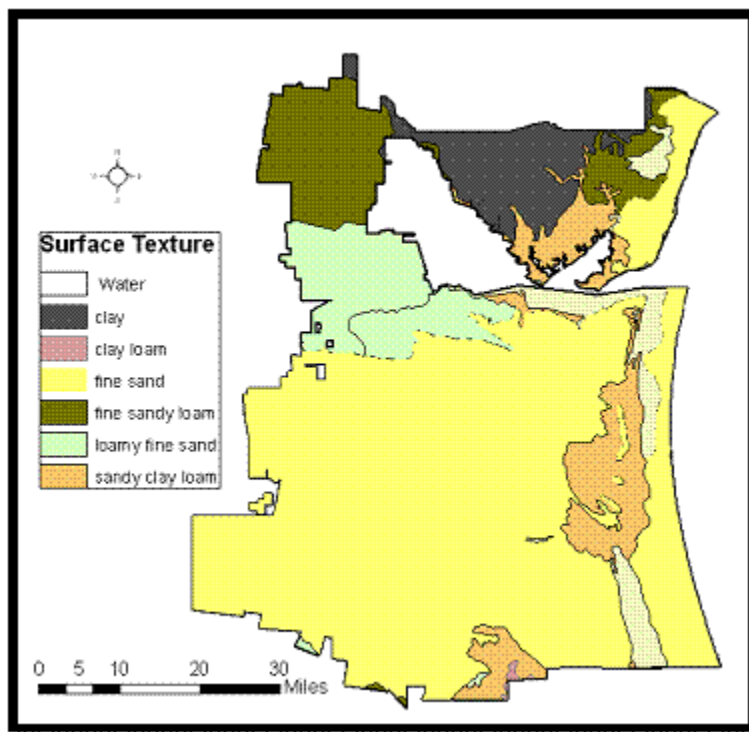
As can be seen from Exhibit C, the thicknesses of the aquifers increase eastward towards the coast (Baker, 1979). The Chicot aquifer covers the surface of the District and is the aquifer that is directly recharged by precipitation. The thickness of the Chicot aquifer is very small: 20 – 100 feet in the western sections of the District. The water quality of this aquifer is characterized by high total dissolved solids (TDS), especially near the coast. As result, this aquifer currently is not used for major water supply purposes. Based on the thicknesses, groundwater supply wells tap into Chicot and Evangeline aquifers along the eastern sections of the District, while major water supply wells tap into Evangeline and possibly Jasper aquifers along the western sections of the District.

F. Surficial Soil Texture Characteristics

A surficial soil texture map for the District was prepared using the USDA STATSGO database and is depicted in Exhibit D.

Exhibit D: Surficial Soils

Updated February 2012



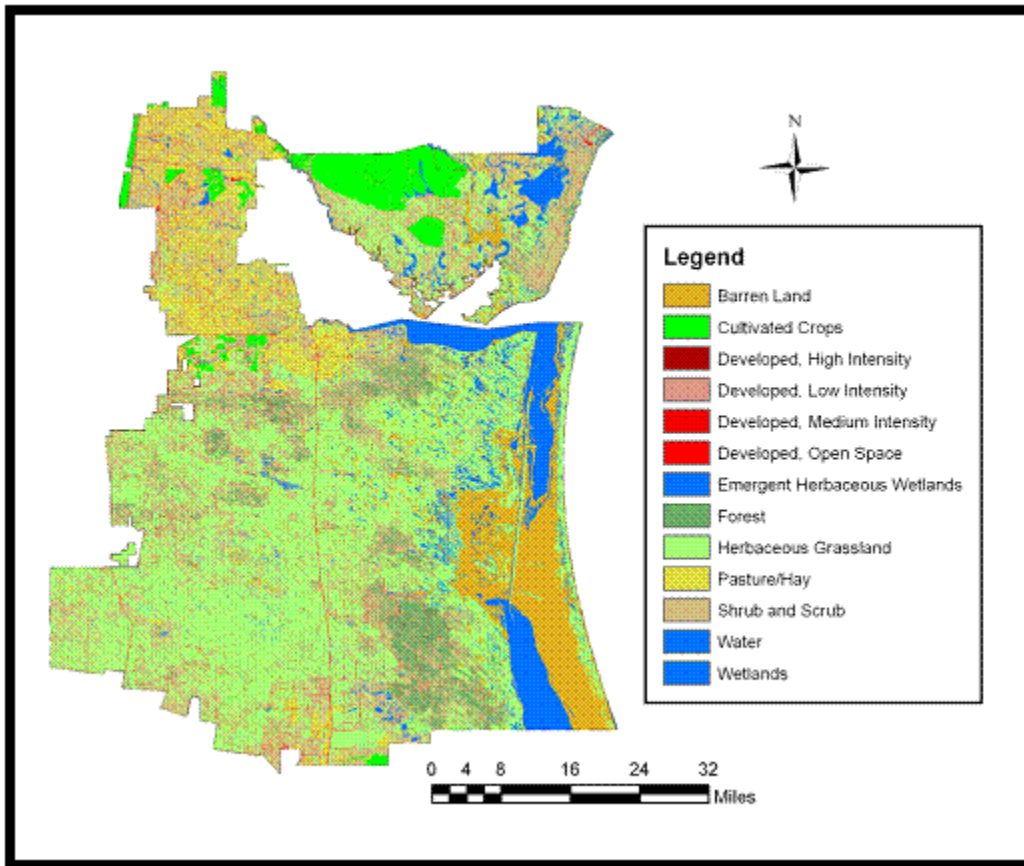
The surficial soils within the District range from clayey soils to fine sands. The silt and clay deposits are commonly referred to as the Beaumont Clay and Lissie Formation and they outcrop in the eastern sections of Kleberg, Kenedy and Nueces counties. Most of the District is overlain by tan to white, unfossiliferous, fine to very fine sand deposits that are intermixed with clay and sandy clay that are referred to as South Texas eolian plain deposits. They are primarily comprised of windblown sediments (Shafer and Baker, 1973). The barrier island and beach deposits of the Pleistocene age crop out in an area 4 to 8 miles wide bordering the landward side of the Laguna Madre and are mostly comprised of fine sands (Shafer and Baker, 1973). Beaumont and Lissie clay formations can be found in the southeastern portions of Kenedy County.

While a major portion of the District is covered by fine sandy deposits, these deposits are predominantly windblown and are underlain by Beaumont clays and Lissie formations (consisting of clays, silts and sands). As a result, recharge to the underlying aquifer is expected to be fairly limited. Most of the infiltrated water in these sandy deposits is hypothesized to flow laterally eastwards towards the Gulf of Mexico, especially when it encounters tight clayey units.

G. Land Use and Land Cover Characteristics

The District consists predominantly of range land supporting a mixture of herbaceous and woody vegetation. The District has no urban areas. (See Exhibit E). Agriculture and livestock demands are of critical importance within the District, although there is minimal irrigated agriculture within the District. In addition to livestock and agricultural uses, groundwater supplies for oil and natural gas production are important as well, although to date groundwater use for this purpose has been small. While the District does not include a large-sized city or township, it is close to the City of Kingsville, which has traditionally relied on groundwater supplies. Model results (Chowdhury et al., 2004; Hutchison et al., 2011) indicate a cone of depression around the Kingsville area, indicating that groundwater could be flowing out of the District boundaries, especially in the northwestern sections of the District.

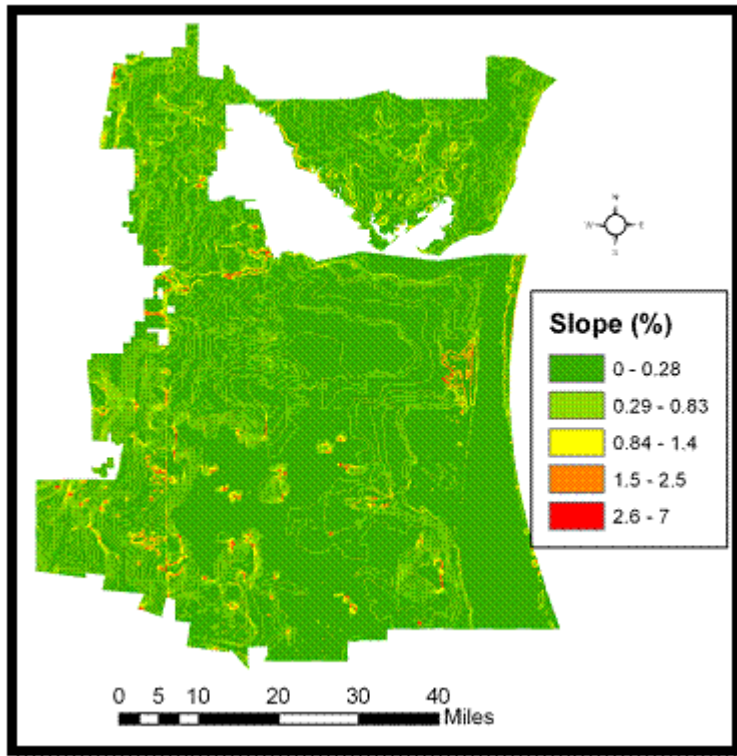
Exhibit E: Land Use Cover Characteristics [based on 2006 USGS Multi-Resolution Land Cover (MRLC) Dataset.]



H. Land Slopes

Land slopes were calculated using ArcGIS Spatial Analyst extension using 1:250K Digital Elevation Models (DEM) and are depicted in Exhibit F. The District consists primarily of gently rolling plains with a relatively flat topography especially near the coast. The regional-scale slopes are typically less than 1%. Greater slopes may be found at scales smaller than the one used for this assessment. The gentle slopes are again indicative of relatively small groundwater-surface water interaction.

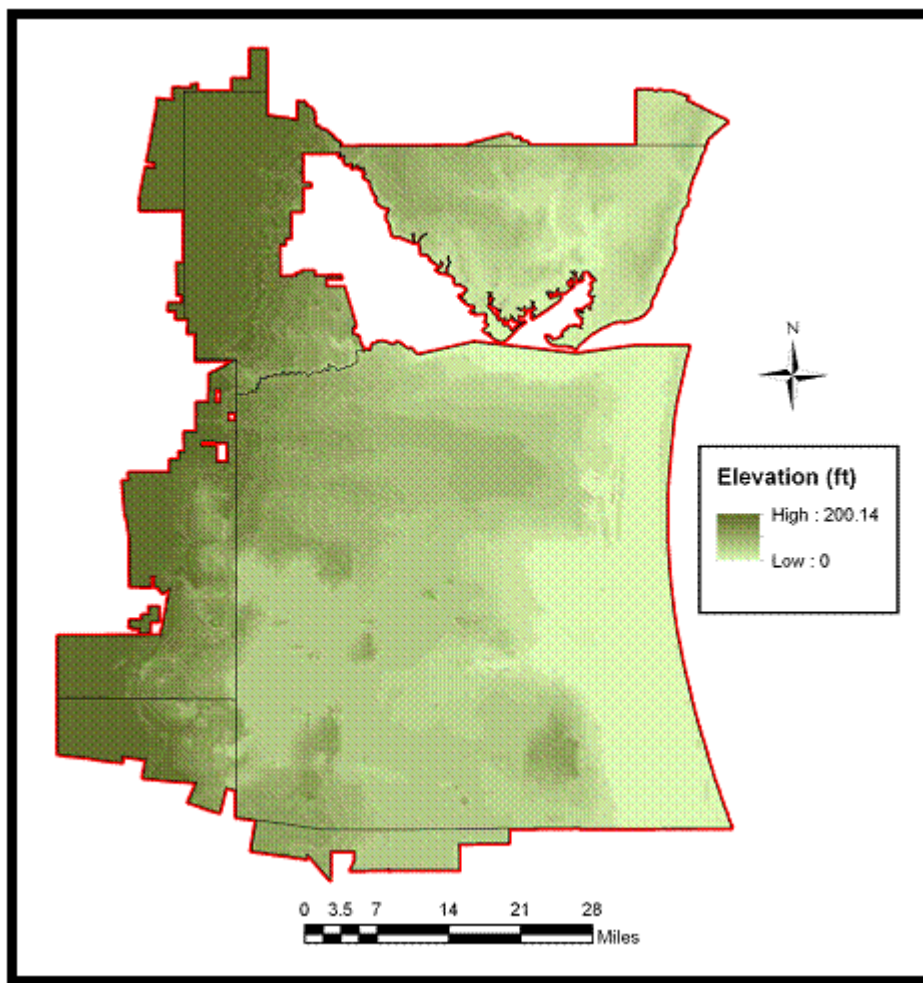
Exhibit F: Calculated Slopes
Updated February 2012



I. Topography

The topographic digital elevation map (DEM) was intersected for the District and is depicted in Exhibit G. The elevation within the District slopes in the east-south-east direction. The elevation ranges from roughly 200 feet in the western sections of the District to about mean sea level in the eastern sections of Nueces, Kleberg and Kenedy counties. The gently sloping topography indicates the general direction of groundwater flow in the aquifers (moving in northwest to southeastern directions).

Exhibit G: Topography.
Updated February 2012



IV. STATEMENT OF GUIDING PRINCIPLES

The District recognizes that its groundwater resources are of vital importance. The use of this most valuable resource can be managed in a prudent and cost effective manner through education, cooperation and development of a comprehensive understanding of the aquifers in the District. The greatest threat to the District's ability to achieve its stated mission is the inappropriate management of its groundwater resources due to a lack of understanding of local conditions. The District's management plan is intended to serve provide focus to the District's Board of Directors and staff, who must implement the District's duties and authority under Texas Water Code Chapter 36 and the District's enabling legislation.

V. CRITERIA FOR PLAN CERTIFICATION

A. Planning Horizon

This 2012 Plan becomes effective upon adoption by the District Board of Directors (Board) and subsequent approval by the Texas Water Development Board (TWDB). This Plan uses a ten-year planning horizon. As required by Texas Water Code §36.1072(e), the plan will be reviewed and readopted, with or without revisions, every five years. The plan may be reviewed and revised annually as necessary to address any changes in law, new or revised data, Groundwater Availability Models, or District management strategies. Under Texas Water Code § 36.1082(b)(5), enacted in 2011, the Plan must be reviewed and revised within two years of the adoption of desired future conditions for GMA-16. This revision fulfills both the required five-year update and the post-DFC adoption update.

B. Board Resolution

Certified copy of the Kenedy County Groundwater Conservation District resolution adopting the 2012 Plan, as required by 31 TAC §356.6(a)(2).

A certified copy of the Kenedy County Groundwater Conservation District resolution adopting the 2012 Plan is attached as Appendix A – Board Resolution.

C. Plan Adoption

Evidence that the plan was adopted after notice and hearing, as required by 31 TAC §356.6(a)(4).

Public notice documenting that the 2012 Plan was adopted following appropriate public notice and hearing is attached as Appendix B – Notice of Hearing.

D. Coordination with Surface Water Management Entities

Evidence that following notice and hearing the District coordinated in the development of its management plan with surface water management entities, as required by Texas Water Code § 36.1071(a).

There are no surface water management entities within the District. Letters transmitting a draft of this 2012 Plan for comments by Region M (Rio Grande Regional Water Planning Area) and Region N (Coastal Bend Regional Water Planning Group) are included in Appendix C – Letter to Surface Water Management Entities/Regional Water Planning Groups. Appendix C also includes letters transmitting the adopted 2012 Plan to these Regional Water Planning Groups.

VI. TECHNICAL INFORMATION REQUIRED BY TEXAS WATER CODE §36.1071 AND 31 TAC § 356.5

A. Modeled available groundwater

Estimate of the modeled available groundwater in the District based on the desired future condition of the aquifers developed under Texas Water Code § 36.108, as required by Texas Water Code § 36.1071(e)(3)(A) and 31 TAC § 356.5(a)(5)(A).

Modeled available groundwater is defined in the Texas Water Code, Section 36.001, Subsection (25), as “the amount of water that the executive administrator determines may be produced on an average annual basis to achieve a desired future condition established under Section 36.108.” Under Texas Water Code § 36.108(d), the desired future condition may only be determined through joint planning with other GCDs in the same GMA. The District is located in GMA-16. See Exhibit B. As part of the first round of joint planning, GMA-16 adopted a desired future condition on August 30, 2010. A series of model runs were performed using the GMA-16 GAM developed by the TWDB (Hutchison et al., 2011) during the GMA-16 joint planning process. The Groundwater Availability Modeling (GAM) Run 09-008, Scenario 10, was used as the basis for developing the desired future condition for the Gulf Coast Aquifer. Details of the Modeled Available Groundwater are presented in TWDB Report GAM Run 10-047 MAG (Hassan and Jigmond, 2011). The Modeled Available Groundwater for GMA-16 is estimated to be 358,100 acre-ft/year. The MAG corresponding to Kenedy County Groundwater Conservation District is 97,335 acre-feet/year.

The exempt groundwater use in the district for domestic and livestock purposes was estimated to be approximately 2,500 acre-feet/year. Subtracting this exempt use from the Modeled Available Groundwater and dividing it by the district area of 3,028 sq. miles, results in a correlative right of 0.587 acre-inches/acre/year of groundwater production.

B. Annual groundwater use

Estimate of the amount of groundwater being used within the District on an annual basis, as required by Texas Water Code § 36.1071(e)(3)(B) and 31 TAC § 356.5(a)(5)(B). (All site-specific information relied upon in developing this estimate has previously been provided to the Executive Administrator for comment, as required by Texas Water Code §36.1071(b) and 31 TAC § 356.5(b)).

Historical estimates of the amount of groundwater being used within the District on an annual basis were developed based on county-wide estimates for groundwater use that were provided by the Texas Water Development Board (Allen, 2012; Appendix D) and used in the 2012 State Water Plan, which is the most recently approved Water Plan. Because the District encompasses only portions of some counties and site-specific measurements were not available, the county-wide water use was apportioned based on the fraction of the land area within the District. The land fractions were also provided by Allen (2012) and district wide apportionments were provided by Allen (2012) in the

April 18, 2012 report (Both are included in Appendix D). Based on the groundwater use data (most recent 10 years for which data are available) presented in Exhibit H, the amount of groundwater used in the District is estimated to be approximately 8,600 acre-feet/year.

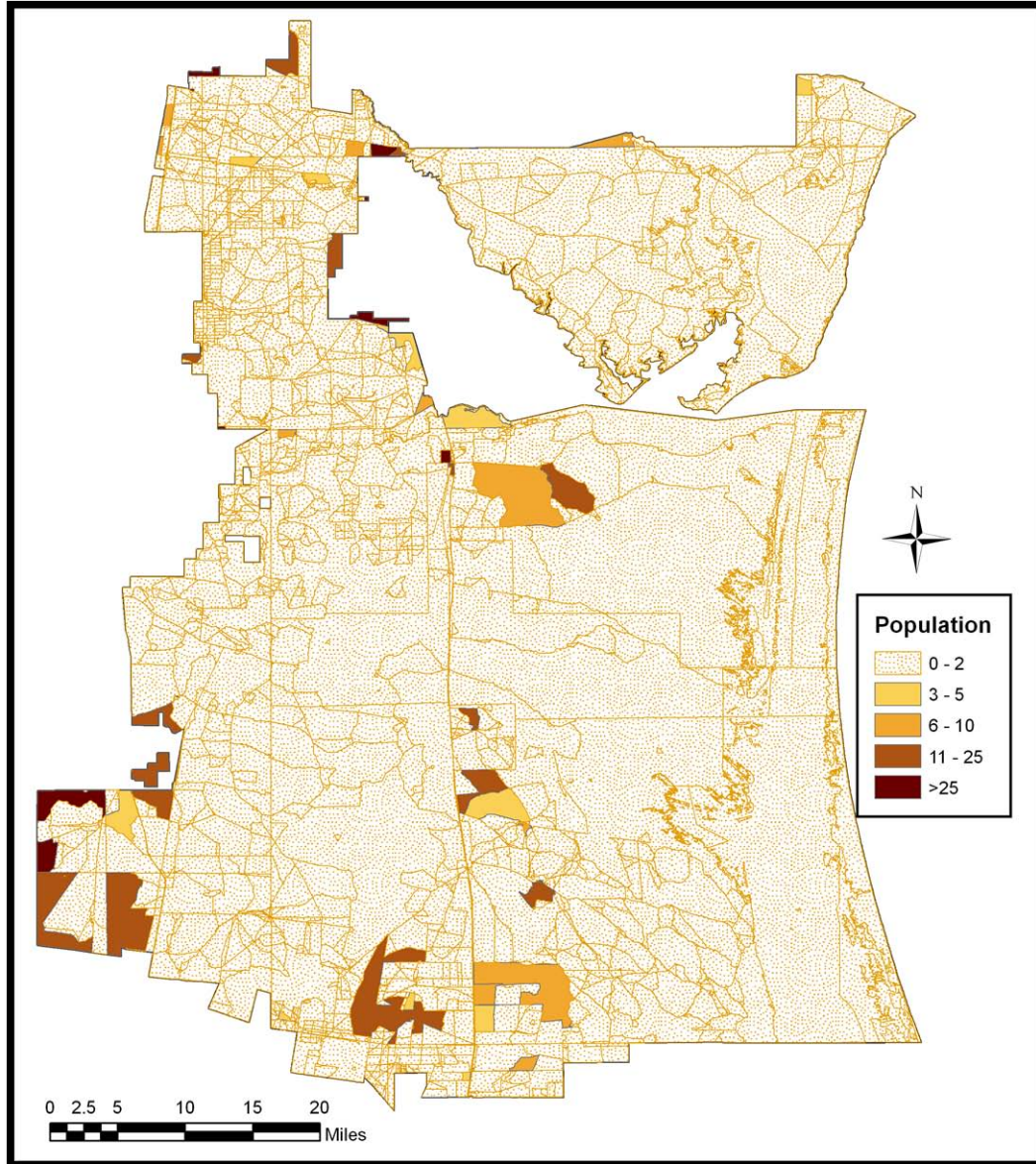
**Exhibit H: Total Groundwater Use in the District in acre-feet/year
(Based on data from 2012 State Water Planning Dataset as Reported in
Allen, April 18, 2012; Please refer to Appendix D)¹**

Year	Portions of the County within the GCD							Total
	Brooks (0.28)	Hidalgo (0.072)	Jim Wells (0.051)	Kenedy (1.00)	Kleberg (0.756)	Nueces (0.040)	Willacy (0.102)	
1999	733	1,549	212	195	5,900	116	3	8708
2000	616	997	347	315	6,714	116	3	9108
2001	629	1,150	294	292	6,552	142	3	9062
2002	616	1,057	282	290	5,117	135	4	7501
2003	809	953	335	191	6,449	154	4	8895
2004	788	937	354	227	6,425	154	4	8889
2006	710	442	364	765	6,365	181	18	8845
2007	597	510	269	554	6,035	146	20	8131
2008	832	592	225	1,002	5,380	178	16	8225

As depicted in Exhibit I, the District is predominantly rural. Groundwater is the major source of water supply for the residents of the District. In addition, the District is in close proximity to the City of Kingsville, which historically has relied on groundwater supplies for its municipal use. The City of Kingsville uses nearly 3,500 acre-feet of water annually, which is extracted from the Evangeline (Goliad sands) aquifer formation. There are also mining and oil and gas activities both within the District and in the vicinity of the District that rely on groundwater resources. Hence, it is important to measure and evaluate groundwater levels in the District. Long-term monitoring of groundwater levels is also necessary to evaluate compliance with the adopted desired future conditions (DFCs).

¹ Numbers in parenthesis represent the fraction of land area of the county that is within the District. The numbers presented are apportioned for the land area within the District.

Exhibit I: Population Distribution in the District
(Based on Census 2010 Data in units of persons/census block)

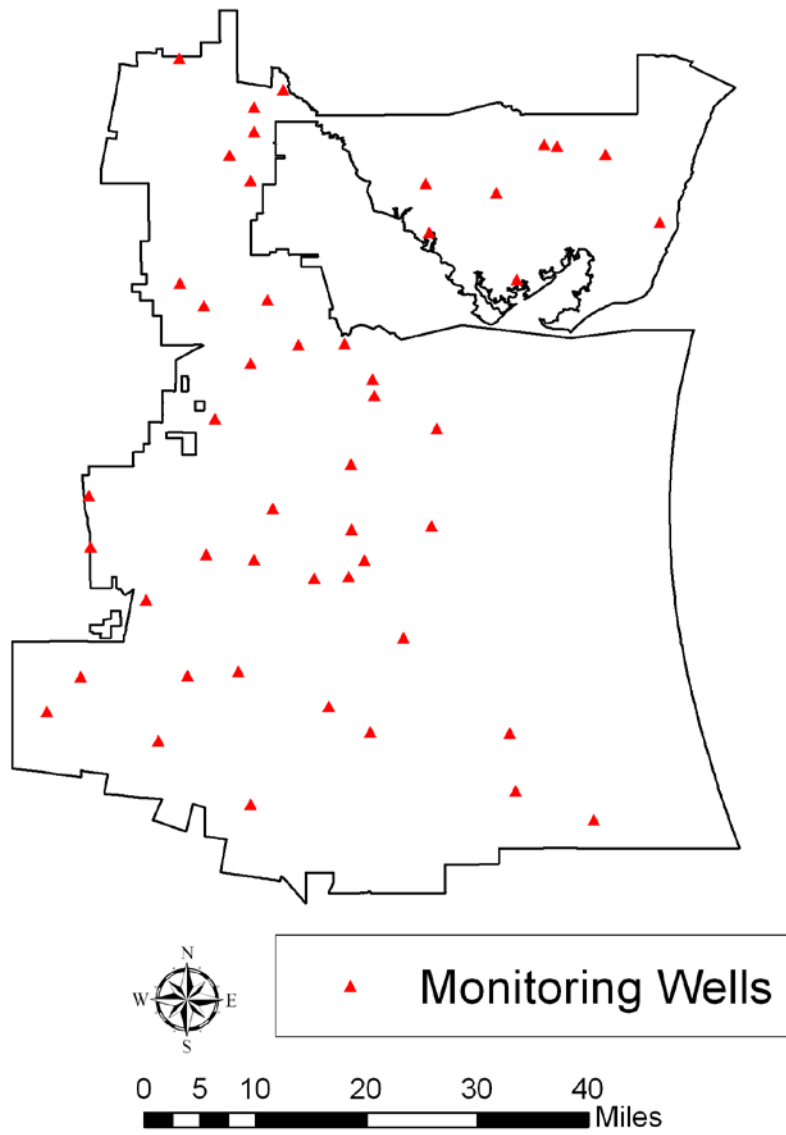


The District has established a groundwater monitoring program with the goal of measuring groundwater levels semi-annually in a network of more than 45 water wells. Exhibit J depicts the location of these monitored wells. Beginning in 2012, the District will be performing water quality analyses on a subset of at least 25 of these wells. Water from this subset of monitored wells will be analyzed for electrical conductivity, total dissolved solids, and pH to develop a basic understanding and historical record of water quality in the aquifers. The network provides a comprehensive coverage of the District. The lack of wells in the network along the coast is reflective of limited groundwater

production in that area but efforts are underway to identify additional wells for inclusion in the network.

In addition to the long-term monitoring network, the District undertook the collection of water level measurements and water quality samples in 11 water wells as part of a project to establish background water quality data prior to initiation of uranium exploration under a Railroad Commission permit issued for land within the District. These samples were analyzed for metals and uranium, anions, alkalinity, ammonia, Radium 226, and gross alpha and beta activity. This information is available from the District upon request.

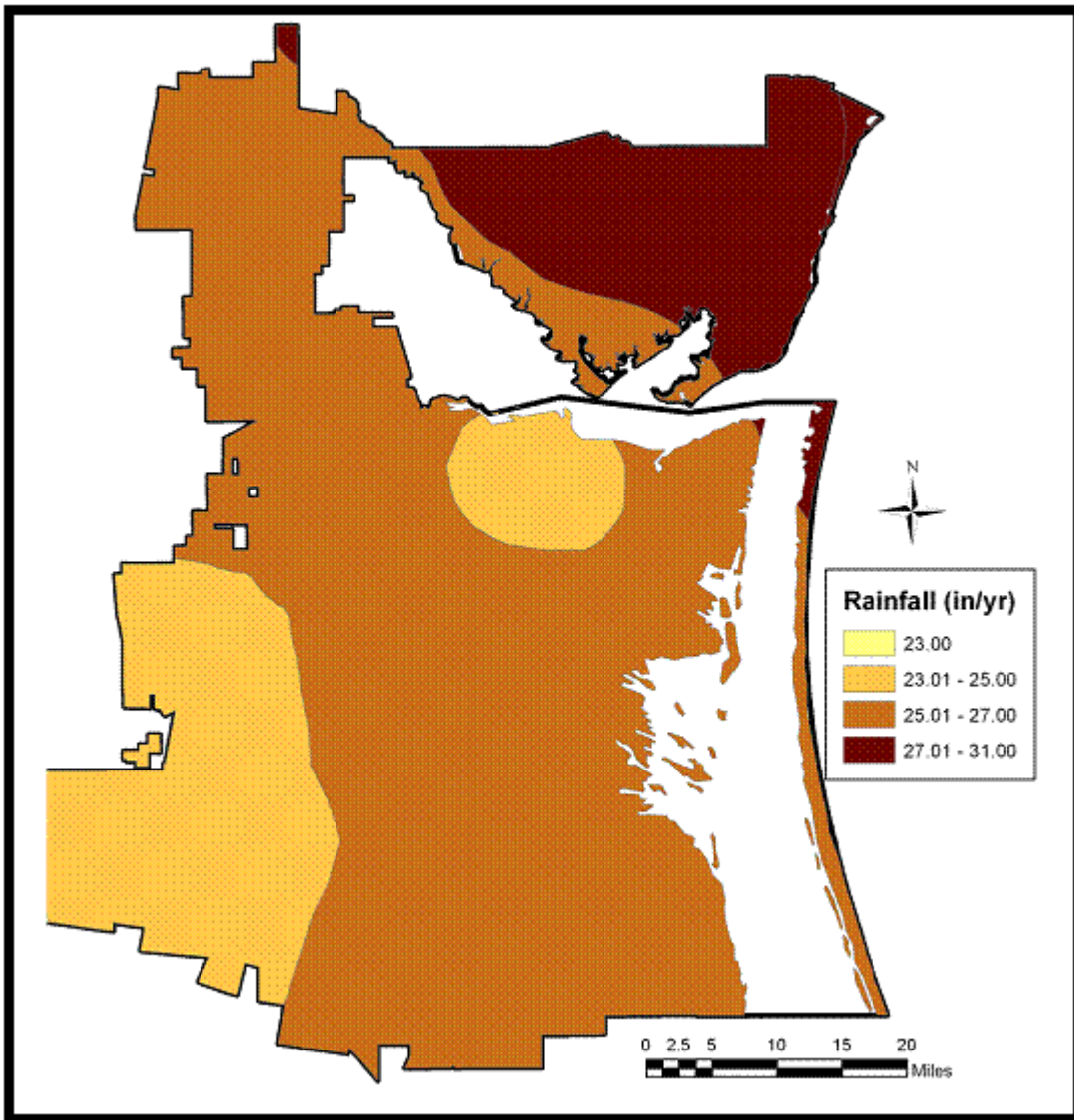
Exhibit J: District's Groundwater Level Monitoring Network as of January 2012



C. Annual recharge from precipitation

Estimate of the annual amount of recharge from precipitation to the groundwater resources within the District, as required by Texas Water Code § 36.1071(e)(3)(C) and 31 TAC § 356.5(a)(5)(C). No site-specific information was used in developing this estimate.

Exhibit K: Long-Term Average Precipitation Profile
Updated February 2012

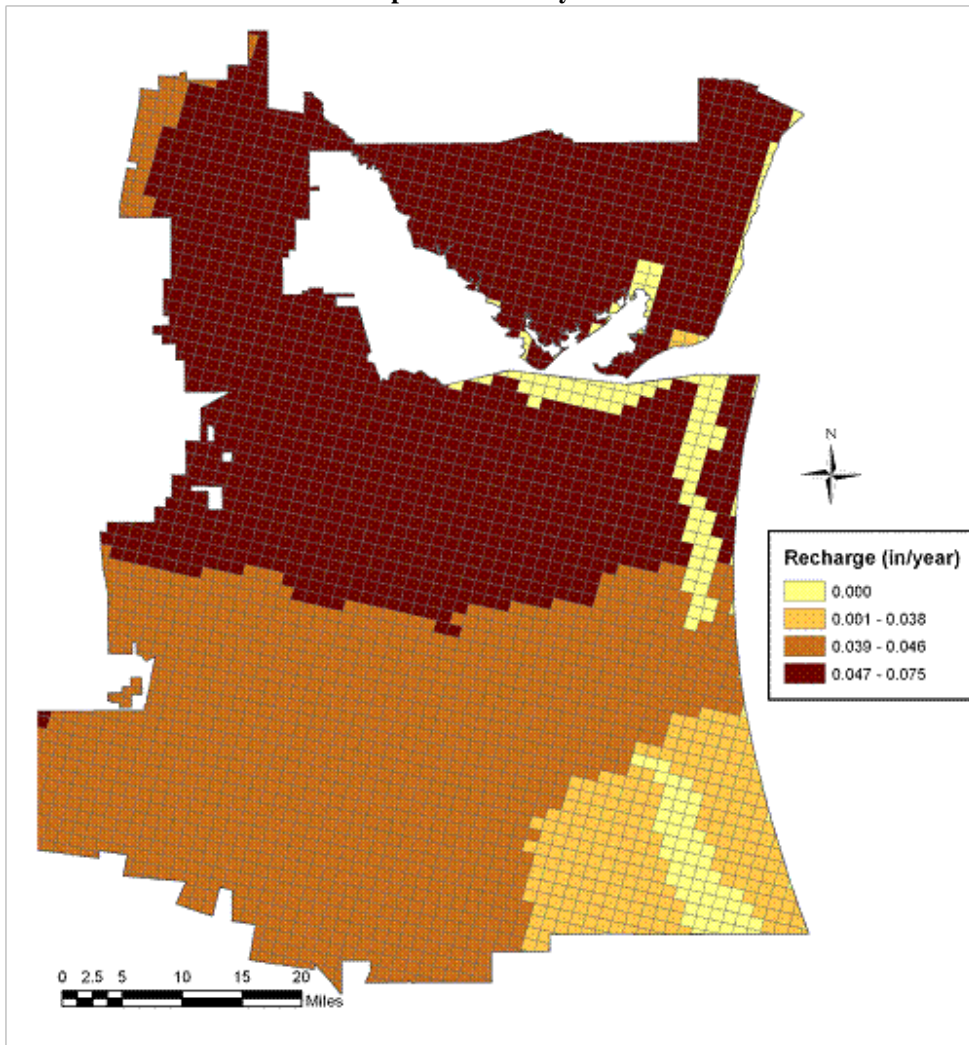


Precipitation information was used in conjunction with soils information to derive recharge characteristics. The climate in South Texas is characterized by mild winters and dry summers. The long term average precipitation data were used to develop the

precipitation contour map depicted in Exhibit K. The average annual precipitation is roughly 24 in/yr indicating that the recharge to the shallow aquifer is probably in the order of 0.024 in/yr. Field measured values for recharge specific to the District could not be found. The estimate is consistent with Groschen (1985), where a recharge value of 0.05 in/yr was used for the unconfined portions of the Evangeline aquifer covering from San Patricio to Jim Hogg counties. Chowdhury and Mace (2003) estimated recharge from precipitation to vary between 0.08 in/yr (toward the coast) to about 0.14 in/yr in the region covered by the District. Recently Hutchinson et al. (2011) developed a GMA-16 GAM that was calibrated over the period of 1963 – 1999. A map of the calibrated recharge values corresponding to the year 1999 (the last year of calibration) was developed and is presented as Exhibit L. The calibrated recharge values are consistent with the estimates presented in earlier studies. As can be seen from Exhibit L, recharge values reflect considerable variability in the District with higher values in the northern sections of the District.

Exhibit L: Recharge Estimates based on GMA-16 GAM (Data corresponds to the last calibrated year of 1999)

Prepared February 2012



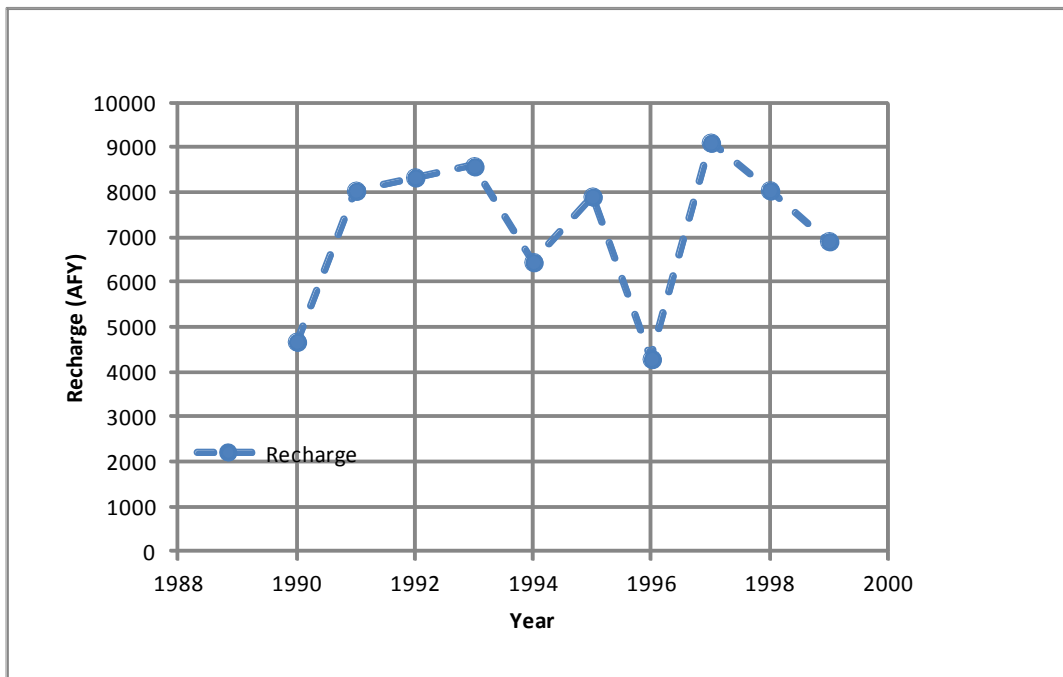
Groundwater model run, GAM Run 11-016, was performed by the TWDB (Shi, 2012; Appendix E) to obtain estimates pertaining to groundwater flow in the District. The GMA-16 GAM (Hutchison et al., 2011) was used to obtain the necessary estimates. As stated in Exhibit M, the recharge from precipitation is estimated to be around 6,400 acre-feet/year. The calibrated recharge values during 1980 – 1999 are used to derive these estimates. See Shi, 2012; Appendix E, which includes a copy of GAM Run 11-016.

**Exhibit M: Estimated Recharge from Precipitation using GMA-16
Groundwater Availability Model (Data obtained from Shi, 2012;
Appendix E).**

Parameter	Estimate (AFY)	Remarks
Recharge from Precipitation	6,419	Obtained as average of 1980-1999

The average estimate of recharge was divided by the area of the District to obtain an approximate average recharge rate of 0.04 inches/year (< 0.2% of average annual rainfall). As seen from exhibit L, there is considerable spatial variability within the District. The water budgets presented by Hutchison et al., 2011, indicate that recharge from precipitation also varies considerably from year to year and is affected by climatic fluctuations. The temporal variations in recharge due to precipitation are summarized in Exhibit N.

**Exhibit N: Temporal Variability in Recharge from Precipitation (in
acre-feet/year) Estimated using Water Budgets presented in Hutchison
et al., 2011.**

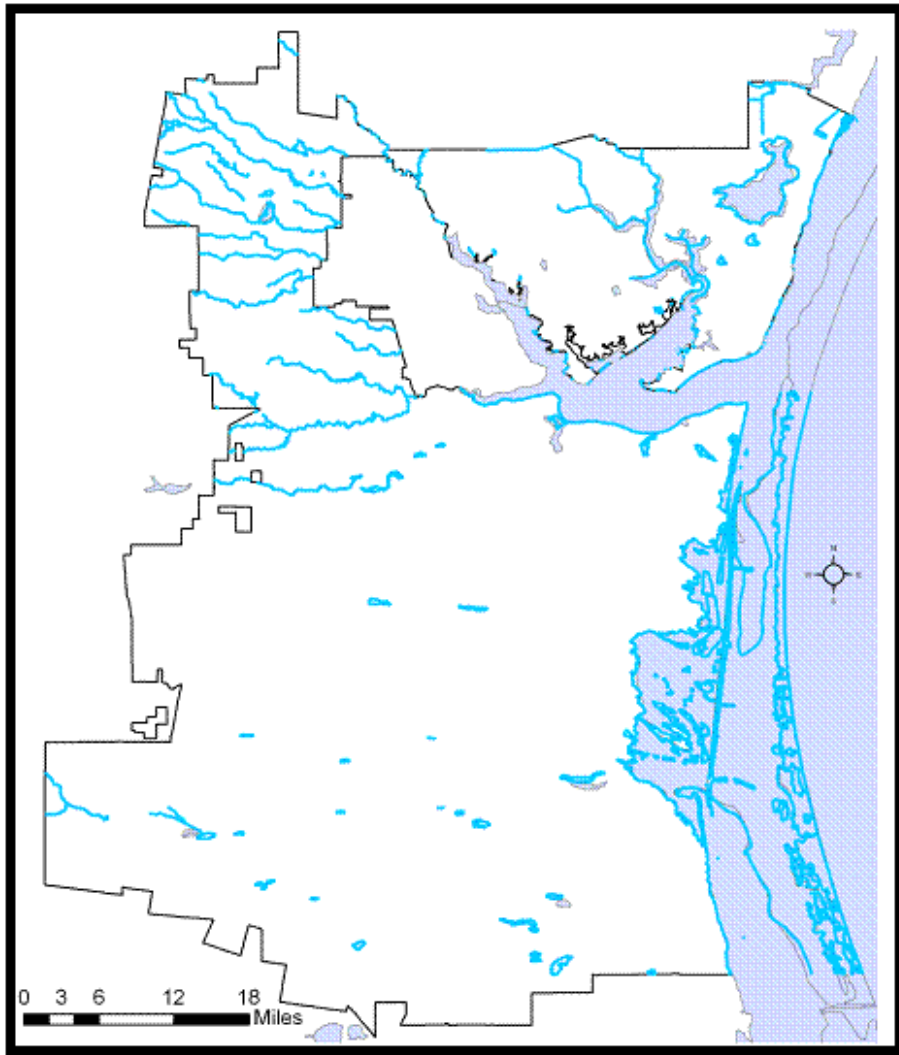


D. Annual Discharge to Surface Water Bodies

For each aquifer in the District, estimate the annual volume of water that discharges from the aquifer to springs and any surface water bodies, including lakes, streams, and rivers, as required by Texas Water Code § 36.1071(e)(3)(D) and 31 TAC §356.5(a)(5)(D). No site-specific information was used in developing this estimate.

No major inland surface water bodies exist within the District (Exhibit O). However, sensitive coastal water bodies like Baffin Bay and Laguna Madre abut the District. Research carried out by Texas A&M University-Kingsville, funded through the National Oceanic and Atmospheric Administration (NOAA), indicates that a significant amount of groundwater (on the order of 1 cm/day) discharges into Baffin Bay. Hence, coastal groundwater interactions are of significance.

Exhibit O: Major Surface Water Bodies in KCGCD



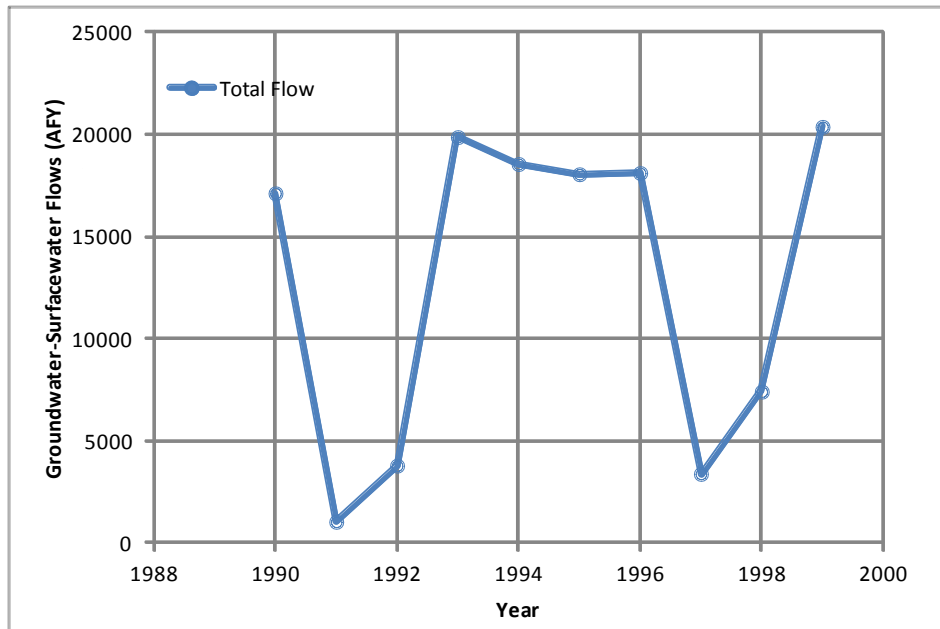
While there are no major water bodies present, there are several creeks and streams, primarily in the western and northeastern sections of the District. In addition, there are springs arising from artesian flow conditions in the District. Recharge to the shallow aquifer can also occur when rainwater is channelized through gullies and streams. The District did not perform field measurements quantifying stream-aquifer interactions. Stream gain-loss studies could be performed to better estimate groundwater-surface water interactions. In the absence of field data, surface water-groundwater interactions have been ascertained using model derived groundwater budgets summarized in Exhibit P.

Exhibit P: Estimated Groundwater Discharges to Surface Water Bodies using GMA-16 Groundwater Availability Model (Data obtained from Shi, 2012; Appendix E).

Parameter	Estimate (AFY)	Remarks
Estimated Annual Volume of Water that Discharges from the aquifer to springs and any surface water body including lakes, streams and rivers	17,140	Obtained as average of 1980-1999

As with recharge, groundwater discharges to surface water bodies also exhibit considerable temporal variability. Exhibit Q depicts the temporal variability over the last 10 years of the calibration period. As can be seen, the groundwater discharges are significantly curtailed during dry periods.

Exhibit Q: Temporal Variability of Groundwater Discharges to Surface Water Bodies (in acre-feet/year) in KCGCD using GMA-16 GAM (Data obtained from Hutchison et al., 2011 for the period of 1990-1999).



E. Groundwater Flow Into and Out of the District and Between Aquifers in the District

Estimate of the annual volume of flow into and out of the District within each aquifer, and between aquifers, in the District, if a groundwater availability model is available, as required by Texas Water Code § 36.1071(e)(3)(E) and 31 TAC § 356.5(a)(5)(E). No site-specific information was used in developing this estimate.)

The groundwater flows into and out of the District are estimated using the horizontal exchange components of the GAM water budget. Generally, flows into the District occur along the western boundaries. The water budget results indicate that there is a net gain from all the inflows into the District under ambient conditions. This result is to be expected because a significant portion of the District lies in the down-dip areas of the Gulf Coast Aquifer. However, it is important to recognize that large-scale groundwater withdrawals in neighboring areas can alter groundwater flow patterns and cause greater amounts of groundwater to leave the District. Exhibit R presents the average annual inflows and outflows from the District. The values are obtained from the water budgets of the GMA-16 GAM and represent an average over the 1980-1999 period.

Exhibit R: Estimated Groundwater Discharges along District Boundaries Calculated using GMA-16 Groundwater Availability Model (Data obtained from Shi, 2012; Appendix E).

Parameter	Estimate (AFY)	Remarks
Estimated annual volume of flow into the district within each aquifer of the district	40,338	Obtained as average of 1980-1999
Estimated annual volume of flow out of the district within each aquifer of the district	31,884	Obtained as average of 1980-1999

Exhibit S: Net Annual Flow Between Each Aquifer within the District (Data obtained from Shi, 2012; Appendix E)

Parameter	Estimate (AFY)	Remarks
Estimated net annual volume of flow between each aquifer in the district	Not Applicable	GAM models assume no interaction between Gulf Coast Aquifer System and Underlying Units

The Gulf Coast Aquifer is the major aquifer formation underlying the District. While the Gulf Coast formation is sometimes differentiated as Chicot, Evangeline, Burkeville Confining Unit and Jasper aquifer formations (Baker, 1979) the Gulf Coast Aquifer is represented as a single aquifer unit in State and Regional Water Planning Process. Most Groundwater Availability Models do not explicitly model the interaction between the Gulf Coast Aquifer System and underlying units. Currently, only the shallow sections of the Gulf Coast Aquifer are used within the District. Because of the thickness of the Gulf Coast Aquifer in most of the District, anthropogenic influences are unlikely to have a major influence on cross-aquifer flows. Flows within the different formations of the Gulf Coast Aquifer, however, could be locally significant.

F. Projected Surface Water Supply

Estimate of the projected surface water supply within the District, according to the most recently adopted state water plan, as required by Texas Water Code § 36.1071(e)(3)(F) and 31 TAC § 356.5(a)(5)(F).

Exhibit T presents the projected surface water supply data. These data were estimated from the basin-wide data made available by the TWDB in the report dated April 18, 2012 (Allen, 2012; Appendix D), which appears in the 2012 State Water Plan. A GIS analysis was carried out for estimating municipal demands. The demands for the named municipalities that do not fall within the District were excluded. All public water supply

within the District is groundwater due to the absence of surface water bodies; therefore; county-other estimates were also excluded. The irrigation and livestock demands were apportioned based on the fraction of county land area within the District. This approach was deemed reasonable because these demands could partially be met by ephemeral streams and irrigation tanks that store rainwater and the estimates could include certain apportioned irrigation rights on the Nueces and Rio Grande rivers. The same approach was also used for apportioning mining demands. The land use land cover data presented in Exhibit E and site-specific information indicated that there is currently no steam-electric power generation or manufacturing within the District. Therefore, the surface water supplies for these user groups were also set to zero to be consistent with the lack of perennial surface water sources (Exhibit O). The same approach was adopted for livestock, manufacturing, mining and steam-electric demands.

**Exhibit T: Projected Surface Water Supply Data within KCGCD
Based on 2012 State Water Plan (Data Obtained from Allen, April 18,
2012; Please refer to Appendix D; All Values in Acre-Ft/Yr)**

Water Use Groups	2010	2020	2030	2040	2050	2060
Municipal	0	0	0	0	0	0
Irrigation	29,958	29,663	29,388	29,112	28,838	28,585
Livestock	2454	2454	2454	2454	2454	2454
Manufacturing	0	0	0	0	0	0
Mining	70	73	53	15	15	15
Steam-Electric	0	0	0	0	0	0

G. Projected Demand for Water

Estimate of the projected total demand for water within the District according to the most recently adopted state water plan, as required by Texas Water Code § 36.1071(e)(3)(G) and 31 TAC § 356.5(a)(5)(G). (No site-specific information was relied upon in developing this estimate. It is taken from the 2012 State Water Plan.)

The county-wide projected water demands as per the 2012 State Water Plan were obtained from the Texas Water Development Board (TWDB) (Allen, 2012; Appendix D). The demands for each county within the District were then aggregated over all water user groups and presented in Exhibit U. As can be seen, demands are expected to increase considerably in Hidalgo, Nueces, and Willacy counties in the long-term planning horizon covered by the State Water Plan.

The projected demands presented in Exhibit U are county-wide values. The District did not apportion these estimates as it is likely that the projected needs within a county could potentially be met by a project that lies within the confines of the District. Based on historical population growth patterns and land use characteristics, the near-term demand

for water in the District is estimated to be about 12,000 acre-feet per year, which can be met with the existing groundwater supplies in the District.

Exhibit U: Estimate of Total Demands in Acre-ft/year Obtained from TWDB Based on 2012 SWP (Data from Allen, April 18, 2012; Please refer to Appendix D)

	2010	2020	2030	2040	2050	2060
BROOKS	3236	3553	3794	3936	3990	3997
HIDALGO	714154	687774	648255	683832	724378	767349
JIM WELLS	13833	13929	13832	13553	13187	12764
KENEDY	1059	1061	1062	1062	1061	1062
KLEBERG	11734	12015	11415	11433	11610	11562
NUECES	127635	146363	158810	171019	183074	196690
WILLACY	62696	63912	64511	64649	64771	64844

VII. CONSIDERATION OF ADOPTED STATE WATER PLAN

Consideration of water supply needs and water management strategies that are included in the adopted state water plan, as required by Texas Water Code § 36.1071(e)(4) and 31 TAC § 356.5(a)(7).

The District reviewed the 2012 State Water Plan for comparisons of water demands and supply estimates on a county-by-county basis prepared by Region M (Rio Grande Regional Water Planning Area) and Region N (Coastal Bend Regional Water Planning Group). The District identified potential water deficits and management strategies that could have an impact on the groundwater resources within the District (Exhibit V). In addition to covering the entire Kenedy County, the District partially covers several counties (Brooks, Hidalgo, Jim Wells, Kleberg, Nueces, and Willacy). As stated earlier, the projected deficits in the parts of these counties that are not within the District, were also evaluated because groundwater from within the District could potentially be tapped for meeting these deficits.

A county-by-county analysis of the demands for different water use groups was carried out with an emphasis on groundwater related strategies (which are summarized in Exhibit V). As can be seen, there is a growing interest in using groundwater or brackish groundwater in the Lower Rio Grande Valley areas. The District will continue to track the progress of water management strategies in the regional water planning process and evaluate new proposals and projects as appropriate.

Exhibit V: Impacts of Regional Water Management Strategies on Groundwater Resources (Based on 2012 State Water Plan; Data from Allen, April 18, 2012; Refer to Appendix D for additional information; All values in units of Acre-ft/Year)

County	Project Description	2010	2020	2030	2040	2050	2060
HIDALGO	Groundwater	212	2202	3738	6194	7437	9147
	Groundwater Desalination	15831	16064	19098	19760	21844	23066
JIM WELLS	Groundwater	565	565	565	565	565	565
KLEBERG	Groundwater	0	400	400	400	400	400
WILLACY	Groundwater Desalination	11226	11326	11326	11326	11326	11326

VIII. MANAGEMENT OF GROUNDWATER SUPPLIES

The District will manage the supply of groundwater within the District in order to utilize the resource while seeking to maintain the economic viability of all resource user groups, public and private. The District will:

- identify and engage in such activities and practices, that, if implemented, would manage groundwater resources in the District while considering the economic and cultural activities occurring within the District;
- maintain and expand its water monitoring network in order to monitor changing groundwater quality and storage conditions of groundwater supplies within the District;
- make a regular assessment of water supply and groundwater storage conditions and report those conditions to the Board and to the public;
- continue to undertake, as necessary, and co-operate with evaluations of the groundwater resources within the District, including those associated with uranium exploration and mining; and
- make the results of evaluations available to the public upon adoption by the Board.

The District adopted rules based on its original management plan. The first set of rules became effective October 8, 2008 and implemented the management plan. The rules covering registration and permitting of wells and production limits were amended, effective November 4, 2009. District Rules allow issuance of operating permits for perpetual terms. The production allowed for a new non-exempt well is based on surface acreage reflecting the GMA-16 adopted desired future condition. The District has prohibited waste of groundwater; has required all water wells to be registered; has issued operating permits to all existing non-exempt wells; and considers all applications for new operating permits based on surface acreage production limit. Under District Rules, the District may, at the Board’s discretion, amend or revoke any permits after notice and hearing based on certain criteria listed in the Rules, including aquifer conditions. The

District will enforce the terms and conditions of permits and the rules of the District by enjoining the permit holder in a court of competent jurisdiction as provided for in Texas Water Code § 36.102.

The District will continue to employ all technical resources at its disposal to evaluate the resources available within the District and to determine the effectiveness of regulatory or conservation measures.

Uranium ore deposits are present within the District and its immediate vicinity. Groundwater is used for exploration and extraction of uranium. Groundwater is also affected by the associated reclamation and restoration activities. These activities can impact groundwater quality and quantity. The District monitors all applications for uranium exploration within and in close proximity to the District. If an exploration or mining permit is issued by the Texas Railroad Commission and Texas Commission on Environmental Quality, the District plays an active role in reviewing and commenting on those authorizations and performs background groundwater measurement collection prior to initiation of those activities.

The District will continue to monitor State law to ensure it is protective of groundwater resources within the District.

IX. ACTIONS, PROCEDURES, PERFORMANCE AND AVOIDANCE FOR PLAN IMPLEMENTATION

Detailed description of actions, procedures, performance and avoidance necessary to effectuate the management plan, including specifications and proposed rules, as required by Texas Water Code § 36.1071(e)(2) and 31 TAC § 356.5(a)(4).

The District will implement the provisions of this plan and will utilize the provisions of this plan as a guidepost for determining the direction or priority for all District activities. All operations of the District, all agreements entered into by the District and any additional planning efforts in which the District may participate will be consistent with the provisions of this plan.

The district has adopted rules relating to the permitting of wells and the production of groundwater. The most current version of the District's Rules are found on the District's website at: http://www.kenedygcd.com/Forms_Rules/rules.aspx. All rules adopted by the District are pursuant to TWC chapter 36 and the provisions of this plan. All rules will be adhered to and enforced. The promulgation and enforcement of the rules will be based on the best technical evidence available. The District is currently revising its Rules to make them consistent with new changes in state law applicable to the District; to make them consistent with the adopted desired future condition for GMA-16; and to address issues of groundwater management that may not have been anticipated by the existing Rules. Once the Rules are amended, the amended Rules will be found on the District's website at the web address provided above.

The District will treat all citizens equally. Citizens may apply to the District for discretion in enforcement of the rules on grounds of adverse economic effect or unique local conditions. In granting a variance to any rule, the Board shall consider the potential for adverse effect on adjacent landowners.

The District will seek the cooperation from other entities in order to implement this plan and to manage groundwater supplies within the District. All activities of the District will be undertaken in cooperation and coordination with the appropriate state, regional or local water management entity. To this end, the District will continue to be actively engaged with the GMA-16 Joint Planning Committee; Regions N and M Water Planning Groups; the TWDB; Texas Alliance of Groundwater Districts; Texas Water Conservation Association; Texas A&M University-Kingsville; USDA-Natural Resources Conservation Service; Kleberg-Kenedy Soil and Water Conservation District; and Texas AgriLife Extension.

Rules

The District adopted rules based on its original management plan. The first set of rules became effective October 8, 2008 and implemented the management plan. The rules covering registration and permitting of wells and production limits were amended, effective November 4, 2009. The Rules have been amended in 2012 to implement legislative requirements enacted since November 4, 2009, and to more accurately reflect the procedures and practices of the District. **[TO THE TWDB: Your staff review will be taking place during the same period the District is holding a hearing and finalizing its proposed amended rules. The final version of the management plan that will be adopted after notice and hearing, will include the effective date of the new rule amendments.]**

The District has rules covering the following:

- Well Registration, Drilling Permits, and Operating Permits
 - As required by Texas Water Code 36.117(h), the District requires all wells to be registered, regardless of when they were drilled and whether they have been plugged. All previous oil and gas wells for which the operator submitted a RRC P-13 indicating conversion to use as a water well, must also be registered. The District Rules implement the exemptions from permitting set out in § 36.117 and establish additional exemptions reflecting the large area and small population of the District. The District Rules include the criteria for consideration and approval of operating permits and production limits, as authorized by §§ 36.101(a) and 36.116.
- Fees
 - Because the District is financed through ad valorem taxes, it does not impose fees for activities associated with water wells, such as registration fees, application fees, production fees, or export fees.

- Well Construction and Completion Standards
 - The District has adopted well construction and completion standards, at a minimum requiring that construction of all wells and installation of all pumps located within the District must be in accordance with the Texas Occupations Code Chapter 1901, “Water Well Drillers” and Chapter 1902, “Water Well Pump Installers,” as amended, and the Administrative Rules of the Texas Department of Licensing and Regulation, 16 Texas Administrative Code (“TAC”), Chapter 76, as amended. Additional standards include requiring a sampling port on all new wells. In evaluating each operating permit application, the District evaluates whether additional standards are needed to protect water quality in the area of the well.

- Reporting and Recordkeeping
 - The District has established annual recordkeeping and reporting for water production from all wells with an operating permit and for all temporary rig supply wells. Well owners/water well drillers are also required to submit well drilling and completion reports, pump reports, and other reports that may be helpful to the District in fulfilling its statutory duties. Permitted wells must report all water quality data obtained for raw water from the wells. Uranium exploration companies must submit all water quality data required by statute and District Rule. All data is included in the District Water Well Database.

- Plugging, Sealing, and Capping of Wells
 - The District Rules include the requirement that a deteriorated or abandoned well shall be plugged in accordance with Texas Department of Licensing and Regulation, 16 Texas Administrative Code, Chapter 76, as amended. The rules will also address circumstances requiring the sealing and capping of wells. If a landowner becomes aware of a plugged well, or if a P-13 is filed with the Railroad Commission to convert an oil and gas well (usually a dry hole) into a water well, these are considered water wells under District Rules and must be registered with the District.

- Well Spacing
 - The District has adopted the spacing requirements of the Water Well Driller’s rules, 16 Texas Administrative Code Section 76.1000, as amended. The District has also adopted spacing from property boundaries based on the capacity of the proposed water well.

- Enforcement
 - The District has adopted rules setting out its enforcement authority and policies, as authorized by Texas Water Code §§ 36.101 and 36.102. The rules authorize entry onto property as authorized by Texas Water Code §36.123. They also establish the process by which the District will undertake an enforcement action and the steps to be followed.

- Procedural Rules
 - The District has adopted procedural rules establishing required notice and hearing for various District activities such as approval of rules, including emergency rules; actions on operating permits; permit actions requiring a contested case hearing; and enforcement matters. These rules have recently been updated to implement changes in state law applicable to the District.
- Prohibition Against Waste
 - The District prohibits waste of groundwater.

X. GOALS, MANAGEMENT OBJECTIVES AND PERFORMANCE STANDARDS

Identify the performance standards and management objectives for effecting the plan, as required by Texas Water Code § 36.1071(e)(1) and 31 TAC § 356.5(a)(2) & (3).

A. Efficient Use of Groundwater

Management objectives and performance standards for providing the most efficient use of groundwater, as required by Texas Water Code § 36.1071(a)(1) and 31 TAC §356.5(a)(1)(A).

1. Objective: The District will continue to register all new wells and locate and register any existing well that may not yet have been registered.

1. Performance Standard: All registered wells are entered into the District's water well database. This includes information from the registration forms, the registration certificate, and for new wells, the drilling log. All information reported to the District regarding each registered well will be entered into the District's water well database. The number of registered wells will be presented in the District's annual report.

4. Objective: The District will continue to require an operating permit for all non-exempt wells.

4. Performance Standard: All permitted non-exempt wells will be entered into the District's water well database, including the application, the permit, annual water use reports, any water quality reports, the driller's log, and any other information available to the District about the wells. The number of wells permitted by the District will be noted in the District annual report.

5. Objective: The District will develop a method of tracking acreage associated with all wells permitted under District Rules as "new wells" under the District's correlative rights production limits.

5. Performance Standard: The District will provide a certificate to each permittee designating the total acreage allocated to each permit. A copy of these certificates will be entered into the District database for each of these permitted wells. The number of such certificates that are issued will be included in the District annual report.

6. Objective: Each year, the district will contact all water well service companies doing business in the District and will provide written educational information about District rules and policies.

6. Performance Standard: The Board of Directors will approve the content of each year's letter based on activities and emerging issues within the District. A file copy of these letters will be kept in the District Office. Each year, the District's annual report will include a list of licensed water well drillers and pump installers doing business in the District and a copy of the educational information provided.

7. Objective: The District will continue to maintain a database that is current with all data acquired by the District about all registered and permitted wells in the District.

7. Performance Standard: Each year, the District's annual report pertinent to items A.1 through A.5 will be derived from the database. Additionally, the report will contain an evaluation of the software being used for the database, and any recommendations regarding needed changes.

B. Preventing Waste of Groundwater

Management objectives and performance standards for controlling and preventing waste of groundwater, as required by Texas Water Code § 36.1071(a)(2) and 31 TAC §356.5(a)(1)(B).

1. Objective: The District will conduct an on-site investigation within two working days of receiving a report of waste of groundwater.

1. Performance Standard: If the District receives a report of waste of groundwater, the General Manager will prepare a written report of the outcome of the investigation and will present it to the Board of Director's at the next Board meeting. A discussion of the waste of groundwater observed by the District, including the number of reports of waste received during the year and the District's response to the reports will be included in the District's annual report.

C. Controlling Subsidence

Management objectives and performance standards for controlling and preventing subsidence, as required by Texas Water Code § 36.1071(a)(3) and 31 TAC §356.5(a)(1)(C).

1. Objective: The Gulf Coast Aquifer contains sufficient amounts of clays interbedded within fairly prolific sand and gravel formations to be vulnerable to subsidence. The current groundwater uses, especially near the coastal areas of the District, are not sufficient to cause dewatering from the clay with a resultant loss of support pressure. The District will evaluate possible subsidence impacts of any near coast, large-scale groundwater production proposal (greater than 100 acre-feet/year).

1. Performance Standard: As part of the Operating Permit Application process, the District will be appropriately evaluate possible subsidence impacts of any near coast, large-scale groundwater production proposal (greater than 100 acre-feet/year). The evaluation will be presented to the Board of Directors during the Operating Permit Application consideration. The number and a description of any near coast, large-scale groundwater production proposals will be presented in the District's annual report, and will include the District's evaluation for possible subsidence impacts from the proposals.

D. Conjunctive Surface Water Management

Management objectives and performance standards for addressing conjunctive surface water management issues, as required by Texas Water Code § 36.1071(a)(4) and 31 TAC §356.5(a)(1)(D).

1. Objective: Each year the District will participate in the regional planning process by attending a minimum of two meetings of the Region N Regional Water Planning Group per fiscal year.

1. Performance Standard: The District representative will give an oral report at the District Board meeting following the Region N meeting and the report will be reflected in the minutes of that Board meeting. Additionally, the District's annual report will include the number of Region N meetings attended during the year and the dates of those meetings.

E. Natural Resource Issues and Groundwater

Management objectives and performance standards for addressing natural resource issues that impact the use and availability of groundwater and which are impacted by the use of groundwater, as required by Texas Water Code § 36.1071(a)(5) and 31 TAC §356.5(a)(1)(E).

1. Objective: The District will continue to require registration of and a plugging report on all wells that are plugged each year. Additionally the District will require a landowner to register all plugged wells when the landowner becomes aware of their existence.

1. Performance Standard: The number of plugging reports received by the District will be noted in the District annual report. All registered plugged wells will be

entered into the District's water well database, including the registration application, the registration certificate, and the plugging report, if the well is newly plugged.

2. Objective: The District will require registration of all wells covered by a P-13 submitted to the Railroad Commission. When an oil and gas operator abandons an oil and gas well and desires to convert it into a potential water well, he must submit a P-13. These wells are considered to be water wells under District Rules, regardless of whether water is ever produced from them.

2. Performance Standard: After approval of this management plan, the District will include information about this requirement in the first annual education letter to all water well service companies and to all oil and gas operators doing business in the District. The District will also study the feasibility of identifying P-13 wells by working with the Railroad Commission. The number of P-13 wells registered with the District will be noted in the District annual report.

3. Objective: Once each year, the District will monitor temperature, total dissolved solids, pH, and electric conductivity by taking measurements of at least 25 wells through the voluntary monitoring project described in A.8.

3. Performance Standard: The number of wells to be measured may be increased as necessary. The water quality data will be entered into the District's water well database. The results of each round of annual measurement events will be provided to the Board of Directors within 30 days after completion of measurement collection and analysis and included in the annual report.

F. Drought Conditions

Management objectives and performance standards for addressing drought conditions, as required by Texas Water Code § 36.1071(a)(6) and 31 TAC §356.5(a)(1)(F).

1. Objective: Links to NOAA Climate Monitoring web-page (<http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/palmer.html>) and to the Texas Water Development Drought page (<http://www.twdb.state.tx.us/data/drought>) will be maintained on the District website to provide short-term and long-term drought information.

1. Performance Standard: At least quarterly, the website will be checked to ensure that the links are still current. The General Manager will assess the status of drought in the District and prepare a quarterly briefing to the Board showing the impact of drought or weather conditions on water levels. The District's annual report will include the downloaded PDSI maps, Situation Reports, and copies of the quarterly briefing.

G. Conservation Measures

Management objectives and performance standards for addressing conservation, recharge enhancement, rainwater harvesting, precipitation enhancement, brush control where appropriate and cost effective, as required by Texas Water Code § 36.1071(a)(7) and 31 TAC §356.5(a)(1)(G).

1.a. Conservation Objective: The District will collaborate with the local USDA-Natural Resources Conservation Service (NRCS) field office and submit an article on water conservation for publication each year to at least one newspaper of general circulation in the District and post it on the District website.

1.a. Conservation Performance Standard: A copy of the published article on conservation will be included in the District's annual report.

1.b. Conservation Objective: The General Manager will be available to present water conservation programs to schools, 4-H clubs, scouting units and community groups on a request basis. These programs will be scheduled through the District office and will be appropriate for the various audiences. Depending on availability, the District will make every effort to distribute, on an annual basis, conservation education materials to schools that serve students from the District.

1.b. Conservation Performance Standard: A summary of programs presented, content and audience group will be included in the annual report. A bibliography of any conservation literature provided to the audience by the District will be included in the report with the summary.

1.c. Conservation Objective: The General Manager will monitor all continuing education classes on drought and conservation that would be beneficial and attend with the Board's approval.

1.c. Conservation Performance: A summary of classes attended will be included in the annual report.

2. Recharge Enhancement Objective: The District, with the services of a consultant, will attempt to identify recharge areas within the District and present them in connection with the biennial report on water monitoring results.

2. Recharge Performance Standard: All recharge areas identified within the District will be listed in the annual report.

3. Rainwater Harvesting: This management goal category is not applicable to the District due to a low population number.

4. Precipitation Enhancement: The District has no plans to participate in precipitation enhancement because it has not been proven to be cost effective and is not feasible for the District.

5. Brush Control Objective: Annually, the District will contact the USDA-NRCS and the Kleberg-Kenedy Soil and Water Conservation District (SWCD) offices to obtain information about brush control and make that information available to the public.

5. Brush Control Performance Standard: All information on brush control obtained from the USDA-NRCS and the Kleberg-Kenedy SWCD offices and provided to the public will be reported in the District's annual report and posted on the website.

H. Desired Future Conditions

Management objectives and performance standards for addressing the desired future condition of the groundwater resources in the District (if available from the districts in the groundwater management area), as required by Texas Water Code § 36.1071(a)(8) and 31 TAC §356.5(a)(1)(H).

As per Resolution No. R2010-001 submitted in August, 2010, the authorized voting representatives for Groundwater Management Area 16 established a desired future condition (DFC) of the Gulf Coast aquifer which was an area-wide average drawdown of approximately 94 feet through 2060. The DFC established for the Kenedy County GCD was a drawdown of 101 feet in 2060.

1. Objective: The District-wide, voluntary monitoring project will be maintained and includes biennial measurements of hydrostatic levels from approximately 50 wells and the hydrostatic level to bottom of screen measurements in those wells where the screen depth is known.

1. Performance Standard: The number of wells to be included in the monitoring project may be increased as necessary. The respective hydrostatic levels and other related data will be entered into the District's water well database. The results of each round of biennial measurements will be provided to the Board of Directors within 30 days of completion of the measuring round. The number of wells involved in the project and the respective static levels will be included in the District's annual report.

2. Objective: The District will monitor groundwater withdrawals in the District to evaluate compliance with the desired future condition.

2. Performance Standard: As part of the biennial report on water level measurements from the monitoring program described in A.8, above, the General Manager will include in his written report to the Board an evaluation of the drawdown relative to the DFC.

XI. METHODOLOGY FOR TRACKING PROGRESS

Methodology for tracking progress in meeting management goals, objectives, and performance standards, as required by 31 TAC § 356.5(a)(6).

As mentioned in the management objectives and performance standards above, written reports will be presented to the Board of Directors on a timely manner, based on the objective. Additionally, as described in section X, all data related to water wells in the District will be entered into the District's water well database.

The General Manager will prepare and present to the board of directors (BOD) an Annual Report covering District performance in achieving management goals and objectives for the preceding fiscal year. The report will be presented to the BOD in January of the following year. The District will maintain the report in its files and will have copies available to the public. Once the report is approved by the Board, it will be posted on the website.

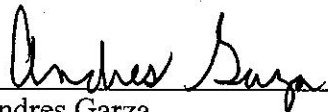
APPENDIX A:

Resolution Adopting the 2012 Kenedy County
Groundwater Conservation District Groundwater
Management Plan

**KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT
CERTIFICATION OF RESOLUTION**

I, Andres Garza, General Manager of the Kenedy County Groundwater Conservation District, hereby certify that the attached Resolution adopting the Kenedy County Groundwater Conservation District Management Plan is a true and correct copy of the Resolution Adopting the Kenedy County Groundwater Conservation District Management Plan; that on July 25, 2012 the Kenedy County Groundwater Conservation District Board of Directors, by majority vote, passed and approved said Resolution.

SIGNED on the July 25, 2012



Andres Garza.

APPENDIX B:

**Notice of Hearing on the 2012 Kenedy County
Groundwater Conservation District Groundwater
Management Plan**

NOTICE OF PUBLIC HEARING
Kenedy County Groundwater Conservation District's
Amended Management Plan

The Kenedy County Groundwater Conservation District will hold a Public Hearing regarding the adoption of the proposed Kenedy County Groundwater Conservation District's Amended Management Plan.

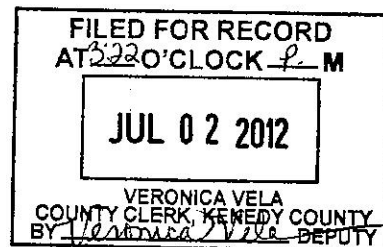
The Public Hearing will be held on July 25, 2012, at 8:00 a.m. at the Kenedy County Courthouse, District Courtroom, Sarita, Texas.

A proposed District Amended Management Plan may be obtained at the District Office located on the first floor of the Kenedy County Courthouse, Sarita, Texas; phone 361-294-5336.

POSTED: July 2, 2012, at 3:22 o'clock P.m.



Andy Garza, General Manager



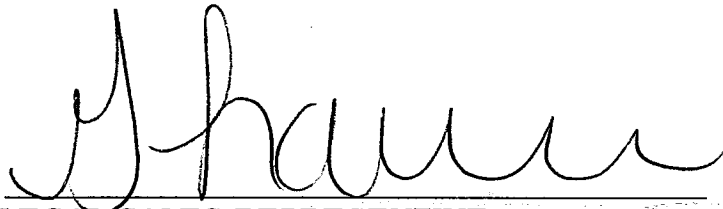
PUBLISHER'S AFFIDAVIT

State of Texas }
County of Nueces }

KENEDY COUNTY GROUNDWATER CONS
Ad # 5999751
PO #

Before me, the undersigned, a Notary Public, this day personally came GEORGIA LAWSON, who being first duly sworn, according to law, says that she is LEGAL SALES REPRESENTATIVE AND EMPLOYEE OF THE PUBLISHER, namely, the *Corpus Christi Caller-Times*, a daily newspaper published at Corpus Christi in said City and State, generally circulated in Aransas, Bee, Brooks, Duval, Jim Hogg, Jim Wells, Kleberg, Live Oak, Nueces, Refugio, and San Patricio, Counties, and that the publication of, NOTICE OF PUBLIC HEARING Kenedy County G which the annexed is a true copy, was inserted in the *Corpus Christi Caller-Times* on the 7/4/2012, 7/4/2012.

\$ 137.49



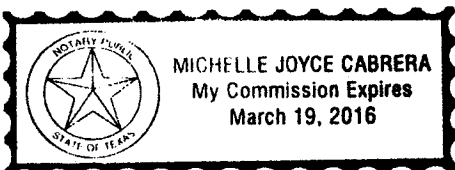
LEGAL SALES REPRESENTATIVE

1Time(s)

On this 9th day of July, 2012 I certify that the attached document is a true and an exact copy made by publisher.



Notary Public, State of Texas



947
 Duval Co. CR
 Premont
 1570-1079 Grant
 s, HI-Fnc, MH, 2
 3 ponds, Great
 n & Soils

949
 1.24 AC, Duval
 nty. Heavy brush
 ver, deer, hogs,
 ay. Private road,
 ed gate. \$1,817
 m, \$357/mo. Toll
 e 866-286-0199
 lortexasland.com

1000
 ALL ADVERTISERS
 the sale or rental of
 ing units published in
 aller-Times are subject
 e Federal Fair Housing
 which makes it illegal
 edicate any preference,
 tion, or discrimination
 d on race, color, age,
 on, sex, national origin,
 icap or familial status.
 idential rental locations
 required to be licensed
 the Texas Real Estate
 mission (P.O. Box
 83, 1-800-762-8732 or
 466-3360).
 advertisers may be
 e, and all units must
 e the same. The
 unt of units in an
 rtment may be the
 ing rent for a basic unit
 a unit which does not
 e all advertised features.

1015
 2 & 3 BR starting
 \$625/mo. Move-In
 Specials! Gated
 Community, w/d conn.
 pool & fitness ctr
 17 Weber, 852-1600

1-2 Bedroom
 Apts. Avail.
 Cranes Landing
 361-853-2941
 2 OFF First Month
 Plus Deposit. Paid
 Water, Gas & Cable
 (361)854-1491

WEBER & SPID
 1 BEDROOM
 CLEAN & QUIET
 (361)853-4151

1026
 Southside, 2/2
 000sq ft., \$800/mth
 + \$400 dep.
 (361)549-3135

1030
 1218 York - Del Mar
 area, 3/2, h/wd flrs,
 ref dep. \$300/mo.+dep.
 (361)852-7172

51 Clark, Avail now
 2/1, CHA, Inc'd,
 1725/mo.+ \$500dep.
 892-5485/537-3921

4906 CREEKBEND
 Country Club Estates
 4/2/2, wet bar, 2,000sf.
 Avail. July 5th.
 \$1300mo + dep
 (361)533-1925

920 Elizabeth
 Near Spohn Shoreline,
 2/1, NO pets, h/w flrs,
 appl., w/d conn., credit
 report, \$550 + bills,
 \$400 dep. 658-0573

1030
 Island Living at its best,
 3/2/2, 1889sqft, lots of tile,
 c/l, ch/v, \$1395/mth + dep.
 (361)461-1141/568-7181

UNFURNISHED 2
 bedroom house,
 \$850+dep, air, 4836
 Bonner #3. (361)853-3544

1055
 4515 WEBER Road.
 \$1275mo + \$1275dep.
 (361)850-3327
 or 225-0244

LEASE 2560 SQFT
 bldg, 4350 Baldwin; 3
 a/c, offices, shop, 3 oh
 doors. (361)855-1277

1060
 OFFICE/RETAIL
 SPACE
 All types, all sizes.
 Deal with local owners!
 www.ownersbrothers.com
 361-906-0033

1100
 NOTICE OF PUBLIC
 HEARING

1110
 Kennedy County
 Groundwater Conserva-
 tion District's
 Amended Manage-
 ment Plan

The Kennedy County
 Groundwater Conserva-
 tion District will
 hold a Public Hearing
 regarding the adop-
 tion of the proposed
 Kennedy County
 Groundwater Conserva-
 tion District's
 Amended Manage-
 ment Plan.

The Public Hearing
 will be held on July
 25, 2012, at 8:00
 a.m. at the Kennedy
 County Courthouse,
 District Courtroom,
 Sarita, Texas.

A proposed District
 Amended Manage-
 ment Plan may be
 obtained at the Dis-
 trict Office located on
 the first floor of the
 Kennedy County
 Courthouse, Sarita,
 Texas. phone
 361-854-3336

BID NOTICE
 Kingsville Independ-
 ent School District -
 New H. M. King
 High School
 Kingsville, Texas

Skanska USA Build-
 ing, Construction
 Manager at Risk, is
 soliciting Subcontractor/Vendor proposals
 (including HUB
 Firms) for construc-
 tion of the new H. M.
 King High School
 in Kingsville, Texas.
 The solicitation is for
 Bid Package #1
 Utility Removal/Re-
 location and Site
 Demolition.

1110
 Proposals (on Skanska
 Proposal forms that
 also include HUB
 Subcontracting
 Plans) will be re-
 ceived at Skanska's
 San Antonio Office
 (18615 Tuscany
 Stone, Suite 245,
 San Antonio, TX
 78256) until 2:00 PM
 CST on Wednesday,
 July 11, 2012. Propo-
 sal can be e-mailed to
 chris.hillyer@
 skanska.com. Faxed
 Proposals will be ac-
 cepted as well (until
 the above stated
 deadline) at
 866-246-1844.
 A pre bid conference
 and site visit is
 scheduled for Friday,
 June 29th, 2012 at
 the existing Kingsville
 High School - 2210
 S. Brahma Blvd.,
 Kingsville, Texas -
 starting @ 10:00 AM
 (CST). The pre bid
 conference is not
 mandatory but is re-
 commended.

Plans and specifica-
 tions will be available
 from our IS&FI web-
 site. If you need ac-
 cess, please contact
 Kelly LaCall at Kelly.
 laCall@
 skanska.com or
 713-401-5204.
 MBE/SBE/WBE/AAB
 E/HUB firms are en-
 couraged to submit
 proposals on this pro-
 ject as part of the
 goal of achieving
 HUB participation.

1110
 NOTICE OF PUBLIC
 HEARING

1110
 Kennedy County
 Groundwater Conserva-
 tion District Proposed
 Rule Amendments

Plans may also be
 viewed at local area
 plan rooms.

Skanska USA Build-
 ing is an equal oppor-
 tunity (EEO) employ-
 er.

The Public Hearing
 will be held on
 Date: July 25, 2012
 Time: 8:00 a.m.
 Location: Kennedy
 County Courthouse,
 District Courtroom,
 Sarita, Texas

Agency Regarding
 District's Proposed
 Rule Amendments:
 Public Hearing: Re-
 ceive and Consider
 Comments from the
 Public
 Regarding the
 District's Proposed
 Rule Amendments
 Action Items: Dis-
 cuss, Act and Adopt
 the District's Pro-
 posed Rule Amend-
 ments.

The Public Hearing
 will be held on
 Date: July 25, 2012
 Time: 8:00 a.m.
 Location: Kennedy
 County Courthouse,
 District Courtroom,
 Sarita, Texas

Agency Regarding
 District's Proposed
 Rule Amendments:
 Public Hearing: Re-
 ceive and Consider
 Comments from the
 Public
 Regarding the
 District's Proposed
 Rule Amendments
 Action Items: Dis-
 cuss, Act and Adopt
 the District's Pro-
 posed Rule Amend-
 ments.

1110
 Copies of the Pro-
 posed Rule Amend-
 ments are available
 at the District's office
 beginning on July 5,
 2012. The District's
 office is located on
 the first floor of the
 Kennedy County
 Courthouse in Sarita,
 Texas.

A copy of the Pro-
 posed Rule Amend-
 ments may be re-
 quested from the
 District's office by
 emailing the general
 manager at general-
 manager@kene-
 dygcd.com; or in per-
 son at the District's
 office.

The District encour-
 ages public com-
 ments regarding the
 Proposed Rule
 Amendments. To en-
 sure that the public's
 written questions,
 comments, and sug-
 gestions are ade-
 quately considered,
 all written questions,
 comments and sug-
 gestions should be
 submitted to the Dis-
 trict by 5:00 p.m. on
 July 19, 2012.

Public comments,
 questions or sugges-
 tions may be submit-
 ted to the District by:
 Fax to 361-294-5244
 E-mail to
 general_manager@k
 enedygcd.com
 Hand-delivery to the
 District Office in the
 Kennedy County
 Courthouse, or
 Mail to: P.O. Box
 212; Sarita, TX
 78385

The public, at the
 July 25, 2012 Public
 Hearing, will be pro-
 vided an additional
 opportunity to ask
 questions, provide
 oral comments and
 make suggestions on
 the Proposed Rule
 changes.

YOUR LOCAL ANIMAL SHELTERS
 offer more than
 just dogs and cats.
 Give them a try!

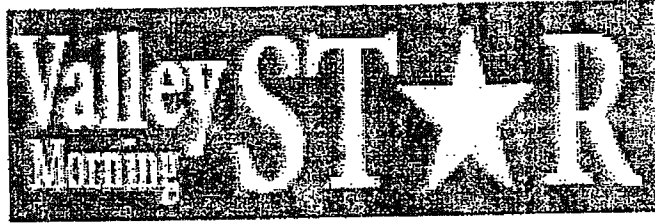
Turn Your Old
 Lemon Into a
 Peach with the
 Classifieds.
 Caller-Times
 883-1111

Caller-Times
 A part of your life.
 Classified ads
 bring buyers
 and sellers
 together.
 Call 361-883-1111
 to place your ad.

FOUND IT?
 Free Found Ads.
 The Corpus Christi
 Caller-Times wants
 to help you find the
 owner of any item
 or pet you may have
 found. Give us a call
 and we will publish it
 free of charge in the
 classified section.
 361-883-1111

PLACE YOUR BARGAIN WHERE THE BUYERS ARE!
 Advertise in the
 Corpus Christi
 Caller-Times
 Classified ads!
 361-883-1111

Find an auto now!
 Point, click
 and choose...
 from local auto dealers.
caller.com



PUBLISHER'S AFFIDAVIT

STATE OF TEXAS
COUNTY OF CAMERON

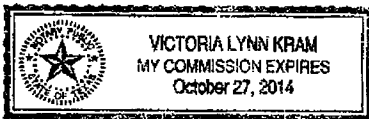
I, Esther Pacheco, being duly sworn on his/her oath states that he/she is a Representative of the Valley Morning Star and that the attached notice appeared in the following issues:

Kennedy County Water District
8506-316 40008914
July 3, 2012

Esther Pacheco
Esther Pacheco

Subscribed and sworn to before me on this the 3 day of July, 2012.

Victoria Lynn Kram
Victoria Lynn Kram
Notary Public, Cameron County
State of Texas



NOTICE OF PUBLIC HEARING KENEDY COUNTY GROUNDWATER

NOTICE OF PUBLIC HEARING Kenedy County Groundwater Conservation District's Amended Management Plan The Kenedy County Groundwater Conservation District will hold a Public Hearing regarding the adoption of the proposed Kenedy County Groundwater Conservation District's Amended Management Plan. The Public Hearing will be held on July 25, 2012, at 8:00 a.m. at the Kenedy County Courthouse, District Courtroom, Sarita, Texas. A proposed District Amended Management Plan may be obtained at the District Office located on the first floor of the Kenedy County Courthouse, Sarita, Texas; phone 361-294-5336.

Appeared in: **Valley Morning Star** on Tuesday, 07/03/2012

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[Back](#)

APPENDIX C:

2012 Letters to the Relevant Regional Water Planning Groups (there are no surface water management entities [as defined by TAC §356.2(20)] within the district's boundaries)

KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT

P. O. Box 212
SARITA, TEXAS 78385
361-294-5336
general_manager@kenedygcd.com

May 3, 2012

Mr. Glenn Jarvis
Rio Grande (M) Water Planning Group
c/o Lower Rio Grande Valley Dev. Council
311 N. 15th Street
McAllen, TX 78501- 4705

Re: Kenedy County Groundwater Conservation District
Draft Amended Management Plan

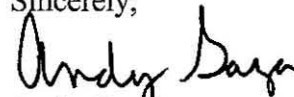
Dear Mr. Jarvis,

I am the General Manager of the Kenedy County Groundwater Conservation District. The District was created in 2003 and confirmed on November 2, 2004. Under its enabling legislation and subsequent landowner annexation petitions, the District currently covers all of Kenedy County and parts of Brooks, Hidalgo, Jim Wells, Kleberg, Nueces, and Willacy counties. The Board of Directors has recently approved a draft amended management plan which has just been submitted to the Texas Water Development Board (TWDB) for pre-review under Texas Water Code § 36.1071(c). Because part of the District lies within Region M, the District has asked me to send you a courtesy copy of this draft.

The TWDB has 30 days to review the draft and provide comments. Based on those comments, the plan will either undergo further revisions, or will be noticed for a public hearing. The District invites your feedback on the enclosed draft. We believe you will find that there are no inconsistencies with the recently approved Rio Grande Regional Water Plan. The District will provide you notice of the public hearing and would welcome participation by any of your representatives. Once the plan is adopted, the District will send you a copy, as required by Texas Water Code § 36.1071(b).

Please call if you have any questions or would like a hard copy of this draft document.

Sincerely,


Andy Garza

Encl.

KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT

P. O. BOX 212
SARITA, TEXAS 78385
361-294-5336

general_manager@kenedygcd.com

June 29, 2012

Mr. Glenn Jarvis
Rio Grande (M) Water Planning Group
c/o Lower Rio Grande Valley Dev. Council
311 N. 15th Street
McAllen, TX 78501- 4705

Re: Kenedy County Groundwater Conservation District
Proposed Amended Management Plan

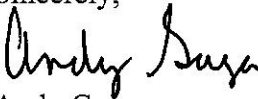
Dear Mr. Jarvis,

The Kenedy County Groundwater Conservation District Directors approved proposal of the enclosed amended management plan at their June Board meeting. A public hearing on the proposed amended plan will be held at 8:00 a.m. on July 25, 2012, at the Kenedy County Courthouse in Sarita. This proposal reflects changes based on the latest State Water Plan and the desired future condition adopted by GMA-16. It addresses comments made by the Texas Water Development Board (TWDB) during a recent pre-review under Texas Water Code § 36.1071(c).

The District would welcome participation by any of your representatives. Once the plan is adopted, the District will send you a copy, as required by Texas Water Code § 36.1071(b).

Please call if you have any questions or would like a hard copy of this proposed plan.

Sincerely,



Andy Garza

Encl.

KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT

P. O. Box 212
SARITA, TEXAS 78385
361-294-5336

general_manager@kenedygcd.com

August 3, 2012

Mr. Glenn Jarvis
Rio Grande (M) Water Planning Group
c/o Lower Rio Grande Valley Dev. Council
311 N. 15th Street
McAllen, TX 78501-4705

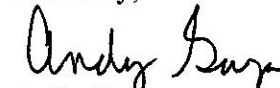
Re: Kenedy County Groundwater Conservation District
Adopted 2012 Groundwater Management Plan

Dear Mr. Jarvis,

Following a public hearing, the Kenedy County Groundwater Conservation District adopted the 2012 Management Plan on July 25, 2012. Because no surface water management entities exist in the District, I am forwarding a copy to you, as the representative of Regional Water Planning Group M, for your review and comment.

Please call if you have any questions.

Sincerely,


Andy Garza

Encl.

KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT

*P. O. Box 212
SARITA, TEXAS 78385
361-294-5336
general_manager@kenedygcd.com*

Mr. Glenn Jarvis
Rio Grande (M) Water Planning Group
c/o Lower Rio Grande Valley Dev. Council
311 N. 15th Street
McAllen, TX 78501-4705

Re: Kenedy County Groundwater Conservation District
Adopted and Approved Amended Management Plan

Dear Mr. Jarvis,

The Texas Water Development Board approved the Kenedy County Groundwater Conservation District's Amended Management Plan on _____. As required by Texas Water Code § 36.1071(b); 30 Texas Administrative Code § 293.20(c)(1); and 31 Texas Administrative Code § 356.4, I am forwarding a copy to you as the chair of Regional Water Planning Group M for that region's use in its planning process.

Please call if you have any questions or would like an electronic copy of the adopted and approved plan.

Sincerely,

Andy Garza

Encl.

Cc w/o encl: Mr. Zak Covar
TCEQ Executive Director

KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT

P. O. Box 212
SARITA, TEXAS 78385
361-294-5336
general_manager@kenedygcd.com

May 3, 2012

Ms. Rocky Freund
Region N
Nueces River Authority
400 Mann Street Ste. 1002
Corpus Christi, TX 78401

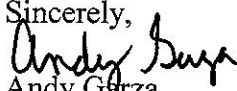
Re: Kenedy County Groundwater Conservation District
Draft Groundwater Management Plan

Dear Ms. Freund,

I am General Manager of the Kenedy County Groundwater Conservation District. The District was created in 2003 and confirmed on November 2, 2004. Under its enabling legislation and subsequent landowner annexation petitions, the District currently covers all of Kenedy County and parts of Brooks, Hidalgo, Jim Wells, Kleberg, Nueces, and Willacy counties. The Board of Directors has recently approved a draft amended management plan which has just been submitted to the Texas Water Development Board (TWDB) for pre-review under Texas Water Code § 36.1071(c). Because part of the District lies within Region N, the District has asked me to send you a courtesy copy of this draft.

The TWDB has 30 days to review the draft and provide comments. Based on those comments, the plan will either undergo further revisions, or will be noticed for a public hearing. The District invites your feedback on the enclosed draft. We believe you will find that there are no inconsistencies with the recently approved Rio Grande Regional Water Plan. The District will provide you notice of the public hearing and would welcome participation by any of your representatives. Once the plan is adopted, the District will send you a copy, as required by Texas Water Code § 36.1071(b).

Please call if you have any questions or would like a hard copy of this draft document.

Sincerely,

Andy Garza

KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT

P. O. Box 212
SARITA, TEXAS 78385
361-294-5336
general_manager@kenedygcd.com

June 29, 2012

Ms. Rocky Freund
Region N
Nueces River Authority
400 Mann Street Ste. 1002
Corpus Christi, TX 78401

Re: Kenedy County Groundwater Conservation District
Proposed Groundwater Management Plan

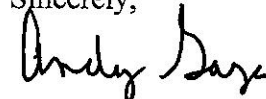
Dear Ms. Freund,

The Kenedy County Groundwater Conservation District Directors approved proposal of the enclosed amended management plan at their June Board meeting. A public hearing on the proposed amended plan will be held at 8:00 a.m. on July 25, 2012, at the Kenedy County Courthouse in Sarita. This proposal reflects changes based on the latest State Water Plan and the desired future condition adopted by GMA-16. It addresses comments made by the Texas Water Development Board (TWDB) during a recent pre-review under Texas Water Code § 36.1071(c).

The District would welcome participation by any of your representatives. Once the plan is adopted, the District will send you a copy, as required by Texas Water Code § 36.1071(b).

Please call if you have any questions or would like a hard copy of this proposed plan.

Sincerely,



Andy Garza

Encl.

KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT

P. O. Box 212
SARITA, TEXAS 78385
361-294-5336
general_manager@kenedygcd.com

August 3, 2012

Ms. Rocky Freund
Region N
Nueces River Authority
400 Mann Street Ste. 1002
Corpus Christi, TX 78401

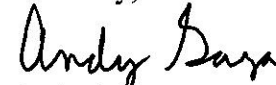
Re: Kenedy County Groundwater Conservation District
Adopted 2012 Groundwater Management Plan

Dear Ms. Freund,

Following a Public Hearing, the Kenedy County Groundwater Conservation District adopted the 2012 Management Plan on July 25, 2012. Because no surface water management entities exist in the District, I am forwarding a copy to you, as the chair of Regional Water Planning Group N, for your review and comment.

Please call if you have any questions.

Sincerely,


Andy Garza

Encl.

KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT

*P. O. Box 212
SARITA, TEXAS 78385
361-294-5336
general_manager@kenedygcd.com*

Ms. Rocky Freund
Region N
Nueces River Authority
400 Mann Street Ste. 1002
Corpus Christi, TX 78401

Re: Kenedy County Groundwater Conservation District
Adopted and Approved Groundwater Management Plan

Dear Ms. Freund,

The Texas Water Development Board approved the Kenedy County Groundwater Conservation District's Amended Management Plan on _____. As required by Texas Water Code § 36.1071(b); 30 Texas Administrative Code § 293.20(c)(1); and 31 Texas Administrative Code § 356.4, I am forwarding a copy to you as the chair of Regional Water Planning Group N for that region's use in its planning process.

Please call if you have any questions or would like a hard copy of the adopted and approved plan.

Sincerely,

Andy Garza

Encl.

Cc w/o encl: Mr. Zak Covar
TCEQ Executive Director

APPENDIX D:

Estimated Historical Groundwater Use and 2012
State Water Plan Datasets – Kenedy County
Groundwater Conservation District, Dated April 18,
2012 (Author: Stephen Allen, 2012)

Estimated Historical Water Use And 2012 State Water Plan Datasets: Kenedy County Groundwater Conservation District

by Stephen Allen
Texas Water Development Board
Groundwater Resources Division
Groundwater Technical Assistance Section
stephen.allen@twdb.texas.gov
(512) 463-7317
April 18, 2012

GROUNDWATER MANAGEMENT PLAN DATA:

This package of water data reports (part 1 of a 2-part package of information) is being provided to groundwater conservation districts to help them meet the requirements for approval of their five-year groundwater management plan. Each report in the package addresses a specific numbered requirement in the Texas Water Development Board's groundwater management plan checklist. The checklist can be viewed and downloaded from this web address:

<http://www.twdb.texas.gov/GwRD/GCD/pdf/GMPchecklist0911.pdf>

The five reports included in part 1 are:

1. Estimated Historical Water Use (checklist Item 2)
from the TWDB Historical Water Use Survey (WUS)
2. Projected Surface Water Supplies (checklist Item 6)
3. Projected Water Demands (checklist Item 7)
4. Projected Water Supply Needs (checklist Item 8)
5. Projected Water Management Strategies (checklist Item 9)
reports 2-5 are from the 2012 State Water Plan (SWP)

Part 2 of the 2-part package is the groundwater availability model (GAM) report. The District should have received this report from the Groundwater Availability Modeling Section. Questions about the GAM can be directed to Dr. Shirley Wade, shirley.wade@twdb.texas.gov, or (512) 463-0749 (to contact the Administrative Assistant).

DISCLAIMER:

The data presented in this report represents the most updated Historical Water Use and 2012 State Water Planning data available as of 4/18/2012. Although it does not happen frequently, neither of these datasets are static and are subject to change pending the availability of more accurate data (Historical Water Use data) or an amendment to the 2012 State Water Plan (2012 State Water Planning data). District personnel must review these datasets and correct any discrepancies in order to ensure approval of their groundwater management plan.

The Historical Water Use dataset can be verified at this web address:

<http://www.twdb.texas.gov/wrpi/wus/summary.asp>

The 2012 State Water Planning dataset can be verified by contacting Wendy Barron (wendy.barron@twdb.texas.gov or 512-936-0886).

The data values provided in the tables of this report are county-based. But, because some groundwater conservation districts cover only a portion of one or more counties, those county values were modified using an apportioning multiplier to create new values that more accurately represent district conditions. The multiplier used within the following formula is a land area ratio:

(county data value * (land area of district in county / land area of county))

Only the county-wide water user group (WUG) data values (county other, manufacturing, steam electric power, irrigation, mining and livestock) were modified using the multiplier. WUG values for municipalities, water supply corporations, and utility districts were not apportioned if they were located within the district (as reported to us by each district). The three tables that were apportioned include Estimated Historical Water Use, Projected Surface Water Supplies, and Projected Water Demands. The two tables that were not apportioned are Projected Water Supply Needs and Projected Water Management Strategies; these district-specific data values are not required to be calculated.

TWDB staff recognize that the apportioning formula being used is not perfect but it is the best available process with respect to time and staffing constraints. If the District believes it has data that is more accurate it has the option of including those data in the plan with an explanation of how the data were derived.

The apportioning multiplier used in the calculation is shown next to each county header on the affected tables.

For additional questions regarding this data, please contact Stephen Allen (stephen.allen@twdb.texas.gov or 512-463-7317) or Rima Petrossian (rima.petrossian@twdb.texas.gov or 512-936-2420).

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Estimated Historical Water Use

TWDB Historical Water Use Survey (WUS) Data

Groundwater use estimates are currently unavailable for 2005, 2009 and 2010. TWDB staff anticipates the calculation and posting of such estimates during the first half of 2012.

BROOKS COUNTY

27.98 % (multiplier)

All values are in acre-feet/year

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974	GW	366	11	0	457	10	245	1,089
1980	GW	318	3	0	84	52	26	483
1984	GW	427	3	0	38	44	21	533
1985	GW	395	3	0	70	44	19	531
1986	GW	508	3	0	140	0	21	672
1987	GW	313	0	0	140	49	22	524
1988	GW	339	0	0	140	82	23	584
1989	GW	387	0	0	79	41	22	529
1990	GW	322	0	0	98	41	23	484
1991	GW	305	0	0	203	39	23	570
1992	GW	344	0	0	168	39	17	568
1993	GW	338	0	0	101	37	17	493
1994	GW	382	0	0	130	36	16	564
1995	GW	419	0	0	130	36	16	601
1996	GW	446	0	0	130	36	17	629
1997	GW	706	0	0	130	36	18	890
1998	GW	781	0	0	130	36	14	961
1999	GW	552	0	0	130	36	15	733
2000	GW	552	0	0	7	36	21	616
2001	GW	545	0	0	7	36	41	629
2002	GW	491	0	0	68	36	21	616
2003	GW	451	0	0	199	142	17	809
2004	GW	451	0	0	175	142	20	788
2006	GW	426	0	0	158	0	126	710
2007	GW	391	0	0	87	0	119	597
2008	GW	557	0	0	183	0	92	832

HIDALGO COUNTY

7.20 % (multiplier)

All values are in acre-feet/year

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974	GW	328	41	0	1,351	82	93	1,895

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Estimated Historical Water Use

TWDB Historical Water Use Survey (WUS) Data

Groundwater use estimates are currently unavailable for 2005, 2009 and 2010. TWDB staff anticipates the calculation and posting of such estimates during the first half of 2012.

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1980	GW	239	16	0	648	17	11	931
1984	GW	372	5	0	637	39	8	1,061
1985	GW	272	8	9	717	42	7	1,055
1986	GW	363	34	0	0	0	32	429
1987	GW	321	33	0	0	44	6	404
1988	GW	340	34	0	0	43	26	443
1989	GW	377	42	0	787	42	27	1,275
1990	GW	382	57	0	1,469	42	29	1,979
1991	GW	402	32	0	1,425	46	29	1,934
1992	GW	406	27	0	595	46	22	1,096
1993	GW	386	22	0	930	46	22	1,406
1994	GW	528	52	0	1,072	25	23	1,700
1995	GW	557	57	1	952	18	25	1,610
1996	GW	563	33	122	586	61	23	1,388
1997	GW	574	65	52	416	82	23	1,212
1998	GW	572	57	106	836	82	19	1,672
1999	GW	457	29	94	865	82	22	1,549
2000	GW	411	35	128	321	82	20	997
2001	GW	704	62	54	269	45	16	1,150
2002	GW	630	56	44	248	64	15	1,057
2003	GW	658	35	66	144	34	16	953
2004	GW	667	54	65	109	27	15	937
2006	GW	291	32	0	75	21	23	442
2007	GW	363	31	0	82	12	22	510
2008	GW	523	30	0	5	9	25	592

JIM WELLS COUNTY

5.14 % (multiplier)

All values are in acre-feet/year

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974	GW	83	3	0	150	31	58	325
1980	GW	129	0	0	154	12	9	304
1984	GW	128	0	0	136	20	5	289
1985	GW	119	0	0	96	12	4	231

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TWDB Historical Water Use Survey (WUS) Data

Groundwater use estimates are currently unavailable for 2005, 2009 and 2010. TWDB staff anticipates the calculation and posting of such estimates during the first half of 2012.

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1986	GW	121	0	0	129	0	4	254
1987	GW	113	0	0	124	22	4	263
1988	GW	121	0	0	110	21	4	256
1989	GW	135	0	0	46	20	4	205
1990	GW	130	0	0	61	20	5	216
1991	GW	127	0	0	55	17	5	204
1992	GW	118	0	0	38	19	5	180
1993	GW	120	0	0	39	18	5	182
1994	GW	128	0	0	46	18	5	197
1995	GW	132	0	0	38	18	6	194
1996	GW	143	0	0	44	18	5	210
1997	GW	129	0	0	35	18	5	187
1998	GW	133	0	0	78	8	5	224
1999	GW	133	0	0	65	8	6	212
2000	GW	137	0	0	187	18	5	347
2001	GW	168	0	0	117	6	3	294
2002	GW	134	0	0	138	6	4	282
2003	GW	165	0	0	160	6	4	335
2004	GW	166	0	0	177	7	4	354
2006	GW	131	0	0	196	6	31	364
2007	GW	122	0	0	109	6	32	269
2008	GW	110	0	0	79	6	30	225

KENEDY COUNTY

100.00 % (multiplier)

All values are in acre-feet/year

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974	GW	79	0	0	0	0	1,268	1,347
1980	GW	145	0	0	0	6	132	283
1984	GW	106	0	0	0	6	103	215
1985	GW	82	0	0	0	6	86	174
1986	GW	85	0	0	0	0	90	175
1987	GW	79	0	0	0	6	103	188
1988	GW	76	0	0	0	5	109	190

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TWDB Historical Water Use Survey (WUS) Data

Groundwater use estimates are currently unavailable for 2005, 2009 and 2010. TWDB staff anticipates the calculation and posting of such estimates during the first half of 2012.

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1989	GW	42	0	0	0	4	108	154
1990	GW	44	0	0	0	4	106	154
1991	GW	40	0	0	0	4	109	153
1992	GW	38	0	0	0	1	71	110
1993	GW	38	0	0	0	1	86	125
1994	GW	50	0	0	0	1	69	120
1995	GW	40	0	0	0	1	64	105
1996	GW	50	0	0	0	1	71	122
1997	GW	70	0	0	0	1	61	132
1998	GW	64	0	0	0	1	84	149
1999	GW	105	0	0	0	1	89	195
2000	GW	117	0	0	107	1	90	315
2001	GW	99	0	0	107	1	85	292
2002	GW	105	0	0	107	1	77	290
2003	GW	128	0	0	0	1	62	191
2004	GW	162	0	0	0	1	64	227
2006	GW	236	0	0	0	0	529	765
2007	GW	121	0	0	0	0	433	554
2008	GW	122	0	0	0	0	880	1,002

KLEBERG COUNTY

81.75 % (multiplier)

All values are in acre-feet/year

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974	GW	3,254	38	0	354	109	851	4,606
1980	GW	5,753	25	0	409	1,302	244	7,733
1984	GW	4,957	25	0	246	1,136	145	6,509
1985	GW	4,166	25	0	331	959	110	5,591
1986	GW	4,325	25	0	502	0	121	4,973
1987	GW	3,939	0	0	409	1,074	134	5,556
1988	GW	4,242	0	0	438	965	138	5,783
1989	GW	4,235	0	0	309	998	141	5,683
1990	GW	4,647	0	0	351	998	142	6,138
1991	GW	4,080	0	0	332	900	146	5,458

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Groundwater use estimates are currently unavailable for 2005, 2009 and 2010. TWDB staff anticipates the calculation and posting of such estimates during the first half of 2012.

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1992	GW	3,969	0	0	277	900	110	5,256
1993	GW	3,827	0	0	116	1,147	116	5,206
1994	GW	3,474	13	0	300	1,147	144	5,078
1995	GW	3,734	16	0	172	1,232	184	5,338
1996	GW	4,233	18	0	172	1,395	169	5,987
1997	GW	3,832	20	0	172	1,557	188	5,769
1998	GW	4,177	21	0	172	1,557	134	6,061
1999	GW	4,003	0	0	172	1,557	168	5,900
2000	GW	4,012	0	0	815	1,732	155	6,714
2001	GW	4,311	6	0	357	1,723	155	6,552
2002	GW	2,837	0	0	425	1,723	132	5,117
2003	GW	4,210	0	0	388	1,723	128	6,449
2004	GW	4,468	0	0	388	1,440	129	6,425
2006	GW	3,322	0	0	460	1,325	1,258	6,365
2007	GW	3,172	0	0	198	1,229	1,436	6,035
2008	GW	3,382	0	0	235	1,135	628	5,380

NUECES COUNTY

4.04 % (multiplier)

All values are in acre-feet/year

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974	GW	65	25	0	0	59	18	167
1980	GW	82	21	0	0	11	2	116
1984	GW	130	49	0	79	4	1	263
1985	GW	46	8	0	105	1	1	161
1986	GW	16	8	0	86	0	5	115
1987	GW	13	8	0	77	1	1	100
1988	GW	13	8	0	105	3	6	135
1989	GW	15	9	0	22	2	5	53
1990	GW	13	10	0	4	2	6	35
1991	GW	13	8	0	4	3	6	34
1992	GW	15	8	0	0	3	4	30
1993	GW	15	8	0	0	4	4	31
1994	GW	13	8	0	0	4	6	31

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TWDB Historical Water Use Survey (WUS) Data

Groundwater use estimates are currently unavailable for 2005, 2009 and 2010. TWDB staff anticipates the calculation and posting of such estimates during the first half of 2012.

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1995	GW	60	14	0	0	4	5	83
1996	GW	63	36	0	0	4	4	107
1997	GW	64	57	0	0	4	4	129
1998	GW	69	211	0	0	3	5	288
1999	GW	72	36	0	0	3	5	116
2000	GW	69	39	0	1	3	4	116
2001	GW	75	60	0	1	2	4	142
2002	GW	79	49	0	1	2	4	135
2003	GW	81	64	0	4	1	4	154
2004	GW	70	74	0	5	1	4	154
2006	GW	48	87	0	35	0	11	181
2007	GW	45	65	0	28	0	8	146
2008	GW	32	118	0	13	0	15	178

WILLACY COUNTY

10.92 % (multiplier)

All values are in acre-feet/year

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1974	GW	79	1	0	0	2	34	116
1980	GW	60	0	0	0	0	2	62
1984	GW	2	0	0	0	0	3	5
1985	GW	0	0	0	0	0	3	3
1986	GW	0	0	0	0	0	1	1
1987	GW	0	0	0	0	0	2	2
1988	GW	0	0	0	0	0	2	2
1989	GW	0	0	0	0	0	2	2
1990	GW	0	0	0	0	0	2	2
1991	GW	0	0	0	0	1	2	3
1992	GW	0	0	0	0	1	2	3
1993	GW	0	0	0	0	1	2	3
1994	GW	0	0	0	0	1	1	2
1995	GW	0	0	0	0	1	1	2
1996	GW	0	0	0	0	1	1	2
1997	GW	0	0	0	0	1	1	2

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Estimated Historical Water Use

TWDB Historical Water Use Survey (WUS) Data

Groundwater use estimates are currently unavailable for 2005, 2009 and 2010. TWDB staff anticipates the calculation and posting of such estimates during the first half of 2012.

Year	Source	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1998	GW	0	0	0	0	1	2	3
1999	GW	0	0	0	0	1	2	3
2000	GW	0	0	0	0	1	2	3
2001	GW	0	0	0	0	1	2	3
2002	GW	0	0	0	0	1	3	4
2003	GW	0	0	0	0	1	3	4
2004	GW	0	0	0	0	1	3	4
2006	GW	6	0	0	0	0	12	18
2007	GW	6	0	0	0	0	14	20
2008	GW	5	0	0	0	0	11	16

Projected Surface Water Supplies

TWDB 2012 State Water Plan Data

BROOKS COUNTY

27.98 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
N	LIVESTOCK	NUECES-RIO GRANDE	LIVESTOCK LOCAL SUPPLY	188	188	188	188	188	188
Sum of Projected Surface Water Supplies (acre-feet/year)				188	188	188	188	188	188

HIDALGO COUNTY

7.20 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
M	ALAMO	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	ALTON	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	COUNTY-OTHER	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	632	627	620	613	606	600
M	COUNTY-OTHER	RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	37	33	33	32	32	32
M	DONNA	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	EDCOUCH	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	EDINBURG	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	ELSA	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	HIDALGO	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	HIDALGO COUNTY MUD #1	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	IRRIGATION	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	25,742	25,486	25,248	25,009	24,771	24,551
M	IRRIGATION	NUECES-RIO GRANDE	NUECES-RIO GRANDE RIVER COMBINED RUN-OF-RIVER	6	6	6	6	6	6

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RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
M	IRRIGATION	RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	209	207	205	203	201	200
M	LA JOYA	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	LA JOYA	RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	LA VILLA	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	LIVESTOCK	NUECES-RIO GRANDE	LIVESTOCK LOCAL SUPPLY	0	0	0	0	0	0
M	LIVESTOCK	RIO GRANDE	LIVESTOCK LOCAL SUPPLY	0	0	0	0	0	0
M	MANUFACTURING	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	233	233	233	233	233	233
M	MCALLEN	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	MCALLEN	RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	MERCEDES	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	MINING	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	13	13	13	13	13	13
M	MINING	RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2	2	2	2	2	1
M	MISSION	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	NORTH ALAMO WSC	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	PALMHURST	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	PALMVIEW	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	PENITAS	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						

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RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
M	PHARR	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	SAN JUAN	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	SHARYLAND WSC	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	STEAM ELECTRIC POWER	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	428	428	428	428	428	428
M	SULLIVAN CITY	RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	WESLACO	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
Sum of Projected Surface Water Supplies (acre-feet/year)				27,302	27,035	26,788	26,539	26,292	26,064

JIM WELLS COUNTY

5.14 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
N	ALICE	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	LIVESTOCK	NUECES	LIVESTOCK LOCAL SUPPLY	8	8	8	8	8	8
N	LIVESTOCK	NUECES-RIO GRANDE	LIVESTOCK LOCAL SUPPLY	41	41	41	41	41	41
Sum of Projected Surface Water Supplies (acre-feet/year)				49	49	49	49	49	49

KENEDY COUNTY

100.00 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
N	LIVESTOCK	NUECES-RIO GRANDE	LIVESTOCK LOCAL SUPPLY	811	811	811	811	811	811
Sum of Projected Surface Water Supplies (acre-feet/year)				811	811	811	811	811	811

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KLEBERG COUNTY

81.75 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
N	KINGSVILLE	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	LIVESTOCK	NUECES-RIO GRANDE	LIVESTOCK LOCAL SUPPLY	1,398	1,398	1,398	1,398	1,398	1,398
N	RICARDO WSC	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
Sum of Projected Surface Water Supplies (acre-feet/year)				1,398	1,398	1,398	1,398	1,398	1,398

NUECES COUNTY

4.04 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
N	AGUA DULCE	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	ARANSAS PASS	SAN ANTONIO-NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	BISHOP	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	CORPUS CHRISTI	NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	CORPUS CHRISTI	NUECES	TEXANA LAKE/RESERVOIR						
N	CORPUS CHRISTI	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	CORPUS CHRISTI	NUECES-RIO GRANDE	TEXANA LAKE/RESERVOIR						
N	COUNTY-OTHER	NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	4	3	3	2	2	1

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RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
N	COUNTY-OTHER	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	9	11	11	11	12	12
N	COUNTY-OTHER	NUECES-RIO GRANDE	NUECES RIVER RUN-OF-RIVER	6	6	6	6	6	6
N	DRISCOLL	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	IRRIGATION	NUECES	NUECES RIVER RUN-OF-RIVER	111	111	111	111	111	111
N	IRRIGATION	NUECES-RIO GRANDE	NUECES RIVER RUN-OF-RIVER	29	29	29	29	29	29
N	IRRIGATION	NUECES-RIO GRANDE	NUECES-RIO GRANDE RIVER COMBINED RUN-OF-RIVER IRRIGATION	22	22	22	22	22	22
N	LIVESTOCK	NUECES	LIVESTOCK LOCAL SUPPLY	1	1	1	1	1	1
N	LIVESTOCK	NUECES-RIO GRANDE	LIVESTOCK LOCAL SUPPLY	7	7	7	7	7	7
N	MANUFACTURING	NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	59	64	68	72	76	81
N	MANUFACTURING	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	1,774	1,618	1,423	1,251	1,021	816
N	MINING	NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0
N	MINING	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	20	21	14	0	0	0
N	MINING	SAN ANTONIO-NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	35	37	24	0	0	0
N	NUECES COUNTY WCID #4	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						
N	PORT ARANSAS	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM						

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Projected Surface Water Supplies

TWDB 2012 State Water Plan Data

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
N	RIVER ACRES WSC	NUECES	NUECES RIVER RUN-OF-RIVER						
N	ROBSTOWN	NUECES-RIO GRANDE	NUECES RIVER RUN-OF-RIVER						
N	STEAM ELECTRIC POWER	NUECES	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	127	363	326	309	310	325
N	STEAM ELECTRIC POWER	NUECES-RIO GRANDE	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM	169	135	158	185	219	260
Sum of Projected Surface Water Supplies (acre-feet/year)				2,373	2,428	2,203	2,006	1,816	1,671

WILLACY COUNTY

10.92 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	Source Name	2010	2020	2030	2040	2050	2060
M	COUNTY-OTHER	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	76	63	51	40	29	29
M	IRRIGATION	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3,741	3,704	3,669	3,634	3,600	3,568
M	IRRIGATION	NUECES-RIO GRANDE	NUECES-RIO GRANDE RIVER COMBINED RUN-OF-RIVER	98	98	98	98	98	98
M	LYFORD	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	NORTH ALAMO WSC	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	RAYMONDVILLE	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	SAN PERLITA	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
M	SEBASTIAN MUD	NUECES-RIO GRANDE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM						
Sum of Projected Surface Water Supplies (acre-feet/year)				3,915	3,865	3,816	3,772	3,727	3,695

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Projected Water Demands

TWDB 2012 State Water Plan Data

Please note that the demand numbers presented here include the plumbing code savings found in the Regional and State Water Plans.

BROOKS COUNTY

27.98 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
N	FALFURRIAS	NUECES-RIO GRANDE						
N	COUNTY-OTHER	NUECES-RIO GRANDE	50	30	17	10	6	4
N	MINING	NUECES-RIO GRANDE	42	45	47	48	50	51
N	IRRIGATION	NUECES-RIO GRANDE	7	7	6	6	6	6
N	LIVESTOCK	NUECES-RIO GRANDE	209	209	209	209	209	209
Sum of Projected Water Demands (acre-feet/year)			308	291	279	273	271	270

HIDALGO COUNTY

7.20 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
M	LA JOYA	NUECES-RIO GRANDE						
M	PENITAS	NUECES-RIO GRANDE						
M	HIDALGO COUNTY MUD #1	NUECES-RIO GRANDE						
M	NORTH ALAMO WSC	NUECES-RIO GRANDE						
M	SHARYLAND WSC	NUECES-RIO GRANDE						
M	ALTON	NUECES-RIO GRANDE						
M	DONNA	NUECES-RIO GRANDE						
M	EDCOUCH	NUECES-RIO GRANDE						
M	EDINBURG	NUECES-RIO GRANDE						
M	ELSA	NUECES-RIO GRANDE						
M	HIDALGO	NUECES-RIO GRANDE						
M	LA VILLA	NUECES-RIO GRANDE						
M	MCALLEN	NUECES-RIO GRANDE						
M	MISSION	NUECES-RIO GRANDE						
M	PHARR	NUECES-RIO GRANDE						
M	PROGRESO	NUECES-RIO GRANDE						
M	SAN JUAN	NUECES-RIO GRANDE						
M	COUNTY-OTHER	NUECES-RIO GRANDE	673	888	1,129	1,394	1,696	2,005
M	MANUFACTURING	NUECES-RIO GRANDE	233	256	277	298	317	341
M	STEAM ELECTRIC POWER	NUECES-RIO GRANDE	746	1,019	1,191	1,401	1,657	1,969
M	MINING	NUECES-RIO GRANDE	93	101	105	110	114	118

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Projected Water Demands

TWDB 2012 State Water Plan Data

Please note that the demand numbers presented here include the plumbing code savings found in the Regional and State Water Plans.

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
M	IRRIGATION	NUECES-RIO GRANDE	40,341	36,393	31,397	31,397	31,397	31,397
M	LIVESTOCK	NUECES-RIO GRANDE	47	47	47	47	47	47
M	ALAMO	NUECES-RIO GRANDE						
M	MERCEDES	NUECES-RIO GRANDE						
M	WESLACO	NUECES-RIO GRANDE						
M	MILITARY HIGHWAY WSC	NUECES-RIO GRANDE						
M	PALMVIEW	NUECES-RIO GRANDE						
M	PALMHURST	NUECES-RIO GRANDE						
M	HIDALGO	RIO GRANDE						
M	LA JOYA	RIO GRANDE						
M	SULLIVAN CITY	RIO GRANDE						
M	COUNTY-OTHER	RIO GRANDE	39	53	68	84	103	122
M	MINING	RIO GRANDE	11	12	12	13	13	14
M	IRRIGATION	RIO GRANDE	1,637	1,477	1,274	1,274	1,274	1,274
M	LIVESTOCK	RIO GRANDE	2	2	2	2	2	2
M	MCALLEN	RIO GRANDE						
M	MILITARY HIGHWAY WSC	RIO GRANDE						
Sum of Projected Water Demands (acre-feet/year)			43,822	40,248	35,502	36,020	36,620	37,289

JIM WELLS COUNTY

5.14 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
N	LIVESTOCK	NUECES	9	9	9	9	9	9
N	COUNTY-OTHER	NUECES	16	17	17	17	16	16
N	MINING	NUECES	10	11	12	12	13	13
N	IRRIGATION	NUECES	61	53	47	41	36	32
N	LIVESTOCK	NUECES-RIO GRANDE	45	45	45	45	45	45
N	IRRIGATION	NUECES-RIO GRANDE	108	95	83	73	64	56
N	MINING	NUECES-RIO GRANDE	11	12	13	14	14	15
N	ORANGE GROVE	NUECES-RIO GRANDE						
N	PREMONT	NUECES-RIO GRANDE						
N	ALICE	NUECES-RIO GRANDE						
N	COUNTY-OTHER	NUECES-RIO GRANDE	93	97	98	97	95	93
N	SAN DIEGO	NUECES-RIO GRANDE						

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Projected Water Demands

TWDB 2012 State Water Plan Data

Please note that the demand numbers presented here include the plumbing code savings found in the Regional and State Water Plans.

Sum of Projected Water Demands (acre-feet/year)	353	339	324	308	292	279
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KENEDY COUNTY

100.00 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
N	IRRIGATION	NUECES-RIO GRANDE	107	107	107	107	107	107
N	COUNTY-OTHER	NUECES-RIO GRANDE	50	52	53	53	52	53
N	MINING	NUECES-RIO GRANDE	1	1	1	1	1	1
N	LIVESTOCK	NUECES-RIO GRANDE	901	901	901	901	901	901
Sum of Projected Water Demands (acre-feet/year)			1,059	1,061	1,062	1,062	1,061	1,062

KLEBERG COUNTY

81.75 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
N	LIVESTOCK	NUECES-RIO GRANDE	1,553	1,553	1,553	1,553	1,553	1,553
N	MINING	NUECES-RIO GRANDE	2,385	2,399	1,804	1,812	1,819	1,825
N	IRRIGATION	NUECES-RIO GRANDE	708	609	526	454	390	335
N	COUNTY-OTHER	NUECES-RIO GRANDE	653	719	760	782	819	821
N	RICARDO WSC	NUECES-RIO GRANDE						
N	KINGSVILLE	NUECES-RIO GRANDE						
Sum of Projected Water Demands (acre-feet/year)			5,299	5,280	4,643	4,601	4,581	4,534

NUECES COUNTY

4.04 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
N	COUNTY-OTHER	NUECES	10	7	5	3	2	1
N	IRRIGATION	NUECES	57	49	42	36	31	27
N	MINING	NUECES	0	0	0	0	0	0
N	MANUFACTURING	NUECES	60	65	69	73	77	82
N	STEAM ELECTRIC POWER	NUECES	127	443	518	610	721	857
N	CORPUS CHRISTI	NUECES						
N	LIVESTOCK	NUECES	1	1	1	1	1	1
N	RIVER ACRES WSC	NUECES						
N	COUNTY-OTHER	NUECES-RIO GRANDE	27	17	11	7	5	3

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Projected Water Demands

TWDB 2012 State Water Plan Data

Please note that the demand numbers presented here include the plumbing code savings found in the Regional and State Water Plans.

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
N	MANUFACTURING	NUECES-RIO GRANDE	1,819	1,966	2,089	2,209	2,313	2,476
N	STEAM ELECTRIC POWER	NUECES-RIO GRANDE	169	135	158	185	219	260
N	BISHOP	NUECES-RIO GRANDE						
N	DRISCOLL	NUECES-RIO GRANDE						
N	IRRIGATION	NUECES-RIO GRANDE	2	2	1	1	1	1
N	MINING	NUECES-RIO GRANDE	21	22	23	23	24	25
N	LIVESTOCK	NUECES-RIO GRANDE	10	10	10	10	10	10
N	PORT ARANSAS	NUECES-RIO GRANDE						
N	NUECES COUNTY WCID #4	NUECES-RIO GRANDE						
N	AGUA DULCE	NUECES-RIO GRANDE						
N	CORPUS CHRISTI	NUECES-RIO GRANDE						
N	ROBSTOWN	NUECES-RIO GRANDE						
N	ARANSAS PASS	SAN ANTONIO-NUECES						
N	MINING	SAN ANTONIO-NUECES	38	40	41	42	43	44
Sum of Projected Water Demands (acre-feet/year)			2,341	2,757	2,968	3,200	3,447	3,787

WILLACY COUNTY

10.92 % (multiplier)

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
M	LYFORD	NUECES-RIO GRANDE						
M	COUNTY-OTHER	NUECES-RIO GRANDE	23	23	23	23	23	23
M	SAN PERLITA	NUECES-RIO GRANDE						
M	LIVESTOCK	NUECES-RIO GRANDE	16	16	16	16	16	16
M	IRRIGATION	NUECES-RIO GRANDE	6,464	6,574	6,620	6,620	6,620	6,620
M	MINING	NUECES-RIO GRANDE	1	1	1	1	1	1
M	SEBASTIAN MUD	NUECES-RIO GRANDE						
M	NORTH ALAMO WSC	NUECES-RIO GRANDE						
M	MANUFACTURING	NUECES-RIO GRANDE	3	3	3	3	3	3
M	RAYMONDVILLE	NUECES-RIO GRANDE						
Sum of Projected Water Demands (acre-feet/year)			6,507	6,617	6,663	6,663	6,663	6,663

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Projected Water Supply Needs

TWDB 2012 State Water Plan Data

Negative values (in red) reflect a projected water supply need, positive values a surplus.

BROOKS COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
N	COUNTY-OTHER	NUECES-RIO GRANDE	0	0	0	0	0	0
N	FALFURRIAS	NUECES-RIO GRANDE	0	0	0	0	0	0
N	IRRIGATION	NUECES-RIO GRANDE	0	0	0	0	0	0
N	LIVESTOCK	NUECES-RIO GRANDE	0	0	0	0	0	0
N	MINING	NUECES-RIO GRANDE	0	0	0	0	0	0
Sum of Projected Water Supply Needs (acre-feet/year)			0	0	0	0	0	0

HIDALGO COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
M	ALAMO	NUECES-RIO GRANDE	-59	-762	-1,548	-2,415	-3,407	-4,424
M	ALTON	NUECES-RIO GRANDE	0	0	-2,446	-3,419	-4,482	-5,602
M	COUNTY-OTHER	NUECES-RIO GRANDE	1,028	-2,179	-5,775	-9,722	-14,197	-18,779
M	COUNTY-OTHER	RIO GRANDE	60	-187	-409	-652	-927	-1,210
M	DONNA	NUECES-RIO GRANDE	1,729	1,435	1,117	759	347	-103
M	EDCOUCH	NUECES-RIO GRANDE	-129	-188	-255	-332	-420	-516
M	EDINBURG	NUECES-RIO GRANDE	6,216	3,826	1,029	-1,805	-5,151	-8,580
M	ELSA	NUECES-RIO GRANDE	659	603	534	460	364	258
M	HIDALGO	NUECES-RIO GRANDE	594	209	-219	-685	-1,206	-1,740
M	HIDALGO	RIO GRANDE	-2	-18	-20	-27	-49	-71
M	HIDALGO COUNTY MUD #1	NUECES-RIO GRANDE	-1,130	-1,814	-2,588	-3,421	-4,342	-5,287
M	IRRIGATION	NUECES-RIO GRANDE	-179,009	-127,739	-61,663	-64,971	-68,279	-71,333
M	IRRIGATION	RIO GRANDE	-14,526	-12,328	-9,540	-9,567	-9,594	-9,619
M	LA JOYA	NUECES-RIO GRANDE	46	-5	-59	-120	-189	-265
M	LA JOYA	RIO GRANDE	19	-2	-25	-51	-80	-113
M	LA VILLA	NUECES-RIO GRANDE	256	258	259	261	261	258
M	LIVESTOCK	NUECES-RIO GRANDE	0	0	0	0	0	0
M	LIVESTOCK	RIO GRANDE	0	0	0	0	0	0
M	MANUFACTURING	NUECES-RIO GRANDE	912	589	297	5	-255	-594
M	MCALLEN	NUECES-RIO GRANDE	2,627	-2,501	-8,474	-14,830	-21,932	-29,453
M	MCALLEN	RIO GRANDE	0	-1	-1	-2	-3	-4
M	MERCEDES	NUECES-RIO GRANDE	3,231	3,123	2,988	2,846	2,652	2,434

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Kenedy County Groundwater Conservation District

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Projected Water Supply Needs

TWDB 2012 State Water Plan Data

Negative values (in red) reflect a projected water supply need, positive values a surplus.

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
M	MILITARY HIGHWAY WSC	NUECES-RIO GRANDE	-8	-143	-422	-780	-1,120	-1,479
M	MILITARY HIGHWAY WSC	RIO GRANDE	0	0	0	0	-4	-9
M	MINING	NUECES-RIO GRANDE	183	182	181	179	177	175
M	MINING	RIO GRANDE	23	22	21	21	21	20
M	MISSION	NUECES-RIO GRANDE	-1,470	-4,468	-7,824	-11,365	-15,469	-19,674
M	NORTH ALAMO WSC	NUECES-RIO GRANDE	8,983	5,627	1,853	-2,345	-7,180	-12,150
M	PALMHURST	NUECES-RIO GRANDE	0	0	209	-296	-929	-1,633
M	PALMVIEW	NUECES-RIO GRANDE	0	0	0	0	-447	-906
M	PENITAS	NUECES-RIO GRANDE	5	3	2	-1	-7	-16
M	PHARR	NUECES-RIO GRANDE	376	-1,754	-4,152	-6,799	-9,649	-12,695
M	PROGRESO	NUECES-RIO GRANDE	0	0	0	0	0	0
M	SAN JUAN	NUECES-RIO GRANDE	-478	-1,642	-2,933	-4,361	-6,008	-7,697
M	SHARYLAND WSC	NUECES-RIO GRANDE	1,624	-391	-397	-1,331	-2,296	-3,335
M	STEAM ELECTRIC POWER	NUECES-RIO GRANDE	1,816	-1,980	-4,374	-7,291	-10,847	-15,183
M	SULLIVAN CITY	RIO GRANDE	159	186	184	13	-197	-411
M	WESLACO	NUECES-RIO GRANDE	1,043	286	-579	-1,537	-2,622	-3,787
Sum of Projected Water Supply Needs (acre-feet/year)			-196,811	-158,102	-113,703	-148,125	-191,288	-236,668

JIM WELLS COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
N	ALICE	NUECES-RIO GRANDE	0	0	0	0	0	0
N	COUNTY-OTHER	NUECES	0	0	0	0	0	0
N	COUNTY-OTHER	NUECES-RIO GRANDE	-167	-238	-262	-241	-210	-170
N	IRRIGATION	NUECES	0	0	0	0	0	0
N	IRRIGATION	NUECES-RIO GRANDE	0	0	0	0	0	0
N	LIVESTOCK	NUECES	0	0	0	0	0	0
N	LIVESTOCK	NUECES-RIO GRANDE	0	0	0	0	0	0
N	MINING	NUECES	0	0	0	0	0	0
N	MINING	NUECES-RIO GRANDE	0	0	0	0	0	0
N	ORANGE GROVE	NUECES-RIO GRANDE	0	0	0	0	0	0
N	PREMONT	NUECES-RIO GRANDE	0	0	0	0	0	0
N	SAN DIEGO	NUECES-RIO GRANDE	0	0	0	0	0	0
Sum of Projected Water Supply Needs (acre-feet/year)			-167	-238	-262	-241	-210	-170

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Projected Water Supply Needs

TWDB 2012 State Water Plan Data

Negative values (in red) reflect a projected water supply need, positive values a surplus.

KENEDY COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
N	COUNTY-OTHER	NUECES-RIO GRANDE	0	0	0	0	0	0
N	IRRIGATION	NUECES-RIO GRANDE	0	0	0	0	0	0
N	LIVESTOCK	NUECES-RIO GRANDE	0	0	0	0	0	0
N	MINING	NUECES-RIO GRANDE	0	0	0	0	0	0
Sum of Projected Water Supply Needs (acre-feet/year)			0	0	0	0	0	0

KLEBERG COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
N	COUNTY-OTHER	NUECES-RIO GRANDE	0	-31	-81	-108	-153	-155
N	IRRIGATION	NUECES-RIO GRANDE	0	0	0	0	0	0
N	KINGSVILLE	NUECES-RIO GRANDE	1	0	0	0	0	0
N	LIVESTOCK	NUECES-RIO GRANDE	0	0	0	0	0	0
N	MINING	NUECES-RIO GRANDE	0	0	0	0	0	0
N	RICARDO WSC	NUECES-RIO GRANDE	0	0	0	0	0	0
Sum of Projected Water Supply Needs (acre-feet/year)			0	-31	-81	-108	-153	-155

NUECES COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
N	AGUA DULCE	NUECES-RIO GRANDE	0	0	0	0	0	0
N	ARANSAS PASS	SAN ANTONIO-NUECES	0	0	0	0	0	0
N	BISHOP	NUECES-RIO GRANDE	0	0	0	0	0	0
N	CORPUS CHRISTI	NUECES	0	0	0	0	0	0
N	CORPUS CHRISTI	NUECES-RIO GRANDE	9,301	0	0	0	0	0
N	COUNTY-OTHER	NUECES	0	0	0	0	0	0
N	COUNTY-OTHER	NUECES-RIO GRANDE	-261	0	146	260	334	383
N	DRISCOLL	NUECES-RIO GRANDE	0	0	0	0	0	0
N	IRRIGATION	NUECES	1,344	1,536	1,704	1,848	1,971	2,076
N	IRRIGATION	NUECES-RIO GRANDE	1,214	1,221	1,226	1,231	1,235	1,239
N	LIVESTOCK	NUECES	0	0	0	0	0	0

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Projected Water Supply Needs

TWDB 2012 State Water Plan Data

Negative values (in red) reflect a projected water supply need, positive values a surplus.

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
N	LIVESTOCK	NUECES-RIO GRANDE	0	0	0	0	0	0
N	MANUFACTURING	NUECES	0	0	0	0	0	0
N	MANUFACTURING	NUECES-RIO GRANDE	0	-7,411	-15,203	-22,378	-30,560	-39,550
N	MINING	NUECES	0	0	0	0	0	0
N	MINING	NUECES-RIO GRANDE	0	0	-207	-558	-572	-586
N	MINING	SAN ANTONIO-NUECES	0	0	-363	-988	-1,012	-1,038
N	NUECES COUNTY WCID #4	NUECES-RIO GRANDE	0	0	0	0	0	0
N	PORT ARANSAS	NUECES-RIO GRANDE	0	0	0	0	0	0
N	RIVER ACRES WSC	NUECES	-138	-255	-355	-445	-522	-590
N	ROBSTOWN	NUECES-RIO GRANDE	0	0	0	0	0	0
N	STEAM ELECTRIC POWER	NUECES	0	-1,982	-4,755	-7,459	-10,187	-13,183
N	STEAM ELECTRIC POWER	NUECES-RIO GRANDE	0	0	0	0	0	0
Sum of Projected Water Supply Needs (acre-feet/year)			-399	-9,648	-20,883	-31,828	-42,853	-54,947

WILLACY COUNTY

All values are in acre-feet/year

RWPG	WUG	WUG Basin	2010	2020	2030	2040	2050	2060
M	COUNTY-OTHER	NUECES-RIO GRANDE	483	366	259	159	57	58
M	IRRIGATION	NUECES-RIO GRANDE	-24,035	-25,389	-26,126	-26,443	-26,760	-27,052
M	LIVESTOCK	NUECES-RIO GRANDE	0	0	0	0	0	0
M	LYFORD	NUECES-RIO GRANDE	647	629	612	598	582	568
M	MANUFACTURING	NUECES-RIO GRANDE	-25	-25	-25	-25	-25	-25
M	MINING	NUECES-RIO GRANDE	0	0	0	0	0	0
M	NORTH ALAMO WSC	NUECES-RIO GRANDE	563	316	94	-105	-285	-415
M	RAYMONDVILLE	NUECES-RIO GRANDE	3,989	3,969	3,955	3,953	3,940	3,927
M	SAN PERLITA	NUECES-RIO GRANDE	15	8	3	0	-4	-6
M	SEBASTIAN MUD	NUECES-RIO GRANDE	44	3	-33	-62	-82	-93
Sum of Projected Water Supply Needs (acre-feet/year)			-24,060	-25,414	-26,184	-26,635	-27,156	-27,591

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BROOKS COUNTY

WUG, Basin (RWPG)

All values are in acre-feet/year

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
FALFURRIAS, NUECES-RIO GRANDE (N)							
MUNICIPAL WATER CONSERVATION	CONSERVATION [BROOKS]	1	38	95	156	228	309
Sum of Projected Water Management Strategies (acre-feet/year)		1	38	95	156	228	309

HIDALGO COUNTY

WUG, Basin (RWPG)

All values are in acre-feet/year

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
ALAMO, NUECES-RIO GRANDE (M)							
ACQUISITION OF WATER RIGHTS THROUGH CONTRACT	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	5	10	14	19	24
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	100	200	277	381	471
ACQUISITION OF WATER RIGHTS THROUGH URBANIZATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	400	800	1,330	1,700	2,100
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	25	25	25	25	125	225
BRACKISH WATER DESALINATION	GULF COAST AQUIFER-BRACKISH [HIDALGO]	0	83	288	469	882	1,304
NON-POTABLE REUSE	DIRECT REUSE [HIDALGO]	34	150	225	300	400	500
ALTON, NUECES-RIO GRANDE (M)							
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	59	82	2,446	3,419	4,482	5,602
COUNTY-OTHER, NUECES-RIO GRANDE (M)							
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	1,090	3,888	5,860	10,099	14,390
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	94	257	395	554	736	942
EXPAND EXISTING GROUNDWATER WELLS	GULF COAST AQUIFER [HIDALGO]	0	1,089	1,887	3,861	4,098	4,389

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WUG, Basin (RWPG)

All values are in acre-feet/year

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
COUNTY-OTHER, RIO GRANDE (M)							
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	187	409	652	927	1,210
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	50	100	200	300	400	483
DONNA, NUECES-RIO GRANDE (M)							
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	15	32	51	72	95	118
BRACKISH WATER DESALINATION	GULF COAST AQUIFER-BRACKISH [HIDALGO]	0	50	50	50	50	50
EXPAND EXISTING GROUNDWATER WELLS	GULF COAST AQUIFER [HIDALGO]	0	25	25	25	25	25
EDCOUCH, NUECES-RIO GRANDE (M)							
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	65	118	175	246	299	360
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	65	70	81	86	121	156
EDINBURG, NUECES-RIO GRANDE (M)							
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	1,631	3,114	4,591	6,619
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	74	328	500	686	889	1,097
NON-POTABLE REUSE	DIRECT REUSE [HIDALGO]	0	0	500	1,500	3,000	4,000
ELSA, NUECES-RIO GRANDE (M)							
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	50	50
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	2	5	7	10	14	17
BRACKISH WATER DESALINATION	GULF COAST AQUIFER-BRACKISH [HIDALGO]	0	100	100	100	100	100
PROPOSED ELEVATED STORAGE TANK AND INFRASTRUCTURE IMPROVEMENTS FOR CITY OF ELSA	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	105	105	105	105	105	105
HIDALGO, NUECES-RIO GRANDE (M)							
ACQUISITION OF WATER RIGHTS THROUGH CONTRACT	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	8	29	51

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WUG, Basin (RWPG)

All values are in acre-feet/year

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	154	558	973
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	32	66	104	145	189	235
EXPAND EXISTING GROUNDWATER WELLS	GULF COAST AQUIFER [HIDALGO]	110	235	334	427	506	585

HIDALGO, RIO GRANDE (M)

EXPAND EXISTING GROUNDWATER WELLS	GULF COAST AQUIFER [HIDALGO]	2	18	20	27	49	71
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HIDALGO COUNTY MUD #1, NUECES-RIO GRANDE (M)

ACQUISITION OF WATER RIGHTS THROUGH CONTRACT	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	66	100	139	181	227	274
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	1,051	1,684	2,401	3,173	4,026	4,901
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	14	30	48	68	89	112

IRRIGATION, NUECES-RIO GRANDE (M)

IRRIGATION CONVEYANCE SYSTEM CONSERVATION	CONSERVATION [HIDALGO]	5,976	20,246	34,268	48,044	61,572	74,904
ON- FARM WATER CONSERVATION	CONSERVATION [HIDALGO]	795	5,385	13,673	25,560	40,946	59,773

IRRIGATION, RIO GRANDE (M)

IRRIGATION CONVEYANCE SYSTEM CONSERVATION	CONSERVATION [HIDALGO]	62	207	354	498	639	779
ON- FARM WATER CONSERVATION	CONSERVATION [HIDALGO]	8	56	142	265	425	621

LA JOYA, NUECES-RIO GRANDE (M)

ACQUISITION OF WATER RIGHTS THROUGH URBANIZATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	2	87	185
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	7	14	21	49	62	73
BRACKISH WATER DESALINATION	GULF COAST AQUIFER-BRACKISH [HIDALGO]	50	48	75	69	40	7

LA JOYA, RIO GRANDE (M)

BRACKISH WATER DESALINATION	GULF COAST AQUIFER-BRACKISH [HIDALGO]	0	2	25	51	80	113
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Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
LA VILLA, NUECES-RIO GRANDE (M)							
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	0	1	1	1	1	1
MANUFACTURING, NUECES-RIO GRANDE (M)							
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	55	194
EXPAND EXISTING GROUNDWATER WELLS	GULF COAST AQUIFER [HIDALGO]	0	0	0	0	100	200
NON-POTABLE REUSE	DIRECT REUSE [HIDALGO]	0	0	0	0	100	200
MCALLEN, NUECES-RIO GRANDE (M)							
ACQUISITION OF WATER RIGHTS THROUGH CONTRACT	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	225	329	393	432
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	998	4,083	5,718	7,341
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	191	382	925	1,250	2,177	3,423
BRACKISH WATER DESALINATION	GULF COAST AQUIFER-BRACKISH [HIDALGO]	3,360	3,360	6,139	6,600	8,121	8,821
EXPAND EXISTING GROUNDWATER WELLS	GULF COAST AQUIFER [HIDALGO]	0	0	487	619	945	1,543
NON-POTABLE REUSE	DIRECT REUSE [HIDALGO]	0	0	0	2,349	5,578	9,893
MCALLEN, RIO GRANDE (M)							
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	1	1	2	3	4
MERCEDES, NUECES-RIO GRANDE (M)							
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	7	14	23	32	43	53
BRACKISH WATER DESALINATION	GULF COAST AQUIFER-BRACKISH [HIDALGO]	560	560	560	560	560	560
EXPAND EXISTING GROUNDWATER WELLS	GULF COAST AQUIFER [HIDALGO]	0	560	560	560	560	560
MILITARY HIGHWAY WSC, NUECES-RIO GRANDE (M)							
ACQUISITION OF WATER RIGHTS THROUGH CONTRACT	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	5	14	16	18

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WUG, Basin (RWPG)

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Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	139	353	561	789
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	8	18	28	38	43	47
EXPAND EXISTING GROUNDWATER WELLS	GULF COAST AQUIFER [HIDALGO]	0	125	250	375	500	625

MILITARY HIGHWAY WSC, RIO GRANDE (M)

ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	0	0	0	0	4	9
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MISSION, NUECES-RIO GRANDE (M)

ACQUISITION OF WATER RIGHTS THROUGH URBANIZATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	299	2,633	4,901	7,236	10,014	12,118
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	260	637	598	789	1,394	2,135
BRACKISH WATER DESALINATION	GULF COAST AQUIFER-BRACKISH [HIDALGO]	560	560	560	560	560	560
NON-POTABLE REUSE	DIRECT REUSE [HIDALGO]	352	839	1,765	2,780	3,909	5,321

NORTH ALAMO WSC, NUECES-RIO GRANDE (M)

ACQUISITION OF WATER RIGHTS THROUGH CONTRACT	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	48
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	902
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	248	538	863	1,215	3,098	4,000
BRACKISH WATER DESALINATION	GULF COAST AQUIFER-BRACKISH [HIDALGO]	11,201	11,201	11,201	11,201	11,201	11,201

PALMHURST, NUECES-RIO GRANDE (M)

ACQUISITION OF WATER RIGHTS THROUGH CONTRACT	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	15	46	82
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	281	883	1,551
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	32	68	110	155	203	254

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WUG, Basin (RWPG)

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Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
PALMVIEW, NUECES-RIO GRANDE (M)							
ACQUISITION OF WATER RIGHTS THROUGH CONTRACT	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	22	45
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	425	860
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	16	34	55	78	102	128
PENITAS, NUECES-RIO GRANDE (M)							
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	1	1	2	2	7	16
PHARR, NUECES-RIO GRANDE (M)							
ACQUISITION OF WATER RIGHTS THROUGH CONTRACT	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	89	205	311	423	554
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	698	2,478	4,721	7,086	8,895
ACQUISITION OF WATER RIGHTS THROUGH URBANIZATION	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	400	766	928	1,067	2,003
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	143	392	478	589	798	943
EXPAND EXISTING GROUNDWATER WELLS	GULF COAST AQUIFER [HIDALGO]	100	150	175	200	225	250
NON-POTABLE REUSE	DIRECT REUSE [HIDALGO]	50	50	50	50	50	50
PROGRESO, NUECES-RIO GRANDE (M)							
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	11	24	38	54	71	89
SAN JUAN, NUECES-RIO GRANDE (M)							
ACQUISITION OF WATER RIGHTS THROUGH CONTRACT	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	24	82	147	218	300	385
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	454	1,560	2,786	4,143	5,708	7,312
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	95	206	330	465	612	762

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WUG, Basin (RWPG)

All values are in acre-feet/year

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
SHARYLAND WSC, NUECES-RIO GRANDE (M)							
ACQUISITION OF WATER RIGHTS THROUGH CONTRACT	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	20	20	67	115	167
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	372	377	1,264	2,181	3,168
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	29	62	100	141	186	231
STEAM ELECTRIC POWER, NUECES-RIO GRANDE (M)							
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	980	2,374	3,291	3,847	5,183
NON-POTABLE REUSE	DIRECT REUSE [HIDALGO]	0	1,000	2,000	4,000	7,000	10,000
SULLIVAN CITY, RIO GRANDE (M)							
ACQUISITION OF WATER RIGHTS THROUGH CONTRACT	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	10	21
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	186	390
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	11	25	39	55	73	91
WESLACO, NUECES-RIO GRANDE (M)							
ACQUISITION OF WATER RIGHTS THROUGH CONTRACT	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	100
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	0	0	100
ADVANCED WATER CONSERVATION	CONSERVATION [HIDALGO]	44	82	124	217	793	1,048
BRACKISH WATER DESALINATION	GULF COAST AQUIFER-BRACKISH [HIDALGO]	100	100	100	100	250	350
EXPAND EXISTING GROUNDWATER WELLS	GULF COAST AQUIFER [HIDALGO]	0	0	0	100	429	899
POTABLE REUSE	DIRECT REUSE [CAMERON]	1,120	1,120	1,120	1,120	1,150	1,290
Sum of Projected Water Management Strategies (acre-feet/year)		28,037	61,436	109,705	165,287	233,014	306,209

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TWDB 2012 State Water Plan Data

JIM WELLS COUNTY

WUG, Basin (RWPG)

All values are in acre-feet/year

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
ALICE, NUECES-RIO GRANDE (N)							
MUNICIPAL WATER CONSERVATION	CONSERVATION [JIM WELLS]	50	133	219	306	438	585
COUNTY-OTHER, NUECES-RIO GRANDE (N)							
GULF COAST AQUIFER SUPPLIES	GULF COAST AQUIFER [JIM WELLS]	565	565	565	565	565	565
ORANGE GROVE, NUECES-RIO GRANDE (N)							
MUNICIPAL WATER CONSERVATION	CONSERVATION [JIM WELLS]	3	8	14	18	28	38
PREMONT, NUECES-RIO GRANDE (N)							
MUNICIPAL WATER CONSERVATION	CONSERVATION [JIM WELLS]	9	22	36	49	70	92
Sum of Projected Water Management Strategies (acre-feet/year)		627	728	834	938	1,101	1,280

KLEBERG COUNTY

WUG, Basin (RWPG)

All values are in acre-feet/year

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
COUNTY-OTHER, NUECES-RIO GRANDE (N)							
GULF COAST AQUIFER SUPPLIES	GULF COAST AQUIFER [KLEBERG]	0	400	400	400	400	400
Sum of Projected Water Management Strategies (acre-feet/year)		0	400	400	400	400	400

NUECES COUNTY

WUG, Basin (RWPG)

All values are in acre-feet/year

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
COUNTY-OTHER, NUECES-RIO GRANDE (N)							
VOLUNTARY REDISTRIBUTION	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM [RESERVOIR]	261	0	0	0	0	0

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WUG, Basin (RWPG)

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Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
MANUFACTURING, NUECES-RIO GRANDE (N)							
CONSTRUCTION OF LAVACA RIVER OFF-CHANNEL RESERVOIR DIVERSION PROJECT (REGION N COMPONENT)	LAVACA RIVER OFF-CHANNEL LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	6,914
GARWOOD PIPELINE AND OFF-CHANNEL RESERVOIR STORAGE	COLORADO RIVER RUN-OF-RIVER [COLORADO]	0	11,667	11,667	11,667	11,667	11,667
MANUFACTURING WATER CONSERVATION	CONSERVATION [NUECES]	1,260	1,418	1,576	1,734	1,892	2,050
O.N. STEVENS WATER TREATMENT PLANT IMPROVEMENTS	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM [RESERVOIR]	14,393	13,618	12,956	12,366	11,839	11,220
OFF-CHANNEL RESERVOIR NEAR LAKE CORPUS CHRISTI	NUECES OFF-CHANNEL LAKE/RESERVOIR [RESERVOIR]	0	0	10,114	10,114	10,114	10,114
RECLAIMED WASTEWATER SUPPLIES	INDIRECT REUSE WASTEWATER [SAN PATRICIO]	84	84	84	84	84	84
MINING, NUECES-RIO GRANDE (N)							
GARWOOD PIPELINE AND OFF-CHANNEL RESERVOIR STORAGE	COLORADO RIVER RUN-OF-RIVER [COLORADO]	0	700	700	700	700	700
MINING WATER CONSERVATION	CONSERVATION [NUECES]	37	78	120	164	210	259
MINING, SAN ANTONIO-NUECES (N)							
CONSTRUCTION OF LAVACA RIVER OFF-CHANNEL RESERVOIR DIVERSION PROJECT (REGION N COMPONENT)	LAVACA RIVER OFF-CHANNEL LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	3,914
GARWOOD PIPELINE AND OFF-CHANNEL RESERVOIR STORAGE	COLORADO RIVER RUN-OF-RIVER [COLORADO]	0	5,498	5,498	5,498	5,498	5,498
O.N. STEVENS WATER TREATMENT PLANT IMPROVEMENTS	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM [RESERVOIR]	6,984	6,608	6,287	6,000	5,745	5,444
OFF-CHANNEL RESERVOIR NEAR LAKE CORPUS CHRISTI	NUECES OFF-CHANNEL LAKE/RESERVOIR [RESERVOIR]	0	0	5,057	5,057	5,057	5,057
RECLAIMED WASTEWATER SUPPLIES	INDIRECT REUSE WASTEWATER [SAN PATRICIO]	83	83	83	83	83	83
NUECES COUNTY WCID #4, NUECES-RIO GRANDE (N)							
MUNICIPAL WATER CONSERVATION	CONSERVATION [NUECES]	0	0	56	135	261	384

Estimated Historical Water Use and 2012 State Water Plan Dataset:

Kenedy County Groundwater Conservation District

April 18, 2012

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Projected Water Management Strategies

TWDB 2012 State Water Plan Data

WUG, Basin (RWPG)

All values are in acre-feet/year

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
PORT ARANSAS, NUECES-RIO GRANDE (N)							
MUNICIPAL WATER CONSERVATION	CONSERVATION [NUECES]	28	115	238	406	615	843
RIVER ACRES WSC, NUECES (N)							
VOLUNTARY REDISTRIBUTION	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM [RESERVOIR]	138	255	355	445	522	590
STEAM ELECTRIC POWER, NUECES (N)							
CONSTRUCTION OF LAVACA RIVER OFF-CHANNEL RESERVOIR DIVERSION PROJECT (REGION N COMPONENT)	LAVACA RIVER OFF-CHANNEL LAKE/RESERVOIR [RESERVOIR]	0	0	0	0	0	5,414
GARWOOD PIPELINE AND OFF-CHANNEL RESERVOIR STORAGE	COLORADO RIVER RUN-OF-RIVER [COLORADO]	0	11,667	11,667	11,667	11,667	11,667
O.N. STEVENS WATER TREATMENT PLANT IMPROVEMENTS	CORPUS CHRISTI-CHOKE CANYON LAKE/RESERVOIR SYSTEM [RESERVOIR]	13,968	13,215	12,573	12,000	11,489	10,888
OFF-CHANNEL RESERVOIR NEAR LAKE CORPUS CHRISTI	NUECES OFF-CHANNEL LAKE/RESERVOIR [RESERVOIR]	0	0	10,113	10,113	10,113	10,113
RECLAIMED WASTEWATER SUPPLIES	INDIRECT REUSE WASTEWATER [SAN PATRICIO]	83	83	83	83	83	83
Sum of Projected Water Management Strategies (acre-feet/year)		37,319	65,089	89,227	88,316	87,639	102,986

WILLACY COUNTY

WUG, Basin (RWPG)

All values are in acre-feet/year

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
IRRIGATION, NUECES-RIO GRANDE (M)							
IRRIGATION CONVEYANCE SYSTEM CONSERVATION	CONSERVATION [WILLACY]	545	1,845	3,122	4,375	5,604	6,815
ON- FARM WATER CONSERVATION	CONSERVATION [WILLACY]	72	491	1,246	2,328	3,727	5,438
LYFORD, NUECES-RIO GRANDE (M)							
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	100	100	100	100	100

Estimated Historical Water Use and 2012 State Water Plan Dataset:

Kenedy County Groundwater Conservation District

April 18, 2012

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Projected Water Management Strategies

TWDB 2012 State Water Plan Data

WUG, Basin (RWPG)

All values are in acre-feet/year

Water Management Strategy	Source Name [Origin]	2010	2020	2030	2040	2050	2060
ADVANCED WATER CONSERVATION	CONSERVATION [WILLACY]	1	2	3	3	4	4

MANUFACTURING, NUECES-RIO GRANDE (M)

ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	10	10	10	10	10	10
NON-POTABLE REUSE	DIRECT REUSE [WILLACY]	15	15	15	15	15	15

NORTH ALAMO WSC, NUECES-RIO GRANDE (M)

ADVANCED WATER CONSERVATION	CONSERVATION [WILLACY]	11	22	32	40	45	48
BRACKISH WATER DESALINATION	GULF COAST AQUIFER [WILLACY]	11,201	11,201	11,201	11,201	11,201	11,201

RAYMONDVILLE, NUECES-RIO GRANDE (M)

ADVANCED WATER CONSERVATION	CONSERVATION [WILLACY]	2	5	7	9	10	11
BRACKISH WATER DESALINATION	GULF COAST AQUIFER [WILLACY]	0	100	100	100	100	100

SAN PERLITA, NUECES-RIO GRANDE (M)

ADVANCED WATER CONSERVATION	CONSERVATION [WILLACY]	0	1	1	2	2	2
BRACKISH WATER DESALINATION	GULF COAST AQUIFER [WILLACY]	25	25	25	25	25	25

SEBASTIAN MUD, NUECES-RIO GRANDE (M)

ACQUISITION OF WATER RIGHTS THROUGH CONTRACT	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	2	3	4	5
ACQUISITION OF WATER RIGHTS THROUGH PURCHASE	AMISTAD-FALCON LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	31	59	78	88
ADVANCED WATER CONSERVATION	CONSERVATION [WILLACY]	3	6	9	11	13	14

Sum of Projected Water Management Strategies (acre-feet/year)	11,885	13,823	15,904	18,281	20,938	23,876
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Estimated Historical Water Use and 2012 State Water Plan Dataset:

Kenedy County Groundwater Conservation District

April 18, 2012

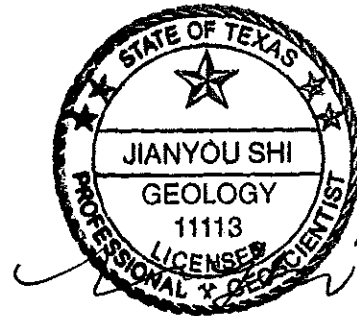
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APPENDIX E:

GAM Run 11-016: Kenedy County Groundwater
Conservation District Management Plan (Author:
Jerry Shi 2012)

GAM RUN 11-016: KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT MANAGEMENT PLAN

by Jerry Shi, Ph.D., P.G.
Texas Water Development Board
Groundwater Resources Division
Groundwater Availability Modeling Section
March 22, 2012



The seal appearing on this document was authorized by Jianyou (Jerry) Shi, P.G. 11113 on March 22, 2012.

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GAM RUN 11-016: KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT MANAGEMENT PLAN

by Jerry Shi, Ph.D., P.G.
Texas Water Development Board
Groundwater Resources Division
Groundwater Availability Modeling Section
March 22, 2012

EXECUTIVE SUMMARY:

Texas State Water Code, Section 36.1071, Subsection (h), states that, in developing its groundwater management plan, groundwater conservation districts shall use groundwater availability modeling information provided by the Executive Administrator of the Texas Water Development Board in conjunction with any available site-specific information provided by the district for review and comment to the Executive Administrator. Information derived from groundwater availability models that shall be included in the groundwater management plan includes:

- the annual amount of recharge from precipitation to the groundwater resources within the district, if any;
- for each aquifer within the district, the annual volume of water that discharges from the aquifer to springs and any surface water bodies, including lakes, streams, and rivers; and
- the annual volume of flow into and out of the district within each aquifer and between aquifers in the district.

The purpose of this report is to provide Part 2 of a two-part package of information from the Texas Water Development Board to Kenedy County Groundwater Conservation District to fulfill the requirements noted above. The groundwater management plan for Kenedy County Groundwater Conservation District is due for approval by the Executive Administrator of the Texas Water Development Board before September 11, 2012.

This report is an update to the Groundwater Availability Model (GAM) Run 06-10 (Petrossian, 2006). GAM Run 06-10 used the model for the Central Gulf Coast Aquifer System (Chowdhury and others, 2004) and the model for the Gulf Coast Aquifer in the Lower Rio Grande Valley (Chowdhury and Mace, 2007). This report is based on the

alternative model developed specifically for the Groundwater Management Area 16 (Hutchison and others, 2011).

This report discusses the method, assumptions, and results from model runs using the model developed for Groundwater Management Area 16 (Hutchison and others, 2011). Table 1 summarizes the groundwater model data required by the statute and figure 1 shows the area of the model from which the values in the table were extracted. If, after review of figure 1, Kenedy County Groundwater Conservation District determines that the district boundary used in the assessment does not reflect the current boundary, please notify the Texas Water Development Board immediately. This model run replaces the results of GAM Run 06-10. GAM Run 11-016 meets current standards set after the release of GAM Run 06-10.

METHODS:

The groundwater model for the Groundwater Management Area 16 for the Gulf Coast Aquifer (Hutchison and others, 2011) was used for this analysis. Water budgets for selected years of the transient model calibration period were extracted and the average annual water budget values for recharge, surface water outflow, lateral inflow to the district, lateral outflow from the district, and vertical flow for the portions of the aquifers located within the district are summarized in this report.

PARAMETERS AND ASSUMPTIONS:

Gulf Coast Aquifer

- The alternative model developed by Hutchison and others (2011) contains the whole Groundwater Management Area 16 with Kenedy County Groundwater Conservation District approximately located at the center of the model domain, while the model for the Central Gulf Coast Aquifer System (Chowdhury and others, 2004) and the model for the Gulf Coast Aquifer in the Lower Rio Grande Valley (Chowdhury and Mace, 2007) only cover the northern and southern halves of the Kenedy County Groundwater Conservation District, respectively. As a result, the alternative model developed by Hutchison and others (2011) was used for this management plan data analysis. The model was calibrated based on groundwater elevation data from 1963 to 1999; however, data was extracted only for the period from 1980 to 1999 to be consistent with the analysis completed for previous management plan.

- The model has six layers representing the following hydrogeologic units (from top to bottom): Chicot Aquifer (layer 1), Evangeline Aquifer (layer 2), Burkeville Confining Unit (layer 3), Jasper Aquifer (layer 4), Yegua-Jackson Aquifer (layer 5), and Queen-City/Sparta/Carrizo-Wilcox aquifers (layer 6). However, the bottom two layers were not simulated in the Kenedy County Groundwater Conservation District.
- The standard deviation of groundwater elevation residuals (a measure of the difference between simulated and actual water levels during model calibration) for the entire model domain is 41 feet and the absolute residual mean is 15 feet.
- The model was run with MODFLOW-2000 (Harbaugh and others, 2000).

RESULTS:

A groundwater budget summarizes the amount of water entering and leaving the aquifer according to the groundwater availability model. Selected components were extracted from the MODFLOW-2000 budget file and averaged over the duration of 1980 through 1999 for the aquifers located within the district, as shown in table 1:

- Precipitation recharge—The areally distributed recharge sourced from precipitation falling on the outcrop areas of the aquifers (where the aquifer is exposed at land surface) within the district.
- Surface water outflow—The total water discharging from the aquifer (outflow) to surface water features, such as springs, rivers, reservoirs, and the Gulf, inside or adjacent to the district.
- Flow into and out of district—The lateral flow within the aquifer between the district and adjacent counties.
- Flow between aquifers—The net vertical flow between aquifers or confining units. This flow is controlled by the relative water levels in each aquifer or confining unit and aquifer properties of each aquifer or confining unit that define the amount of leakage that occurs. “Inflow” to an aquifer from an overlying or underlying aquifer will always equal the “Outflow” from the other aquifer. Because Yegua-Jackson Aquifer and Queen-City/Sparta/Carrizo-Wilcox aquifers are not present in the district, flow between aquifers in this analysis is not applicable.

The information needed for the District's management plan is summarized in table 1. It is important to note that sub-regional water budgets are not exact. This is due to the size of the model cells and the approach used to extract data from the model. To avoid double accounting, a model cell that straddles a political boundary, such as district or county boundaries, is assigned to one side of the boundary based on the location of the centroid of the model cell. For example, if a cell contains two counties, the cell is assigned to the county where the centroid of the cell is located. Figure 1 shows the active model cells used for this analysis.

LIMITATIONS:

The groundwater model used in completing this analysis is the best available scientific tool that can be used to meet the stated objective. To the extent that this analysis will be used for planning purposes and/or regulatory purposes related to pumping in the past and into the future, it is important to recognize the assumptions and limitations associated with the use of the results. In reviewing the use of models in environmental regulatory decision making, the National Research Council (2007) noted:

“Models will always be constrained by computational limitations, assumptions, and knowledge gaps. They can best be viewed as tools to help inform decisions rather than as machines to generate truth or make decisions. Scientific advances will never make it possible to build a perfect model that accounts for every aspect of reality or to prove that a given model is correct in all respects for a particular regulatory application. These characteristics make evaluation of a regulatory model more complex than solely a comparison of measurement data with model results.”

A key aspect of using the groundwater model to evaluate historic groundwater flow conditions includes the assumptions about the location in the aquifer where historic pumping was placed. Understanding the amount and location of historic pumping is as important as evaluating the volume of groundwater flow into and out of the district, between aquifers within the district (as applicable), interactions with surface water (as applicable), recharge to the aquifer system (as applicable), and other metrics that describe the impacts of that pumping. In addition, assumptions regarding precipitation, recharge, and streamflow are specific to a particular historic time period.

Because the application of the groundwater model was designed to address regional scale questions, the results are most effective on a regional scale. The TWDB makes no warranties or representations relating to the actual conditions of any aquifer at a particular location or at a particular time.

It is important for groundwater conservation districts to monitor groundwater pumping and overall conditions of the aquifer. Because of the limitations of the groundwater model and the assumptions in this analysis, it is important that the groundwater conservation districts work with the TWDB to refine this analysis in the future given the reality of how the aquifer responds to the actual amount and location of pumping now and in the future. Historic precipitation patterns also need to be placed in context as future climatic conditions, such as dry and wet year precipitation patterns, may differ and affect groundwater flow conditions.

TABLE 1: SUMMARIZED INFORMATION FOR THE GMA 16 OF GULF COAST AQUIFER THAT IS NEEDED FOR KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the district	Gulf Coast Aquifer	6,419
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Gulf Coast Aquifer	17,140
Estimated annual volume of flow into the district within each aquifer in the district	Gulf Coast Aquifer	40,338
Estimated annual volume of flow out of the district within each aquifer in the district	Gulf Coast Aquifer	31,884
Estimated net annual volume of flow between each aquifer in the district	Not applicable	*Not applicable

*Groundwater availability models assume no interaction between the Gulf Coast Aquifer System and underlying units.

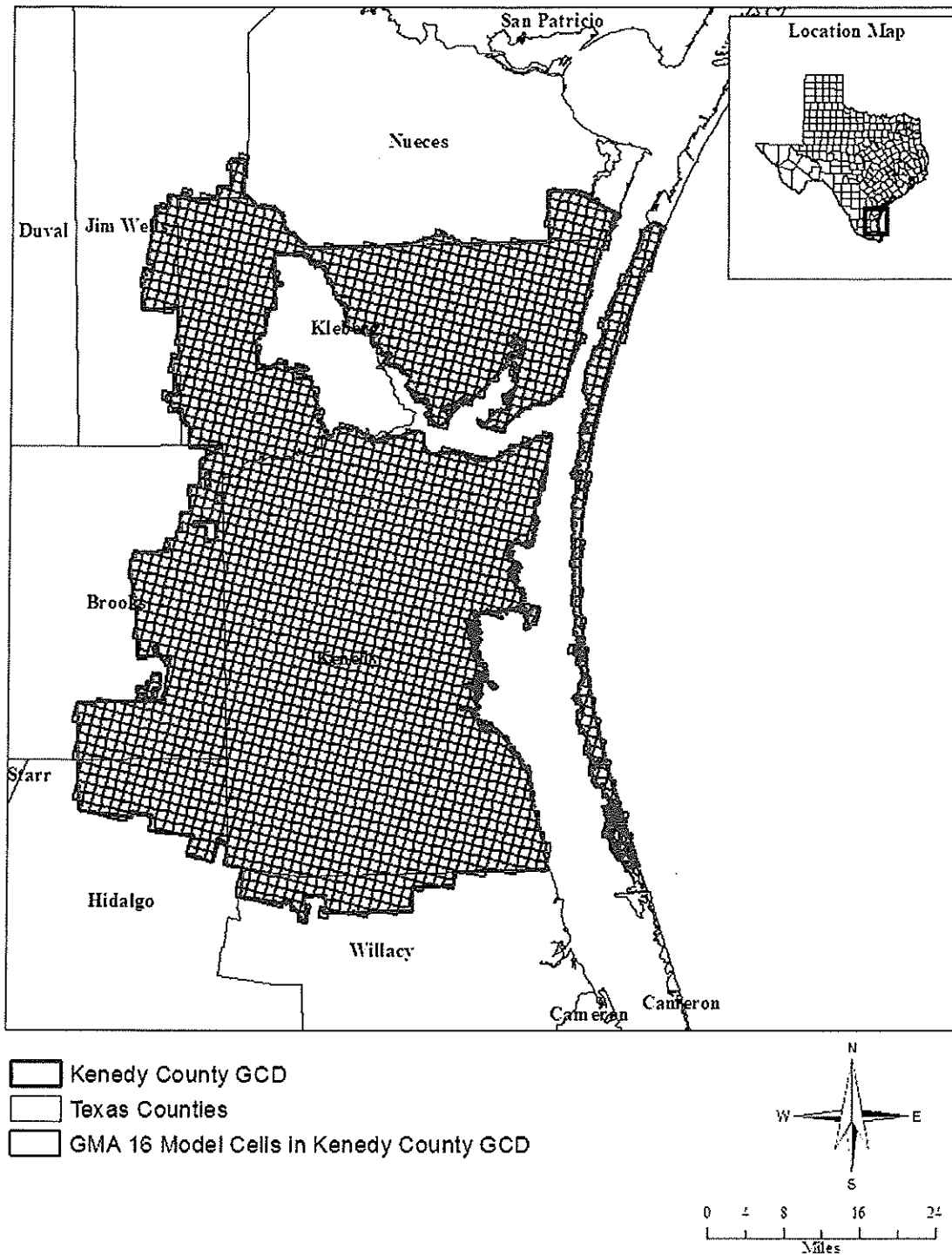


FIGURE 1: AREA OF ACTIVE MODEL CELLS FOR THE GULF COAST AQUIFER IN KENEDY COUNTY GROUNDWATER CONSERVATION DISTRICT FROM WHICH THE INFORMATION IN TABLE 1 WAS EXTRACTED (THE AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).

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Petrossian, R., 2006. Groundwater Availability Model (GAM) for the Southern Texas Gulf Coast.

ROUTING SLIP

**WATER SCIENCE & CONSERVATION
GROUNDWATER RESOURCES**

From: Jerry Shi
Date: March 20, 2012
Subject: Letter to Andy Garza re: GAM Run 11-016: Kenedy County Groundwater Conservation District Management Plan

Please review and route to next person.

NAME	INITIAL	DATE
Jerry Shi	J.S.	3/20/2012
Cindy Ridgeway	CR	3/20/2012
Rima Petrossian	RP	3/20/2012
Larry French	LF	3/21/12
Robert Mace	RM	3/20/12
Melanie Callahan	MC	3/21/12

Please return to Debora Flores, 3-0749

Thank you.

APPENDIX F:
References

References

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