PERMIAN BASIN UNDERGROUND WATER CONSERVATION DISTRICT

MANAGEMENT PLAN

2008-2018

P.O. Box 1314
Stanton, Texas 79782

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District Mission Statement

The Permian Basin Underground Water Conservation District (the District) will develop, promote, and implement management strategies to provide for the conservation, preservation, protection, recharging, and prevention of waste of the groundwater resources, over which it has jurisdictional authority, for the benefit of the people that the District serves.

Time Period for this Plan

This plan becomes effective September 1, 2008, upon adoption by the Board of Directors (the Board) of the District and remains in effect until a revised plan is approved or until August 31, 2018, whichever is earlier.

Statement of Guiding Principles

The District was formed, and has been operated from its inception, with the guiding belief that the ownership and pumpage of groundwater is a private property right. The Board will continue to support that right.

The Board is elected by the registered voters of the District, under the general Election laws of Texas. The rules promulgated to date by the Board were carefully thought out, were the result of specific needs, and were adopted after public input. These rules provide a fair and equitable opportunity for all water users to produce and use water from the aquifer for beneficial purposes. Interpretation and enforcement of the rules of the District are carried out by the District's staff, at the direction of the Board.

This management document is intended to be used as a tool to provide continuity in the management of the District. It will be used by the District staff as a guide to insure that all aspects of the goals of the District are carried out. It will be referred to by the Board for future planning, as well as a document to measure the performance of the staff on an annual basis.
Conditions can change over time which may cause the Board to modify this document. The dynamic nature of this plan shall be maintained so the District can continue to best serve the needs of the constituents. At the very least, the Board will review and readopt this plan every five years.

One's goals, management objectives, and performance standards must be set at an attainable level in order to be realistic and effective. Lofty ideals penned in an effort to be *"all things to all people"* can be the first step toward disaster.

Unreasonably elevated objectives foster potentially damaging results when the objective cannot be met due to a lack of resources; fiscal or technical. One's goals can also be set too low. Simplistic ideals can foster mediocrity. In both cases, the mission of the goal setting entity is thwarted and the benefactors of the same slighted. Although well meaning, when

the failure to attain a goal is realized by those measuring performance, the initial response is to assume that those setting the goals were negligent in performing their duties when, in truth, the goals were unattainable from the start.

In the opinion of the Board, the goals, management objectives, and performance standards put forth in this planning document have been set at a reasonable level considering existing and future fiscal and technical resources. Conditions may change which could cause change in the management objectives defined to reach the stated goals. Whatever the future holds, the following guidelines will be used to insure that the management objectives are set at a sufficient level to be realistic and effective:

- The District's constituency will determine if the District's goals are set at a level that is both meaningful and attainable; through their voting right, the public will appraise the District's overall performance in the process of electing or re-electing Board members.
- The duly elected Board will guide and direct the District staff and will gauge the achievement of the goals set forth in this document.
- The interests and needs of the District's constituency shall control the direction of the management of the District.
- The Board will endeavor to maintain local control of the privately owned resource over which the District has jurisdictional authority.

General Description, Location and Extent

The District was created on April 25, 1985 when Governor Mark White signed HB 2382, 69th Legislature, in to law. The District was confirmed by voter approval, the initial Board elected, and an ad valorem tax rate cap of $0.02/$100 valuation was set in an election held in September 1985. Table 1 lists the current Board of Directors, office held, County served, and term.

Table 1: Board of Directors of the Permian Basin Underground Water Conservation District:

Office	Name	County	Term Ends
President	John Campbell	Martin	May 2010
Vice-President	Lloyd Robinson	Howard	May 2010
Secretary	Chris Stone	Martin	May 2012
Member	Raymond Straub Jr.	Martin	May 2010
Member	"Tex" Edwards Jr.	Howard	May 2012

Originally, the jurisdictional extent of the District was the same as Martin County, Texas. However, in 1991, the voters in the northwest portion of Howard County approved the annexation of that portion of their county into the District.

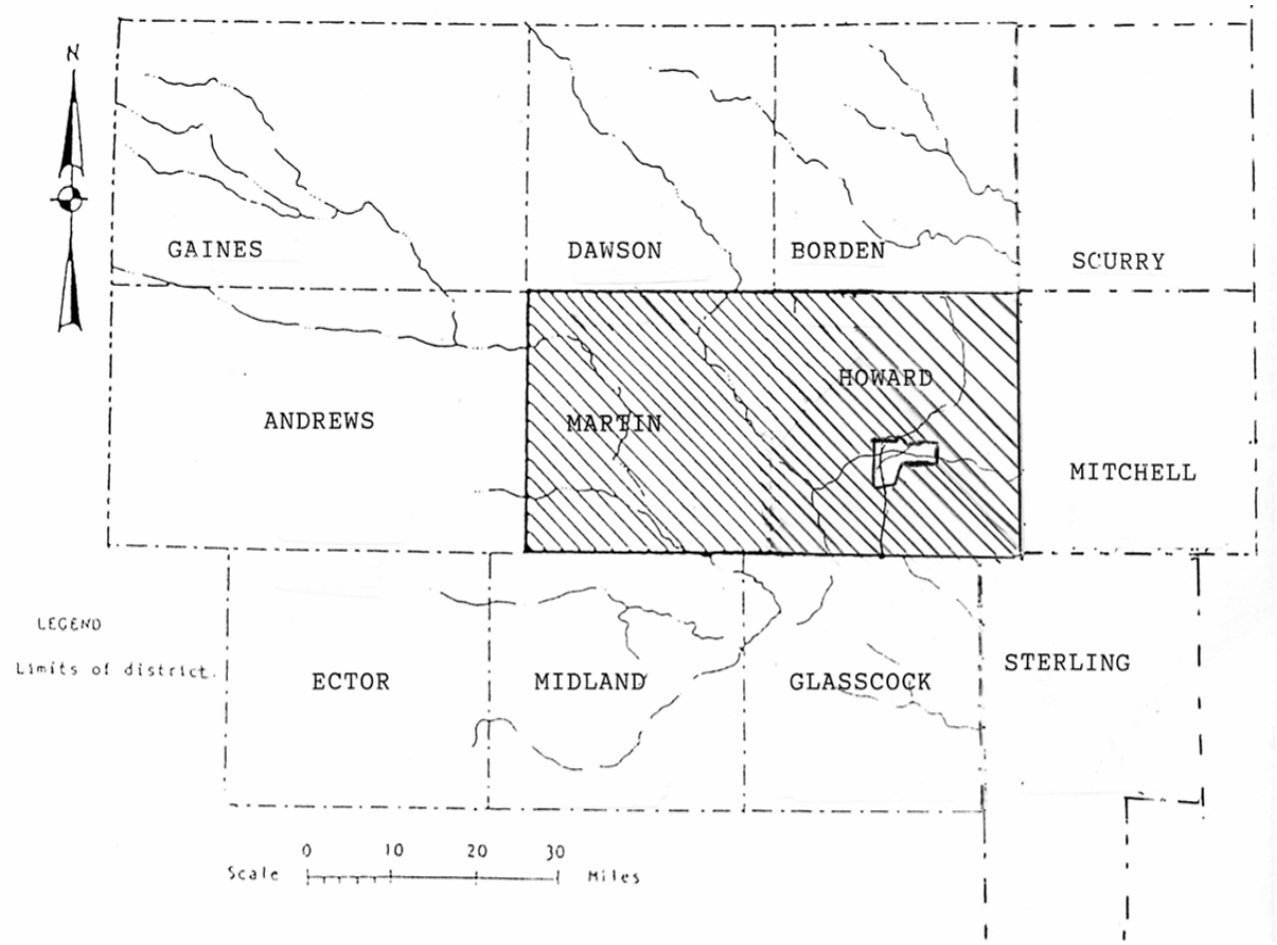
In 2001 the District annexed all of Howard County Save and except City Limits of Big Spring, Texas also part of east half of Section 14 Block 33-1-South up to Rockhouse Road; thence eastward on Rockhouse Road to south Wasson Road; thence, southward along Wasson Road to Longshore Drive southward to Hwy 33, also being Garden City Highway then east along the north road of Hwy 33 to Hwy 87 thence southeasterly along south Hwy 87 to the southwest corner of Section 2 Block 32-2-South. Also the east corner of Wildfire Road. Then east along the bottom of Sections 1 and 2 Block 32-2- South to the southwest corner of Section 105 Waco & Northwest, thence along the south line of Section 105 to the eastside of Section 105, thence north to the northeast corner of Section 104, thence west along the south line of section 46 Block 32-1-South to the southeast corner of Section 45 Block 32-1-South, thence north along the section line to the northeast corner of Section 16 Block 32-1-South. Then along the north line of Section 16 Block 32-1-South to the northeast corner of Section 17 Block 32-1-South, thence south along the east line of Section 17 Block 32-1-South to the northeast corner of Section 20; thence west on Driver Road to the middle half of Section 18 Block 32-1-South; thence north westerly on Driver Road back to south Highway 87; thence north easterly back to south City Limits of Big Spring. Save and except from east City Limits of Big Spring eastward along Midway Road to Southeast corner of Section 47 Block 31-1- North; thence north to city limits of Coahoma, Texas being Section 48 Block 31-1-North. Thence the entire city limits of Coahoma, Texas. Thence west along railroad right-of-way back to the east city limits of Big Spring, Texas.

The District now covers approximately 1754 square miles of west Texas (Figure 1). Stanton, the county seat of Martin County, is the largest municipality in the District, having a population of 2576.

The District is bordered on the west by Andrews County, on the north by Dawson and Borden Counties, on the south by Midland and Glasscock Counties, and on the east by Mitchell County with Scurry County to the Northeast and Sterling County to the Southeast.

The economy of the District is predominated by the oil and gas industry and to a lesser extent by agriculture. The major agricultural products coming from the area include beef cattle, cotton and grain sorghum.

Figure 1: Location of the Permian Basin Underground Water Conservation District



Groundwater Resources

The District has jurisdictional authority over all groundwater that lies within the District's boundaries. There are two major aquifers that occur within the District: the Ogallala and the Edwards-Trinity (Plateau). The following is a description of these formations that may be beneficial to District constituents by providing useable quantities of groundwater.

Ogallala Aquifer

The Ogallala Aquifer is the primary source of groundwater in the District (Fig. 2). The aquifer extends from the ground surface downward, ranging in thickness from less than 20 feet to more than 100 feet.

The formation consists of heterogeneous sequences of clay, silt, sand and gravel. These sediments are thought to have been deposited by eastward flowing aggrading streams that filled and buried valleys eroded into pre-Ogallala rocks (Ashworth and Hopkins, 1995).

Water levels in the Ogallala Aquifer are primarily influenced by the rate of recharge to and discharge from the aquifer. Recharge to the aquifer occurs primarily by infiltration of precipitation falling on the surface.

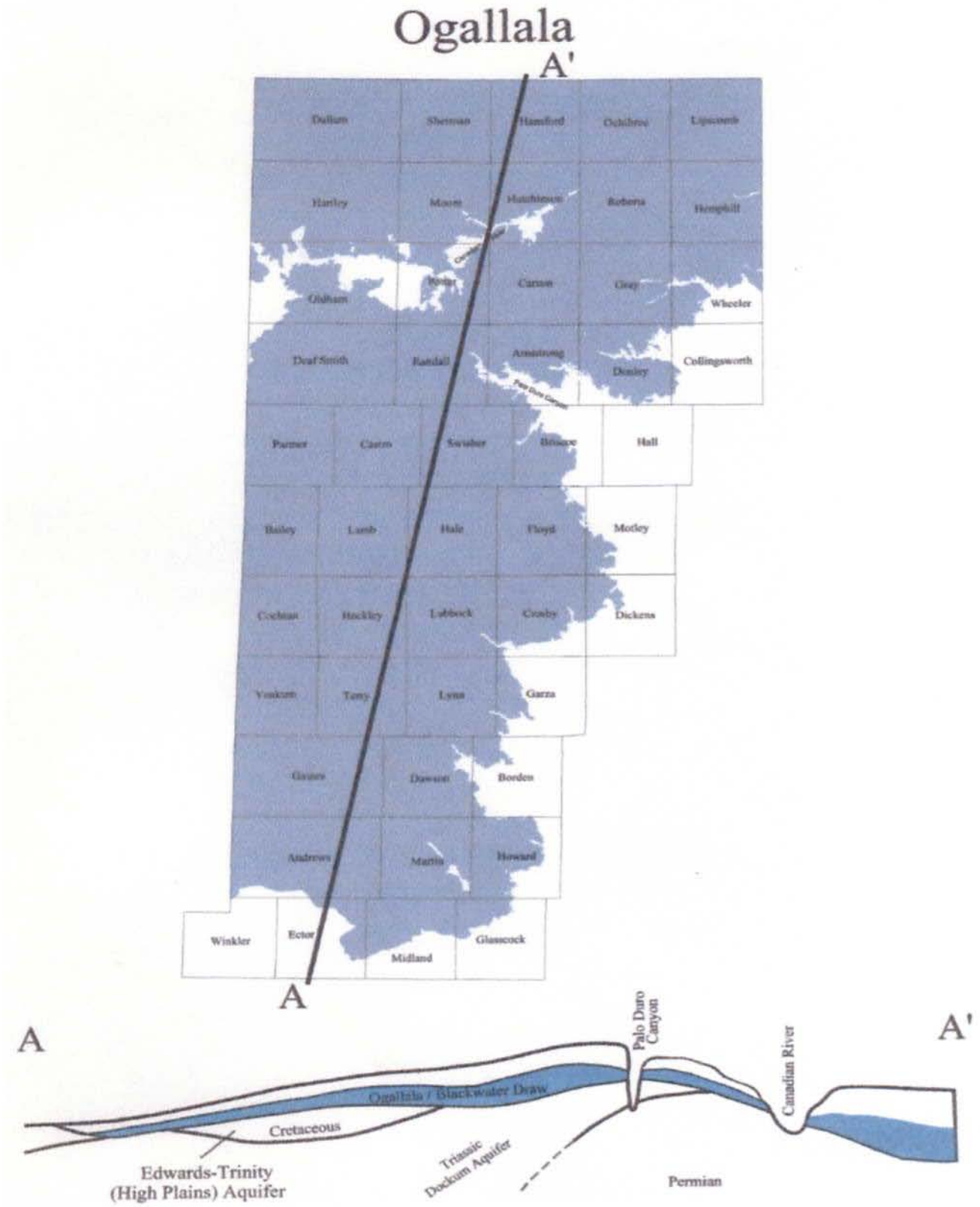
Groundwater in the aquifer generally flows from northwest to southeast, normally at right angles to water level contours. Velocities of less than one foot per day are typical, but higher velocities may occur along filled erosion valleys where coarser grained deposits have greater permeabilities.

Discharge from the Ogallala aquifer within the District occurs through the pumping of wells; primarily for municipal, oil and gas production, and irrigation. Groundwater pumpage typically exceeds recharge and results in water-level declines (Ashworth and Hopkins, 1995).

The chemical quality of Ogallala groundwater varies greatly across the District. Electrical conductance (EC) varies from less than 1.0 dS/m to over 4.0 dS/m. The suitability of groundwater for irrigation purposes is largely dependent on the chemical composition of the water and is determined primarily by the total concentration of soluble salts.

Figure 2: Aerial extent of the Ogallala Aquifer in Texas

(Adapted from Ashworth and Hopkins 1995)



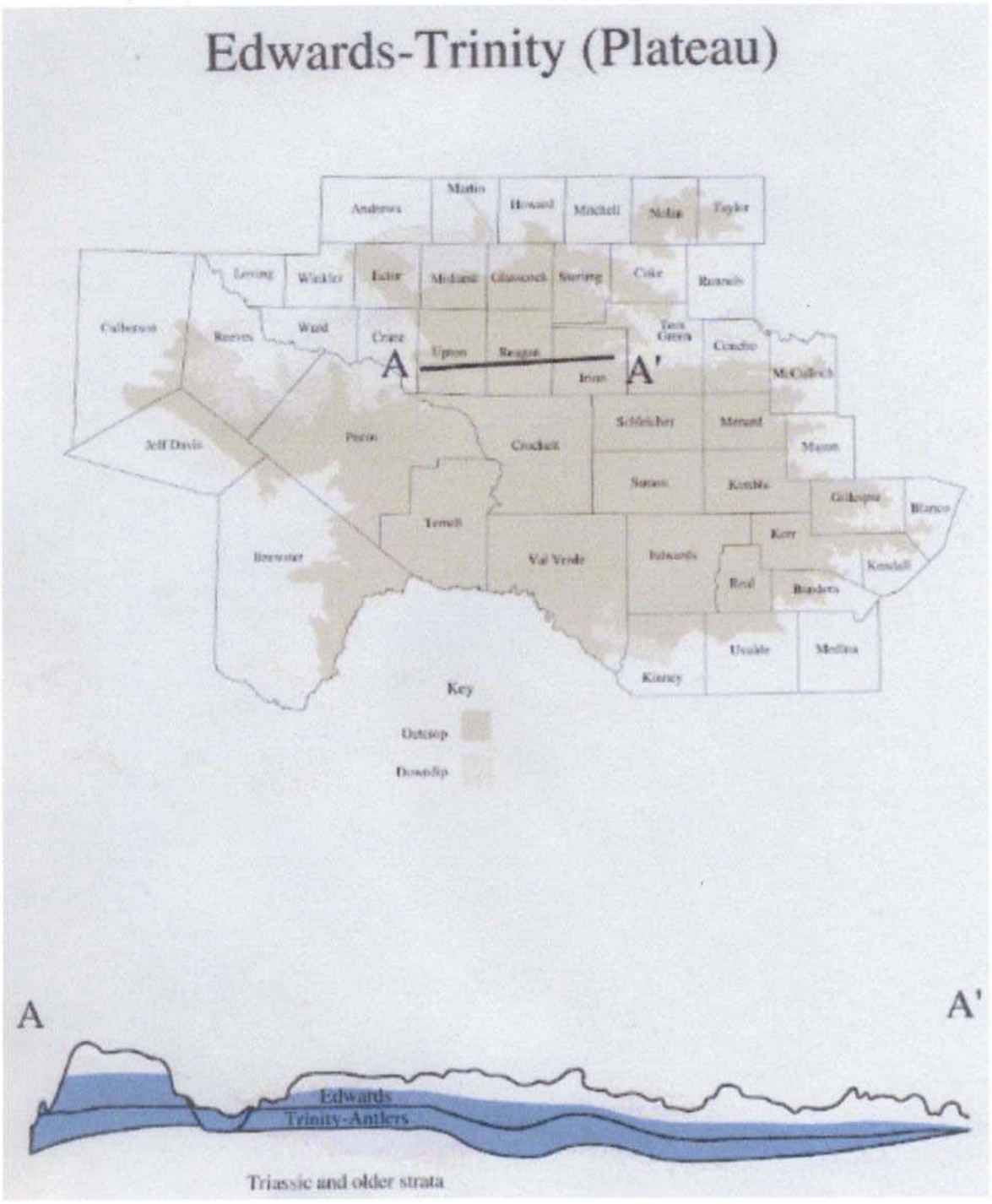
Edwards – Trinity (Plateau) Aquifer

The Edward –Trinity (Plateau) Aquifer underlies a small portion of east central and southern Martin County as well as the eastern portions of Howard County within the District (Fig. 3). The aquifer consists of saturated sediments of lower Cretaceous age Trinity Group formations and overlying limestones and dolomites of the Edwards formations.

Chemical quality of the Edwards – Trinity (Plateau) water ranges from fresh to slightly saline. The water is typically hard and may vary widely in concentrations of dissolved solids made up mostly of calcium and bicarbonate. There is little pumpage from the aquifer, and water levels remain relatively constant.

Figure 3: Aerial extent of the Edwards-Trinity (Plateau) Aquifer in Texas

(Adapted from Ashworth and Hopkins, 1995)



Surface Water Resources

The only fresh surface waters occurring within the District are manmade stock tanks. The stock tanks play an important role in the watering of wildlife as well as livestock within the District.

Perhaps the most significant surface water resource of benefit to the District is water pumped from the Colorado River watershed to the City of Stanton. The Colorado River Municipal Water District is under contract to provide up to 2 million gallons per day of water to the city through their extensive pipeline system.

Desired Future Conditions of the Aquifer

The Permian Basin Underground Water Conservation District is in Groundwater Management Area 2. This GMA has not set a desired future condition for the aquifer as of this date. The Permian Basin UWCD Directors have not determined the DFC for the District as of this date. They do fully expect to have a DFC by the deadline established by the legislature.

Once the desired future conditions have been adopted by GMA2, an estimate of the managed available groundwater will be determined. The District will amend the management plan at that time.

The District has been participating in the GMA 2 meetings to determine a DFC. We have looked at two different GAM runs and another has been requested.

Total Useable Amount of Groundwater

For the purposes of this plan, to meet the requirements of theTexas Water Code, and until more accurate data becomes available, we will assume that all of the groundwater underlying the District was useable in 2000 even though we suspect that not to be the case. Table 2 shows the TWDB estimation of the volume of groundwater available projected to the year 2060 for Martin County, Texas, and a portion of Howard County, Texas; the combination of which makes up the District. Please note that the information shown should be used only as a guide, and becomes less and less representative of actual conditions which will prevail the farther one looks into the future.

Table 2: Projected Water Supplies of Permian Basin UWCD

MARTIN COUNTY	2010	2020	2030	2040	2050	2060
1. Edward-Trinity-Plateau Aquifer						
Colorado Basin	3,398	3,398	3,398	3,398	3,398	3,398
Total Availability:	3,398	3,398	3,398	3,398	3,398	3,398
2. Ogallala Aquifer						
Colorado Basin	19,402	19,402	19,402	19,402	19,402	19,402
Total Availability:	19,402	19,402	19,402	19,402	19,402	19,402
Total County Availability:	**22,800**	**22,800**	**22,800**	**22,800**	**22,800**	**22,800**

HOWARD COUNTY	2010	2020	2030	2040	2050	2060
1. Dockum Aquifer						
Colorado Basin	900	900	900	900	900	900
Total Availability:	900	900	900	900	900	900
2. Edwards-Trinity-Plateau Aquifer						
Colorado Basin	1,700	1,700	1,700	1,700	1,700	1,700
Total Availability:	1,700	1,700	1,700	1,700	1,700	1,700
Total County Availability:	**13,009**	**13,009**	**13,009**	**13,009**	**13,009**	**13,009**

*****Volume expressed in acre-feet per year
Source: Volume 3, 2007 State Water Plan

Table 2A:

Annual Amount of Recharge From Precipitation and Groundwater that is Discharged From the Aquifers of the Permian Basin UWCD.

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the district	Edwards-Trinity (Plateau) Aquifer	4,033
	Ogallala Aquifer	11,995
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Edwards-Trinity (Plateau) Aquifer	114
	Ogallala Aquifer	5,144
Estimated annual volume of flow into the district within each aquifer in the district	Edwards-Trinity (Plateau) Aquifer	2,613
	Ogallala Aquifer	9,067
Estimated annual volume of flow out of the district within each aquifer in the district	Edwards-Trinity (Plateau) Aquifer	7,364
	Ogallala Aquifer	2,587
Estimated net annual volume of flow between each aquifer in the district	Flow out of the Ogallala Aquifer to the Edwards-Trinity (Plateau) Aquifer	51

The table above was taken from the GAM Run 08-33

Results are in acre feet

Surface Water Resources of the Permian Basin UWCD

No surface water management entities exist within the District. There are no surface water impoundments within the District except for livestock consumption. There are no surface water entities located within the District to coordinate the development of this plan.

There is a surface water entity that pumps groundwater out of our District. We will provide the Colorado Municipal Water District a copy of our Management Plan for their comments.

Historical Groundwater Use

For the purposes of this plan, the following estimations (Table 3) of the historical quantity of groundwater used in the area served by the District will be used as a guide to estimate future demands on the resource in the District. It should be emphasized that the quantities shown are estimates.

Table 3 data source is the water use survey database by the TWDB.

Table 3:

Historical Groundwater Pumpage Summary by County

Unit: Acre Feet (ACFT)

MARTIN COUNTY								
Year	Aquifer	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1980	OGALLALA	7,067	0	0	20,439	229	128	27,863
	Total	**7,067**	**0**	**0**	**20,439**	**229**	**128**	**27,863**
1984	OGALLALA	355	14	0	16,537	824	259	17,989
	Total	**355**	**14**	**0**	**16,537**	**824**	**259**	**17,989**
1985	OGALLALA	954	53	0	14,659	840	165	16,671
	Total	**954**	**53**	**0**	**14,659**	**840**	**165**	**16,671**
1986	OGALLALA	319	36	0	11,550	807	191	12,903
	Total	**319**	**36**	**0**	**11,550**	**807**	**191**	**12,903**
1987	OGALLALA	524	18	0	7,101	756	299	8,698
	Total	**524**	**18**	**0**	**7,101**	**756**	**299**	**8,698**
1988	OGALLALA	739	17	0	8,601	730	319	10,406
	Total	**739**	**17**	**0**	**8,601**	**730**	**319**	**10,406**
1989	OGALLALA	1,087	19	0	12,256	681	315	14,358
	Total	**1,087**	**19**	**0**	**12,256**	**681**	**315**	**14,358**
1990	OGALLALA	1,574	30	0	12,588	681	310	15,183
	Total	**1,574**	**30**	**0**	**12,588**	**681**	**310**	**15,183**
1991	OGALLALA	1,622	16	0	5,367	1,286	317	8,608
	Total	**1,622**	**16**	**0**	**5,367**	**1,286**	**317**	**8,608**
1992	OGALLALA	1,388	8	0	12,789	1,284	290	15,759
	Total	**1,388**	**8**	**0**	**12,789**	**1,284**	**290**	**15,759**
1993	OGALLALA	1,532	27	0	8,568	1,275	292	11,694
	Total	**1,532**	**27**	**0**	**8,568**	**1,275**	**292**	**11,694**
1994	OGALLALA	1,504	41	0	7,114	1,275	211	10,145
	Total	**1,504**	**41**	**0**	**7,114**	**1,275**	**211**	**10,145**
1995	OGALLALA	1,397	44	0	11,485	852	251	14,029
	Total	**1,397**	**44**	**0**	**11,485**	**852**	**251**	**14,029**
1996	OGALLALA	1,133	31	0	12,515	852	209	14,740
	Total	**1,133**	**31**	**0**	**12,515**	**852**	**209**	**14,740**
1997	OGALLALA	952	44	0	14,294	852	222	16,364
	Total	**952**	**44**	**0**	**14,294**	**852**	**222**	**16,364**
1998	OGALLALA	1,009	28	0	20,318	845	177	22,377
	Total	**1,009**	**28**	**0**	**20,318**	**845**	**177**	**22,377**
1999	OGALLALA	872	25	0	19,309	845	189	21,240
	Total	**872**	**25**	**0**	**19,309**	**845**	**189**	**21,240**
2000	OGALLALA	929	34	0	14,575	132	544	16,214
	Total	**929**	**34**	**0**	**14,575**	**132**	**544**	**16,214**

Disclaimer: The Water Use estimates posted are subject to revision as additional data and corrections are made available to the TWDB.

Table 3 (cont). **Historical Groundwater Pumpage Summary by County**

Unit: Acre Feet (ACFT)

MARTIN COUNTY								
Year	**Aquifer**	**Municipal**	**Manufacturing**	**Steam Electric**	**Irrigation**	**Mining**	**Livestock**	**Total**
2001	OGALLALA	792	42	0	16,381	790	168	18,173
	Total	**792**	**42**	**0**	**16,381**	**790**	**168**	**18,173**
2002	OGALLALA	1,024	14	0	16,436	743	147	18,364
	Total	**1,024**	**14**	**0**	**16,436**	**743**	**147**	**18,364**
2003	OGALLALA	744	18	0	13,176	743	59	14,740
	Total	**744**	**18**	**0**	**13,176**	**743**	**59**	**14,740**

Table 3 (cont). **Historical Groundwater Pumpage Summary by County**

Unit: Acre Feet (ACFT)

HOWARD COUNTY								
Year	**Aquifer**	**Municipal**	**Manufacturing**	**Steam Electric**	**Irrigation**	**Mining**	**Livestock**	**Total**
1980	DOCKUM	13	0	0	0	151	5	169
1980	EDWARDS-TRINITY PLATEAU	313	25	0	15	117	40	510
1980	OGALLALA	634	266	0	817	172	136	2,025
	Total	**960**	**291**	**0**	**832**	**440**	**181**	**2,704**
1984	DOCKUM	15	0	0	0	508	6	529
1984	EDWARDS-TRINITY PLATEAU	356	81	0	30	400	55	922
1984	OGALLALA	721	93	0	472	580	185	2,051
	Total	**1,092**	**174**	**0**	**502**	**1,488**	**246**	**3,502**
1985	DOCKUM	14	0	0	0	508	4	526
1985	EDWARDS-TRINITY PLATEAU	332	102	0	40	390	37	901
1985	OGALLALA	673	210	0	1,600	562	124	3,169
	Total	**1,019**	**312**	**0**	**1,640**	**1,460**	**165**	**4,596**
1986	DOCKUM	13	0	0	0	496	5	514
1986	EDWARDS-TRINITY PLATEAU	297	112	0	40	381	44	874
1986	OGALLALA	602	313	0	1,600	549	145	3,209
	Total	**912**	**425**	**0**	**1,640**	**1,426**	**194**	**4,597**
1987	DOCKUM	11	0	0	0	462	4	477
1987	EDWARDS-TRINITY PLATEAU	264	109	0	20	355	40	788
1987	OGALLALA	534	188	0	800	512	134	2,168
	Total	**809**	**297**	**0**	**820**	**1,329**	**178**	**3,433**
1988	DOCKUM	12	0	0	0	147	4	163
1988	EDWARDS-TRINITY PLATEAU	267	92	0	30	113	40	542
1988	OGALLALA	541	212	0	1,201	162	137	2,253
	Total	**820**	**304**	**0**	**1,231**	**422**	**181**	**2,958**
1989	DOCKUM	11	0	0	0	135	5	151
1989	EDWARDS-TRINITY PLATEAU	337	187	0	39	105	44	712
1989	OGALLALA	558	294	0	1,562	154	147	2,715
	Total	**906**	**481**	**0**	**1,601**	**394**	**196**	**3,578**
1990	DOCKUM	11	0	0	0	135	5	151
1990	EDWARDS-TRINITY PLATEAU	250	120	0	58	105	43	576
1990	OGALLALA	507	301	0	2,308	154	145	3,415
	Total	**768**	**421**	**0**	**2,366**	**394**	**193**	**4,142**
1991	DOCKUM	10	0	0	0	112	5	127
1991	EDWARDS-TRINITY PLATEAU	242	79	0	53	87	44	505

Disclaimer: The Water Use estimates posted are subject to revision as additional data and corrections are made available to the TWDB.

Table 3 (cont). **Historical Groundwater Pumpage Summary by County**

Unit: Acre Feet (ACFT)

HOWARD COUNTY								
Year	Aquifer	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1991	OGALLALA	490	302	0	2,099	127	149	3,167
	Total	**742**	**381**	**0**	**2,152**	**326**	**198**	**3,799**
1992	DOCKUM	10	0	0	0	108	7	125
1992	EDWARDS-TRINITY PLATEAU	451	37	0	93	84	59	724
1992	OGALLALA	500	285	0	3,699	122	199	4,805
	Total	**961**	**322**	**0**	**3,792**	**314**	**265**	**5,654**
1993	DOCKUM	11	0	0	0	106	7	124
1993	EDWARDS-TRINITY PLATEAU	408	23	0	25	82	59	597
1993	OGALLALA	547	143	0	1,001	119	197	2,007
	Total	**966**	**166**	**0**	**1,026**	**307**	**263**	**2,728**
1994	DOCKUM	11	0	0	10	106	6	133
1994	EDWARDS-TRINITY PLATEAU	512	99	0	43	82	51	787
1994	OGALLALA	541	351	0	1,095	119	170	2,276
	Total	**1,064**	**450**	**0**	**1,148**	**307**	**227**	**3,196**
1995	DOCKUM	11	0	0	9	73	6	99
1995	EDWARDS-TRINITY PLATEAU	572	169	0	39	57	51	888
1995	OGALLALA	544	360	0	981	82	169	2,136
	Total	**1,127**	**529**	**0**	**1,029**	**212**	**226**	**3,123**
1996	DOCKUM	12	0	0	8	73	5	98
1996	EDWARDS-TRINITY PLATEAU	445	187	0	36	57	44	769
1996	OGALLALA	569	461	0	910	82	146	2,168
	Total	**1,026**	**648**	**0**	**954**	**212**	**195**	**3,035**
1997	DOCKUM	12	0	0	20	65	8	105
1997	EDWARDS-TRINITY PLATEAU	238	273	0	90	51	66	718
1997	OGALLALA	561	154	0	2,267	73	219	3,274
	Total	**811**	**427**	**0**	**2,377**	**189**	**293**	**4,097**
1998	DOCKUM	13	0	0	29	63	7	112
1998	EDWARDS-TRINITY PLATEAU	266	49	0	131	50	59	555
1998	OGALLALA	626	47	0	3,302	71	196	4,242
	Total	**905**	**96**	**0**	**3,462**	**184**	**262**	**4,909**
1999	DOCKUM	12	0	0	41	65	7	125
1999	EDWARDS-TRINITY PLATEAU	234	288	0	183	50	55	810
1999	OGALLALA	551	160	0	4,638	70	183	5,602
	Total	**797**	**448**	**0**	**4,862**	**185**	**245**	**6,537**

Table 3 (cont).

Historical Groundwater Pumpage Summary by County

Unit: Acre Feet (ACFT)

HOWARD COUNTY								
Year	**Aquifer**	**Municipal**	**Manufacturing**	**Steam Electric**	**Irrigation**	**Mining**	**Livestock**	**Total**
2000	DOCKUM	9	0	0	41	63	7	120
2000	EDWARDS-TRINITY PLATEAU	188	184	0	183	50	56	661
2000	OGALLALA	443	47	0	4,610	71	187	5,358
	Total	**640**	**231**	**0**	**4,834**	**184**	**250**	**6,139**
2001	DOCKUM	0	0	0	28	15	6	49
2001	EDWARDS-TRINITY PLATEAU	243	263	0	124	12	52	694
2001	OGALLALA	564	157	0	3,121	17	173	4,032
	Total	**807**	**420**	**0**	**3,273**	**44**	**231**	**4,775**
2002	DOCKUM	0	0	0	26	74	6	106
2002	EDWARDS-TRINITY PLATEAU	206	367	0	116	58	48	795
2002	OGALLALA	554	265	0	2,920	83	158	3,980
	Total	**760**	**632**	**0**	**3,062**	**215**	**212**	**4,881**
2003	DOCKUM	0	0	0	20	74	4	98
2003	EDWARDS-TRINITY PLATEAU	220	366	0	90	58	36	770
2003	OGALLALA	557	109	0	2,265	83	120	3,134
	Total	**777**	**475**	**0**	**2,375**	**215**	**160**	**4,002**

Projected Groundwater Supply and Demand

Projecting groundwater supply and demand is an arduous process. In order to make such projections, one must predict trends of groundwater use. Assumptions must be made regarding population changes, changing agricultural cropping strategies, economic development patterns, and future weather patterns. Naturally, the farther into the future one projects, the less accurate the projections become.

For the purposes of this plan, the following supply and demand figures shown in Tables 4 and 5 respectively will be used. The figures were derived from numbers supplied by the TWDB.

Table 4:

Projected Surface Water Supplies of the Permian Basin UWCD

Martin County

RWPG	Water User Group	County	River Basin	Source Name	2000	2010	2020	2030	2040	2050	2060
F	Stanton	Martin	Colorado	Colorado River MWD System	379	0	0	0	0	0	0
F	Livestock	Martin	Colorado	Livestock Local Supply	79	67	67	67	67	67	67
Total Projected Surface Water Supplies(acre-feet per year)=					**458**	**67**	**67**	**67**	**67**	**67**	**67**

Source: Volume 3, 2007 State Water Planning Database

Table 4 (cont.):

Howard County

RWPG	Water User Group	County	River Basin	Source Name	2000	2010	2020	2030	2040	2050	2060
F	Big Spring	Howard	Colorado	Colorado River MWD System	6,950	3,636	3,370	4,976	4,611	4,389	4,084
F	Coahoma	Howard	Colorado	Colorado River MWD System	171	134	124	182	169	159	148
F	Manufacturing	Howard	Colorado	Colorado River MWD System	1,723	722	703	1,094	1,090	1,103	1,130
F	Mining	Howard	Colorado	Beals Creek Run-of-River CRMWD Diverted Water	1,000	0	0	0	0	0	0
F	Mining	Howard	Colorado	Colorado River MWD Systems	0	1,076	1,053	1,608	1,555	1,523	1,460
F	Irrigation	Howard	Colorado	Beals Creek Combined Run-of-River Irrigation	24	0	0	0	0	0	0
F	Livestock	Howard	Colorado	Livestock Local Supply	73	62	62	62	62	62	62
Total Projected Surface Water Supplies(acre-feet per year)=					**9,941**	**5,630**	**5,312**	**7,922**	**7,487**	**7,236**	**6,884**

Source: Volume 3, 2007 State Water Planning Database

Water Demands

Table 5:

2007 State Water Plan Projected Water Demands
Total County - Water Demands Data

Martin County

RWPG	Water User Group	County	River Basin	2010	2020	2030	2040	2050	2060
F	Stanton	Martin	Colorado	424	464	483	495	483	459
F	County Other	Martin	Colorado	387	424	442	453	442	419
F	Manufacturing	Martin	Colorado	39	41	42	43	44	47
F	Mining	Martin	Colorado	674	645	634	624	615	603
F	Irrigation	Martin	Colorado	14,324	14,073	13,822	13,571	13,321	13,075
F	Livestock	Martin	Colorado	273	273	273	273	273	273
Total Projected Surface Water Supplies(acre-feet per year)=				**16,121**	**15,920**	**15,696**	**15,459**	**15,178**	**14,876**

Source: Volume 3, 2007 State Water Planning Database

Howard County

RWPG	Water User Group	County	River Basin	2010	2020	2030	2040	2050	2060
F	Big Spring	Howard	Colorado	6,103	6,255	6,305	6,305	6,305	6,305
F	Coahoma	Howard	Colorado	187	191	193	193	193	193
F	County Other	Howard	Colorado	1,134	1,163	1,172	1,172	1,172	1,172
F	Manufacturing	Howard	Colorado	1,648	1,753	1,832	1,910	1,976	2,099
F	Mining	Howard	Colorado	1,783	1,883	1,924	1,963	2,001	2,052
F	Irrigation	Howard	Colorado	4,799	4,744	4,690	4,635	4,581	4,527
F	Livestock	Howard	Colorado	366	366	366	366	366	366
Total Projected Surface Water Supplies(acre-feet per year)=				**16,020**	**16,355**	**16,482**	**16,544**	**16,594**	**16,714**

Source: Volume 3, 2007 State Water Planning Database

Table 5A:

2007 State Water Plan Projected Water Demands
Conservation District Specific - Water Demands Data

Martin County

RWPG	Water User Group	County	River Basin	2010	2020	2030	2040	2050	2060
F	Stanton	Martin	Colorado	424	464	483	495	483	459
F	County Other*	Martin	Colorado	387	424	442	453	442	419
F	Manufacturing*	Martin	Colorado	39	41	42	43	44	47
F	Mining*	Martin	Colorado	674	645	634	624	615	603
F	Irrigation*	Martin	Colorado	14,324	14,073	13,822	13,571	13,321	13,075
F	Livestock*	Martin	Colorado	273	273	273	273	273	273
Total Projected Surface Water Supplies(acre-feet per year)=				**16,121**	**15,920**	**15,696**	**15,459**	**15,178**	**14,876**

Source: Volume 3, 2007 State Water Planning Database

***Since the District does cover all of Martin County no proportional estimate is necessary. Total county-wide data are sufficient.**

Howard County

RWPG	Water User Group	County	River Basin	2010	2020	2030	2040	2050	2060
F	County Other*	Howard	Colorado	1,074	1,101	1,110	1,110	1,110	1,110
F	Manufacturing*	Howard	Colorado	1,561	1,660	1,735	1,809	1,871	1,988
F	Mining*	Howard	Colorado	1,689	1,783	1,822	1,859	1,895	1,943
F	Irrigation*	Howard	Colorado	4,545	4,493	4,442	4,390	4,339	4,288
F	Livestock*	Howard	Colorado	347	347	347	347	347	347
Total Projected Surface Water Supplies(acre-feet per year)=				**9,215**	**9,385**	**9,456**	**9,515**	**9,562**	**9,676**

Source: Volume 3, 2007 State Water Planning Database

***Since the District does not cover all of Howard County, Conservation District Specific - Water Demands Data is based on a proportional area percentage. This percentage is derived by dividing the amount of acres or square miles covered by the District by the total number of acres or square miles contained within Howard County. The percentage derived by the T.W.D.B. is 94.71%.**

In the Region-F analysis of economic impacts due to water shortages, Table 6 illustrates the projected water needs for the Permian Basin Underground Water Conservation District. This information was provided to The State as part of the 2007 State Water Plan.

Table 6:

2007 State Water Plan Projected Water Needs
Permian Basin Underground Water Conservation District

Martin County

RWPG	Water User Group	County	River Basin	2010	2020	2030	2040	2050	2060
F	Stanton	Martin	Colorado	-392	-422	-429	-430	-415	-393
F	County Other	Martin	Colorado	0	0	0	0	0	0
F	Manufacturing	Martin	Colorado	0	0	0	0	0	0
F	Mining	Martin	Colorado	0	0	0	0	0	0
F	Irrigation	Martin	Colorado	-788	-564	-322	0	0	0
F	Livestock	Martin	Colorado	0	0	0	0	0	0
Total Projected Surface Water Supplies(acre-feet per year)=				**-1,180**	**-986**	**-751**	**-430**	**-415**	**-393**

Source: Volume 3, 2007 State Water Planning Database

Howard County

RWPG	Water User Group	County	River Basin	2010	2020	2030	2040	2050	2060
F	Big Spring	Howard	Colorado	-1,345	-1,672	-24	-299	-491	-796
F	Coahoma	Howard	Colorado	-49	-61	-1	-11	-18	-29
F	County Other	Howard	Colorado	0	0	0	0	0	0
F	Manufacturing	Howard	Colorado	-177	-301	0	-71	-124	-220
F	Mining	Howard	Colorado	-400	-523	-9	-101	-171	-285
F	Irrigation	Howard	Colorado	0	0	0	0	0	0
F	Livestock	Howard	Colorado	0	0	0	0	0	0
Total Projected Surface Water Supplies(acre-feet per year)=				**-1,971**	**-2,557**	**-34**	**-482**	**-804**	**-1,330**

Source: Volume 3, 2007 State Water Planning Database

Management of Groundwater Resources

The District will endeavor to manage groundwater resources, over which it has jurisdictional authority, in order to conserve the resource while seeking to maintain the economic viability of the District's constituents. A water level monitoring network has been established in order to track changes in the total volume of groundwater in storage each year. The District will employ all technical resources at its disposal to monitor and evaluate the groundwater resource and programs designed to encourage conservation of the same.

Table 7:

Projected Water Management Strategies

Martin County

RWPG	WUG	WUG County	River Basin	Water Management Strategy	Source Name	Source County	2010	2020	2030	2040	2050	2060
F	Irrigation	Martin	Colorado	Irrigation Conservation	Conservation	Martin	0	1,751	3,502	3,502	3,502	3,502
F	Stanton	Martin	Colorado	New/Renew Water Supply	Colorado River MWD System	Reservoir	392	422	429	430	415	393
F	Stanton	Martin	Colorado	Subordination	Colorado River MWD System	Reservoir	0	0	0	0	0	0
Total Projected Surface Water Supplies(acre-feet per year)=							**392**	**2,173**	**3,931**	**3,932**	**3,917**	**3,895**

Source: Volume 3, 2007 State Water Planning Database

Table 7 (cont):

Howard County

RWPG	WUG	WUG County	River Basin	Water Management Strategy	Source Name	Source County	2010	2020	2030	2040	2050	2060
F	Big Spring	Howard	Colorado	Municipal Conservation	Conservation	Howard	241	603	676	698	725	754
F	Irrigation	Howard	Colorado	Irrigation Conservation	Conservation	Howard	0	327	653	653	653	653
F	Big Spring	Howard	Colorado	Reuse	Direct Reuse	Howard	0	1,855	1,855	1,855	1,855	1,855
F	Big Spring	Howard	Colorado	Subordination	Colorado River MWD System	Reservoir	1,345	1,672	24	299	491	796
F	Coahoma	Howard	Colorado	Subordination	Colorado River MWD System	Reservoir	49	61	1	11	18	29
F	Manufactur-ing	Howard	Colorado	Subordination	Colorado River MWD System	Reservoir	267	349	5	71	124	220
F	Mining	Howard	Colorado	Subordination	Colorado River MWD System	Reservoir	400	523	9	101	171	285
Total Projected Surface Water Supplies(acre-feet per year)=							**2, 302**	**5,390**	**3,223**	**3,688**	**4,037**	**4,592**

Source: Volume 3, 2007 State Water Planning Database

Goals, Management Objectives and Performance Standards

Method for Tracking the District's Progress in Achieving Management Goals

The District staff will prepare an annual report of the District's performance with regard to achieving management goals and objectives. The report will be prepared in a format that will be reflective of the performance standards listed following each management objective. The report will be presented to the Board within 60 days of the end of each fiscal period. The report will be maintained on file in the open records of the District.

Actions, Procedures, Performance and Avoidance for Plan Implementation as required by {TWC §36.1071(e)(2)}.

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 will adopt rules relating to the permitting of wells and the production of groundwater. The rules adopted by the District shall be pursuant to TWC §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 shall treat all citizens with equality. 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 of discretion to any rule, the Board shall consider the potential for adverse effect on adjacent landowners. The exercise of said discretion by the District Board shall not be construed as limiting the power of the District Board.

The District will seek the cooperation in the implementation of this plan and the management of groundwater supplies within the District. All activities of the District will be undertaken in cooperation and coordinated with the appropriate state, regional or local management entity.

Goal 1.0 Implement management strategies that will protect and enhance the quantity of useable quality groundwater by encouraging the most efficient use.

Management Objective - Water Level Monitoring:

1.01 - Annually, measure the depth to water in 80% or more of the wells in the Districts' water level monitoring network; record all measurements and /or observations; enter all measurements into Districts' computer database; file all field notes in filing system; maintain a network of measurement wells of 100 or more wells.

Performance Standards:

1.01a - Percent of water level monitoring wells for which measurements were recorded each year.

1.01b - Percent of water level monitoring wells for which field notes were written describing reason for inability to attain measurements each year.

1.01c - Number of data records entered into Districts' database each year.

1.01d - Number of water level measurement wells for which field notes are filed in Districts' filing system each year.

1.01e - Number of wells in the water level measurement network each year.

1.01f - Number of wells added to the network, if required, each year

Management Objective - Laboratory Services

1.02 - The District will provide basic water quality testing to constituents. The District will maintain a record of all tests performed and enter the test results in the computer data base. The results will be communicated to constituents.

Performance Standards:

1.02a - Record the number of laboratory tests conducted each year

1.02b - Record the number of records entered into District's computer data base each year

Goal 2.0 Implement management strategies that will protect and enhance the quantity of usable quality groundwater by controlling and preventing waste.

Management Objective - Well Permitting and Well Completion:

2.01 - On an annual basis the District will issue water well drilling permits for drilling and completion of non-exempt water wells in the District. Inspect all well sites to be assured that the Districts' completion and spacing standards are met. Send a written notification to the well owner if the well fails to meet standards within 30 days of inspection. The Board will vote on final approval of the permit at the next regularly held meeting after the permit has been issued.

Performance Standards:

2.01a - Average number of days taken to issue drilling permit.

2.01b - Number of water well drilling permits issued each year.

2.01c - Number of well sites inspected after well completion each year.

2.01d - Number of well sites that fail to meet the standards of the District each year.

2.01e - Average number of days taken to mail notification letters each year.

Management Objective - Open or Uncovered Wells:

2.02 - Annually, the District will inspect all open or uncovered wells that are found or reported. If an open or uncovered well is found, the District will insure that the open hole is properly closed according to District rules and, in so doing, prevent potential contamination of the groundwater resource. The inspections shall be reported on forms provided by the District to track the progress of the well being closed.

Performance Standards:

2.02a - Number of open or uncovered wells reported to the District each year.

2.02b - Number of initial inspections accomplished each year.

2.02c - Average number of days required to make initial contact with responsible party each year.

2.02d - Average number of days required to complete closure of open or uncovered wells each year.

Management Objective - Salt Water Disposal Well Monitoring:

2.03 - Annually, inspect 80% or more of the known salt water disposal wells located within the Districts' boundaries for indications of pollution potential; record all findings at each well site; file all field notes in the Districts' filing system.

Performance Standards:

2.03a - The number of salt water disposal well sites inspected each year

2.03b - Percent of salt water disposal well sites inspected each year.

2.03c - The number of Salt Water Disposal Well for which field notes were recorded and filed each year.

2.03d - Percent of inspections for which field notes were recorded and filed each year.

Goal 3.0 Implement management strategies that will enhance the quantity of groundwater by conservation.

Management Objectives - Conservation through Public Education

3.01 - On an annual basis the District will provide book covers to Forsan, Grady and Stanton public schools within the District. The book covers will have a water conservation message to provide students ideas on how to conserve water.

Performance Standard

3.01a - The number of covers provided will be recorded

Goal 4.0 **Drought Conditions –** Implement management strategies that will reduce use of the aquifer in times of drought conditions

Management Objective - Drought Education

4.01 - The District will monitor the Palmer Drought Severity Index (PDSI) by the Texas Climatic Divisions. If PDSI indicates that the District is experiencing severe drought conditions, the District will start to educate the public on the need to reduce water use.

Performance Standard

4.01a - The District staff will monitor the PDSI quarterly. The index reading will be recorded.

4.01b - If the index shows severe drought, the District will send a press release to the Martin County Messenger and the Big Spring Herald newspapers. The article will stress the immediate need to reduce water use. It will provide conservation tips the public can implement in and around the home.

4.01c - The District will keep a copy of the published article from the newspaper.

Goal 5.0 Recharge Enhancement, Rainwater Harvesting, Precipitation Enhancement, and Brush control where appropriate and cost effective. (36.1071(a)(7))

Management Objective

5.1 - Each year the District will provide and distribute literature on recharge enhancement to promote the conservation and efficient use of water.

5.2 - Each year the District will provide and distribute literature on rainfall harvesting to promote the conservation and efficient use of water.

5.3 - Each year the District will provide and distribute literature on precipitation enhancement to promote the conservation and efficient use of water.

5.4 - Each year the District will provide and distribute literature on brush control to promote the conservation and efficient use of water.

Performance Standard

5.1a - The District staff will publish a minimum of one article on recharge enhancement in one newspaper located within the District annually.

5.2a - The District staff will publish a minimum of one article on rainfall harvesting in one newspaper located within the District annually.

5.3a - The District staff will publish a minimum of one article on precipitation enhancement in one newspaper located within the District annually.

5.4a - The District staff will publish a minimum of one article on brush control in one newspaper located within the District annually.

Goal 6.0 Implement management strategies that will attain the Desired Future Conditions of the aquifer as established by the Districts within Groundwater Management Area 2.

The desired future conditions of the groundwater within the District have not yet been established in accordance with Chapter 36.108 of the Texas Water Code. The District is actively participating in the joint planning process and the development of a desired future condition for the portion of the aquifer(s) within the District. Therefore, this goal is not applicable to the District at this time.

Goals not Applicable

The following goals referenced in Chapter 36, Texas Water Code, have been Determined not applicable to the District;

TWC §36.1071 (a) (3)	Controlling and preventing subsidence
TWC §36.1071 (a) (4)	Addressing conjunctive surface water management issues
TWC §36.1071 (a) (5)	Addressing natural resource issues

References

Ashworth, J. B. and Hopkins, J., 1995, Aquifers of Texas: Texas Water Development Board Report 345, page 69.

Wade, Shirley; Petrossian, Rima; Ridgeway, Cindy; and Smith, Richard, 2003, Data supplied from the Texas Water Development Board GAMS Model.