

**McMULLEN GROUNDWATER**

**CONSERVATION DISTRICT**

**DISTRICT MANAGEMENT**

**PLAN**

**MCMULLEN GROUNDWATER  
CONSERVATION DISTRICT  
MANAGEMENT PLAN  
Adopted August, 7, 2008**

**District Mission**

The McMullen Groundwater Conservation District will strive to develop, promote, and implement water conservation, augmentation, and management strategies to protect water resources for the benefit of the citizens, economy, and environment of the district.

**Time Period for This Plan**

This plan becomes effective upon approval by the Texas Water Development Board and remains in effect until a revised plan is approved or August 7, 2018, whichever is earlier. The planning period for the management plan is ten (10) years, but the plan must be updated and approved every five (5) years.

**Statement of Guiding Principles**

The district recognizes that the groundwater resources of the region are of vital importance. The preservation of this most valuable resource can be managed in a prudent and cost effective manner through regulation and permitting. This management document is intended as a tool to focus the thoughts and actions of those given the responsibility for the execution of district activities.

**General Description**

The District was created by the citizens of McMullen County through an election, January 2001. The current Board of Directors are Clifton Wheeler, Jr. - Chairman, Harold Jambers, Jr. - Vice-Chairman, David Longan – Secretary-Treasurer, J.E. Wheeler, Jr., and Larry Miles, McMullen Groundwater Conservation District (MGCD) has the same aerial extent as that of McMullen County. The county has a vibrant economy dominated by agriculture and petroleum. The agriculture income is derived primarily from McMullen County is cattle production, wheat, corn, sorghum, and some sheep and goat ranching.

**Location and Extent**

McMullen County, consisting of 1,159 square miles, is located in South Texas. The county is bounded on the east by Live Oak County, on the north by Atascosa County, on the west by La Salle County, and on the south by Duval County. Tilden, which is centrally located in the county, is the county seat.

## Topography, Drainage and Groundwater Recharge

McMullen County is on the Gulf Coastal Plain in southern Texas. Most the 1,159 square miles of the county are devoted to farming and ranching, which provide the principal income for the 851 inhabitants. The production of oil is also an important industry.

The principal water-bearing formations underlying the county are the Carrizo sand, Oakville sandstone, Lagarto clay, and Goliad sand, Queen City, and the Sparta Aquifers.

Some livestock supplies were obtained from surface-water sources. Most of McMullen County is rolling to moderately hilly, although some areas are nearly flat. The altitude ranges from about 460 feet in the southwestern part of the county to about 90 feet near the south end of the county. The county is drained by the Nueces River and the Frio River.

Recharge could be enhanced by several methods: brush control, more precipitation, and more tanks to catch runoff from excessive precipitation.

### Surface Water Resources of McMullen County

Limited surface water rights are available within the county, mainly on the Nueces and Frio Rivers. The remaining surface water is impounded in stock tanks for livestock and domestic use.

## Data Procurement:

### Projected Water Demands - McMullen County

RWPG	Water User Group	County	River Basin	2000	2010	2020	2030	2040	2050	2060
N	County Other	McMullen	Nueces	135	146	152	146	138	133	126
N	Mining	McMullen	Nueces	176	195	203	207	211	215	218
N	Livestock	McMullen	Nueces	659	659	659	659	659	659	659
N	Choke Canyon WS	McMullen	Nueces	40	43	45	43	41	39	37
<b>Total Projected Water Demands (acre-feet per year) =</b>				<b>1,010</b>	<b>1,043</b>	<b>1,059</b>	<b>1,055</b>	<b>1,049</b>	<b>1,046</b>	<b>1,040</b>

Source: Volume 3, 2007 State Water Planning Database

### Projected Surface Water Supplies - McMullen County

RWPG	Water User Group	County	River Basin	Source Name	2000	2010	2020	2030	2040	2050	2060
N	Livestock	McMullen	Nueces	Livestock Local Supply	0	593	593	593	593	593	593
N	Choke Canyon WS	McMullen	Nueces	Corpus Christi-Choke Canyon Lake/Reservoir System	0	18	20	21	20	16	13
<b>Total Projected Surface Water Supplies (acre-feet per year) =</b>					<b>0</b>	<b>611</b>	<b>613</b>	<b>614</b>	<b>613</b>	<b>609</b>	<b>606</b>

Source: Volume 3, 2007 State Water Planning Database

### Projected Water Needs - McMullen County

According to the most recently adopted State Water Plan (2007), there are no water needs projected for McMullen County.

RWPG	Water User Group	County	River Basin	2010	2020	2030	2040	2050	2060
N	County Other	McMullen	Nueces	0	0	0	0	0	0
N	Mining	McMullen	Nueces	0	0	0	0	0	0
N	Livestock	McMullen	Nueces	0	0	0	0	0	0
N	Choke Canyon WS	McMullen	Nueces	0	0	0	0	0	0
<b>Total Projected Water Needs (acre-feet per year) =</b>				<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Source: Volume 3, 2007 State Water Planning Database

### Projected Water Management Strategies - McMullen County

RWPG	Water User Group	WUG County	River Basin	Water Management Strategy	Source Name	Source County	2010	2020	2030	2040	2050	2060
N	County Other	McMullen	Nueces	Municipal Water Conservation	Conservation	McMullen	1	2	3	5	7	10
<b>Total Projected Water Management Strategies (acre-feet per year) =</b>							<b>1</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>7</b>	<b>10</b>

Source: Volume 3, 2007 State Water Planning Database

## Historical Groundwater Pumpage - McMullen County

All Pumpage reported in acre-feet

Year	Aquifer	Municipal	Manufacturing	Steam Electric	Irrigation	Mining	Livestock	Total
1980	CARRIZO- WILCOX	83	0	0	0	446	45	574
	GULF COAST	5	0	0	0	0	45	50
<b>Total</b>		<b>88</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>446</b>	<b>90</b>	<b>624</b>
1985	CARRIZO- WILCOX	118	0	0	0	226	21	365
	GULF COAST	20	0	0	0	3	21	44
<b>Total</b>		<b>138</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>229</b>	<b>42</b>	<b>409</b>
1986	CARRIZO- WILCOX	113	0	0	0	238	22	373
	GULF COAST	18	0	0	0	0	22	40
<b>Total</b>		<b>131</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>238</b>	<b>44</b>	<b>413</b>
1987	CARRIZO- WILCOX	170	0	0	93	256	23	542
	GULF COAST	17	0	0	0	10	23	50
<b>Total</b>		<b>187</b>	<b>0</b>	<b>0</b>	<b>93</b>	<b>266</b>	<b>46</b>	<b>592</b>
1988	CARRIZO- WILCOX	181	0	0	116	258	25	580
	GULF COAST	18	0	0	0	10	24	52
<b>Total</b>		<b>199</b>	<b>0</b>	<b>0</b>	<b>116</b>	<b>268</b>	<b>49</b>	<b>632</b>
1989	CARRIZO- WILCOX	174	0	0	0	235	25	434
	GULF COAST	4	0	0	0	4	24	32
<b>Total</b>		<b>178</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>239</b>	<b>49</b>	<b>466</b>
1990	CARRIZO- WILCOX	193	0	0	0	239	24	456
	GULF COAST	12	0	0	0	0	24	36
<b>Total</b>		<b>205</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>239</b>	<b>48</b>	<b>492</b>
1991	CARRIZO- WILCOX	458	0	0	0	391	25	874
	GULF COAST	5	0	0	0	0	25	30
<b>Total</b>		<b>463</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>391</b>	<b>50</b>	<b>904</b>
1992	CARRIZO- WILCOX	173	0	0	0	399	16	588
	GULF	0	0	0	0	0	16	16

	COAST								
	<b>Total</b>	<b>173</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>399</b>	<b>32</b>	<b>604</b>	
1993	CARRIZO-WILCOX	179	0	0	0	390	15	584	
	GULF COAST	0	0	0	0	0	15	15	
	<b>Total</b>	<b>179</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>390</b>	<b>30</b>	<b>599</b>	
1994	CARRIZO-WILCOX	259	0	0	0	390	24	673	
	GULF COAST	0	0	0	0	0	24	24	
	<b>Total</b>	<b>259</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>390</b>	<b>48</b>	<b>697</b>	
1995	CARRIZO-WILCOX	279	0	0	0	390	23	692	
	GULF COAST	0	0	0	0	0	23	23	
	<b>Total</b>	<b>279</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>390</b>	<b>46</b>	<b>715</b>	
1996	CARRIZO-WILCOX	463	0	0	0	390	36	889	
	GULF COAST	0	0	0	0	0	36	36	
	<b>Total</b>	<b>463</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>390</b>	<b>72</b>	<b>925</b>	
1997	CARRIZO-WILCOX	473	0	0	0	399	26	898	
	GULF COAST	0	0	0	0	0	26	26	
	<b>Total</b>	<b>473</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>399</b>	<b>52</b>	<b>924</b>	
1998	CARRIZO-WILCOX	476	0	0	0	399	24	899	
	GULF COAST	0	0	0	0	0	24	24	
	<b>Total</b>	<b>476</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>399</b>	<b>48</b>	<b>923</b>	
1999	CARRIZO-WILCOX	521	0	0	0	399	25	945	
	GULF COAST	0	0	0	0	0	25	25	
	<b>Total</b>	<b>521</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>399</b>	<b>50</b>	<b>970</b>	
2000	CARRIZO-WILCOX	545	0	0	0	845	13	1,403	
	GULF COAST	0	0	0	0	0	13	13	
	<b>Total</b>	<b>545</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>845</b>	<b>26</b>	<b>1,416</b>	
2001	CARRIZO-WILCOX	633	0	0	0	176	41	850	
	GULF COAST	0	0	0	0	0	41	41	
	<b>Total</b>	<b>633</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>176</b>	<b>82</b>	<b>891</b>	
2002	CARRIZO-WILCOX	654	0	0	0	385	24	1,063	

	GULF COAST	0	0	0	0	0	24	24
	<b>Total</b>	<b>654</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>385</b>	<b>48</b>	<b>1,087</b>
2003	CARRIZO-WILCOX	649	0	0	0	385	48	1,082
	GULF COAST	0	0	0	0	0	48	48
	<b>Total</b>	<b>649</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>385</b>	<b>96</b>	<b>1,130</b>

Source: TWDB Water Use Survey Database)

The Desired Future Conditions for the aquifers located within the District boundaries and within Groundwater Management Areas 13 and 16 have not been established; therefore, an estimate of the managed available groundwater is not available at this time. The District is actively working with the other member districts within Groundwater Management Areas 13 and 16 towards determining the desired future conditions for each aquifer located within the district. Once these are established an estimate of the managed available groundwater can be calculated.

The District rules are available at our website: [www.mcmullengcd.org](http://www.mcmullengcd.org)

Table 1: Selected flow terms for each aquifer layer, into and out of the McMullen Groundwater Conservation District, averaged for the years 1981 through 1999 from the groundwater availability model of the central part of the Gulf Coast Aquifer. Flows include fresh, brackish, and saline waters. Flows are reported in acre-feet per year. All numbers are rounded to the nearest 1 acre-foot. Note: a negative sign refers to flow out of the aquifer in the district. A positive sign refers to flow into the aquifer in the district. N/A indicates the component is not applicable.

Aquifer	Surface water inflow	Surface water outflow	Lateral inflow into district	Lateral outflow from district	Net inter-aquifer flow (upper)	Net inter-aquifer flow (lower)
Chicot (Layer 1)	N/A	N/A	N/A	N/A	N/A	N/A
Evangeline (Layer 2)	N/A	N/A	N/A	N/A	N/A	N/A
Burkeville (Layer 3)	113	0	9	-7	0	-128
Jasper (Layer 4)	206	-833	265	-556	127	0

Table 2: Selected flow terms for each aquifer layer, into and out of the McMullen County Groundwater Conservation District, averaged for the years 1980 through 1999 from the groundwater availability model of the southern part of the Carrizo-Wilcox, Queen City, and Sparta aquifers. Flows include fresh, brackish, to saline waters. Flows are reported in acre-feet per year. All numbers are rounded to the nearest 1 acre-foot. Note: a negative sign refers to flow out of the aquifer in the district. A positive sign refers to flow into the aquifer in the district.

Aquifer	Surface water inflow	Surface water outflow	Lateral inflow into district	Lateral outflow from district	Net inter-aquifer flow (upper)	Net inter-aquifer flow (lower)
Sparta (Layer 1)	0	0	412	-175	0	2,339
Weches (Layer 2)	0	0	71	-36	-2,339	2,175
Queen City (Layer 3)	0	0	788	-186	-2,175	-303
Reklaw (Layer 4)	0	0	144	-25	303	-681
Carrizo (Layer 5)	0	0	1,435	-1,929	681	606
Wilcox (Layer 6)	0	0	539	-460	-606	-80
Wilcox (Layer 7)	0	0	186	-53	80	48
Wilcox (Layer 8)	0	0	1,397	-287	-48	0

ALL TABLES ON THIS PAGE ARE FROM TWDB GAM RUN 08-02

Table 3: Summarized information needed for the McMullen Groundwater Conservation District's groundwater management plan. All values are reported are expressed in acre-feet per year. All numbers are rounded to the nearest 1 acre-foot.

<b>Management plan requirement</b>	<b>Aquifer or confining unit</b>	<b>Results</b>
Estimated annual amount of recharge from precipitation to the district	Chicot	0
	Evangeline	0
	Burkeville	12
	Jasper	229
	Sparta	0
	Weches	0
	Queen City	0
	Reklaw	0
	Carrizo	0
	Wilcox(upper)	0
	Wilcox(middle)	0
	Wilcox(lower)	0
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Chicot	0
	Evangeline	0
	Burkeville	0
	Jasper	-833
	Sparta	0
	Weches	0
	Queen City	0
	Reklaw	0
	Carrizo	0
	Wilcox(upper)	0
	Wilcox(middle)	0
	Wilcox(lower)	0
Estimated annual volume of flow into the district within each aquifer in the district	Chicot	0
	Evangeline	0
	Burkeville	9
	Jasper	265
	Sparta	412
	Weches	71
	Queen City	788
	Reklaw	144
	Carrizo	1435
	Wilcox(upper)	539

<b>Management plan requirement</b>	<b>Aquifer or confining unit</b>	<b>Results</b>
	Wilcox(middle)	186
	Wilcox(lower)	1,397
Estimated annual volume of flow out of the district within each aquifer in the district	Chicot	0
	Evangeline	0
	Burkeville	-7
	Jasper	-556
	Sparta	-175
	Weches	-36
	Queen City	-186
	Reklaw	-25
	Carrizo	-1,929
	Wilcox(upper)	-460
	Wilcox(middle)	-53
	Wilcox(lower)	-287
Estimated net annual volume of flow between each aquifer in the district	Chicot into Evangeline	0
	Evangeline into Burkeville	0
	Burkeville into Jasper	128
	Sparta into Weches	2,339
	Weches into Queen City	2,175
	Reklaw into Queen City	303
	Reklaw into Carrizo	681
	Wilcox upper into Carrizo	606
	Wilcox middle into upper	80
Wilcox lower into middle	48	

TWDB GAM RUN 08-02

### **Methodology for Tracking the District's Progress in Achieving Management Goals**

The District manager will prepare and present an annual report to the District Board of Directors on District performance in regards to achieving management goals and objectives. The presentation of the report will occur during the last monthly District Board of directors meeting each fiscal year, beginning August 7, 2008. The report will include the number of instances in which each of the activities specified in the District's management objectives was engaged in during the fiscal year. The District Board will maintain the report on file, for public inspection at the District's offices upon adoption. This methodology will apply to all management goals contained within this plan.

### **Management of Groundwater Supplies**

The District will manage the supply of groundwater within the District in order to conserve the resource while seeking to maintain the economic viability of all resource user groups, public and private. In consideration of the economic and cultural activities occurring within the District, the District will identify and engage in such activities and practices that, if implemented, would result in a reduction of groundwater use. A monitor well observation network shall be established and maintained in order to evaluate changing conditions of groundwater supplies (water in storage) within the District. The District will make a regular assessment of water supply and groundwater storage conditions and will report those conditions to the Board and to the public. The District will undertake, as necessary and cooperate with investigations of the groundwater resources within the District and will make the results of investigations available to the public upon adoption by the District Board. The District will adopt rules to regulate groundwater withdrawals by means of well spacing and production limits. The District may deny a well construction permit or limit groundwater withdrawals in accordance with the guidelines stated in the rules of the District. In making a determination to deny a permit or limit groundwater withdrawals, the District will consider the public benefit against individual hardship after considering all appropriate testimony. In pursuit of the District's mission of protecting the resource, the District may require reduction of groundwater withdrawals to amounts, which will not cause harm to the aquifer. To achieve this purpose, the District may, at the District Board's discretion, amend or revoke any permits after notice and hearing. The determination to seek the amendment or revocation of a permit by the District will be based on aquifer conditions observed by the District. 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 (TWC) 36.102.

### **Actions, Procedures, Performance and Avoidance for Plan Implementation**

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 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.

# McMULLEN GROUNDWATER CONSERVATION DISTRICT MANAGEMENT GOALS AND OBJECTIVES

## **MISSION STATEMENT**

The mission of the McMullen Groundwater Water Conservation District is to protect and assure a sufficient quantity and quality of groundwater for our constituents use.

We value:

- \*Collection and maintenance of data on water quantity and quality
- \*Efficient use of groundwater
- \*Conjunctive water management issues
- \*Development and enforcement of water district rules concerning conservation of ground water.

## **Management Goals, Objectives, and Performance Standards**

### **Resource Goals**

#### **Goal 1.0: Providing the most efficient use of groundwater**

##### **Management Objective:**

Each year the District will provide education materials concerning the efficient use of groundwater.

##### **Performance standard:**

Provide educational materials to at least one school annually.

#### **Goal 2.0: Controlling and preventing waste of groundwater**

##### **Management Objective:**

Measure water levels from the land surface on strategic wells on an annual basis and report waste to the District Board.

##### **Performance standard:**

- (a) Report to the District Board annually the number of water level measurements.
- (b) The District will investigate all reports of waste of groundwater within five working days. The number of reports of waste as well as the investigation findings will be reported to the District Board in the annual report.

### **Goal 3.0: Controlling and preventing subsidence**

The geologic framework of the District Area precludes any significant subsidence from occurring. This management goal is not applicable to the operations of the District.

### **Goal 4.0: Conjunctive surface water management issues**

Except as provided in Chapter 36 of the Texas Water Code, the District has no jurisdiction over surface water. The District shall consider the effects of surface water resources as required by Section 36.113 and other state law. This goal is not applicable at this time.

### **Goal 5.0: Natural Resource Issues**

#### **Management Objective:**

The District will cooperate with other interested parties and appropriate agencies to develop additional information on aquifer recharge.

#### **Performance Standard:**

A representative of the District will attend a meeting annually with interested parties and appropriate agencies.

### **Goal 6.0: Drought Conditions**

#### **Management Objective:**

The District will monitor the Palmer Drought Severity Index (PDSI).

#### **Performance Standard:**

A report of the Palmer Drought Severity Index will be presented to the District board on an annual basis.

### **Goal 7.0: Conservation**

#### **Management Objective:**

Each year the District will make available educational material to the public promoting conservation methods and concepts.

#### **Performance Objective:**

The District will make at least one educational brochure available per year through service organizations, and on a continuing basis at the District office.

**Goal 8.0: Precipitation Enhancement**

**Management Objective:**

The District will participate in the South Texas Weather Modification Program.

**Performance Standard:**

A district representative will attend a meeting of the South Texas Weather Modification Assn. annually.

**Goal 9.0: Recharge Enhancement**

This goal is not applicable to the District because, at the current time, it is cost prohibitive.

**Goal 10.0: Rainwater Harvesting**

This goal is not applicable to the District because, at the current time, it is cost prohibitive.

**Goal 11.0: Brush Control**

This goal is not applicable to the District because, at the current time, it is cost prohibitive.

**Goal 12.0: Desired future condition of the groundwater resource**

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 within the District and the GMA area's. Therefore, this goal is not applicable to the District at this time