

# Wintergarden Groundwater Conservation District Groundwater Management Plan

Adopted      TEXAS WATER DEVELOPMENT BOARD approval on \_\_\_\_\_

The Wintergarden Groundwater Conservation District Office is located at:

2881 Hwy. 277 West  
P. O. Box 1433  
Carrizo Springs, TX 78834

Telephone: (830) 876-3801  
Fax: (830) 876-3782  
E-mail: [wgcd.swtrea@sbcglobal.net](mailto:wgcd.swtrea@sbcglobal.net)

Office Hours: 8:00 a.m. - 12:00 noon, 1:00 p.m. - 5:00 p.m.

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## **I. District's Mission**

The mission of the Wintergarden Groundwater Conservation District ("District") is to manage, preserve and protect the groundwater resources within the District's boundaries. The District will work to minimize the further drawdown of water levels, prevent the waste of groundwater, prevent interference between wells, protect the existing and historic use of groundwater, prevent the degradation of the quality of groundwater, use public education to promote water conservation, give consideration to the needs of the agricultural community and carry out the powers and duties conferred under Chapter 36 of the Texas Water Code. Any action taken by the District shall be only after full consideration and respect has been afforded to the individual property rights of all citizens of the District.

## **II. Purpose of the Management Plan**

The purpose of this Management Plan is to provide a planning tool for the District as it moves forward to manage, protect and conserve the groundwater resources within its boundaries. This Management Plan currently contains the hydrogeological and technical information provided by the Texas Water Development Board ("TWDB") regarding the groundwater resources of the District. As the District obtains more site-specific groundwater information, the District will update and amend this Management Plan, as necessary.

The development of the District's Management Plan will enable the District to comply with the requirements of state law. The Texas Legislature created a statewide water planning process with the passage of Senate Bill 1 ("SB 1") in 1997, Senate Bill 2 ("SB 2") in 2001, and Senate Bill 3 ("SB 3") in 2007. The development of management plans by each groundwater conservation district ("GCD") in Texas is an integral part of the statewide water planning process. The District's Management Plan satisfies all the requirements established for GCDs by SB 1, SB 2, SB 3, the requirements of Chapter 36 of the Texas Water Code, and the requirements of the rules of the TWDB.

## **III. District Information**

### **A. Creation**

The District was created in 1997 by the 75<sup>th</sup> Legislature with the enactment of House Bill 3602 ("Appendix A"). In its enabling legislation, the District was provided the powers and duties provided by the general law of the state of Texas, including Chapter 36 of the Texas Water Code, applicable to groundwater conservation districts created under Section 59, Article XVI of the Texas Constitution. The District was confirmed by election in January 1998. The initial tax rate was \$0.04 per \$100.00 valuation. The District's current tax rate is \$0.0043 per \$100.00 valuation. The District retains the authority and responsibilities specified in its enabling act, Chapter 36 of the Texas Water Code, the TWDB rules, this groundwater management plan, and the District rules as they may be amended.

B. Board of Directors

The Board of Directors is made up of seven (7) members. Two (2) directors are elected from each of the three (3) counties within the district, Dimmit, Zavala and La Salle counties, in addition to one (1) director at large from within the District boundaries. Board members serve staggered terms, and Board elections are every two (2) years.

C. Authority

The District has the rights and responsibilities provided for in Texas Water Code Chapter 36 and 31 Texas Administrative Code Chapter 356. The District exercises the authority given to preserve and protect the groundwater resources of the District through the adoption and implementation of District Rules.

D. Location and Extent of District Boundaries

The boundaries of the District are coextensive with the boundaries of Zavala, Dimmit and La Salle counties. This includes approximately 2,685,148 acres, or 4,195 square miles. A map showing the District boundaries is contained in “Appendix B”.

E. Groundwater Resources of District

The aquifers within the District include the Sparta, Queen City, Carrizo-Wilcox, and Yegua-Jackson. The Carrizo Sand unit within the Carrizo-Wilcox Aquifer (the “Carrizo Sand”) is the principal source of groundwater in Dimmit, La Salle, and Zavala counties, supplying large quantities of water to wells throughout the District. The primary use of Carrizo Sand groundwater within the District is for irrigation, municipal use, and oil and gas activities. The Carrizo Sand outcrops in a belt extending from the Rio Grande River through the western part of Dimmit County to the Zavala County line. In the vicinity of the Carrizo Springs anticline, west and southwest of the City of Carrizo Springs, the outcrop has a maximum width of about nine (9) miles, narrowing again to about two (2) miles at the Zavala County line. The Carrizo Sand consists of beds of massive, commonly cross-bedded, loosely cemented, remarkably clean sand and some minor amount of sandstone and clay. The average thickness of the Carrizo Sand in Dimmit County is about 265 feet; however, the thickness ranges from 0 at the outcrop to a maximum of 360 feet. See Texas Board of Water Engineers, Bulletin 6003, Geology and Ground-Water Resources of Dimmit County, TX 1960.

In Dimmit County, water levels of the Carrizo Sand and the depths of wells tapping into the Carrizo Sand fluctuate in response to changes in groundwater storage and changes in artesian pressure. Water recharging the aquifer in the outcrop tends to make water levels rise, whereas withdrawals from wells tend to make water levels decline. The Carrizo Sand contains water of generally good quality.

The Wilcox Group portion of the Carrizo-Wilcox Aquifer (the “Wilcox Group”), comprised of the Simsboro and Calvert Bluff formations, contains water of acceptable quality, but the Wilcox Group is not as prolific as the Carrizo Sand. As one moves easterly in the District, the Wilcox Group is deeper and the water quality degrades.

Based on Texas Water Commission Bulletin 6520, August 1965, the Carrizo Sand is, by far, the largest potential source of groundwater in La Salle County. The chemical quality of water from wells in La Salle ranges from fresh to moderately saline. The Carrizo Sand contains the largest quantity of fresh to slightly saline water in this area. According to Bulletin 6520, yields of up to 1,000 GPM might be obtained from the Queen City Aquifer in much of La Salle County. The Sparta Aquifer probably is capable of yielding as much as 400 GPM to wells in the western two-thirds of La Salle County. The Queen City Aquifer and Sparta Aquifer contain water that is likely unsuitable for irrigation. However, the water from the Sparta Aquifer, especially above a depth of about 100 feet, is of better quality than the water from the Queen City Aquifer. Other geologic formations in La Salle County are capable of yielding only small quantities of water, and most of the water is saline. There is minor pumping of the Yegua-Jackson Aquifer in La Salle County.

The primary source of usable groundwater in Zavala County is the Carrizo-Wilcox Aquifer. The Yegua-Jackson Aquifer is not present in Zavala or Dimmit counties. According to published reports, the Leona Formation, which is limited in thickness, has been a source of irrigation water in Zavala County. See U.S. Department of the Interior-Texas Board of Water Engineers; Geology and Groundwater Resources of the Winter Garden District, Texas, 1948.

#### **IV. Criteria for Plan Approval**

##### **A. Planning Horizon**

The Management Plan is adopted to be effective for a five (5) year planning period, which will begin on the date TWDB approves this Management Plan. In accordance with Section 36.1072(e) of the Texas Water Code and TWDB rules (in 31 TAC §356.3), the District will review and re-adopt its Management Plan with or without amendments, every five (5) years and will re-submit its Management Plan for TWDB approval after re-adoption. This Management Plan will be effective until replaced by a revised plan that has been approved by the TWDB.

##### **B. Plan Adoption**

Public notices demonstrating that this Management Plan was adopted after the required public hearing and Board Meeting are attached to this plan as “Appendix C”.

##### **C. Board Resolution**

A certified copy of the resolution of the Board of Directors of the District adopting this Management Plan is attached to this plan as “Appendix D”.

##### **D. Coordination with Surface Management Entities**

Letters transmitting copies of this Management Plan to the Nueces River Authority and the Region L Regional Water Planning Group are located in “Appendix E”.

V. **Groundwater Management Plan Data (31 TAC 356.5(a)(5)(A)-(H); Tex. Water Code 36.1071(e)(4))**

In developing this Management Plan, the District considered each of the following, which are incorporated into and made a part of the Management Plan:

A. **Modeled Available Groundwater (31 TAC 356.5(a)(5)(A))**

Modeled available groundwater (“MAG”) is defined in Texas Water Code § 36.001(25) as “the amount of water that 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 (“DFC”) may only be determined through joint planning with other GCDs in the same groundwater management area (“GMA”). The District is located in GMA-13. As set forth in the “GAM Run 17-027 MAG: Modeled Available Groundwater for the Carrizo-Wilcox, Queen City, Sparta, and Yegua-Jackson Aquifers in Groundwater Management Area 13” dated October 27, 2017, attached as “Appendix F”, the district members of GMA-13 identified the following DFCs:

The desired future conditions for the Carrizo-Wilcox, Queen City, and Sparta aquifers described in Resolution 16-01 from Groundwater Management Area 13, adopted November 21, 2016 are:

- *“The first proposed desired future condition for the Carrizo-Wilcox, Queen City and Sparta aquifers in Groundwater Management Area 13 is that 75 percent of the saturated thickness in the outcrop at the end of 2012 remains in 2070. This desired future condition is considered feasible despite model predictions to the contrary as detailed in GMA 13 Technical Memorandum .16-08”, and*
- *“In addition, a secondary proposed desired future condition for the Carrizo-Wilcox, Queen City, and Sparta aquifers in Groundwater Management Area 13 is an average drawdown of 48 feet for all of GMA 13. The drawdown is calculated from the end of 2012 conditions to the year 2070. This desired future condition is consistent with Scenario 9 as detailed in GMA 13 Technical Memorandum 16-01 and GMA 13 Technical Memorandum 16-08.”*

The desired future conditions for the Yegua-Jackson Aquifer described in Resolution 16-02 from Groundwater Management Area 13, adopted November 21, 2016 are:

- *“For Gonzales County, the average drawdown from 2010 to 2070 is 3 feet*
- *For Karnes County, the average drawdown from 2010 to 2070 is 1 foot*
- *For all other counties in GMA 13, the Yegua-Jackson is classified as not relevant for purposes joint planning.”*

The estimate of the MAG in the District based on the DFCs is provided in the “GAM Run 17-027 MAG”, attached as “Appendix F”.

B. Historical Water Use Data (31 TAC 356.5(a)(5)(B); 356.10(2))

Estimated historical water use from the TWDB Historical Water Use Survey is provided in the “Estimated Historical Water Use and 2017 State Water Plan Datasets: Wintergarden Groundwater Conservation District” dated January 7, 2021, attached as “Appendix G”.

C. Amount of Recharge from Precipitation (31 TAC 356.5(a)(5)(C))

The annual amount of recharge from precipitation, if any, to the groundwater resources within the District is provided in the “GAM Run 20-004: Wintergarden Groundwater Conservation District Management Plan” dated September 30, 2020, attached as “Appendix H”.

D. Amount of Water that Discharges from the Aquifer (31 TAC 356.5(a)(5)(D))

The annual volume of water that discharges from the aquifer to springs and any surface-water bodies, including lakes, streams, and rivers for each aquifer within the District is provided in the “GAM Run 20-004: Wintergarden Groundwater Conservation District Management Plan” dated September 30, 2020, attached as “Appendix H”.

E. Groundwater Budget (31 TAC 356.5(a)(5)(E))

The annual volume of flow into and out of the District within each aquifer and between aquifers in the District is provided in the “GAM Run 20-004: Wintergarden Groundwater Conservation District Management Plan” dated September 30, 2020, attached as “Appendix H”.

F. Projected Surface Water Supplies (31 TAC 356.5(a)(5)(F))

Projected surface water supplies pursuant to the TWDB 2017 State Water Plan data is provided in the “Estimated Historical Water Use and 2017 State Water Plan Datasets: Wintergarden Groundwater Conservation District” dated January 7, 2021, attached as “Appendix G”.

G. Projected Water Demands (31 TAC 356.5(a)(5)(G))

An estimate of the projected total demand for water within the District according to the most recently adopted state water plan is provided in the “Estimated Historical Water Use and 2017 State Water Plan Datasets: Wintergarden Groundwater Conservation District” dated January 7, 2021, attached as “Appendix G”.

H. Projected Water Supply Needs (Tex. Water Code 36.1071(e)(4))

The projected water supply needs for the District from the adopted state water plan is provided in the “Estimated Historical Water Use and 2017 State Water Plan Datasets: Wintergarden Groundwater Conservation District” dated January 7, 2021, attached as “Appendix G”. The District considered the water supply needs for the use categories of municipal (Asherton, Carrizo Springs, Cotulla, Encinal, County-Other (Dimmit, LaSalle), irrigation (Dimmit, LaSalle, Zavalla), livestock (Dimmit, LaSalle), manufacturing, and mining (Dimmit, LaSalle). The following are the specific datasets the District considered:

## DIMMIT COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
L	ASHERTON	NUECES	341	359	374	390	280	287
L	BIG WELLS	NUECES	174	181	185	192	138	141
L	CARRIZO SPRINGS	NUECES	2,270	2,402	2,479	2,581	1,856	1,903
L	COUNTY-OTHER, DIMMIT	NUECES	607	636	649	671	481	494
L	COUNTY-OTHER, DIMMIT	RIO GRANDE	4	4	5	5	4	4
L	IRRIGATION, DIMMIT	NUECES	5,020	4,968	4,768	4,563	4,366	4,232
L	IRRIGATION, DIMMIT	RIO GRANDE	755	747	717	686	657	637
L	LIVESTOCK, DIMMIT	NUECES	439	439	439	439	439	439
L	LIVESTOCK, DIMMIT	RIO GRANDE	49	49	49	49	49	49
L	MINING, DIMMIT	NUECES	4,265	4,336	3,760	2,448	1,140	531
L	MINING, DIMMIT	RIO GRANDE	654	665	577	376	175	81
<b>Sum of Projected Water Demands (acre-feet)</b>			<b>14,578</b>	<b>14,786</b>	<b>14,002</b>	<b>12,400</b>	<b>9,585</b>	<b>8,798</b>

## LA SALLE COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
L	COTULLA	NUECES	1,868	2,016	2,155	2,323	1,680	1,777
L	COUNTY-OTHER, LA SALLE	NUECES	522	556	590	633	458	484
L	ENCINAL	NUECES	213	228	243	263	191	201
L	IRRIGATION, LA SALLE	NUECES	4,636	4,493	4,354	4,220	4,090	3,971
L	LIVESTOCK, LA SALLE	NUECES	610	610	610	610	610	610
L	MINING, LA SALLE	NUECES	4,617	4,772	4,263	2,819	1,380	676
<b>Sum of Projected Water Demands (acre-feet)</b>			<b>12,466</b>	<b>12,675</b>	<b>12,215</b>	<b>10,868</b>	<b>8,409</b>	<b>7,719</b>

## ZAVALA COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
L	COUNTY-OTHER, ZAVALA	NUECES	572	618	672	727	778	826
L	CRYSTAL CITY	NUECES	1,702	1,858	2,000	2,160	2,312	2,455
L	IRRIGATION, ZAVALA	NUECES	44,222	42,475	40,797	39,185	37,636	36,262
L	LIVESTOCK, ZAVALA	NUECES	1,058	1,058	1,058	1,058	1,058	1,058
L	MANUFACTURING, ZAVALA	NUECES	946	987	1,026	1,058	1,124	1,194
L	MINING, ZAVALA	NUECES	2,531	2,257	1,977	1,559	932	557
L	ZAVALA COUNTY WCID #1	NUECES	477	525	567	613	656	697
<b>Sum of Projected Water Demands (acre-feet)</b>			<b>51,508</b>	<b>49,778</b>	<b>48,097</b>	<b>46,360</b>	<b>44,496</b>	<b>43,049</b>



I. Water Management Strategies (Tex. Water Code 36.1071(e)(4))

The water management strategies from the adopted state water plan are provided in the “Estimated Historical Water Use and 2017 State Water Plan Datasets: Wintergarden Groundwater Conservation District” dated January 7, 2021, attached as “Appendix G”. The predominant water management strategies the District has considered in developing the Management Plan are municipal water conservation, Carrizo Springs drought management, irrigation surface water right conversion in Dimmit County, municipal water conservation in LaSalle County, and municipal water conservation in Zavala County. The District also considered water management strategies, including specific groundwater management strategies, for Asherton, Carrizo Springs, Cotulla, and “county-other” using the Carrizo Aquifer. The District specifically considered the following datasets:

**DIMIT COUNTY**

**WUG, Basin (RWPG)**

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
<b>ASHERTON, NUECES (L)</b>							
DROUGHT MANAGEMENT - ASHERTON	DEMAND REDUCTION [DIMIT]	17	0	0	0	0	0
LOCAL CARRIZO AQUIFER DEVELOPMENT	CARRIZO-WILCOX AQUIFER [DIMIT]	0	0	0	0	0	0
MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION [DIMIT]	82	101	118	123	65	72
		<b>99</b>	<b>101</b>	<b>118</b>	<b>123</b>	<b>65</b>	<b>72</b>
<b>BIG WELLS, NUECES (L)</b>							
MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION [DIMIT]	41	38	33	31	8	11
		<b>41</b>	<b>38</b>	<b>33</b>	<b>31</b>	<b>8</b>	<b>11</b>
<b>CARRIZO SPRINGS, NUECES (L)</b>							
DROUGHT MANAGEMENT - CARRIZO SPRINGS	DEMAND REDUCTION [DIMIT]	114	0	0	0	0	0
LOCAL CARRIZO AQUIFER DEVELOPMENT	CARRIZO-WILCOX AQUIFER [DIMIT]	0	0	0	0	0	0
MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION [DIMIT]	579	715	809	939	629	765
		<b>693</b>	<b>715</b>	<b>809</b>	<b>939</b>	<b>629</b>	<b>765</b>
<b>COUNTY-OTHER, DIMIT, NUECES (L)</b>							
IRRIGATION SURFACE WATER RIGHT CONVERSION - DIMIT CO	NUECES RUN-OF-RIVER [DIMIT]	295	324	337	359	170	183
MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION [DIMIT]	108	98	76	64	0	5
		<b>403</b>	<b>422</b>	<b>413</b>	<b>423</b>	<b>170</b>	<b>188</b>
<b>COUNTY-OTHER, DIMIT, RIO GRANDE (L)</b>							
IRRIGATION SURFACE WATER RIGHT CONVERSION - DIMIT CO	NUECES RUN-OF-RIVER [DIMIT]	2	2	3	3	1	1

MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION [DIMMIT]	1	1	1	0	0	0
		<b>3</b>	<b>3</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>1</b>
<b>IRRIGATION, DIMMIT, NUECES (L)</b>							
IRRIGATION WATER CONSERVATION	DEMAND REDUCTION [DIMMIT]	0	0	0	0	0	0
		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>IRRIGATION, DIMMIT, RIO GRANDE (L)</b>							
IRRIGATION WATER CONSERVATION	DEMAND REDUCTION [DIMMIT]	0	0	0	0	0	0
		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>MINING, DIMMIT, NUECES (L)</b>							
MINING WATER CONSERVATION	DEMAND REDUCTION [DIMMIT]	0	0	0	0	0	0
		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>MINING, DIMMIT, RIO GRANDE (L)</b>							
MINING WATER CONSERVATION	DEMAND REDUCTION [DIMMIT]	0	0	0	0	0	0
		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Sum of Projected Water Management Strategies (acre-feet)</b>		<b>1,239</b>	<b>1,279</b>	<b>1,377</b>	<b>1,519</b>	<b>873</b>	<b>1,037</b>

## LA SALLE COUNTY

WUG, Basin (RWPG)

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
<b>COTULLA, NUECES (L)</b>							
LOCAL CARRIZO AQUIFER WITH CONVERSION	CARRIZO-WILCOX AQUIFER [LA SALLE]	0	16	155	323	323	323
MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION [LA SALLE]	531	666	798	972	577	721
		<b>531</b>	<b>682</b>	<b>953</b>	<b>1,295</b>	<b>900</b>	<b>1,044</b>
<b>COUNTY-OTHER, LA SALLE, NUECES (L)</b>							
LOCAL CARRIZO AQUIFER WITH CONVERSION	CARRIZO-WILCOX AQUIFER [LA SALLE]	22	56	90	133	133	133
MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION [LA SALLE]	107	104	100	107	0	5
		<b>129</b>	<b>160</b>	<b>190</b>	<b>240</b>	<b>133</b>	<b>138</b>
<b>ENCINAL, NUECES (L)</b>							
MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION [LA SALLE]	58	72	86	107	58	63
		<b>58</b>	<b>72</b>	<b>86</b>	<b>107</b>	<b>58</b>	<b>63</b>
<b>MINING, LA SALLE, NUECES (L)</b>							
MINING WATER CONSERVATION	DEMAND REDUCTION [LA SALLE]	0	0	0	0	0	0

	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Sum of Projected Water Management Strategies (acre-feet)</b>	<b>718</b>	<b>914</b>	<b>1,229</b>	<b>1,642</b>	<b>1,091</b>	<b>1,245</b>

## ZAVALA COUNTY

WUG, Basin (RWPG)

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
<b>COUNTY-OTHER, ZAVALA, NUECES (L)</b>							
MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION [ZAVALA]	10	23	37	55	75	98
		<b>10</b>	<b>23</b>	<b>37</b>	<b>55</b>	<b>75</b>	<b>98</b>
<b>CRYSTAL CITY, NUECES (L)</b>							
MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION [ZAVALA]	60	197	354	497	573	654
		<b>60</b>	<b>197</b>	<b>354</b>	<b>497</b>	<b>573</b>	<b>654</b>
<b>IRRIGATION, ZAVALA, NUECES (L)</b>							
IRRIGATION WATER CONSERVATION	DEMAND REDUCTION [ZAVALA]	0	0	0	0	0	0
		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>ZAVALA COUNTY WCID #1, NUECES (L)</b>							
MUNICIPAL WATER CONSERVATION (RURAL)	DEMAND REDUCTION [ZAVALA]	24	68	113	168	224	282
		<b>24</b>	<b>68</b>	<b>113</b>	<b>168</b>	<b>224</b>	<b>282</b>
<b>Sum of Projected Water Management Strategies (acre-feet)</b>		<b>94</b>	<b>288</b>	<b>504</b>	<b>720</b>	<b>872</b>	<b>1,034</b>

## VI. Management of Groundwater Resources / Actions, Procedures, Performance and Avoidance Necessary to Effectuate the Plan

The Texas Legislature has established that GCDs are the state's preferred method of groundwater management. The Texas Legislature codified this policy decision in Section 36.0015 of the Texas Water Code, which establishes that districts will manage groundwater resources through rules developed and implemented in accordance with Chapter 36 of the Texas Water Code. Chapter 36 gives districts the tools to protect and manage the groundwater resources within their boundaries. The District will use the regulatory rules provided by Chapter 36 and the Texas Legislature to manage the groundwater resources within its boundaries.

The District will manage the groundwater supply within the District's boundaries 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 groundwater monitoring well observation network has been established to be maintained by the District in order to monitor changing storage conditions of groundwater supplies 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, if necessary, undertake and cooperate with investigations of the groundwater resources within the District and will make the results of the investigation available to the public upon adoption by the Board.

The District has adopted rules to regulate groundwater withdrawals by means of spacing and production limits: <https://wgcd.net/wp-content/uploads/2020/05/Rules.pdf> (the “District Rules”). The District may deny a well permit or limit groundwater withdrawals in accordance with the guidelines stated in the District Rules. In addition, the District will monitor water levels and selected observation wells and evaluate whether the annual average change in water levels is in conformance with the DFCs adopted by GMA-13 for each aquifer.

The District will estimate the total annual groundwater production for each aquifer based on water use reports, estimated exempt use, and other relevant information, and compare those production estimates to the MAGs. In order to achieve the DFCs, the District will base permitting decisions on the amount of existing water permitted, the amount of existing water being produced, and the condition of the aquifer (average water level drawdown) at the time a permit application is filed.

The District may deny or limit groundwater withdrawals following the District Rules and this Management Plan. In determining whether to issue a permit other than a groundwater withdrawal, the District will consider the public benefit against individual hardship after considering all relevant evidence, appropriate testimony, and all other relevant factors.

Water conservation has become an important and effective initiative throughout the state of Texas. It is recognized that freshwater is a valued commodity that can only be sustained through preservation. The District may require a conservation plan as a condition to permitting to wells to ensure that the groundwater produced is put to a beneficial use and not wasted. The District will work with water utilities, industry (including the oil and gas sector), and agricultural users to promote the most efficient use of water so that the District may preserve this valuable resource. The District will explore other conservation methods and options and will adopt new requirements as they become appropriate.

The District will seek the cooperation and implementation of this Management 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 water management entities.

Periodic drought is a condition that plagues the District. The Board of Directors (the “Board”) of the District is very concerned that water might not be available for the needs of its citizens during times of drought. The General Manager of the District will update the Board at every monthly meeting on drought conditions in the District. The General Manager will report the Palmer Drought Severity Index to the Board during the Manager’s report for the month. The Board will instruct the General Manager of the appropriate actions to be taken upon notification of moderate to severe drought. The possible actions to be taken may include public service announcements on the radio, newspaper articles on conditions of the aquifer, water conservation information, and/or notices to municipal suppliers to implement their drought plan.

A well-informed public is vital to the proper operation of a GCD. The District will keep the citizens of the District informed by means of a website, timely newspaper articles and/or public service radio announcements. As part of the public information program, the General Manager may make presentations to public gatherings, as requested, in order to keep the citizens informed about District activities and promote proper use of available groundwater.

Abandoned oil wells and injection wells for oil and gas waste pose a threat to the aquifers of the District. District personnel will monitor oilfield activities and notify the public that they may report abandoned oil wells and other problems associated with oil production to the District. In addition, the District will review all applications filed with the Railroad Commission of Texas (“RRC”) for injection wells for oil and gas waste proposed to be located within the District. The District will participate in RRC proceedings regarding those applications as necessary to protect the groundwater resources of the District.

**VII. Methodology the District Will Use to Track Progress on an Annual Basis in Achieving All Management Goals**

The District General Manager will prepare an annual report on District performances in achieving the management goals. The annual report will be presented to the Board during the first quarter of each calendar year. The report will discuss each applicable management objective and the associated performance standards so that the effectiveness and efficiency of the activities applied towards the management objective may be evaluated. The annual report will be maintained on file at the District office and made available to the public upon adoption by the Board.

**VIII. Goals and Objectives**

***Goal 1.0 Providing the Most Efficient Use of Groundwater***

*Management Objective:* The District will continue monitoring and recording data from the seven (7) Carrizo Aquifer continuous well water level recorders. A large decrease in water levels could indicate unsustainable mining of groundwater.

*Performance Standard:* The District will assimilate data from the continuous well water level recorders and present the information to the Board monthly.

***Goal 2.0 Controlling and Preventing Waste of Groundwater***

*Management Objective:* The District will, on at least two (2) occasions each year, provide public information on water conservation and waste prevention through public speaking appearances at public schools or civic organizations or through newspaper articles.

*Performance Standard:*

- A. The number of speaking appearances made by the District each year.
- B. The number of newspaper articles published by the District each year.

*Management Objective:* The District will identify well owners that are not in compliance with District well registration, reporting, and fee payment requirements and bring them into compliance.

*Performance Standard:* The District will compare existing state records and field staff observations with well registration database to identify noncompliant well owners and make a report to the Board of Directors listing identified violations.

*Management Objective:* The District will investigate instances of potential waste of groundwater within 72 hours of receiving complaints.

*Performance Standard:* District staff will report to the Board of Directors as needed regarding potential waste of groundwater and include the number of investigations in its annual report.

### ***Goal 3.0 Controlling and Preventing Subsidence***

Based on a review of the “Identification of the Vulnerability of the Major and Minor aquifers of Texas to Subsidence with regard to Groundwater Pumping – TWDB Contract Number 1648302062, by LRW Water,” including Section 4.2.1 of that report, the Board has determined this management goal is not applicable to the District because subsidence is not a problem identified in the District or region. As noted in figures 4.7, 4.122, 4.136 and 4.151 of the LRW Water report, the risk vulnerability for the aquifers in the District is generally characterized as “low”. The Board commits to monitoring for any indications of subsidence by recording and investigating all reports of potential subsidence brought to the attention of the Board.

### ***Goal 4.0 Addressing Conjunctive Surface Water Management Issues***

*Management Objective:* The District will confer with the Nueces River Authority at least once each year to discuss cooperative opportunities for conjunctive resource management.

*Performance Standard:* The number of conferences on conjunctive resource management opportunities held with Nueces River Authority each year.

*Management Objective:* The designated board member or General Manager will attend, at a minimum, 75 percent of the meetings and events of the Region C Water Planning Group.

*Performance Standard:* The designated board member or General Manager will report on actions of the Region C Water Planning Group as appropriate to the Board, and the General Manager will document meetings attended in the Annual Report.

### ***Goal 5.0 Addressing Natural Resource Issues that Impact the Use and Availability of Groundwater***

*Management Objective:* Each year the District will ensure that all new wells permitted for construction within the District and exempt wells that are registered comply with the District construction standards through monitoring of the state of Texas water well report required to be provided to the District by water well drillers.

Performance Standard: The number of newly permitted water wells within the District monitored for compliance will be reported to the Board annually.

Management Objective: The District will review all applications filed with the RRC for oil and gas waste disposal or recycling within the District. The District will participate in RRC proceedings regarding those applications as necessary to protect the groundwater resources of the District.

Performance Standard: Annual Report and monthly updates to the Board summarizing the District's protests of RRC oil and gas waste disposal or recycling applications.

Management Objective: The District will undertake a review of areas in the District identified with elevated TDS and other contaminants in groundwater and will assess the potential source of the elevated contaminants in those areas.

Performance Standard: Report the results of the review to the Board in 2021 for evaluation and consideration of further action.

#### **Goal 6.0 Addressing Water Conservation**

Management Objective: The District will promote water conservation by promoting water stewardship by raising public awareness of the necessity and importance of water conservation. The District will, on at least two (2) occasions each year, provide public information on water conservation and waste prevention through public speaking appearances at public schools or civic organizations or through newspaper articles.

Performance Standard: Annual Report to the Board indicating the number of individuals or schools addressed.

Performance Standard: The number of newspaper articles published encouraging water conservation.

#### **Goal 7.0 Addressing Recharge Enhancement**

Management Objective: The District will monitor existing recharge structure and evaluate how natural or artificial recharge may be increased for the groundwater resources within the District via the existing structure and/or new sites.

Performance Standard: The number of recharge sites monitored will be at least one (1) site annually.

Performance Standard: The number of acre feet of captured rainwater in the recharge pit will be documented and reported to the Board annually.

### ***Goal 8.0 Addressing Precipitation Enhancement***

The Board determined that precipitation enhancement is not cost effective and is not appropriate for the District at this time.

### ***Goal 9.0 Addressing Brush Control***

Management Objective: Recharge Enhancement and Conservation Project with landowners, along with guidance from local Natural Resource Conservation Service and chemical companies, will sponsor, in part, with the landowners' operations to control brush and provide conservation and recharge. The acceptable methods of brush control are aerial spraying, root plowing, root plowing and raking, roller chopping, and rhome disc.

Performance Standard: The District will verify that controls for each project have been followed and report to the Board, on a monthly basis, on accomplishment of each project, cost-to-date per county and other relevant factors.

Performance Standard: A District representative will attend two District 3 Texas Soil and Water Conservation Board (SWCB) meetings per year where brush control and water supply enhancement is discussed, and will create a report for presentation to the Board.

### ***Goal 10.0 Rainwater Harvesting***

Management Objective: The District, in conjunction with other entities, will sponsor, in part, with the entity a rainwater harvesting system for their use, public observation, and education.

Performance Standard: The District will determine the volume of rainwater captured per year and include this information in the annual report to the Board of Directors.

### ***Goal 11.0 Addressing Drought Conditions***

Management Objective: Each month the District will download the Palmer Drought Severity Index map by accessing the National Weather Service - Climate Prediction Center website [http://www.cpc.ncep.noaa.gov/products/monitoring\\_and\\_data/drought.shtml](http://www.cpc.ncep.noaa.gov/products/monitoring_and_data/drought.shtml). The District will check for updates on the TWDB web page <http://waterdatafortexas.org/drought/>.

Performance Standard: The District will assess the status of drought in the District and prepare a briefing with maps and situation reports for the Board. Monthly downloads will be filed for future use.

### ***Goal 12.0 Addressing the Desired Future Conditions***

Management Objective: The District will annually compile well monitoring data from seven (7) wells within the District, and it will determine seven (7) year water well averages for the Carrizo/Wilcox Aquifer based on this data.



Performance Standard: The District's Annual Report will include a discussion of the newly permitted wells along with water level data as it relates to the fifty (50) year desired future conditions.

## References

1. Bulletin 6003 Geology and Ground-Water Resources of Dimmit County; Texas Board of Water Engineers; June 1960
2. Bulletin 6520 Ground-Water Resources of La Salle and Mc Mullen Counties, Texas; Texas Water Commission, August 1965
3. Geology and Ground-Water Resources of the Winter Garden District Texas 1948; Geologic Survey Water-Supply Paper 1481; U.S. Department of the Interior
4. GAM Run 17-027 MAG: Modeled Available Groundwater for the Carrizo-Wilcox, Queen City, Sparta, and Yegua-Jackson Aquifers in Groundwater Management Area 13” dated October 27, 2017
5. GAM Run 20-004: Wintergarden Groundwater Conservation District Management Plan” dated September 30, 2020 Estimated Historical Water Use and 2017 State Water Plan Datasets: Wintergarden Groundwater Conservation District” dated January 7, 2021

**Appendix A**  
**House Bill 3602**

## **Appendix B**

### **Map of Boundaries of Wintergarden Groundwater Conservation District**

## **Appendix C**

### **Public Notices Related to Adoption of the Management Plan**

**Appendix D**

**Certified Copy of the Board Resolution Adopting the Management Plan**

## **Appendix E**

### **Correspondence to Surface Water Management Entities**

## **Appendix F**

**GAM Run 17-027 MAG: Modeled Available Groundwater for the  
Carrizo-Wilcox, Queen City, Sparta, and Yegua-Jackson Aquifers in Groundwater  
Management Area 13 dated October 27, 2017**



## **Appendix G**

### **Estimated Historical Water Use and 2017 State Water Plan Datasets: Wintergarden Groundwater Conservation District dated January 7, 2021**

**Appendix H**

**GAM Run 20-004: Wintergarden Groundwater Conservation District Management Plan  
dated September 30, 2020**