APPENDIX B
GMA 12 Desired Future Conditions
April 15, 2016

Sparta, Queen City, Carrizo, Calvert Bluff, Simsboro, Hooper Aquifers

GMA 12 member Groundwater Conservation Districts (GCDs) submitted Desired Future Conditions (DFCs) as average drawdowns that occur between January 2000 and December 2069. Table B-1 lists the set of initially proposed DFCs submitted by GMA 12 for the Sparta, Queen City, Carrizo, Calvert Bluff, Simsboro and Hooper aquifers. Fayette County did not submit a DFC for the Calvert Bluff, Simsboro and Hooper units for the Wilcox Aquifer because the district has declared the Wilcox Aquifer as a non-relevant aquifer.

Table B-1. Adopted Desired Future Condition for GMA 12

Groundwater Conservation District or County	Average Aquifer Drawdown (ft) Measured from January 2000 thru December 2069					
	SPARTA	QUEEN CITY	CARRIZO	CALVERT BLUFF	SIMSBORO	HOOPER
BRAZOS VALLEY	12	12	61	125	295	207
FAYETTE COUNTY	47	64	110	-	-	-
LOST PINES	5	15	62	100	240	165
MID-EAST TEXAS	5	2	80	90	138	125
POST OAK SAVANNAH	28	30	67	149	318	205
FALLS COUNTY	-	-	-	-	-2	27
LIMESTONE COUNTY	-	-	-	11	50	50
NAVARRO COUNTY	-	-	-	-1	3	3
WILLIAMSON COUNTY				-11	47	69
GMA 12	16	16	75	114	228	168

Based on the principle of using the GAM as a joint planning tool and the fact that the GAM predictions contain uncertainty, GMA 12 considered the DFCs to be compatible and physically possible if the difference between modeled drawdown results and the DFC drawdown targets are within a 10 percent range for all aquifers in the Queen City-Sparta/Carrizo-Wilcox GAM with the exception of the Simsboro, which would be held within 5 percent variance of the GAM simulation. Factors considered for determining tolerance criteria include:

- model calibration results and statistics,
- information used to calibrate the GAM,
- aquifer and recharge information collected since the GAM was developed,
- sensitivity of the GAM calibration and GAM predictions to change in the model parameters, and
- range of uncertainty in the model parameters including historical and future pumping, and temporal variation in recharge distribution and magnitude.

Reference:

Kelley, V.A., Deeds, N.E., Fryar, D.G., and Nicot, J.P., 2004. Groundwater Availability Models for the Queen City and Sparta Aquifers, prepared for the Texas Water Development Board, Austin, Texas.

Yegua-Jackson Aquifer

GMA 12 adopted DFCs for its member districts based on the average aquifer drawdown (ft) from January 2010 to January 2070. All GCDs, except Brazos Valley GCD, considered the Jackson Aquifer and the Yegua Aquifer as a single unit. Therefore, a single DFC was adopted for the Yegua-Jackson Aquifer. Table B-2 lists the final set of DFCs submitted by each district. Lost Pines GCD did not submit a DFC for the Yegua-Jackson Aquifer because the district declared it as a non-relevant aquifer.

Table B-2. Adopted Desired Future Conditions for GMA 12 for the Yegua and Jackson Aquifers

DISTRICT	AQUIFER(S)	TIME PERIOD	AQUIFER AVERAGE DRAWDOWN (FT)
BRAZOS VALLEY	Yegua	2010 to 2070	70
	Jackson		114
FAYETTE COUNTY	Yegua-Jackson	2010 to 2070	77
LOST PINES	Yegua-Jackson	-	declared as non-relevant
MID-EAST TEXAS	Yegua-Jackson	2010 to 2070	15
POST OAK SAVANNAH	Yegua-Jackson	2010 to 2070	100
GMA 12	Yegua-Jackson	2010 to 2070	65

Reference:

Deeds, N. E., Yan, T., Singh, A., Jones, T. L., Kelley, V. A., Knox, P. R., and Young, S. C., 2010, Groundwater Availability Model for the Yegua-Jackson Aquifer, final report prepared for the Texas Water Development Board, March, 2010, 582 pp.

Brazos Alluvium Aquifer

In GMA 12, the Brazos River Alluvium is present within two GCDs in GMA 12: the Post Oak Savannah GCD and the Brazos Valley GCD. GMA 12 adopted DFCs for Post Oak Savannah GCD and the Brazos Valley GCD as listed in Table B-3.

Table B-3. Adopted Desired Future Conditions for GMA 12 for the Brazos Alluvium Aquifer in POSGCD and BVGCD

County	DFC Statement
Milam County	A decrease of 5 feet in the average saturated thickness over the period from 2010 to 2070. The baseline average saturated thickness for 2010 is estimated at 24.5 feet and is based on an analysis of historical water level data and well depth values
Burleson County	A decrease of 6 feet in the average saturated thickness over the period from 2010 to 2070. The baseline average saturated thickness for 2010 is estimated at 38.5 feet and is based on an analysis of historical water level data and well depth values.
Brazos and Robertson Counties	Percent saturation above well depth shall average at least 30 percent for wells located north of State Highway 21 and 40 percent for wells located south of State Highway 21. If the percent saturation criteria are reached for three consecutive years then the DFC would be reached.