

## City of Diboll Changes to 2006 Water Plan

Page 3-15: Increase total for Yegua in Angelina County to 6,472 per amendment.

Chapt. 4B, pg 4B-14: Revise Strategies from Yegua to show the 1612 increase proposed by Diboll.

Chapt 4C,

pg 4C-5: Revise schedule for implementation of 1612 ac. ft. from Yegua.

pg 4C-6: Revise schedule to reflect slight modification in numbers to match 1612 ac. ft.

Appendix B contains a more detailed discussion of the methodology used to determine ground-water availability.

Baker, E.T., Jr., 1986. Hydrology of the Jasper Aquifer in the Southeast Texas Coastal Plain. TWDB Report 295

**Table 3.5**  
**Available Groundwater by Aquifer**  
(values in acre-feet per year)

	Total Supply Available to Region I					
County	Yegua	Queen city	Sparta	Carizzo	Gulf Coast	Other
Northern Region						
Anderson		18,320	600	9,830		280
Angelina	6,472	1,060	670	28,330		1,450
Cherokee		21,850	350	10,870		
Henderson (P)		14,870		4,200		
Houston	1,380	400	870	5,220		1,380
Nacogdoches	60	4,860	400	31,140		80
Panola				10,370		
Rusk		4,250		20,290		
Sabine	1,100		290	6,710	1,100	200
San Augustine	540		200	1,690		60
Shelby				12,750		
Smith (P)		17,280		18,400		80
Trinity (P)	740		600		100	280
Southern Region						
Hardin					23,500	
Jasper					52,000	6,000
Jefferson					2,500	
Newton					29,000	1,500
Orange					20,000	
Polk (P)	360				13,500	1,450
Tyler	180				30,300	1,620
<b>TOTAL</b>	<b>9,220</b>	<b>82,890</b>	<b>3,980</b>	<b>159,800</b>	<b>172,000</b>	<b>14,380</b>

Note: The above values are total supply available to meet both existing and projected demands and are available for each decade of the 50 year planning cycle.

## Water Management Strategies Utilizing Queen City

<i>Entity</i>	Projected Additional Groundwater Demands, Acre-Feet					
	2010	2020	2030	2040	2050	2060
<b>Anderson County</b>						
						41
<i>County-Other</i>						
	40	40	40	40	40	40
<i>Irrigation</i>						40
<i>Mining</i>						
	50	150	200	300	400	500
<i>County-Other</i>						
	40	40	80	120	162	162
<i>Irrigation</i>	47	141	188	235	282	329
<i>Mining</i>						

## Water Management Strategies Yegua-Jackson

<i>Entity</i>	Projected Additional Groundwater Demands, Acre-Feet					
	2010	2020	2030	2040	2050	2060
<b>Angelina County</b>						
	646	1612	1612	1612	1612	1612
<b>Trinity County</b>						
				202	202	202
<i>County-Other</i>						

## Environmental Issues

Consideration was given to limiting supply availability to the amount of groundwater that could be withdrawn from the aquifers over the planning period that will not cause more than 50 feet of water level declines, or 10% reduction in saturated thickness whichever is less.

Water Management Options	Water Conservation
Implementation Measures	Local impact resulting from development of well fields, storage facilities, pump stations and pipelines.
Environmental Water Needs/Instream Flows	Potential increase in return flows to streams.
Bays and Estuaries	No substantial impact identified
Fish and Wildlife Habitat	No substantial impact identified
Cultural Resources	No substantial impact anticipated
Threatened and Endangered Species	No substantial impact identified.

Strategy	Yield (ac-ft/yr)	Total Capital Cost	Total Annualized Cost	Unit Cost (\$/ac-ft)	Unit Cost (\$/1000 gal)
ANC-1: Voluntary redistribution from City of Lufkin or LNVA (1)	1,143	\$0	\$907,500	\$794	\$2.44
ANC-2A: Increase Supply from Carrizo-Wilcox –	404	\$303,880	\$83,395	\$207	\$0.63
ANC-2B: Increase Supply from Carrizo-Wilcox –	807	\$607,760	\$166,789	\$207	\$0.63
Phase II					
TOTAL ANC-2	1,211	\$911,640			

(1) See Section 4C.21 , Wholesale Water Providers, City of Lufkin, for costs of strategies for City of Lufkin

## Diboll

Current supplies are from the Yegua-Jackson aquifer. Current pumpage from the Yegua-Jackson aquifer is approaching long-term aquifer capacity in Angelina County. Additional wells should only be developed by Diboll if other water suppliers abandon use of the Yegua-Jackson in favor of surface water supplies or wells in the Carrizo-Wilcox. The recommended strategy for meeting the need projected in 2060 is to purchase water from Lufkin and build a pipeline to Diboll.

Diboll	2010	2020	2030	2040	2050	2060
Supply(+)-Demand(-) (ac-ft/yr)	32	187	374	618	965	1,441
Alt. Strategy DI-1: Purchase water from Lufkin or LNVA	21	167	348	584	912	1,369
DI-2: Water Conservation	11	20	26	34	53	72
<b>Recommend.</b> Strategy DI:3A Increase Supply from Yegua-Jackson – Phase II	646	646	646	646	646	646
<b>Recommend</b> DI-3B: Increase Supply from <b>Manufacturing</b>		966	966	966	966	966



Strategy	Yield (ac-ft/yr)	Total Capital Cost	Total Annualized Cost	Unit Cost (\$/ac-ft)	Unit Cost (\$/1000 gal)
DI-1: Purchase water from Lufkin or LNVA	1,369	\$5,194,100	\$1,345,000	\$938	\$2.86
DI-2: Water Conservation	72		\$7,500	\$104	\$0.32
Alt. Strategy DI-3A: Increase Supply from Yegua-Jackson – Phase II	646	\$530,803	\$137,552	\$213	\$0.65
DI-3B: Increase Supply from Yegua – Jackson – Phase II	966	\$882,330	\$215,446	\$223	\$0.68
DI-3 Total	1,612	\$1,413,133			

### Four Way WSC

Current supplies are from the Yegua aquifer. The recommended strategy for meeting the need projected in 2060 is to obtain treated surface water from the City of Lufkin. The following table displays the projected future needs for this entity.

Four Way WSC	2010	2020	2030	2040	2050	2060
Supply(+)-Demand(-) (ac-ft/yr)	0	0	0	0	0	225
FW-1: Obtain water from Lufkin or LNVA	0	0	0	0	0	225

Strategy	Yield (ac-ft/yr)	Total Capital Cost	Total Annualized Cost	Unit Cost (\$/ac-ft)	Unit Cost (\$/1000 gal)
FW-1: Obtain water from Lufkin or LNVA	225	\$0	\$244,800	\$1,088	\$0.72

(1) See Section 4C.21 , Wholesale Water Providers, City of Lufkin, for costs of strategies for City of Lufkin

### Hudson

Current supplies are from the Carrizo-Wilcox aquifer. The recommended strategy for meeting the need projected in 2060 is to increase supply from the Carrizo-Wilcox aquifer. The following table displays the projected future needs for this entity.

Hudson	2010	2020	2030	2040	2050	2060
Supply(+)-Demand(-) (ac-ft/yr)	41	194	393	630	980	1,444
HU-1A: Increase Supply from Carrizo-Wilcox – Phase I	404	404	404	404	404	404
HU-1B: Increase Supply from Carrizo-Wilcox – Phase II				1049	1049	1049