GMA-12: Needs and Strategies

Presented By:
GMA 12 Consultant Team

June 25, 2015

TWC Section 36.108 (d)

Before voting on the proposed desired future conditions … the districts shall consider:

- Aquifer uses and conditions
- Needs and strategies
- Hydrologic conditions
- Environmental impacts
- Subsidence
- Socioeconomic impacts
- Private property rights
- Feasibility
- Anything else

Approach

- Obtained from TWDB 2012 State Water Plan Database
  - Supply – WUGSupply table
  - Demand – WUGNetDemand table
  - Surplus/Need – WUGNeedsSurplus table
  - Availability – SRCAvailability table
- Obtained from Water Management Strategy Table Provided by the TWDB[(a)]
  - Water Management Strategies
- Obtained from GCDs
  - Permit Data

(a) Spreadsheet 140306 SA DB12 WMS Data.xlsx obtained from Sabrina Anderson at the TWDB on April 18, 2014.

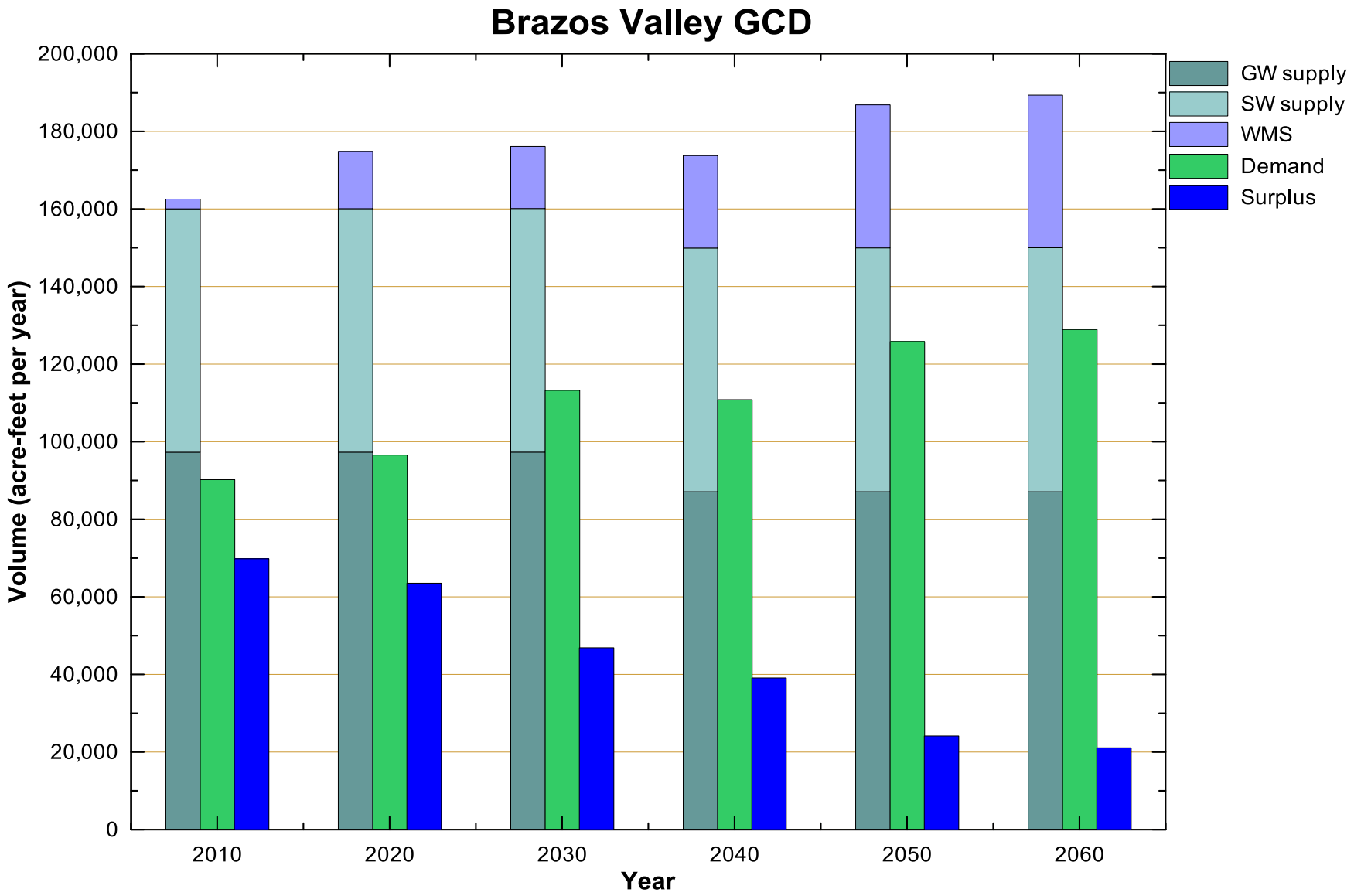
Approach

- Water Use Category Assignments
  - Used category consistent with WUG given in the 2012 SWP
    - Irrigation
    - Livestock
    - Manufacturing
    - Mining
    - Steam Electric Power
    - County-Other
  - Assigned category of Municipal
    - City WUGs
    - Water supply WUGs
- All values reported in acre-feet per year (AFY)

Definitions

- Supply
  - The amount of water that can be produced with current permits, current contracts, and existing infrastructure during drought
- Demand (Net)
  - Demand of the WUG during a drought after plumbing code savings are subtracted
- Surplus/Need
  - Difference between supply and demand
- Water Management Strategies
  - Water supply projects designed to meet needs for additional water supplies during drought
  - Some are associated with demand reduction or making supplies physically or legally available to users
- Availability
  - Maximum amount of water available during a drought, regardless of whether the supply is physically or legally available

Brazos Valley GCD - Supply/Demand/Surplus



Brazos Valley GCD – Supply/Demand/Surplus

	2010	2020	2030	2040	2050	2060
SUPPLY - Groundwater & Surface Water						
County-Other	2,228	2,228	2,228	2,228	2,228	2,228
Irrigation	38,044	38,085	38,128	38,170	38,212	38,254
Livestock	2,540	2,540	2,540	2,540	2,540	2,540
Manufacturing	17,360	17,360	17,360	17,360	17,360	17,360
Mining	10,341	10,341	10,341	119	118	117
Municipal	55,095	55,105	55,110	55,114	55,114	55,114
Steam Electric Power	34,420	34,412	34,404	34,396	34,387	34,379
Total Supply	*160,028*	*160,071*	*160,111*	*149,927*	*149,959*	*149,992*
DEMAND						
County-Other	1,375	1,289	1,202	1,126	1,035	1,006
Irrigation	22,759	22,286	21,525	20,791	20,085	19,403
Livestock	2,540	2,540	2,540	2,540	2,540	2,540
Manufacturing	401	466	530	596	656	712
Mining	10,327	10,328	10,329	108	108	107
Municipal	36,491	41,277	45,600	48,855	52,962	54,426
Steam Electric Power	16,315	18,370	31,507	36,815	48,421	50,712
Total Demand	*90,208*	*96,556*	*113,233*	*110,831*	*125,807*	*128,906*
SURPLUS/NEED						
County-Other	853	939	1,026	1,102	1,193	1,222
Irrigation	15,285	15,799	16,603	17,379	18,127	18,851
Livestock	0	0	0	0	0	0
Manufacturing	16,959	16,894	16,830	16,764	16,704	16,648
Mining	14	13	12	11	10	10
Municipal	18,604	13,828	9,510	6,259	2,152	688
Steam Electric Power	18,105	16,042	2,897	-2,419	-14,034	-16,333
Total Surplus/Need	*69,820*	*63,515*	*46,878*	*39,096*	*24,152*	*21,086*

Brazos Valley GCD - Supply/Demand/Surplus

Brazos Valley GCD	2010	2020	2030	2040	2050	2060
Groundwater Supply - All Categories						
BRAZOS RIVER ALLUVIUM AQUIFER	12,146	12,146	12,146	12,146	12,146	12,146
CARRIZO-WILCOX AQUIFER	78,476	78,486	78,491	68,273	68,272	68,271
QUEEN CITY AQUIFER	299	299	299	299	299	299
SPARTA AQUIFER	6,374	6,374	6,374	6,374	6,374	6,374
TRINITY AQUIFER	5	5	5	5	5	5
Groundwater Supply Total	*97,300*	*97,310*	*97,315*	*87,097*	*87,096*	*87,095*
Surface Water Supply - All Categories						
BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	43,870	43,885	43,901	43,916	43,931	43,946
BRAZOS RIVER COMBINED RUN-OF-RIVER IRRIGATION	13,482	13,523	13,566	13,608	13,650	13,692
BRAZOS RIVER COMBINED RUN-OF-RIVER MINING	9	9	9	9	9	9
BRAZOS RIVER COMBINED RUN-OF-RIVER STEAM ELECTRIC POWER	1	1	1	1	1	1
DANSBY POWER PLANT/BRYAN UTILITIES LAKE/RESERVOIR	85	85	85	85	85	85
LIVESTOCK LOCAL SUPPLY	2,540	2,540	2,540	2,540	2,540	2,540
TWIN OAK LAKE/RESERVOIR	2,741	2,718	2,694	2,671	2,647	2,624
Surface Water Supply Total	*62,728*	*62,761*	*62,796*	*62,830*	*62,863*	*62,897*
TOTAL SUPPLY - All Categories	160,028	160,071	160,111	149,927	149,959	149,992
TOTAL DEMAND - All Categories	90,208	96,556	113,233	110,831	125,807	128,906
TOTAL SURPLUS/NEED - All Categories	69,820	63,515	46,878	39,096	24,152	21,086

Brazos Valley GCD - Water Management Strategies

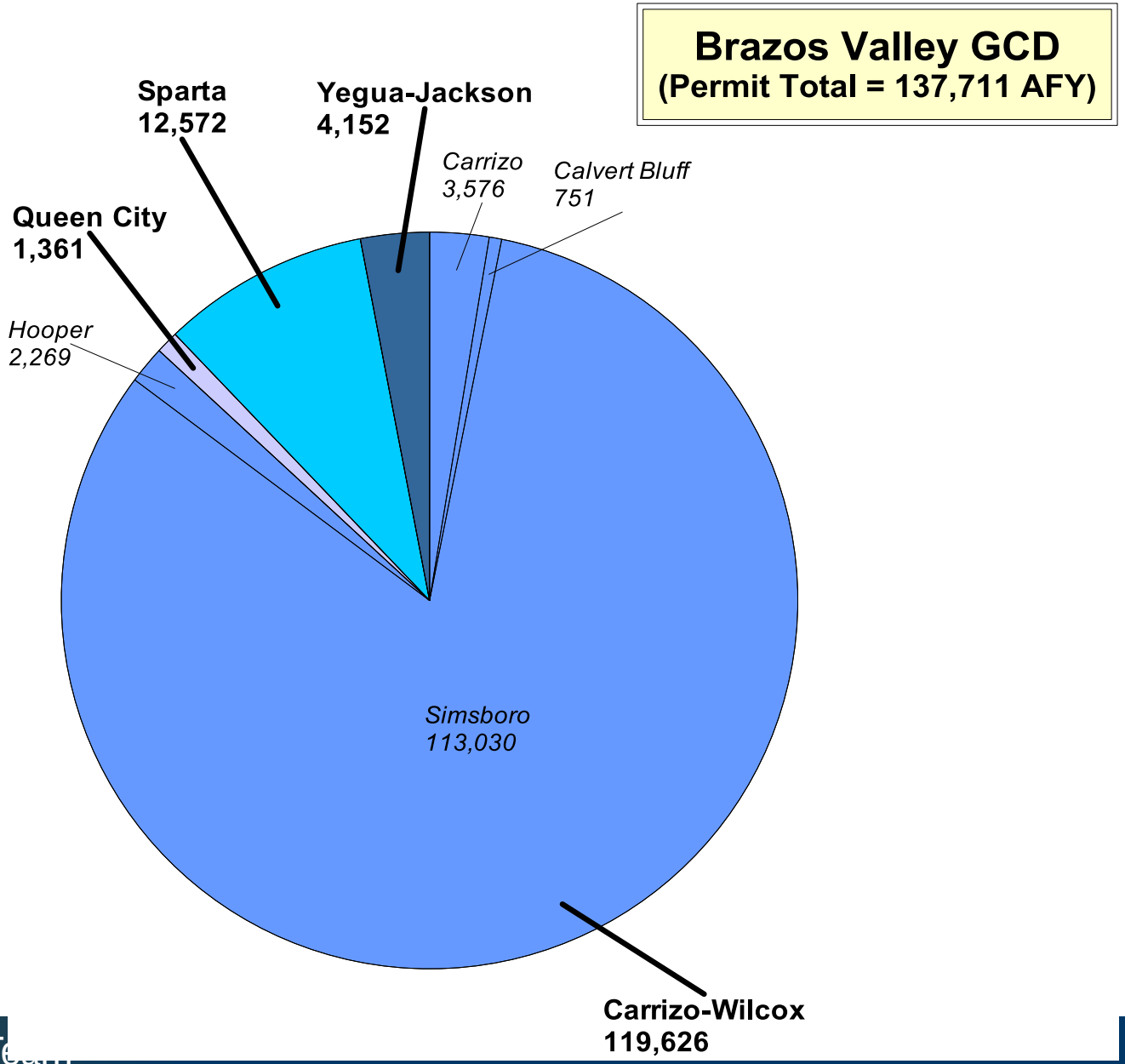
	2010	2020	2030	2040	2050	2060
Groundwater WMS - All Categories						
CARRIZO-WILCOX AQUIFER	1,500	1,500	1,500	4,500	4,500	4,500
Surface Water WMS - All Categories						
BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	0	0	0	2,500	2,500	2,500
Conservation WMS - All Categories						
CONSERVATION	1,019	2,272	3,498	3,723	4,639	4,954
Direct Reuse WMS - All Categories						
DIRECT REUSE	0	11,000	11,000	13,103	25,231	27,396
TOTAL WMS - All Categories	2,519	14,772	15,998	23,826	36,870	39,350
TOTAL SUPPLY + WMS - All Categories	162,547	174,843	176,109	173,753	186,829	189,342

	2010	2020	2030	2040	2050	2060
Water Management Strategy						
County-Other	-	-	-	-	-	-
Irrigation	-	-	-	-	-	-
Livestock	-	-	-	-	-	-
Manufacturing	-	-	-	-	-	-
Mining	-	-	-	-	-	-
Municipal	2,045	2,878	2,820	8,489	9,188	9,349
Steam Electric Power	*474*	*11,894*	*13,178*	*15,337*	*27,682*	*30,001*
Total WMS	*2,519*	*14,772*	*15,998*	*23,826*	*36,870*	*39,350*

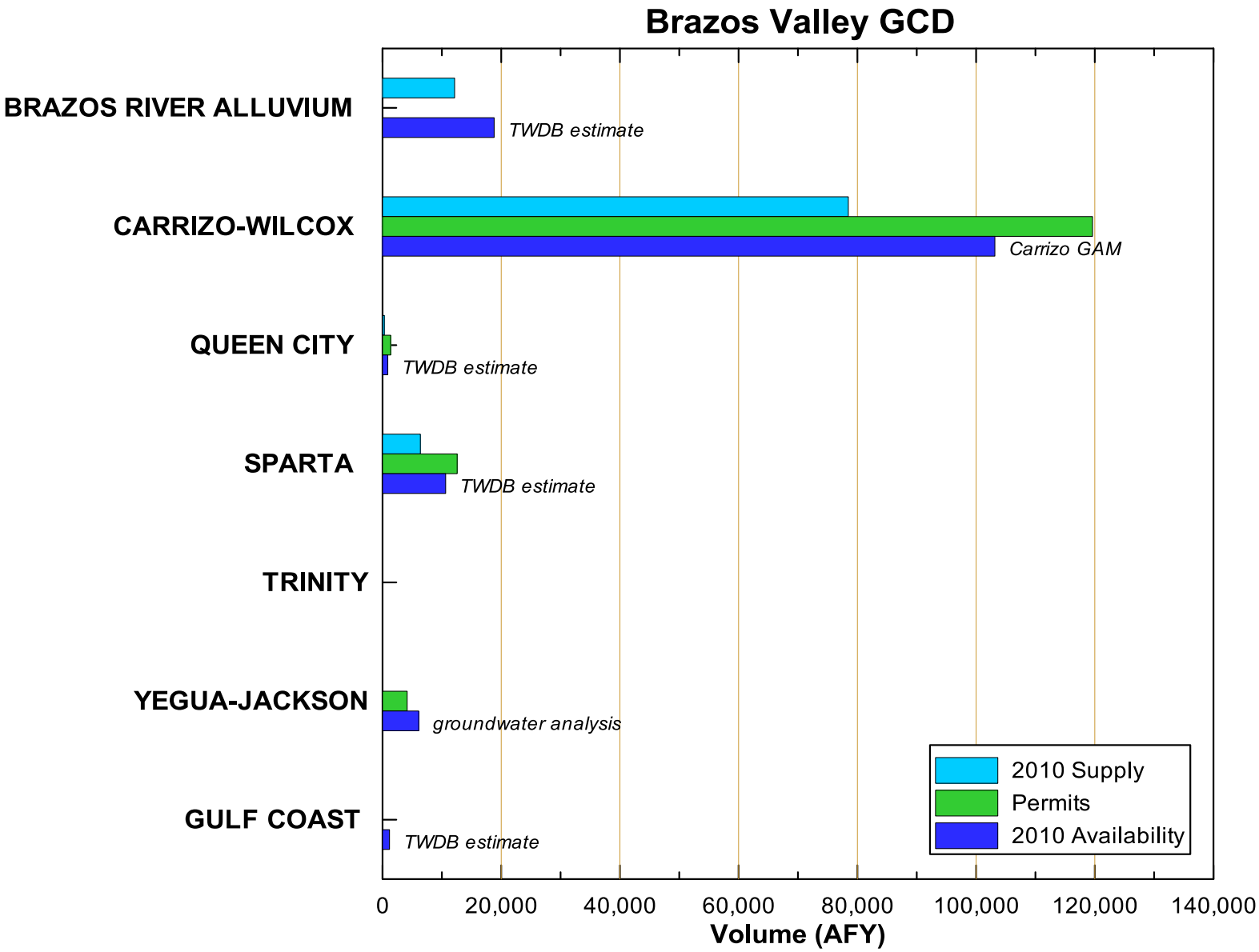
Brazos Valley GCD - Water Management Strategies

Sponsor Entity	Water Management Strategy	Type	Source County	Recipient County	2010	2020	2030	2040	2050	2060
BRYAN	MUNICIPAL WATER CONSERVATION	CONSERVATION	BRAZOS	BRAZOS	0	0	0	0	122	248
BRYAN	WASTEWATER REUSE	REUSE	BRAZOS	BRAZOS	0	0	0	0	605	605
COLLEGE STATION	MUNICIPAL WATER CONSERVATION	CONSERVATION	BRAZOS	BRAZOS	545	1,378	1,320	1,177	1,149	1,184
COLLEGE STATION	ADDITIONAL CARRIZO AQUIFER DEVELOPMENT (INCLUDES OVERDRAFTING)	GROUNDWATER	BRAZOS	BRAZOS	0	0	0	3,000	3,000	3,000
COLLEGE STATION	WASTEWATER REUSE	REUSE	BRAZOS	BRAZOS	0	0	0	312	312	312
STEAM ELECTRIC POWER, GRIMES	WASTEWATER REUSE	REUSE	BRAZOS	GRIMES	0	11,000	11,000	11,000	11,000	11,000
WICKSON CREEK SUD	PURCHASE WATER FROM CITY OF BRYAN	GROUNDWATER	BRAZOS	BRAZOS	900	900	900	900	900	900
WICKSON CREEK SUD	PURCHASE WATER FROM CITY OF BRYAN	GROUNDWATER	BRAZOS	GRIMES	600	600	600	600	600	600
COLLEGE STATION	BRA SYSTEM OPERATIONS PERMIT	SURFACE WATER	RESERVOIR	BRAZOS	0	0	0	2,500	2,500	2,500
STEAM ELECTRIC POWER, ROBERTSON	STEAM-ELECTRIC CONSERVATION	CONSERVATION	ROBERTSON	ROBERTSON	474	894	2,178	2,546	3,368	3,522
STEAM ELECTRIC POWER, ROBERTSON	WASTEWATER REUSE	REUSE	ROBERTSON	ROBERTSON	0	0	0	1,791	13,314	15,479
TOTAL					2,519	14,772	15,998	23,826	36,870	39,350

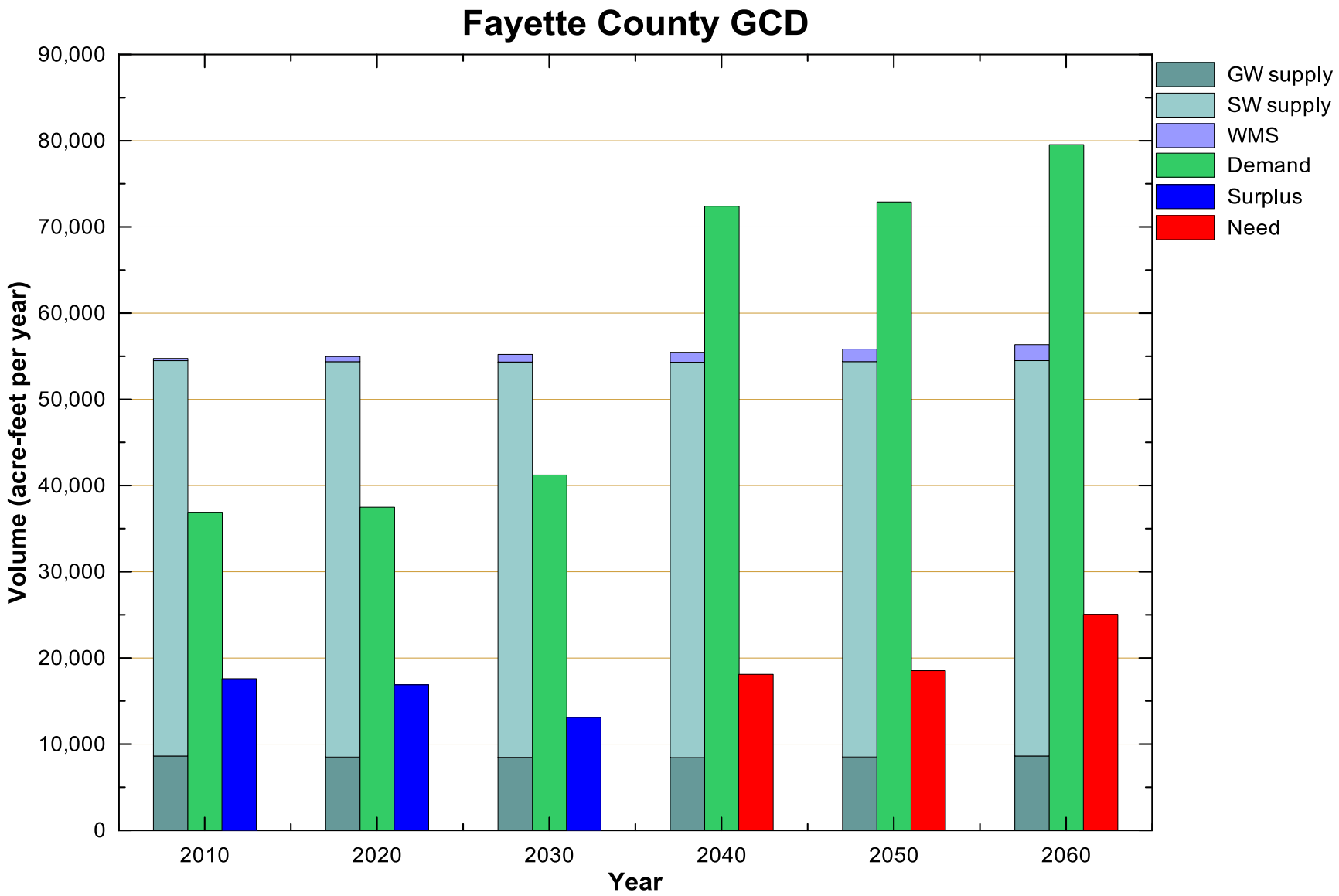
Brazos Valley GCD - Permits



Brazos Valley GCD - Supply & Permits



Fayette County GCD - Supply/Demand/ Surplus-Needs



Fayette County GCD - Supply/Demand/ Surplus-Needs

	2010	2020	2030	2040	2050	2060
SUPPLY - Groundwater & Surface Water						
County-Other	738	562	454	367	358	358
Irrigation	1,185	1,185	1,185	1,185	1,185	1,185
Livestock	3,663	3,663	3,663	3,663	3,663	3,663
Manufacturing	160	160	160	160	160	160
Mining	606	589	571	565	564	564
Municipal	5,267	5,340	5,429	5,498	5,577	5,690
Steam Electric Power	42,868	42,868	42,868	42,868	42,868	42,868
Total Supply	*54,487*	*54,367*	*54,330*	*54,306*	*54,375*	*54,488*
DEMAND						
County-Other	680	436	285	184	122	82
Irrigation	739	692	648	606	568	533
Livestock	2,397	2,397	2,397	2,397	2,397	2,397
Manufacturing	205	230	254	277	297	322
Mining	42	42	42	42	42	42
Municipal	3,210	3,981	4,594	5,060	5,629	6,413
Steam Electric Power	29,622	29,702	33,002	63,843	63,843	69,753
Total Demand	*36,895*	*37,480*	*41,222*	*72,409*	*72,898*	*79,542*
SURPLUS/NEED						
County-Other	58	126	169	183	236	276
Irrigation	446	493	537	579	617	652
Livestock	1,266	1,266	1,266	1,266	1,266	1,266
Manufacturing	-45	-70	-94	-117	-137	-162
Mining	564	547	529	523	522	522
Municipal	2,057	1,359	835	438	-52	-723
Steam Electric Power	13,246	13,166	9,866	-20,975	-20,975	-26,885
Total Surplus/Need	*17,592*	*16,887*	*13,108*	*-18,103*	*-18,523*	*-25,054*

Fayette County GCD - Supply/Demand/ Surplus-Needs

Fayette County GCD	2010	2020	2030	2040	2050	2060
Groundwater Supply - All Categories						
CARRIZO-WILCOX AQUIFER	380	453	542	611	690	803
GULF COAST AQUIFER	2,954	2,761	2,635	2,542	2,532	2,532
QUEEN CITY AQUIFER	1,059	1,059	1,059	1,059	1,059	1,059
SPARTA AQUIFER	3,869	3,869	3,869	3,869	3,869	3,869
YEGUA-JACKSON AQUIFER	359	359	359	359	359	359
Groundwater Supply Total	*8,621*	*8,501*	*8,464*	*8,440*	*8,509*	*8,622*
Surface Water Supply - All Categories						
COLORADO RIVER COMBINED RUN-OF-RIVER IRRIGATION	534	534	534	534	534	534
COLORADO RIVER RUN-OF-RIVER	1,267	1,267	1,267	1,267	1,267	1,267
HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	41,703	41,703	41,703	41,703	41,703	41,703
LIVESTOCK LOCAL SUPPLY	2,362	2,362	2,362	2,362	2,362	2,362
Surface Water Supply Total	*45,866*	*45,866*	*45,866*	*45,866*	*45,866*	*45,866*
TOTAL SUPPLY - All Categories	54,487	54,367	54,330	54,306	54,375	54,488
TOTAL DEMAND - All Categories	36,895	37,480	41,222	72,409	72,898	79,542
TOTAL SURPLUS/NEED - All Categories	17,592	16,887	13,108	-18,103	-18,523	-25,054

Fayette County GCD - Water Management Strategies

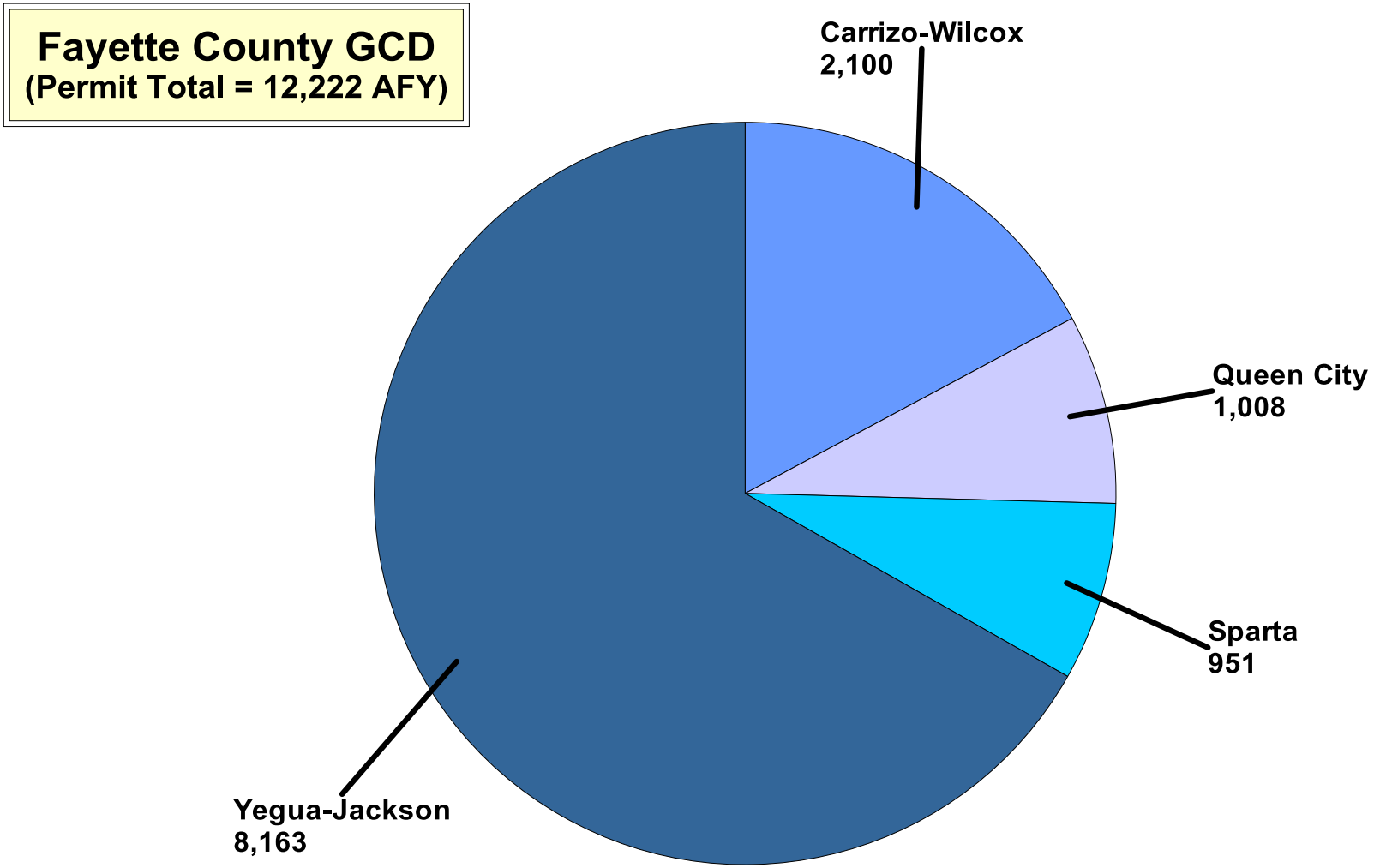
	2010	2020	2030	2040	2050	2060
Groundwater WMS - All Categories						
GULF COAST AQUIFER	0	261	495	553	588	632
SPARTA AQUIFER	188	208	129	129	129	129
YEGUA-JACKSON AQUIFER	0	0	0	0	0	9
OTHER AQUIFER	22	22	101	313	570	911
Conservation WMS - All Categories						
CONSERVATION	43	104	157	159	167	184
TOTAL WMS - All Categories	253	595	882	1,154	1,454	1,865
TOTAL SUPPLY + WMS - All Categories	54,740	54,962	55,212	55,460	55,829	56,353

	2010	2020	2030	2040	2050	2060
Water Management Strategy						
County-Other	123	120	19	32	25	16
Irrigation	20	18	16	14	12	10
Livestock	22	22	22	22	22	22
Manufacturing	45	70	94	117	137	162
Mining	0	4	22	28	29	29
Municipal	43	361	709	941	1,229	1,626
Steam Electric Power	-	-	-	-	-	-
Total WMS	*253*	*595*	*882*	*1,154*	*1,454*	*1,865*

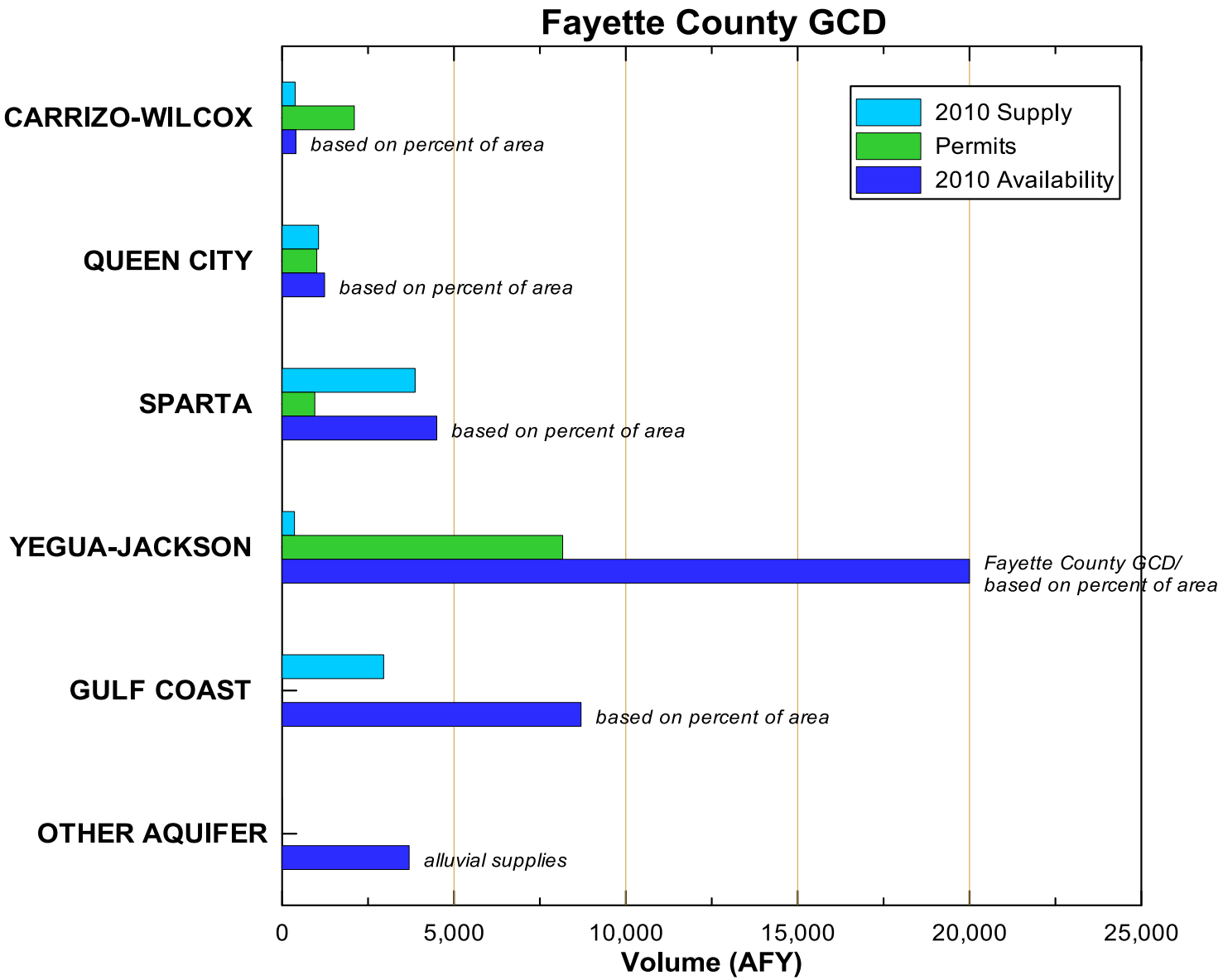
Fayette County GCD - Water Management Strategies

Sponsor Entity	Water Management Strategy	Type	Source County	Recipient County	2010	2020	2030	2040	2050	2060
COUNTY-OTHER, FAYETTE	EXPANSION OF GULF COAST AQUIFER - GULF COAST AQUIFER	GROUNDWATER	FAYETTE	FAYETTE	0	0	0	32	25	16
COUNTY-OTHER, FAYETTE	EXPANSION OF SPARTA AQUIFER - SPARTA AQUIFER	GROUNDWATER	FAYETTE	FAYETTE	123	120	19	0	0	0
FAYETTE WSC	DEVELOPMENT OF OTHER AQUIFER - OTHER AQUIFER	GROUNDWATER	FAYETTE	FAYETTE	0	0	79	291	548	889
FAYETTE WSC	EXPANSION OF GULF COAST AQUIFER - GULF COAST AQUIFER	GROUNDWATER	FAYETTE	FAYETTE	0	236	428	428	428	428
FAYETTE WSC	EXPANSION OF GULF COAST AQUIFER - GULF COAST AQUIFER	GROUNDWATER	FAYETTE	FAYETTE	0	21	45	63	86	116
IRRIGATION, FAYETTE	EXPANSION OF SPARTA AQUIFER - SPARTA AQUIFER	GROUNDWATER	FAYETTE	FAYETTE	20	18	16	14	12	10
LIVESTOCK, FAYETTE	DEVELOPMENT OF OTHER AQUIFER - OTHER AQUIFER	GROUNDWATER	FAYETTE	FAYETTE	22	22	22	22	22	22
MANUFACTURING, FAYETTE	EXPANSION OF GULF COAST AQUIFER - GULF COAST AQUIFER	GROUNDWATER	FAYETTE	FAYETTE	0	0	0	2	20	43
MANUFACTURING, FAYETTE	EXPANSION OF SPARTA AQUIFER - SPARTA AQUIFER	GROUNDWATER	FAYETTE	FAYETTE	45	70	94	115	117	119
MINING, FAYETTE	EXPANSION OF GULF COAST AQUIFER - GULF COAST AQUIFER	GROUNDWATER	FAYETTE	FAYETTE	0	4	22	28	29	29
SCHULENBURG	EXPANSION OF YEGUA-JACKSON AQUIFER - YEGUA-JACKSON AQUIFER	GROUNDWATER	FAYETTE	FAYETTE	0	0	0	0	0	9
SCHULENBURG	MUNICIPAL CONSERVATION - CONSERVATION	CONSERVATION	FAYETTE	FAYETTE	43	104	157	159	167	184
TOTAL					253	595	882	1,154	1,454	1,865

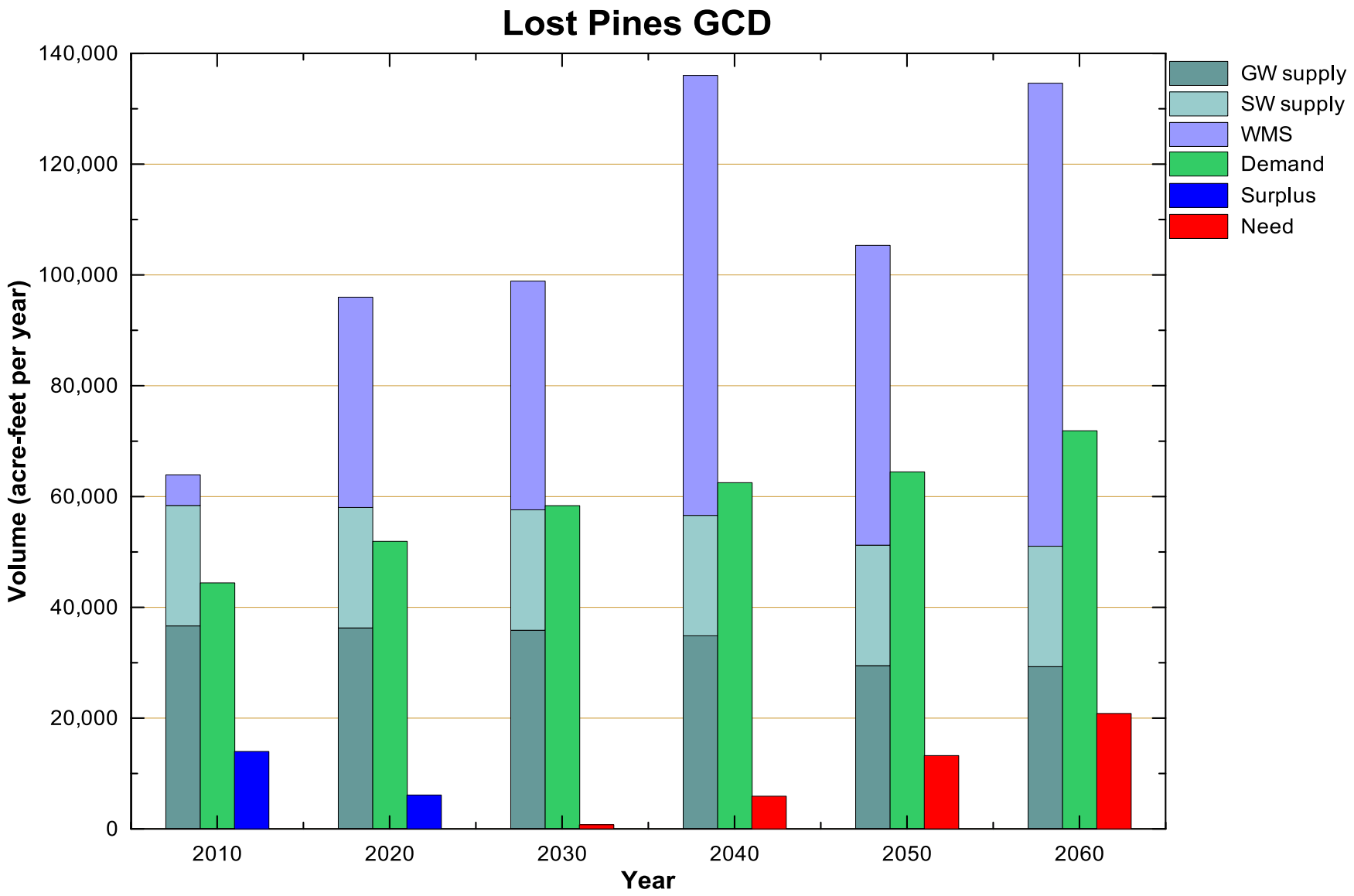
Fayette County GCD - Permits



Fayette County GCD - Supply/Permits/ Availability



Lost Pines GCD - Supply/Demand/Surplus-Needs



Lost Pines GCD - Supply/Demand/Surplus-Needs

	2010	2020	2030	2040	2050	2060
SUPPLY - Groundwater & Surface Water						
County-Other	3,775	3,590	3,315	3,131	3,143	3,143
Irrigation	2,571	2,571	2,571	2,571	2,571	2,571
Livestock	8,301	8,301	8,301	8,301	8,301	8,301
Manufacturing	104	112	120	130	141	141
Mining	6,275	6,273	6,272	5,570	134	135
Municipal	20,645	20,457	20,301	20,175	20,208	20,021
Steam Electric Power	16,720	16,720	16,720	16,720	16,720	16,720
Total Supply	*58,391*	*58,024*	*57,600*	*56,598*	*51,218*	*51,032*
DEMAND						
County-Other	2,850	3,843	4,769	6,184	7,341	8,766
Irrigation	2,550	2,323	2,117	1,939	1,776	1,632
Livestock	3,069	3,069	3,069	3,069	3,069	3,069
Manufacturing	105	125	145	166	186	201
Mining	10,483	10,485	10,486	5,487	51	52
Municipal	13,357	18,061	21,767	27,658	32,528	38,649
Steam Electric Power	12,000	14,000	16,000	18,000	19,500	19,500
Total Demand	*44,414*	*51,906*	*58,353*	*62,503*	*64,451*	*71,869*
SURPLUS/NEED						
County-Other	925	-253	-1,454	-3,053	-4,198	-5,623
Irrigation	21	248	454	632	795	939
Livestock	5,232	5,232	5,232	5,232	5,232	5,232
Manufacturing	-1	-13	-25	-36	-45	-60
Mining	-4,208	-4,212	-4,214	83	83	83
Municipal	7,288	2,396	-1,466	-7,483	-12,320	-18,628
Steam Electric Power	4,720	2,720	720	-1,280	-2,780	-2,780
Total Surplus/Need	*13,977*	*6,118*	*-753*	*-5,905*	*-13,233*	*-20,837*

Lost Pines GCD - Supply/Demand/Surplus-Needs

Lost Pines GCD	2010	2020	2030	2040	2050	2060
Groundwater Supply - All Categories						
CARRIZO-WILCOX AQUIFER	26,557	26,184	25,750	25,434	20,030	19,779
EDWARDS-BFZ AQUIFER	28	35	42	52	60	71
QUEEN CITY AQUIFER	2,395	2,395	2,395	2,186	2,185	2,186
SPARTA AQUIFER	5,500	5,500	5,500	5,007	5,007	5,007
YEGUA-JACKSON AQUIFER	198	198	198	198	198	198
OTHER AQUIFER	1,968	1,969	1,973	1,979	1,994	2,047
Groundwater Supply Total	*36,646*	*36,281*	*35,858*	*34,856*	*29,474*	*29,288*
Surface Water Supply - All Categories						
BRAZOS RIVER COMBINED RUN-OF-RIVER IRRIGATION	181	181	181	181	181	181
COLORADO RIVER COMBINED RUN-OF-RIVER IRRIGATION	750	750	750	750	750	750
HIGHLAND LAKES LAKE/RESERVOIR SYSTEM	18,354	18,354	18,354	18,354	18,354	18,354
LIVESTOCK LOCAL SUPPLY	2,402	2,402	2,402	2,402	2,402	2,402
OTHER LOCAL SUPPLY	58	56	55	55	57	57
Surface Water Supply Total	*21,745*	*21,743*	*21,742*	*21,742*	*21,744*	*21,744*
TOTAL SUPPLY - All Categories	58,391	58,024	57,600	56,598	51,218	51,032
TOTAL DEMAND - All Categories	44,414	51,906	58,353	62,503	64,451	71,869
TOTAL SURPLUS/NEED - All Categories	13,977	6,118	-753	-5,905	-13,233	-20,837

Lost Pines GCD - Water Management Strategies

	2010	2020	2030	2040	2050	2060
Groundwater WMS - All Categories						
CARRIZO-WILCOX AQUIFER	5,156	37,024	39,685	74,911	50,988	75,152
QUEEN CITY AQUIFER	119	50	40	24	31	597
OTHER AQUIFER	0	416	777	2,017	1,366	2,814
Conservation WMS - All Categories						
CONSERVATION	262	475	795	2465	1746	3572
Drought Management - All Categories						
DROUGHT MANAGEMENT	0	0	0	0	0	1,451
TOTAL WMS - All Categories	5,537	37,965	41,297	79,417	54,131	83,586
TOTAL SUPPLY + WMS - All Categories	63,928	95,989	98,897	136,015	105,349	134,618

	2010	2020	2030	2040	2050	2060
Water Management Strategy						
County-Other	0	1,649	2,968	4,618	5,861	7,362
Irrigation	119	50	40	31	24	17
Livestock						
Manufacturing	8	6,050	6,812	7,552	8,187	9,082
Mining	4,293	4,297	4,298	0	0	0
Municipal	1,117	25,919	27,179	41,930	65,345	67,125
Steam Electric Power	-	-	-	-	-	-
Total WMS	*5,537*	*37,965*	*41,297*	*54,131*	*79,417*	*83,586*

Lost Pines GCD - Water Management Strategies

Sponsor Entity	Water Management Strategy	Type	Source County	Recipient County	2010	2020	2030	2040	2050	2060
AQUA WSC	EXPANSION OF CARRIZO-WILCOX AQUIFER - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	BASTROP	0	0	602	3,709	6,109	7,850
AQUA WSC	ADDITIONAL MUNICIPAL CONSERVATION - CONSERVATION	CONSERVATION	BASTROP	BASTROP	0	0	0	122	396	908
AQUA WSC	DROUGHT MANAGEMENT - DROUGHT MANAGEMENT	DROUGHT MANAGEMENT	BASTROP	BASTROP	0	0	0	0	0	898
BASTROP	MUNICIPAL CONSERVATION - CONSERVATION	CONSERVATION	BASTROP	BASTROP	146	396	755	1,224	1,438	1,728
BASTROP	EXPANSION OF OTHER AQUIFER - OTHER AQUIFER	GROUNDWATER	BASTROP	BASTROP	0	416	777	1,366	2,017	2,814
BASTROP COUNTY WCID #2	EXPANSION OF CARRIZO-WILCOX AQUIFER - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	BASTROP	0	0	0	0	0	144
COUNTY-OTHER, BASTROP	EXPANSION OF CARRIZO-WILCOX AQUIFER - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	BASTROP	0	663	1,879	3,037	2,922	3,700
COUNTY-OTHER, BASTROP	DEVELOPMENT OF CARRIZO-WILCOX AQUIFER - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	BASTROP	0	0	0	0	975	1,230
COUNTY-OTHER, BASTROP	DEVELOPMENT OF CARRIZO-WILCOX AQUIFER - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	BASTROP	0	0	0	0	0	16
COUNTY-OTHER, BASTROP	ADDITIONAL MUNICIPAL CONSERVATION - CONSERVATION	CONSERVATION	BASTROP	BASTROP	0	0	0	400	631	936
ELGIN	MUNICIPAL CONSERVATION - CONSERVATION	CONSERVATION	BASTROP	BASTROP	91	79	40	0	0	0
ELGIN	EXPANSION OF CARRIZO-WILCOX AQUIFER - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	BASTROP	0	525	1,136	2,033	2,734	400
ELGIN	EXPANSION OF CARRIZO-WILCOX AQUIFER - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	TRAVIS	0	0	0	0	1	3
ELGIN	DROUGHT MANAGEMENT - DROUGHT MANAGEMENT	DROUGHT MANAGEMENT	BASTROP	BASTROP	0	0	0	0	0	265
GUADALUPE BLANCO RIVER AUTHORITY	GBRA SIMSBORO PROJECT (OVERDRAFT) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	COMAL	0	20,732	15,826	9,046	5,338	1,282
GUADALUPE BLANCO RIVER AUTHORITY	GBRA SIMSBORO PROJECT (OVERDRAFT) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	COMAL	0	10	17	23	30	37

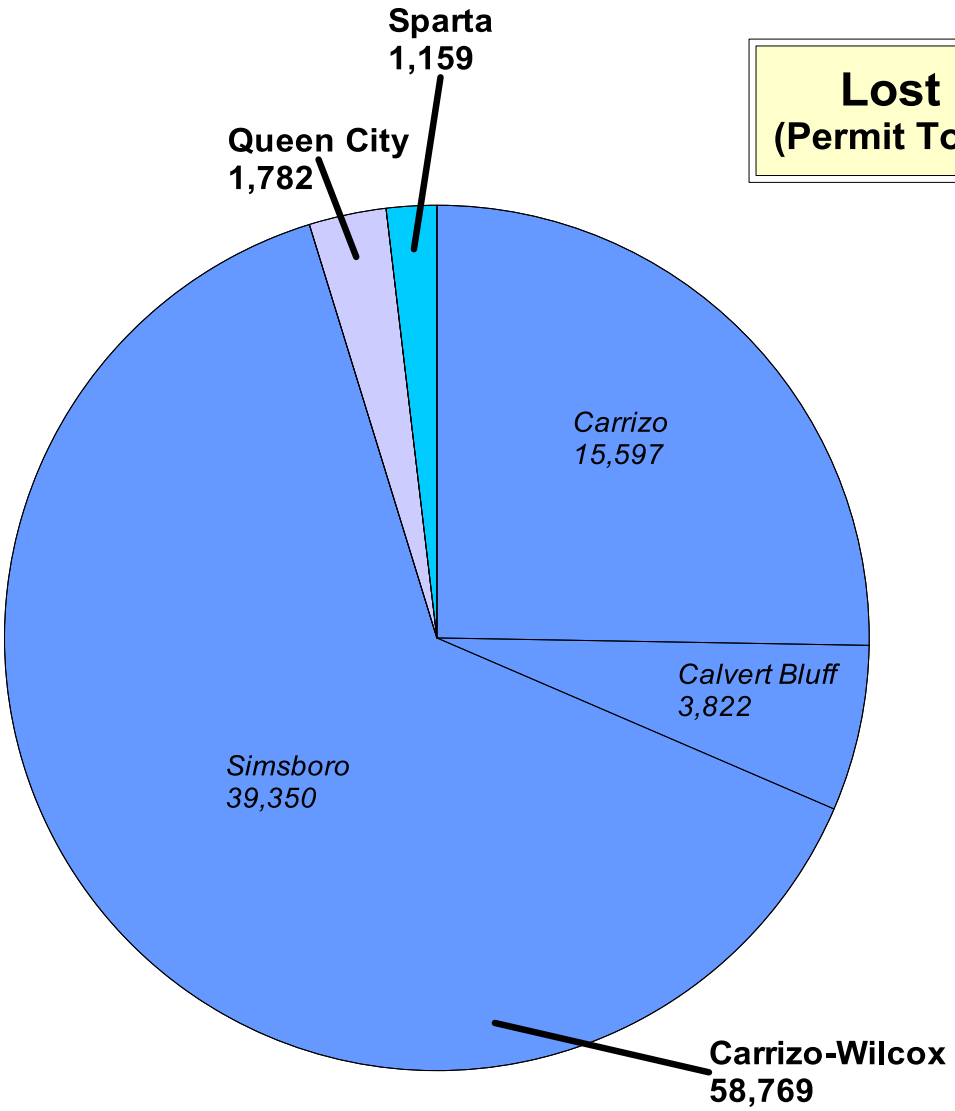
Lost Pines GCD - Water Management Strategies

Sponsor Entity	Water Management Strategy	Type	Source County	Recipient County	2010	2020	2030	2040	2050	2060
GUADALUPE BLANCO RIVER AUTHORITY	GBRA SIMSBORO PROJECT (OVERDRAFT) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	COMAL	0	1,332	2,111	2,887	3,693	4,558
GUADALUPE BLANCO RIVER AUTHORITY	GBRA SIMSBORO PROJECT (OVERDRAFT) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	COMAL	0	0	129	2,198	4,466	6,769
GUADALUPE BLANCO RIVER AUTHORITY	GBRA SIMSBORO PROJECT (OVERDRAFT) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	COMAL	0	986	1,089	1,181	1,181	1,181
GUADALUPE BLANCO RIVER AUTHORITY	GBRA SIMSBORO PROJECT (OVERDRAFT) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	COMAL	0	6,033	6,784	7,514	8,141	9,022
GUADALUPE BLANCO RIVER AUTHORITY	GBRA SIMSBORO PROJECT (OVERDRAFT) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	COMAL	0	780	3,660	6,511	6,511	6,511
GUADALUPE BLANCO RIVER AUTHORITY	GBRA SIMSBORO PROJECT (OVERDRAFT) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	GUADALUPE	0	127	384	640	640	640
IRRIGATION, BASTROP	EXPANSION OF QUEEN CITY AQUIFER - QUEEN CITY AQUIFER	GROUNDWATER	BASTROP	BASTROP	40	40	40	31	24	17
IRRIGATION, BASTROP	EXPANSION OF QUEEN CITY AQUIFER - QUEEN CITY AQUIFER	GROUNDWATER	BASTROP	BASTROP	58	0	0	0	0	0
IRRIGATION, BASTROP	TEMPORARY DROUGHT PERIOD USE OF QUEEN CITY AQUIFER - QUEEN CITY AQUIFER	GROUNDWATER	BASTROP	BASTROP	21	10	0	0	0	0
LOWER COLORADO RIVER AUTHORITY	AQUIFER STORAGE AND RECOVERY - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	TRAVIS	0	0	0	10,000	10,000	10,000
MANUFACTURING, BASTROP	EXPANSION OF CARRIZO-WILCOX AQUIFER - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	BASTROP	0	7	17	25	32	44
MANUFACTURING, BASTROP	EXPANSION OF CARRIZO-WILCOX AQUIFER - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	BASTROP	8	10	11	13	14	16
MINING, BASTROP	EXPANSION OF CARRIZO-WILCOX AQUIFER - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	BASTROP	4,293	4,297	4,298	0	0	0
POLONIA WSC	EXPANSION OF CARRIZO-WILCOX AQUIFER - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	BASTROP	0	2	7	16	23	30
SMITHVILLE	MUNICIPAL CONSERVATION - CONSERVATION	CONSERVATION	BASTROP	BASTROP	25	0	0	0	0	0

Lost Pines GCD - Water Management Strategies

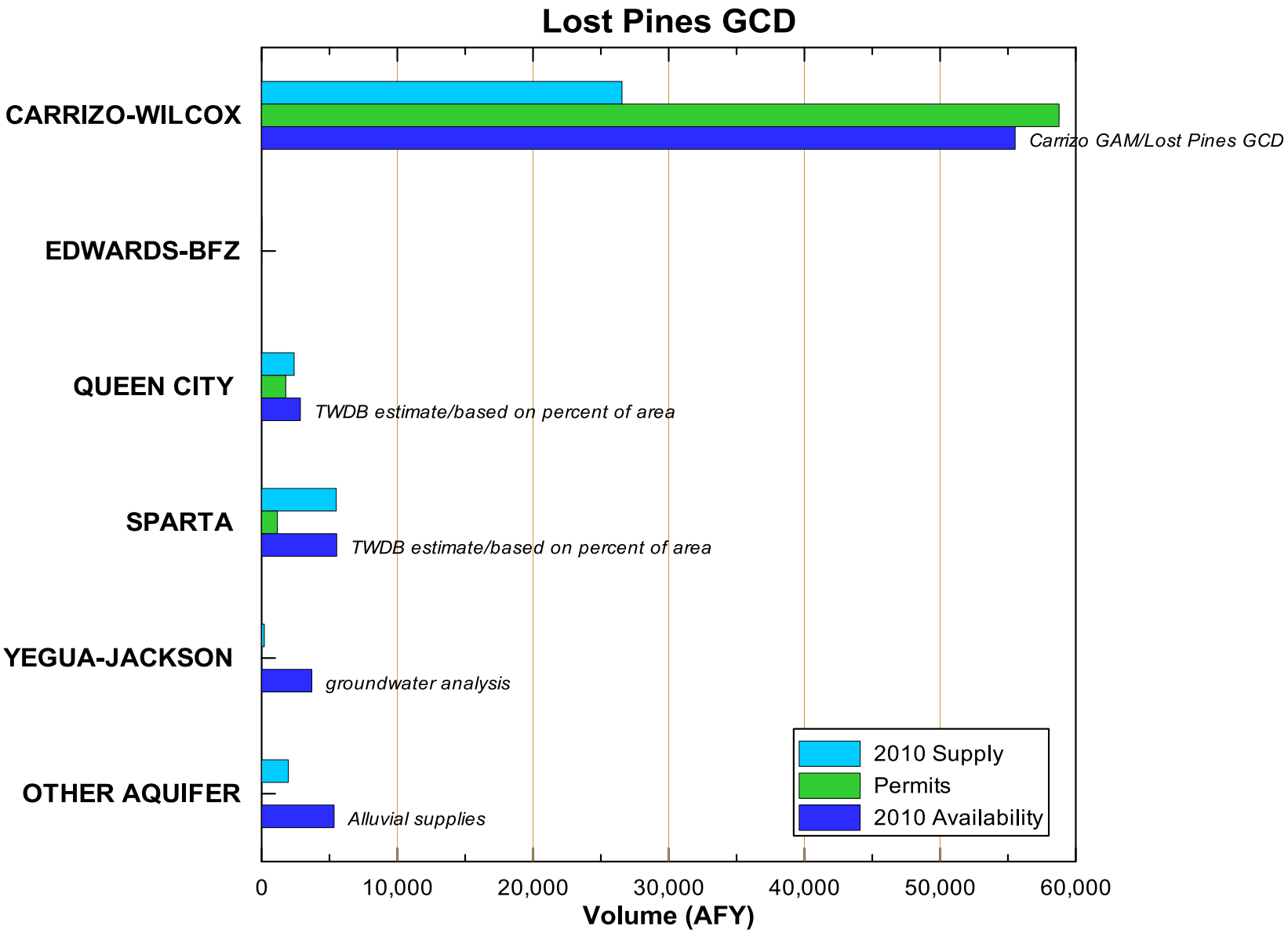
Sponsor Entity	Water Management Strategy	Type	Source County	Recipient County	2010	2020	2030	2040	2050	2060
SMITHVILLE	EXPANSION OF CARRIZO-WILCOX AQUIFER - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BASTROP	BASTROP	49	311	526	946	1,115	733
SMITHVILLE	DROUGHT MANAGEMENT - DROUGHT MANAGEMENT	DROUGHT MANAGEMENT	BASTROP	BASTROP	0	0	0	0	0	288
SMITHVILLE	DEVELOPMENT OF QUEEN CITY AQUIFER - QUEEN CITY AQUIFER	GROUNDWATER	BASTROP	BASTROP	0	0	0	0	0	580
AQUA WSC	ADDITIONAL CARRIZO AQUIFER DEVELOPMENT (INCLUDES OVERDRAFTING) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LEE	LEE	0	388	373	355	336	315
AQUA WSC	ADDITIONAL CARRIZO AQUIFER DEVELOPMENT (INCLUDES OVERDRAFTING) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LEE	WILLIAMSON	0	15	30	48	67	88
GUADALUPE BLANCO RIVER AUTHORITY	GBRA SIMSBORO PROJECT (OVERDRAFT) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LEE	COMAL	0	0	0	0	16,415	12,709
GUADALUPE BLANCO RIVER AUTHORITY	GBRA SIMSBORO PROJECT (OVERDRAFT) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LEE	COMAL	0	0	0	0	152	299
GUADALUPE BLANCO RIVER AUTHORITY	GBRA SIMSBORO PROJECT (OVERDRAFT) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LEE	COMAL	0	0	0	0	2,927	6,175
GUADALUPE BLANCO RIVER AUTHORITY	GBRA SIMSBORO PROJECT (OVERDRAFT) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LEE	GUADALUPE	0	0	0	0	283	594
LEE COUNTY WSC	ADDITIONAL CARRIZO AQUIFER DEVELOPMENT (INCLUDES OVERDRAFTING) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LEE	LEE	806	806	806	806	806	806
TOTAL					5,537	37,965	41,297	54,131	79,417	83,586

Lost Pines GCD - Permits



Lost Pines GCD
(Permit Total = 61,710 AFY)

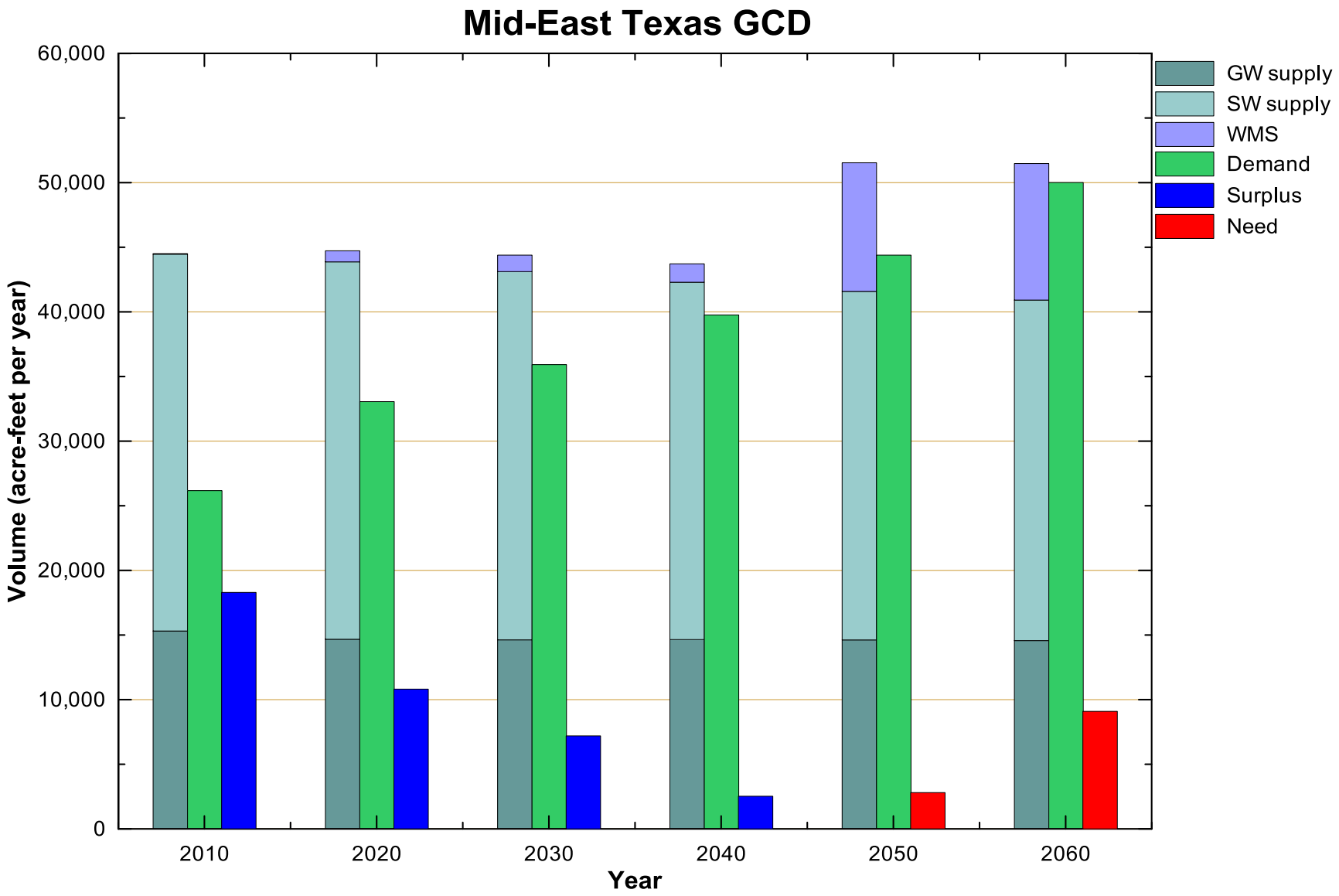
Lost Pines GCD - Supply/Permits/Availability



Lost Pines GCD - Water Export

- Water exported from LPGCD, not included in demands
  - Manville WSC - ~2,500 acre-feet/year
  - Aqua WSC - ~600 acre-feet/year
  - City of Elgin - ~100 acre-feet/year
  - Lee County WSC - ~100 acre-feet/year
  - Forestar - 12,000 acre-feet/year
  - End Op- _____ acre-feet/year

Mid-East Texas GCD - Supply/Demand/ Surplus-Needs



Mid-East Texas GCD - Supply/Demand/ Surplus-Needs

	2010	2020	2030	2040	2050	2060
SUPPLY - Groundwater & Surface Water						
County-Other	3,518	3,536	3,506	3,522	3,484	3,423
Irrigation	686	686	686	686	686	686
Livestock	4,243	4,243	4,243	4,243	4,243	4,243
Manufacturing	974	974	974	974	974	974
Mining	1,741	1,688	1,659	1,633	1,608	1,588
Municipal	4,966	4,406	4,406	4,406	4,406	4,406
Steam Electric Power	28,337	28,337	27,641	26,829	26,181	25,596
Total Supply	*44,465*	*43,870*	*43,115*	*42,293*	*41,582*	*40,916*
DEMAND						
County-Other	3,076	3,176	3,210	3,181	3,186	3,230
Irrigation	569	569	569	569	569	569
Livestock	3,969	3,969	3,969	3,969	3,969	3,969
Manufacturing	974	1,131	1,283	1,436	1,574	1,711
Mining	1,657	1,614	1,591	1,571	1,552	1,537
Municipal	3,753	4,387	4,773	5,040	5,306	5,595
Steam Electric Power	12,173	18,210	20,524	23,999	28,234	33,398
Total Demand	*26,171*	*33,056*	*35,919*	*39,765*	*44,390*	*50,009*
SURPLUS/NEED						
County-Other	442	360	296	341	298	193
Irrigation	117	117	117	117	117	117
Livestock	274	274	274	274	274	274
Manufacturing	0	-157	-309	-462	-600	-737
Mining	84	74	68	62	56	51
Municipal	1,213	19	-367	-634	-900	-1,189
Steam Electric Power	16,164	10,127	7,117	2,830	-2,053	-7,802
Total Surplus/Need	*18,294*	*10,814*	*7,196*	*2,528*	*-2,808*	*-9,093*

Mid-East Texas GCD - Supply/Demand/ Surplus-Needs

Mid-East Texas GCD	2010	2020	2030	2040	2050	2060
Groundwater Supply - All Categories						
CARRIZO-WILCOX AQUIFER	12,010	11,400	11,371	11,345	11,320	11,269
QUEEN CITY AQUIFER	478	479	479	479	479	479
SPARTA AQUIFER	2,441	2,408	2,391	2,441	2,441	2,441
OTHER AQUIFER	382	384	384	383	379	379
Groundwater Supply Total	15,311	14,671	14,625	14,648	14,619	14,568
Surface Water Supply - All Categories						
FAIRFIELD LAKE/RESERVOIR	870	870	870	870	870	870
LIVESTOCK LOCAL SUPPLY	1,043	1,043	1,043	1,043	1,043	1,043
LIVINGSTON-WALLISVILLE LAKE/RESERVOIR SYSTEM	20,000	20,000	20,000	20,000	20,000	20,000
TEAGUE CITY LAKE/RESERVOIR	0	0	0	0	0	0
TRINITY RIVER COMBINED RUN-OF-RIVER IRRIGATION	87	87	87	87	87	87
TRINITY RIVER RUN-OF-RIVER MUNICIPAL	41	41	41	41	41	41
TRWD LAKE/RESERVOIR SYSTEM	6,993	7,038	6,329	5,484	4,802	4,187
WORTHAM LAKE/RESERVOIR	0	0	0	0	0	0
OTHER LOCAL SUPPLY	120	120	120	120	120	120
Surface Water Supply Total	29,154	29,199	28,490	27,645	26,963	26,348
TOTAL SUPPLY - All Categories	44,465	43,870	43,115	42,293	41,582	40,916
TOTAL DEMAND - All Categories	26,171	33,056	35,919	39,765	44,390	50,009
TOTAL SURPLUS/NEED - All Categories	18,294	10,814	7,196	2,528	-2,808	-9,093

Mid-East Texas GCD - Water Management Strategies

	2010	2020	2030	2040	2050	2060
Groundwater WMS - All Categories						
CARRIZO-WILCOX AQUIFER	0	444	757	836	880	1,030
QUEEN CITY AQUIFER	0	17	14	13	16	25
SPARTA AQUIFER	0	45	71	97	206	303
Surface Water WMS - All Categories						
RICHLAND CHAMBERS LAKE/RESERVOIR NON-SYSTEM PORTION	0	0	0	0	0	0
TOLEDO BEND LAKE/RESERVOIR	0	0	0	0	1,582	1,879
Conservation WMS - All Categories						
MUNICIPAL CONSERVATION	42	349	433	479	508	563
Reuse WMS - All Categories						
INDIRECT REUSE	0	0	0	0	6,760	6,760
TOTAL WMS - All Categories	42	855	1,275	1,425	9,952	10,560
TOTAL SUPPLY + WMS - All Categories	44,507	44,725	44,390	43,718	51,534	51,476

	2010	2020	2030	2040	2050	2060
Water Management Strategy						
County-Other	14	250	333	271	282	370
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	157	309	462	600	737
Mining	0	0	0	0	0	0
Municipal	28	448	633	692	2,310	2,693
Steam Electric Power	*0*	*0*	*0*	*0*	*6,760*	*6,760*
Total WMS	*42*	*855*	*1,275*	*1,425*	*9,952*	*10,560*

Mid-East Texas GCD - Water Management Strategies

Sponsor Entity	Water Management Strategy	Type	Source County	Recipient County	2010	2020	2030	2040	2050	2060
COUNTY-OTHER, FREESTONE	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	FREESTONE	FREESTONE	2	7	10	11	11	12
COUNTY-OTHER, FREESTONE	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	FREESTONE	FREESTONE	12	40	54	58	61	65
FAIRFIELD	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	FREESTONE	FREESTONE	7	24	37	73	95	116
FAIRFIELD	MUNICIPAL CONSERVATION-EXPANDED	CONSERVATION	FREESTONE	FREESTONE	0	0	0	3	4	4
FLO COMMUNITY WSC	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	FREESTONE	FREESTONE	0	1	2	2	2	2
TEAGUE	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	FREESTONE	FREESTONE	2	9	12	15	17	20
TEAGUE	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	FREESTONE	FREESTONE	4	13	19	23	27	31
TRINITY RIVER AUTHORITY	TRA FREESTONE COUNTY REUSE	REUSE	FREESTONE	FREESTONE	0	0	0	0	6,760	6,760
WORTHAM	MUNICIPAL CONSERVATION-BASIC	CONSERVATION	FREESTONE	FREESTONE	14	38	49	58	68	78
BUFFALO	EXPANDED USE OF GW - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LEON	LEON	0	36	53	49	44	47
BUFFALO	MUNICIPAL CONSERVATION - SMALL WUG	CONSERVATION	LEON	LEON	0	21	22	22	22	22
CENTERVILLE	EXPANDED USE OF GW - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LEON	LEON	0	14	21	18	16	17
CENTERVILLE	MUNICIPAL CONSERVATION - SMALL WUG	CONSERVATION	LEON	LEON	0	11	12	11	11	11
COUNTY-OTHER, LEON	EXPANDED USE OF GW - SPARTA AQUIFER	GROUNDWATER	LEON	LEON	0	7	8	5	3	4
COUNTY-OTHER, LEON	EXPANDED USE OF GW - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LEON	LEON	0	7	8	5	3	4
COUNTY-OTHER, LEON	EXPANDED USE OF GW - QUEEN CITY AQUIFER	GROUNDWATER	LEON	LEON	0	6	8	5	2	3
COUNTY-OTHER, LEON	EXPANDED USE OF GW - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LEON	LEON	0	21	26	17	10	13
COUNTY-OTHER, LEON	MUNICIPAL CONSERVATION - SMALL WUG	CONSERVATION	LEON	LEON	0	20	24	15	8	11
COUNTY-OTHER, LEON	MUNICIPAL CONSERVATION - SMALL WUG	CONSERVATION	LEON	LEON	0	21	23	17	10	13

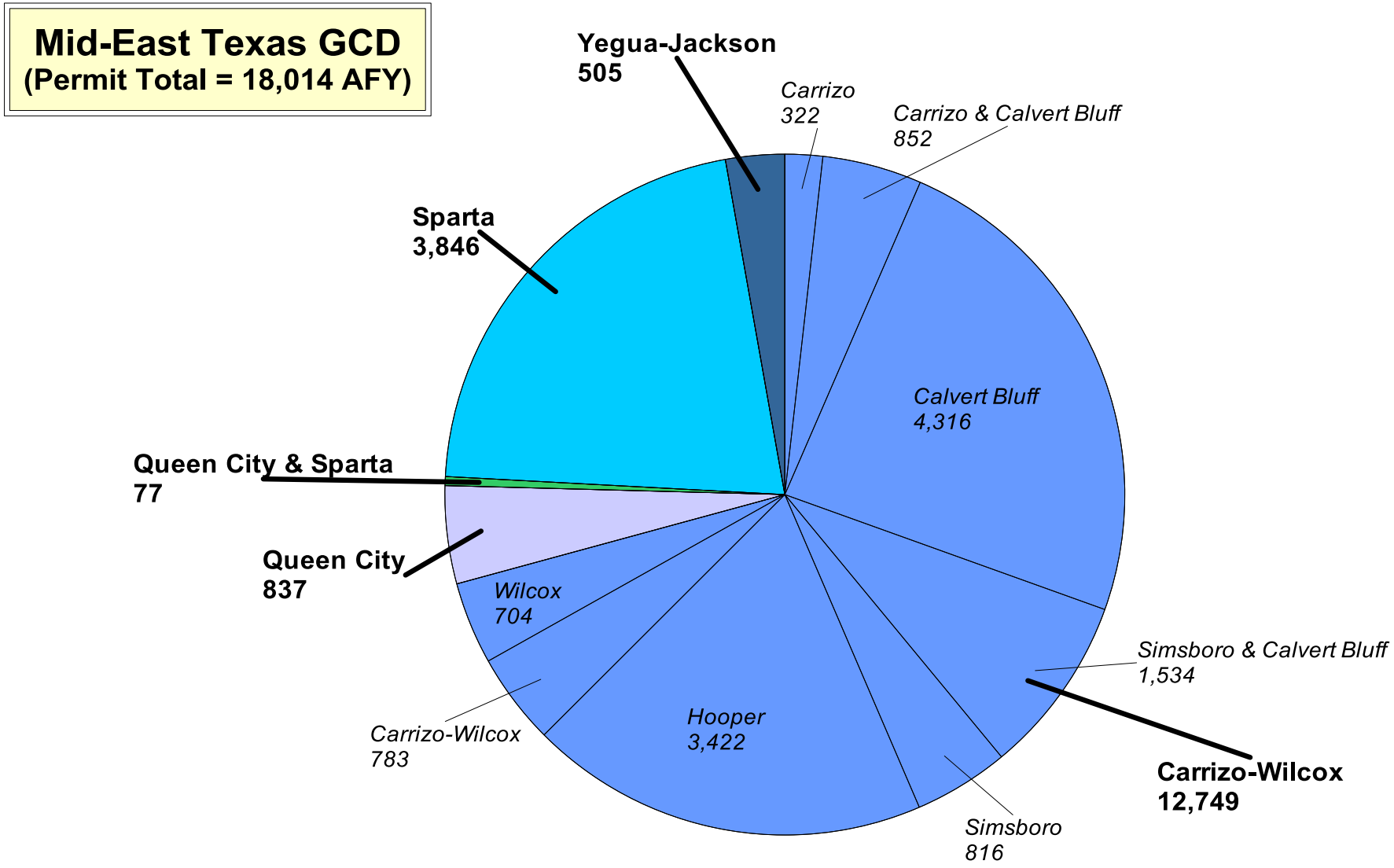
Mid-East Texas GCD - Water Management Strategies

Sponsor Entity	Water Management Strategy	Type	Source County	Recipient County	2010	2020	2030	2040	2050	2060
FLO COMMUNITY WSC	EXPANDED USE OF GW - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LEON	LEON	0	107	160	156	141	149
FLO COMMUNITY WSC	MUNICIPAL CONSERVATION - MEDIUM WUG	CONSERVATION	LEON	LEON	0	31	34	34	33	34
JEWETT	EXPANDED USE OF GW - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LEON	LEON	0	26	41	40	37	39
JEWETT	EXPANDED USE OF GW - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LEON	LEON	0	9	13	13	12	13
JEWETT	MUNICIPAL CONSERVATION - SMALL WUG	CONSERVATION	LEON	LEON	0	10	11	11	10	11
JEWETT	MUNICIPAL CONSERVATION - SMALL WUG	CONSERVATION	LEON	LEON	0	3	4	4	3	4
MANUFACTURING, LEON	EXPANDED USE OF GW - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LEON	LEON	0	128	148	145	202	201
MANUFACTURING, LEON	EXPANDED USE OF GW - QUEEN CITY AQUIFER	GROUNDWATER	LEON	LEON	0	0	0	0	0	8
MANUFACTURING, LEON	EXPANDED USE OF GW - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LEON	LEON	0	0	105	234	291	390
NORMANGEE	EXPANDED USE OF GW - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LEON	LEON	0	11	16	14	13	14
NORMANGEE	EXPANDED USE OF GW - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LEON	LEON	0	4	7	6	5	6
NORMANGEE	MUNICIPAL CONSERVATION - SMALL WUG	CONSERVATION	LEON	LEON	0	6	7	7	7	7
NORMANGEE	MUNICIPAL CONSERVATION - SMALL WUG	CONSERVATION	LEON	LEON	0	3	3	3	3	3
COUNTY-OTHER, MADISON	EXPANDED USE OF GW - QUEEN CITY AQUIFER	GROUNDWATER	MADISON	MADISON	0	11	6	4	9	9
COUNTY-OTHER, MADISON	EXPANDED USE OF GW - SPARTA AQUIFER	GROUNDWATER	MADISON	MADISON	0	0	0	8	91	156

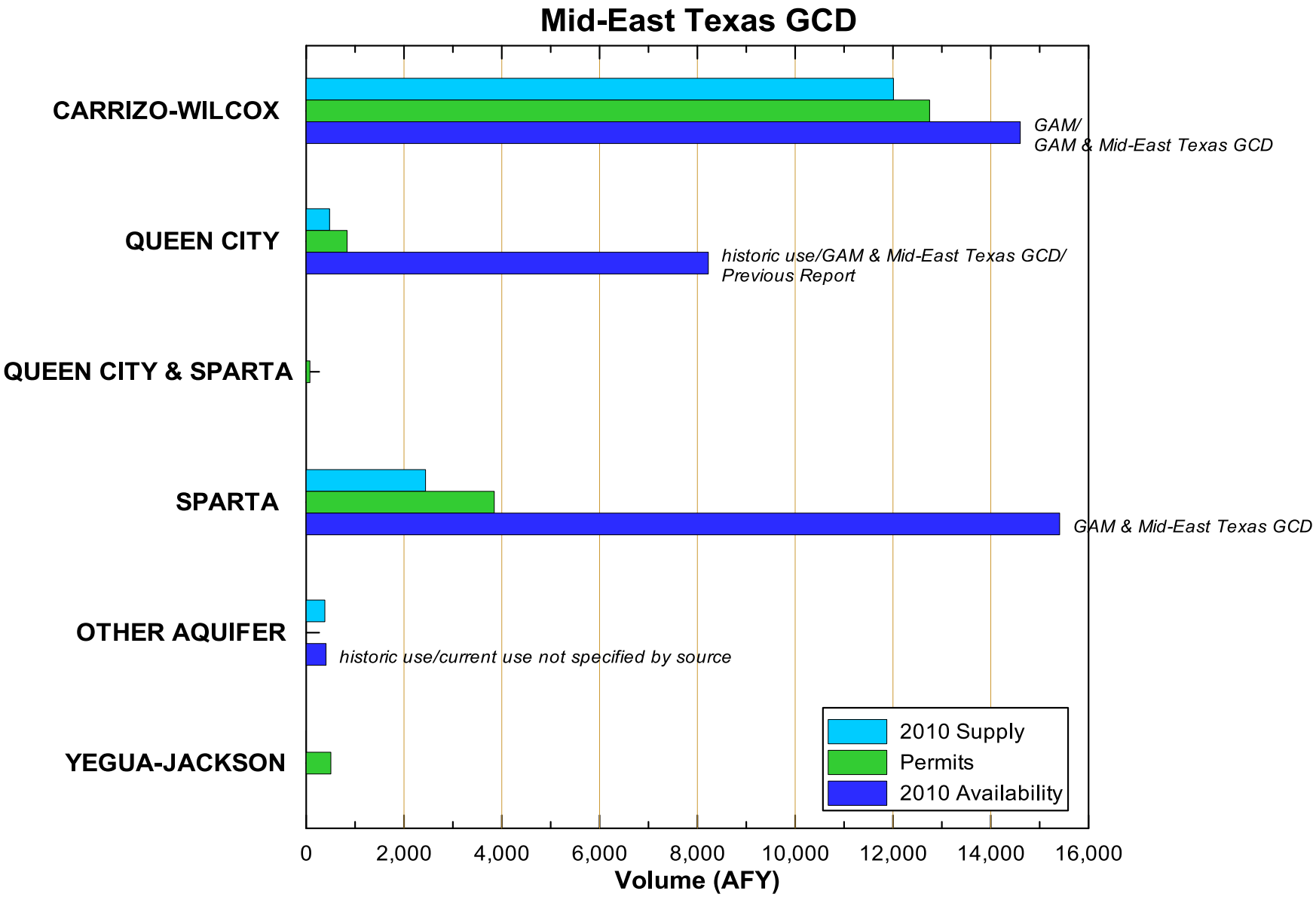
Mid-East Texas GCD - Water Management Strategies

Sponsor Entity	Water Management Strategy	Type	Source County	Recipient County	2010	2020	2030	2040	2050	2060
COUNTY-OTHER, MADISON	EXPANDED USE OF GW - SPARTA AQUIFER	GROUNDWATER	MADISON	MADISON	0	4	7	9	12	16
COUNTY-OTHER, MADISON	EXPANDED USE OF GW - CARRIZO-WILCOX AQUIFER	GROUNDWATER	MADISON	MADISON	0	50	100	57	0	0
COUNTY-OTHER, MADISON	MUNICIPAL CONSERVATION - SMALL WUG	CONSERVATION	MADISON	MADISON	0	52	53	54	55	57
COUNTY-OTHER, MADISON	MUNICIPAL CONSERVATION - SMALL WUG	CONSERVATION	MADISON	MADISON	0	4	6	6	7	7
MADISONVILLE	EXPANDED USE OF GW - SPARTA AQUIFER	GROUNDWATER	MADISON	MADISON	0	34	56	75	100	127
MADISONVILLE	MUNICIPAL CONSERVATION - MEDIUM WUG	CONSERVATION	MADISON	MADISON	0	34	50	51	53	54
MANUFACTURING, MADISON	EXPANDED USE OF GW - CARRIZO-WILCOX AQUIFER	GROUNDWATER	MADISON	MADISON	0	0	41	68	61	61
MANUFACTURING, MADISON	EXPANDED USE OF GW - QUEEN CITY AQUIFER	GROUNDWATER	MADISON	MADISON	0	0	0	4	5	5
MANUFACTURING, MADISON	EXPANDED USE OF GW - CARRIZO-WILCOX AQUIFER	GROUNDWATER	MADISON	MADISON	0	29	15	11	41	72
NORMANGEE	EXPANDED USE OF GW - CARRIZO-WILCOX AQUIFER	GROUNDWATER	MADISON	MADISON	0	2	3	3	4	4
NORMANGEE	MUNICIPAL CONSERVATION - SMALL WUG	CONSERVATION	MADISON	MADISON	1	1	1	1	1	1
TARRANT REGIONAL WD	TOLEDO BEND PROJECT - TOLEDO BEND LAKE/RESERVOIR	SURFACE WATER	RESERVOIR	FREESTONE	0	0	0	0	44	57
TARRANT REGIONAL WD	TOLEDO BEND PROJECT - TOLEDO BEND LAKE/RESERVOIR	SURFACE WATER	RESERVOIR	FREESTONE	0	0	0	0	1,538	1,822
TOTAL					42	855	1,275	1,425	9,952	10,560

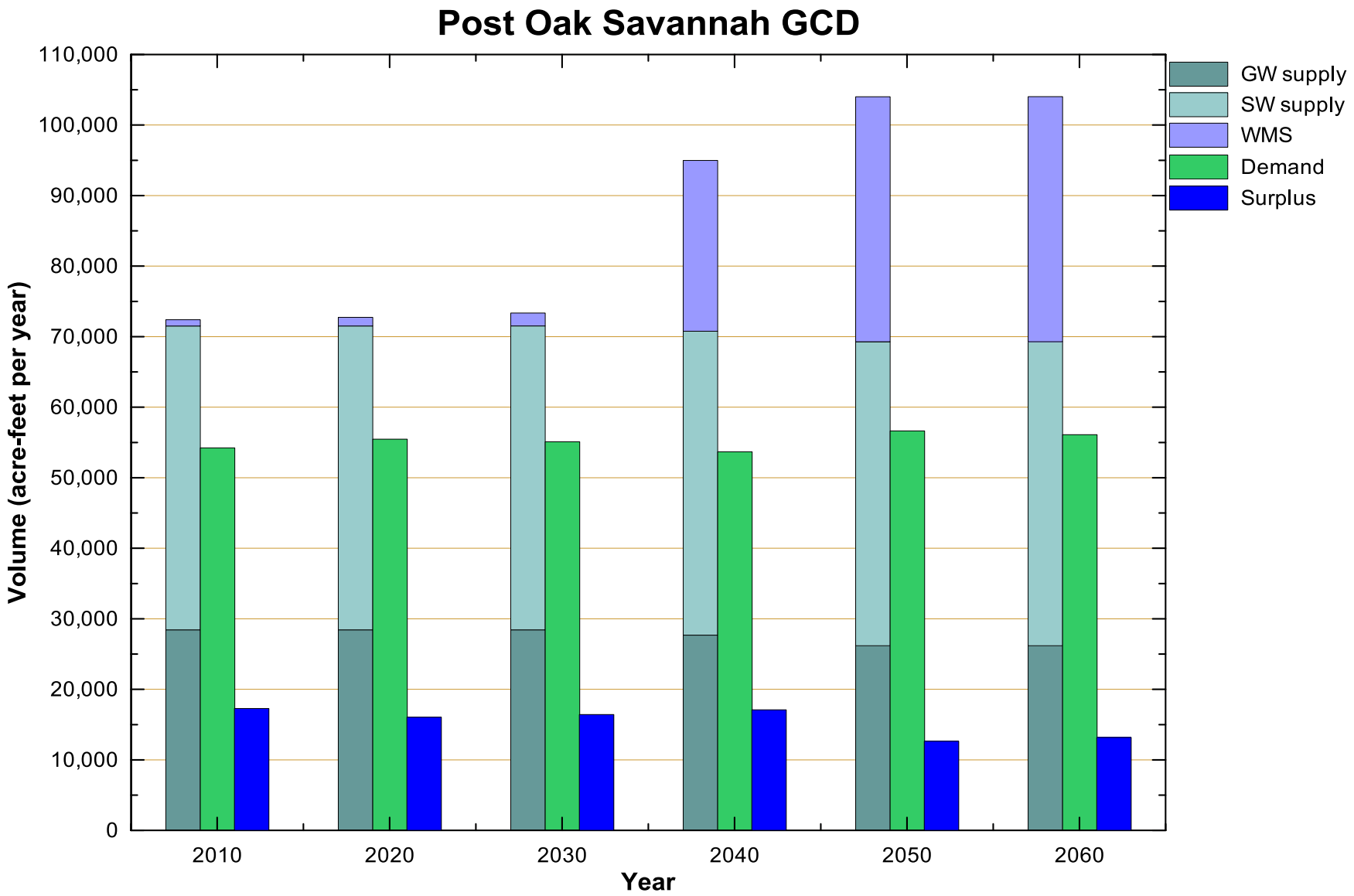
Mid-East Texas GCD - Permits



Mid-East Texas GCD - Supply/Permits/ Availability



Post Oak Savannah GCD - Supply/Demand Surplus



Post Oak Savannah GCD - Supply/Demand Surplus

	2010	2020	2030	2040	2050	2060
SUPPLY - Groundwater & Surface Water						
County-Other	2,328	2,328	2,328	2,334	2,334	2,334
Irrigation	27,525	27,530	27,534	27,547	27,552	27,556
Livestock	3,201	3,201	3,201	3,201	3,201	3,201
Manufacturing	10,534	10,534	10,534	10,628	10,628	10,628
Mining	3,959	3,959	3,959	3,029	1,529	1,529
Municipal	9,962	9,962	9,962	10,031	10,031	10,031
Steam Electric Power	14,000	14,000	14,000	14,000	14,000	14,000
Total Supply	*71,509*	*71,514*	*71,518*	*70,770*	*69,275*	*69,279*
DEMAND						
County-Other	1,540	1,554	1,560	1,556	1,561	1,586
Irrigation	19,852	19,101	18,385	17,743	17,035	16,357
Livestock	3,201	3,201	3,201	3,201	3,201	3,201
Manufacturing	7,016	8,483	8,520	8,557	10,140	10,170
Mining	4,025	4,024	4,024	3,024	1,524	1,524
Municipal	6,096	6,600	6,907	7,098	7,174	7,264
Steam Electric Power	12,500	12,500	12,500	12,500	16,000	16,000
Total Demand	*54,230*	*55,463*	*55,097*	*53,679*	*56,635*	*56,102*
SURPLUS/NEED						
County-Other	788	774	768	778	773	748
Irrigation	7,673	8,429	9,149	9,804	10,517	11,199
Livestock	0	0	0	0	0	0
Manufacturing	3,518	2,051	2,014	2,071	488	458
Mining	-66	-65	-65	5	5	5
Municipal	3,866	3,362	3,055	2,933	2,857	2,767
Steam Electric Power	1,500	1,500	1,500	1,500	-2,000	-2,000
Total Surplus/Need	*17,279*	*16,051*	*16,421*	*17,091*	*12,640*	*13,177*

Post Oak Savannah GCD - Supply/Demand Surplus

Post Oak Savannah GCD	2010	2020	2030	2040	2050	2060
Groundwater Supply - All Categories						
BRAZOS RIVER ALLUVIUM AQUIFER	9,400	9,400	9,400	9,400	9,400	9,400
CARRIZO-WILCOX AQUIFER	17,555	17,555	17,555	16,802	15,302	15,302
QUEEN CITY AQUIFER	293	293	293	293	293	293
SPARTA AQUIFER	1,049	1,049	1,049	1,049	1,049	1,049
TRINITY AQUIFER	106	106	106	106	106	106
YEGUA-JACKSON AQUIFER	29	29	29	29	29	29
Groundwater Supply Total	*28,432*	*28,432*	*28,432*	*27,679*	*26,179*	*26,179*
Surface Water Supply - All Categories						
ALCOA LAKE/RESERVOIR	14,000	14,000	14,000	14,000	14,000	14,000
BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	4,692	4,692	4,691	4,692	4,692	4,692
BRAZOS RIVER COMBINED RUN-OF-RIVER IRRIGATION	17,641	17,646	17,650	17,654	17,659	17,663
BRAZOS RIVER COMBINED RUN-OF-RIVER MANUFACTURING	751	751	752	752	752	752
BRAZOS RIVER RUN-OF-RIVER	2,792	2,792	2,792	2,792	2,792	2,792
LIVESTOCK LOCAL SUPPLY	3,201	3,201	3,201	3,201	3,201	3,201
Surface Water Supply Total	*43,077*	*43,082*	*43,086*	*43,091*	*43,096*	*43,100*
TOTAL SUPPLY - All Categories	71,509	71,514	71,518	70,770	69,275	69,279
TOTAL DEMAND - All Categories	54,230	55,463	55,097	53,679	56,635	56,102
TOTAL SURPLUS/NEED - All Categories	17,279	16,051	16,421	17,091	12,640	13,177

Post Oak Savannah GCD - Water Management Strategies

	2010	2020	2030	2040	2050	2060
Groundwater WMS - All Categories						
CARRIZO-WILCOX AQUIFER	500	500	800	23,145	33,411	33,411
Surface Water WMS - All Categories						
BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	14	100	156	192	206	218
Conservation WMS - All Categories						
CONSERVATION	375	625	875	875	1,120	1,120
TOTAL WMS - All Categories	889	1,225	1,831	24,212	34,737	34,749
TOTAL SUPPLY + WMS - All Categories	72,398	72,739	73,349	94,982	104,012	104,028

	2010	2020	2030	2040	2050	2060
Water Management Strategy						
County-Other	0	0	0	0	1,072	1,785
Irrigation	-	-	-	-	-	-
Livestock	-	-	-	-	-	-
Manufacturing	-	-	-	-	-	-
Mining	100	100	100	0	0	0
Municipal	414	500	856	23,337	30,932	30,231
Steam Electric Power	*375*	*625*	*875*	*875*	*2,733*	*2,733*
Total WMS	*889*	*1,225*	*1,831*	*24,212*	*34,737*	*34,749*

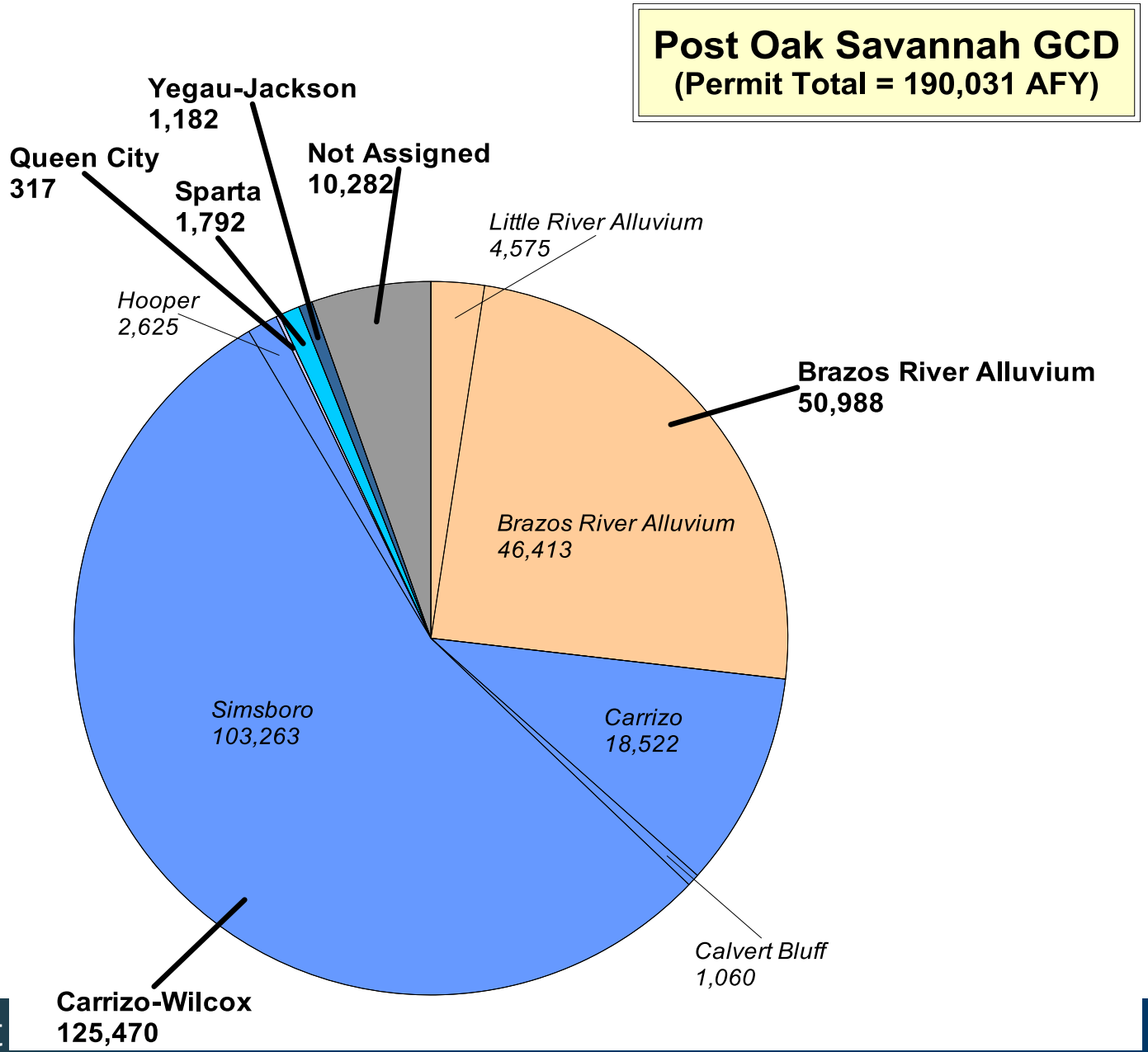
Post Oak Savannah GCD - Water Management Strategies

Sponsor Entity	Water Management Strategy	Type	Source	Recipient	2010	2020	2030	2040	2050	2060
BRAZOS RIVER AUTHORITY	GROUNDWATER/SURFACE WATER CONJUNCTIVE USE (LAKE GRANGER AUGMENTATION) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BURLESON	MCLENNAN	0	0	0	0	5,144	4,431
BRAZOS RIVER AUTHORITY	GROUNDWATER/SURFACE WATER CONJUNCTIVE USE (LAKE GRANGER AUGMENTATION) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BURLESON	WILLIAMSON	0	0	0	22,445	22,445	22,445
BRAZOS RIVER AUTHORITY	GROUNDWATER/SURFACE WATER CONJUNCTIVE USE (LAKE GRANGER AUGMENTATION) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BURLESON	WILLIAMSON	0	0	0	0	1,115	1,115
BRAZOS RIVER AUTHORITY	GROUNDWATER/SURFACE WATER CONJUNCTIVE USE (LAKE GRANGER AUGMENTATION) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BURLESON	WILLIAMSON	0	0	0	0	1,072	1,785
BRAZOS RIVER AUTHORITY	GROUNDWATER/SURFACE WATER CONJUNCTIVE USE (LAKE GRANGER AUGMENTATION) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BURLESON	WILLIAMSON	0	0	0	0	1,056	1,056
SOUTHWEST MILAM WSC	ADDITIONAL CARRIZO AQUIFER DEVELOPMENT (INCLUDES OVERDRAFTING) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BURLESON	BURLESON	0	4	10	15	18	22
SOUTHWEST MILAM WSC	ADDITIONAL CARRIZO AQUIFER DEVELOPMENT (INCLUDES OVERDRAFTING) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BURLESON	LEE	0	5	11	15	19	23
SOUTHWEST MILAM WSC	ADDITIONAL CARRIZO AQUIFER DEVELOPMENT (INCLUDES OVERDRAFTING) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BURLESON	MILAM	143	308	407	458	484	508
SOUTHWEST MILAM WSC	ADDITIONAL CARRIZO AQUIFER DEVELOPMENT (INCLUDES OVERDRAFTING) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	BURLESON	WILLIAMSON	257	83	272	212	445	413

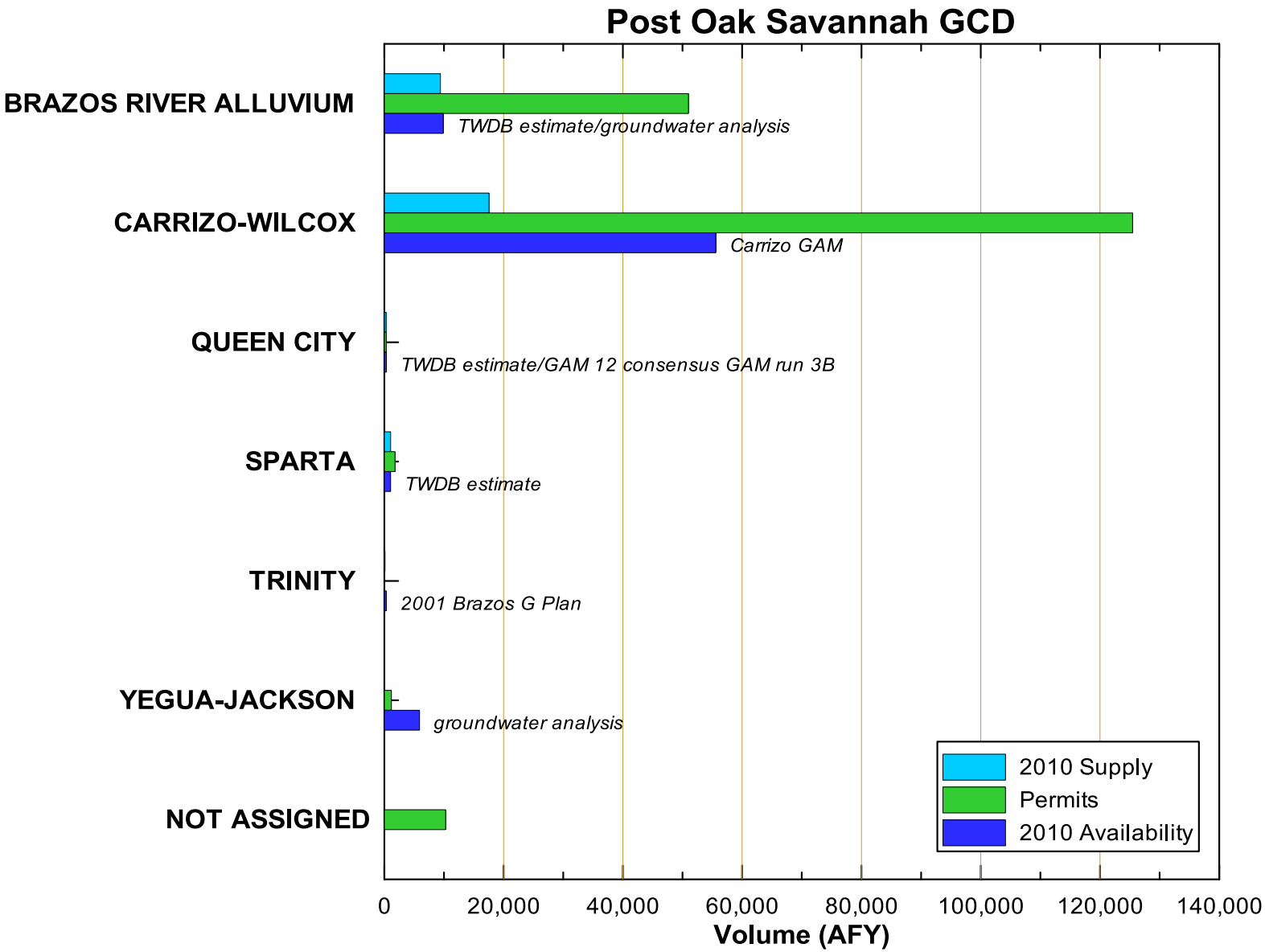
Post Oak Savannah GCD - Water Management Strategies

Sponsor Entity	Water Management Strategy	Type	Source County	Recipient County	2010	2020	2030	2040	2050	2060
MINING, MILAM	ADDITIONAL CARRIZO AQUIFER DEVELOPMENT (INCLUDES OVERDRAFTING) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	MILAM	MILAM	100	100	100	0	0	0
STEAM ELECTRIC POWER, MILAM	ADDITIONAL CARRIZO AQUIFER DEVELOPMENT (INCLUDES OVERDRAFTING) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	MILAM	MILAM	0	0	0	0	1,613	1,613
STEAM ELECTRIC POWER, MILAM	STEAM-ELECTRIC CONSERVATION - CONSERVATION	CONSERVATION	MILAM	MILAM	375	625	875	875	1,120	1,120
BELL-MILAM FALLS WSC	VOLUNTARY REDISTRIBUTION - BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	SURFACE WATER	RESERVOIR	MILAM	7	50	78	96	103	109
CENTRAL TEXAS WSC	BRA SUPPLY THROUGH THE EWCRWTS - BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	SURFACE WATER	RESERVOIR	MILAM	7	50	78	96	103	109
TOTAL					889	1,225	1,831	24,212	34,737	34,749

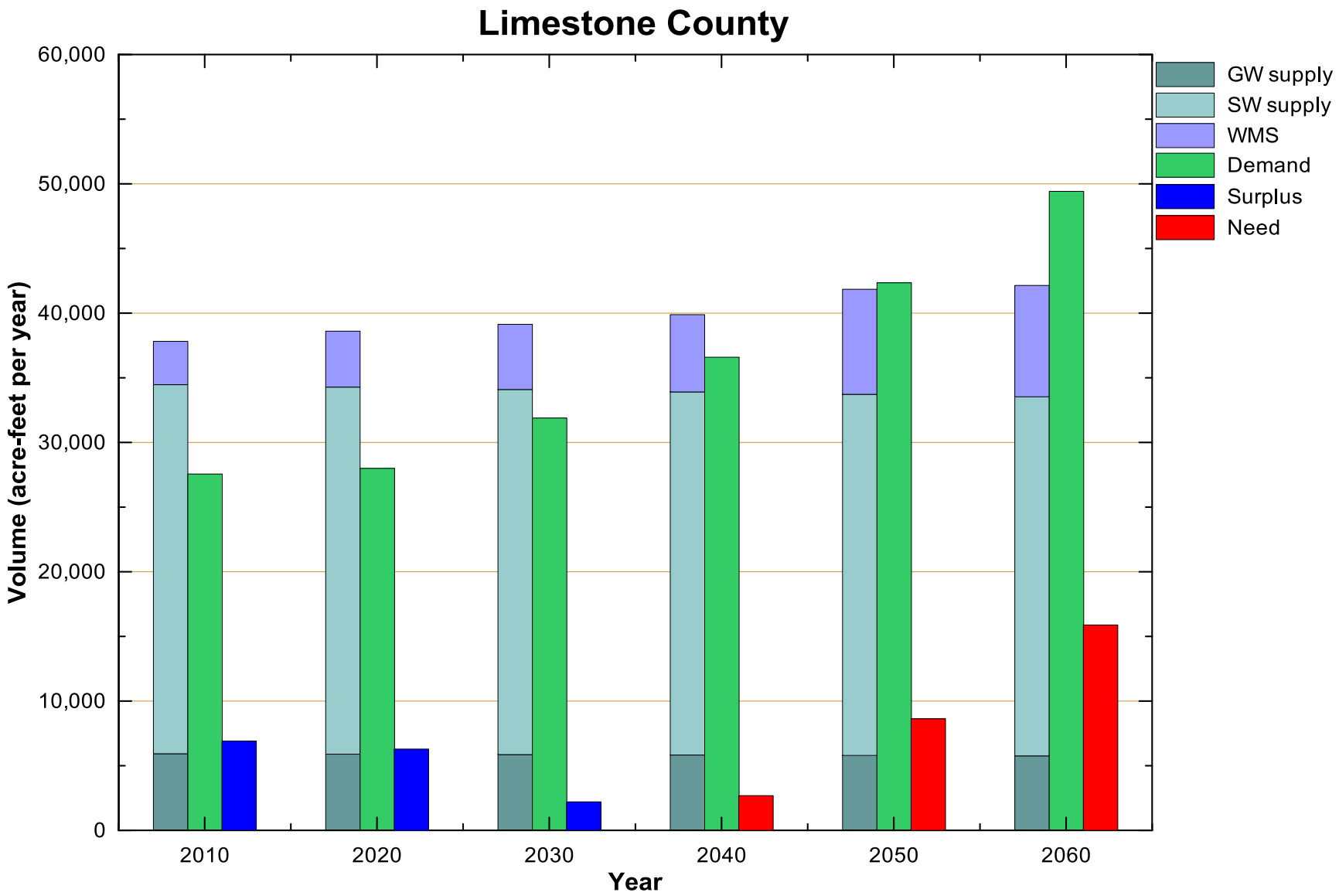
Post Oak Savannah GCD - Permits



Post Oak Savannah GCD - Supply/Permits/ Availability



Limestone County - Supply/Demand/ Surplus-Needs



Limestone County - Supply/Demand/ Surplus-Needs

	2010	2020	2030	2040	2050	2060
SUPPLY - Groundwater & Surface Water						
County-Other	1,552	1,518	1,485	1,451	1,418	1,384
Irrigation	-	-	-	-	-	-
Livestock	1,487	1,487	1,487	1,487	1,487	1,487
Manufacturing	30	25	19	14	8	3
Mining	1,168	1,168	1,168	1,168	1,168	1,168
Municipal	3,429	3,420	3,411	3,402	3,393	3,384
Steam Electric Power	26,803	26,664	26,524	26,384	26,245	26,105
Total Supply	*34,469*	*34,282*	*34,094*	*33,906*	*33,719*	*33,531*
DEMAND						
County-Other	828	765	703	642	594	551
Irrigation	-	-	-	-	-	-
Livestock	1,487	1,487	1,487	1,487	1,487	1,487
Manufacturing	48	53	58	63	67	72
Mining	380	387	392	396	400	403
Municipal	2,485	2,703	2,828	2,924	3,044	3,224
Steam Electric Power	22,332	22,598	26,420	31,079	36,758	43,681
Total Demand	*27,560*	*27,993*	*31,888*	*36,591*	*42,350*	*49,418*
SURPLUS/NEED						
County-Other	724	753	782	809	824	833
Irrigation	-	-	-	-	-	-
Livestock	0	0	0	0	0	0
Manufacturing	-18	-28	-39	-49	-59	-69
Mining	788	781	776	772	768	765
Municipal	944	717	583	478	349	160
Steam Electric Power	4,471	4,066	104	-4,695	-10,513	-17,576
Total Surplus/Need	*6,909*	*6,289*	*2,206*	*-2,685*	*-8,631*	*-15,887*

Limestone County - Supply/Demand/ Surplus-Needs

Limestone County	2010	2020	2030	2040	2050	2060
Groundwater Supply - All Categories						
CARRIZO-WILCOX AQUIFER	5,691	5,657	5,624	5,590	5,557	5,523
TRINITY AQUIFER	237	237	237	237	237	237
Groundwater Supply Total	*5,928*	*5,894*	*5,861*	*5,827*	*5,794*	*5,760*
Surface Water Supply - All Categories						
BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	25,735	25,596	25,456	25,316	25,177	25,037
LIVESTOCK LOCAL SUPPLY	1,487	1,487	1,487	1,487	1,487	1,487
MEXIA LAKE/RESERVOIR	199	185	170	156	141	127
NAVASOTA RIVER RUN-OF-RIVER	1,120	1,120	1,120	1,120	1,120	1,120
Surface Water Supply Total	*28,541*	*28,388*	*28,233*	*28,079*	*27,925*	*27,771*
TOTAL SUPPLY - All Categories	34,469	34,282	34,094	33,906	33,719	33,531
TOTAL DEMAND - All Categories	27,560	27,993	31,888	36,591	42,350	49,418
TOTAL SURPLUS/NEED - All Categories	6,909	6,289	2,206	-2,685	-8,631	-15,887

Limestone County - Water Management Strategies

	2010	2020	2030	2040	2050	2060
Groundwater WMS - All Categories						
CARRIZO-WILCOX AQUIFER	2,675	3,175	3,175	3,775	3,775	3,775
Surface Water WMS - All Categories						
GROESBECK OFF-CHANNEL LAKE/RESERVOIR	0	0	0	0	1755	1755
RICHLAND CHAMBERS LAKE/RESERVOIR NON-SYSTEM PORTION	0	7	6	18	16	15
Conservation WMS - All Categories						
CONSERVATION	675	1,142	1,860	2,185	2,582	3,067
TOTAL WMS - All Categories	3,350	4,324	5,041	5,978	8,128	8,612
TOTAL SUPPLY + WMS - All Categories	37,819	38,606	39,135	39,884	41,847	42,143

	2010	2020	2030	2040	2050	2060
Water Management Strategy						
County-Other	-	-	-	-	-	-
Irrigation	-	-	-	-	-	-
Livestock	-	-	-	-	-	-
Manufacturing	76	78	79	79	80	80
Mining	-	-	-	-	-	-
Municipal	2,604	3,116	3,113	3,723	5,475	5,474
Steam Electric Power	*670*	*1,130*	*1,849*	*2,176*	*2,573*	*3,058*
Total WMS	*3,350*	*4,324*	*5,041*	*5,978*	*8,128*	*8,612*

Limestone County - Water Management Strategies

Sponsor Entity	Water Management Strategy	Type	Source County	Recipient County	2010	2020	2030	2040	2050	2060
BISTONE MWSD	LIMESTONE COUNTY CARRIZO-WILCOX AQUIFER DEVELOPMENT - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LIMESTONE	LIMESTONE	223	498	275	651	426	203
BISTONE MWSD	LIMESTONE COUNTY CARRIZO-WILCOX AQUIFER DEVELOPMENT - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LIMESTONE	LIMESTONE	10	11	12	13	14	15
BISTONE MWSD	LIMESTONE COUNTY CARRIZO-WILCOX AQUIFER DEVELOPMENT - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LIMESTONE	LIMESTONE	82	90	99	107	115	123
BISTONE MWSD	LIMESTONE COUNTY CARRIZO-WILCOX AQUIFER DEVELOPMENT - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LIMESTONE	LIMESTONE	12	13	14	15	17	18
BISTONE MWSD	LIMESTONE COUNTY CARRIZO-WILCOX AQUIFER DEVELOPMENT - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LIMESTONE	LIMESTONE	329	362	394	426	459	491
BISTONE MWSD	LIMESTONE COUNTY CARRIZO-WILCOX AQUIFER DEVELOPMENT - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LIMESTONE	LIMESTONE	922	1,013	1,103	1,194	1,285	1,375
BISTONE MWSD	LIMESTONE COUNTY CARRIZO-WILCOX AQUIFER DEVELOPMENT - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LIMESTONE	LIMESTONE	922	1,013	1,103	1,194	1,284	1,375
BISTONE MWSD	MUNICIPAL WATER CONSERVATION - CONSERVATION	CONSERVATION	LIMESTONE	LIMESTONE	4	9	7	5	4	4
KOSSE	ADDITIONAL CARRIZO AQUIFER DEVELOPMENT (INCLUDES OVERDRAFTING) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LIMESTONE	LIMESTONE	100	100	100	100	100	100

Limestone County - Water Management Strategies

Sponsor Entity	Water Management Strategy	Type	Source County	Recipient County	2010	2020	2030	2040	2050	2060
MANUFACTURING, LIMESTONE	ADDITIONAL CARRIZO AQUIFER DEVELOPMENT (INCLUDES OVERDRAFTING) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LIMESTONE	LIMESTONE	60	60	60	60	60	60
MANUFACTURING, LIMESTONE	ADDITIONAL CARRIZO AQUIFER DEVELOPMENT (INCLUDES OVERDRAFTING) - CARRIZO-WILCOX AQUIFER	GROUNDWATER	LIMESTONE	LIMESTONE	15	15	15	15	15	15
MANUFACTURING, LIMESTONE	MANUFACTURING WATER CONSERVATION - CONSERVATION	CONSERVATION	LIMESTONE	LIMESTONE	1	3	4	4	5	5
STEAM ELECTRIC POWER, LIMESTONE	STEAM-ELECTRIC CONSERVATION - CONSERVATION	CONSERVATION	LIMESTONE	LIMESTONE	670	1,130	1,849	2,176	2,573	3,058
CORSICANA	WATER TREATMENT PLANT - EXPANSION - RICHLAND CHAMBERS LAKE/RESERVOIR NON-SYSTEM PORTION	SURFACE WATER	RESERVOIR	LIMESTONE	0	7	6	18	16	15
GROESBECK	CITY OF GROESBECK OFF-CHANNEL RESERVOIR - GROESBECK OFF-CHANNEL LAKE/RESERVOIR	SURFACE WATER	RESERVOIR	LIMESTONE	0	0	0	0	1,755	1,755
TOTAL					3,350	4,324	5,041	5,978	8,128	8,612

Management Strategy Types - All

Water Management Strategy	Brazos Valley GCD	Fayette County GCD	Lost Pines GCD	Mid-East Texas GCD	Post Oak Savannah GCD	Limestone County
BRA SUPPLY THROUGH THE EWCRWTS					x	
BRA SYSTEM OPERATIONS PERMIT	x					
CITY OF GROESBECK OFF-CHANNEL RESERVOIR						x
AQUIFER STORAGE AND RECOVERY - CARRIZO-WILCOX AQUIFER			x			
ADDITIONAL CARRIZO AQUIFER DEVELOPMENT (INCLUDES OVERDRAFTING)	x		x		x	x
DEVELOPMENT OF CARRIZO-WILCOX AQUIFER			x			x
EXPANDED USE OF CARRIZO-WILCOX AQUIFER			x	x		
DEVELOPMENT OF QUEEN CITY AQUIFER			x			
EXPANDED USE OF QUEEN CITY AQUIFER			x	x		
EXPANDED USE OF SPARTA AQUIFER		x		x		
EXPANSION OF GULF COAST AQUIFER		x				
EXPANSION OF YEGUE-JACKSON AQUIFER		x				
DEVELOPMENT OF OTHER AQUIFER		x				
EXPANSION OF OTHER AQUIFER			x			
DROUGHT MANAGEMENT			x			
GBRA SIMSBORO PROJECT (OVERDRAFT)			x			
GROUNDWATER/SURFACE WATER CONJUNCTIVE USE (LAKE GRANGER AUGMENTATION/ CARRIZO-WILCOX AQUIFER)					x	
CONSERVATION			x			
MANUFACTURING CONSERVATION						x
MUNICIPAL CONSERVATION	x	x	x	x		x
STEAM ELECTRIC CONSERVATION	x				x	x
PURCHASE WATER FROM CITY OF BRYAN	x					
REUSE				x		
REUSE	x					
TEMPORARY DROUGHT PERIOD USE OF QUEEN CITY AQUIFER			x			
TOLEDO BEND PROJECT				x		
VOLUNTARY REDISTRIBUTION (BRAZOS RIVER AUTHORITY)					x	
WATER TREATMENT PLANT EXPANSION (RICHLAND CHAMBERS RESERVOIR)						x

Questions?