



Summary of Region C

The Region C Regional Water Planning Area includes all or parts of 16 counties (Figure C.1). Overlapping much of the upper portion of the Trinity River Basin, Region C also includes smaller parts of the Red, Brazos, Sulphur, and Sabine river basins. The Dallas-Fort Worth metropolitan area is centrally located in the region, and its surrounding counties are among the fastest growing in the state. Major economic sectors in the region include service, trade, manufacturing, and government. The members of the Region C Planning Group are listed on the last page of this summary.

Population and Water Demands

Approximately 27 percent of Texas' population is projected to live in Region C in the year 2010. By 2060, the population of the region is projected to grow 98 percent to 13,087,849 (Figure C.2). Projections indicate that by 2060 Region C water demands will increase 87 percent, from 1,768,464 acre-feet to 3,311,217 acre-feet (Figure C.3). Municipal demands are projected to increase by 92 percent between 2010 and 2060, from 1,501,435 acre-feet to 2,876,188 acre-feet and will account

for 85 percent of the total projected Region C demands in 2060 (Table C.1). The other water use categories each constitute small percentages of the region's demands. With the exception of livestock demands, which remain constant, all categories of water demands are projected to increase over the planning horizon.

Existing Water Supplies

The total water supply in Region C is projected to decline about 9 percent by 2060, from 1,513,839 acre-feet in 2010 to 1,379,109 acre-feet (Table C.2). This projected decline is due to reservoir sedimentation. Existing reservoirs within Region C are projected to provide nearly 65 percent of total water supplies in the region, while surface water supplies located outside of the region account for another 21 percent. Groundwater from the Trinity Aquifer and several minor aquifers is projected to provide approximately 5 percent of supplies, as is reuse, in 2010. The remaining 3 percent of the water supply comes from local sources, such as run-of-river permits.

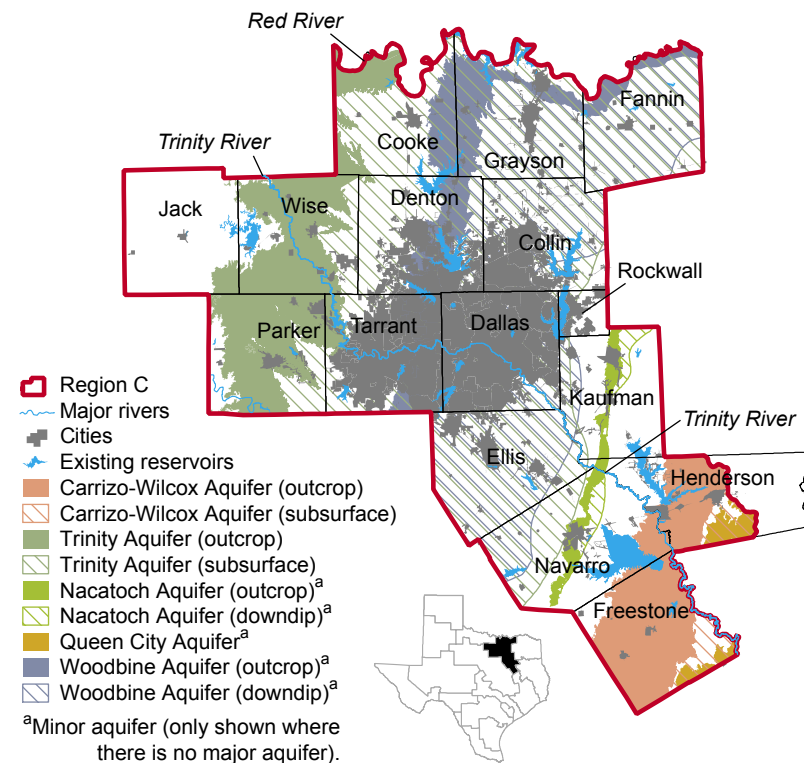


Figure C.1. Region C.

Needs

In 2010, Region C is projected to have a total water supply need of 336,390 acre-feet, of which approximately 291,008 acre-feet is for municipal uses (Figure C.4, Table C.3). By 2060, water supply needs in the region total 1,969,630 acre-feet. Eighty-eight percent of this projected need (1,737,037 acre-feet) is for municipal users.

PLAN HIGHLIGHTS

- Total capital cost \$13.2 billion
- Four new major reservoirs: Lower Bois d'Arc Creek, Ralph Hall, Marvin Nichols, and Lake Fastrill
- Conservation and reuse strategies provide 1,019,967 acre-feet of supply in 2060
- Rapidly growing region uses multiple strategies to meet needs

Recommended Water Management Strategies and Cost

Region C considered a wide spectrum of water management strategies to meet needs. In all, the strategies provide an additional 2.7 million acre-feet per year by 2060 (Figure C.5), with a total capital cost of \$13,202,929,595 (Appendix 2.1) if all the recommended water management strategies are implemented. The plan recommends four new major reservoirs: Lower Bois d'Arc, Ralph Hall, Marvin Nichols, and Lake Fastrill. The total supply, if all recommended water management strategies are implemented, would be approximately 22 percent greater than the projected demand for the region in 2060.

Conservation Recommendations

Conservation strategies account for approximately 11 percent (297,647 acre-feet) of the total volume of water associated with all recommended strategies. A basic conservation package, including education, water system audits, and plumbing code changes, was recommended for all municipal water user groups in Region C. An expanded conservation package, including strategies such as pricing structure, water waste prohibitions, and residential water audits, was recommended for some municipal water user groups.

Ongoing Issues

Region C is faced with rapid, unpredictable growth and the possibility of large water shortages in the future. Because of environmental and land use

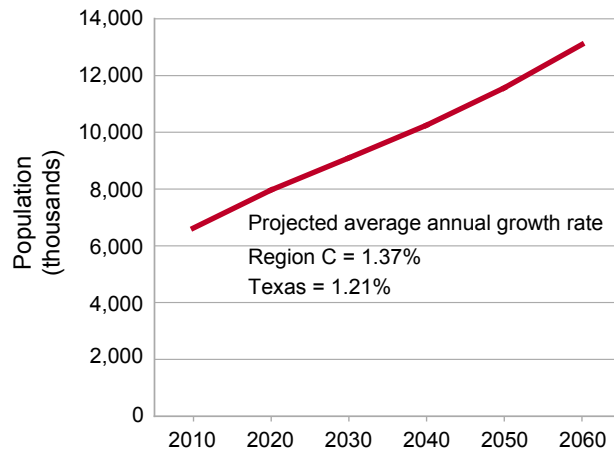


Figure C.2. Projected population for 2010-2060.

concerns, there was significant opposition during the planning process to the proposed reservoirs recommended as water management strategies in this plan. Other water management strategies proposed by the region could prove difficult to implement due to cost and regulatory requirements.

Select Policy Recommendations

- Increase flexibility in the planning process to respond to changed conditions, such as greater-than-expected population growth and difficulty in project implementation
- Reduce regulatory obstacles to interbasin transfers and indirect reuse
- Increase funding for implementing recommended strategies and conservation programs

Table C.1. Projected water demands for 2010-2060

Category	2010 (acre-feet)	2060 (acre-feet)	Percent change in demand 2010-2060	Percent of overall demand in 2010	Percent change in relative share of overall demand, 2010-2060
Municipal	1,501,435	2,876,188	+92	+85	+2
County-other	33,268	39,585	+19	+2	-1
Manufacturing	72,026	110,597	+54	+4	-1
Mining	30,240	45,920	+52	+2	0
Irrigation	40,776	41,831	+3	+2	-1
Steam-electric	71,471	177,848	+149	+4	+1
Livestock	19,248	19,248	0	+1	-1
Region	1,768,464	3,311,217	+87		

Figure C.3. Projected total water demand and existing water supplies for 2010-2060.

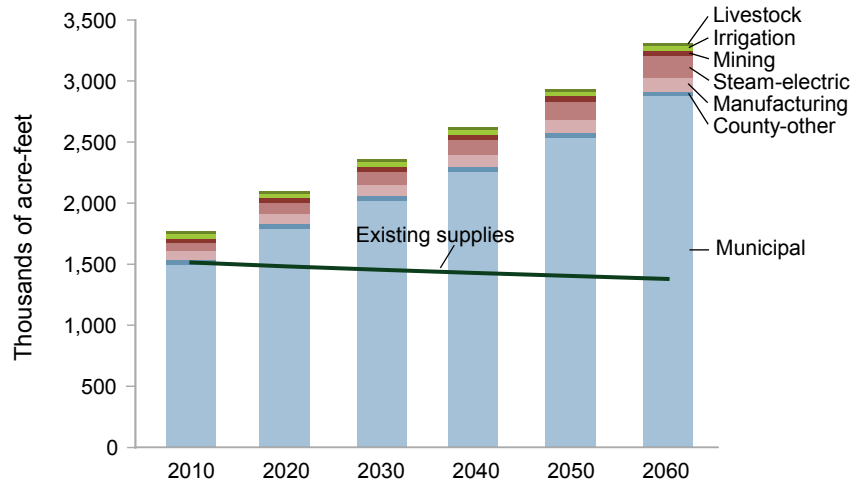


Figure C.4. Projected water needs for 2010-2060.

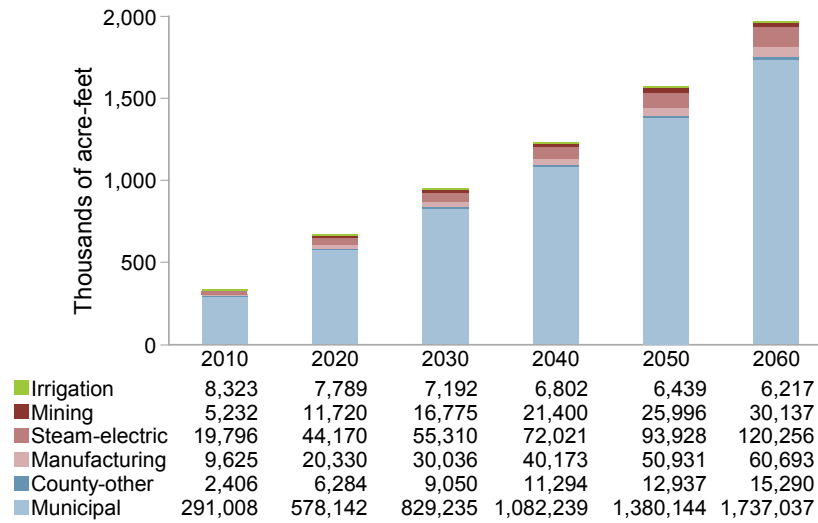


Figure C.5. Recommended water management strategy water supply volumes for 2010-2060.

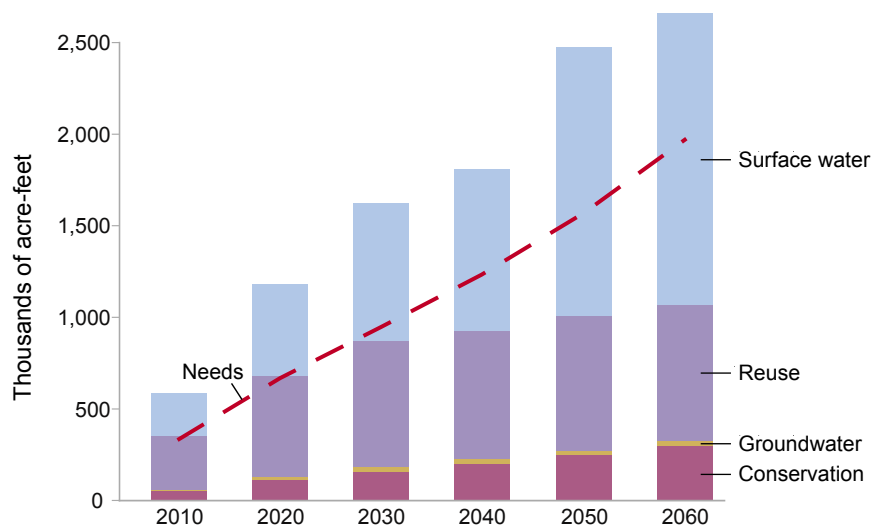


Table C.2. Existing water supplies for 2010 and 2060

Water supply source	2010 (acre-feet)	2060 (acre-feet)
Surface water		
Tarrant Regional Water District system	422,356	362,603
Ray Roberts-Lewisville-Grapevine Reservoir system	196,194	150,634
Lake Tawakoni	185,558	177,049
Lake Lavon North Texas Municipal Water District system	95,960	95,936
Lake Texoma North Texas Municipal Water District system	72,023	71,903
Chapman/Cooper Reservoir nonsystem portion	60,370	52,608
Lake Ray Hubbard	60,367	58,700
Chapman/Cooper Reservoir North Texas Municipal Water District system	46,561	42,647
Lake Texoma nonsystem portion	24,012	24,012
Lake Ray Roberts nonsystem portion	20,445	17,630
Lake Livingston-Wallisville system	20,000	20,000
Livestock local supply	18,713	18,713
Red River combined run-of-river irrigation	17,152	17,152
Grapevine Reservoir nonsystem portion	16,761	14,500
Navarro Mills Lake	10,810	10,912
Other surface water	73,565	66,727
Surface water subtotal	1,340,847	1,201,726
Groundwater		
Trinity Aquifer	57,624	56,607
Woodbine Aquifer	23,113	23,108
Other groundwater	12,913	12,917
Groundwater subtotal	93,650	92,632
Reuse		
Indirect reuse Lake Lavon	34,399	34,214
Direct reuse	30,058	29,486
Indirect reuse	14,885	21,051
Reuse subtotal	79,342	84,751
Region total	1,513,839	1,379,109

Note: Water supply sources are listed individually if 10,000 acre-feet per year or greater in 2010.

Only includes supplies that are physically and legally available to users during a drought of record.

Table C.3. Water needs (acre-feet per year) by county and type of use in years 2010 and 2060

County	Total		Municipal		County-other		Manufacturing		Steam-electric		Mining		Irrigation		Livestock	
	2010	2060	2010	2060	2010	2060	2010	2060	2010	2060	2010	2060	2010	2060	2010	2060
Collin	61,880	359,261	59,892	353,385	—	—	1,012	3,903	470	1,467	146	146	360	360	—	—
Cooke	1,484	6,708	946	5,834	299	447	64	212	—	—	35	75	140	140	—	—
Dallas	184,239	611,012	172,284	574,835	—	—	7,989	26,200	1,412	7,104	247	247	2,307	2,626	—	—
Denton	27,712	260,434	27,467	250,238	—	8,911	43	1,083	—	—	202	202	—	—	—	—
Ellis	17,264	86,601	3,863	47,693	903	1,141	—	1,240	11,935	35,964	—	—	563	563	—	—
Fannin	745	9,196	407	9,101	338	95	—	—	—	—	—	—	—	—	—	—
Freestone	486	17,011	486	1,405	—	—	—	—	—	15,606	—	—	—	—	—	—
Grayson	1,761	26,028	1,761	19,868	—	—	—	5,928	—	—	—	—	—	232	—	—
Henderson	4,076	14,877	4,021	14,744	—	—	55	133	—	—	—	—	—	—	—	—
Jack	121	7,465	96	94	25	269	—	—	—	7,102	—	—	—	—	—	—
Kaufman	11,635	59,636	3,234	25,593	118	904	157	604	5,979	31,403	—	—	2,147	1,132	—	—
Navarro	—	4,984	—	4,108	—	96	—	780	—	—	—	—	—	—	—	—
Parker	2,094	37,674	1,795	27,583	—	354	299	860	—	8,877	—	—	—	—	—	—
Rockwall	5,783	29,578	5,371	29,112	65	102	6	23	—	—	—	—	341	341	—	—
Tarrant	11,568	381,759	9,012	357,766	—	1,407	—	17,638	—	3,906	91	274	2,465	768	—	—
Wise	5,542	57,406	373	15,678	658	1,564	—	2,089	—	8,827	4,511	29,193	—	55	—	—
Region	336,390	1,969,630	291,008	1,737,037	2,406	15,290	9,625	60,693	19,796	120,256	5,232	30,137	8,323	6,217	—	—

SELECT MAJOR WATER MANAGEMENT STRATEGIES

(Dollar amounts are rounded. See Appendix 2.1 for all recommended strategies and actual costs.)

- ✦ *Connection of Lake Fork Reservoir would provide up to 120,000 acre-feet per year to Dallas water utilities—Implementation by: 2010; Capital Cost: \$363 million.*
- ✦ *East Fork Reuse Project would provide a maximum of 102,000 acre-feet per year to the North Texas Municipal Water District—Implementation by: 2010; Capital Cost: \$289 million.*
- ✦ *Tarrant Regional Water District Third Pipeline and Reuse would provide up to 188,765 acre-feet per year to the Tarrant Regional Water District—Implementation by: 2010; Capital Cost: \$626 million.*
- ✦ *Lower Bois d’Arc Creek Reservoir would yield as much as 123,000 acre-feet per year for the North Texas Municipal Water District—Implementation by: 2020; Capital Cost: \$399 million.*
- ✦ *Marvin Nichols Reservoir would provide approximately 489,840 acre-feet per year for the North Texas Municipal Water District, Tarrant Regional Water District, and the Upper Trinity Regional Water District—Implementation by: 2030; Capital Cost: \$2.2 billion.*
- ✦ *Conversion of Wright Patman Lake flood storage to conservation storage would provide a maximum of 112,100 acre-feet per year to Dallas—Implementation by: 2040; Capital Cost: \$572 million.*
- ✦ *Toledo Bend Reservoir strategy would provide up to 200,000 acre-feet to the North Texas Municipal Water District and Tarrant Regional Water District—Implementation by: 2050; Capital Cost \$1.1 billion.*
- ✦ *Lake Fastrill would provide as much as 112,100 acre-feet per year to Dallas—Implementation by: 2050; Capital Cost: \$569 million.*

Region C Planning Group Members and Interests Represented

Voting members during adoption of 2006 Regional Water Plan:

Jim Parks (Chair), water districts; Brad Barnes, agriculture; Jerry W. Chapman, water districts; Roy J. Eaton, small business; Dale A. Fisseler, municipalities; Robert Johnson, municipalities; Russell Laughlin, industries; G.K. Maenius, counties; Howard Martin, municipalities; Jim McCarter, water utilities; Elaine J. Petrus, environmental; Paul Phillips, municipalities; Irvin M. Rice, public; Robert O. Scott, environmental; Connie Standridge, water utilities; Danny F. Vance, river authorities; Mary E. Vogelson, public; Paul Zweiacker, electric generating utilities

Former voting members during 2001-2006 planning cycle:

Leroy Burch, industries; George W. Shannon, water districts,* Tom Vandergriff, counties

*Mr. Shannon passed away before the final vote on the plan in December 2005.