DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

Prepared in cooperation with the
TEXAS WATER DEVELOPMENT BOARD

WATER-RESOURCES INVESTIGATIONS REPORT 89-4044

FRESHWATER WITHDRAWALS IN TEXAS, 1985

INTRODUCTION

Since 1950, the U.S. Geological Survey (USGS) has estimated water use in the United States at 5-year intervals. Resulting reports tabulate water use by State and by water-resources region (major river basins) for a number of categories, such as irrigation, water supply, and industrial. In 1977, the USGS began the National Water-Use Information Program, designed to be a National source of accurate, consistent water-use data. The water-use project in Texas is part of the National Water-Use Information Program. The Texas District of the USGS compiles water-use information by county and by hydrologic unit using data collected by State agencies. A hydrologic unit is a geographic area representing part or all of a surface drainage basin, a combination of drainage basins, or a distinct hydrologic feature.

Purpose and Scope

The purpose of this report is to present 1985 freshwater withdrawal data for Texas by source and by category. Freshwater is defined as containing less than 1,000 milligrams per liter (mg/L) of dissolved solids. Water source is either ground water or surface water. Withdrawal categories include irrigation, thermoelectric power generation, water supply, industrial/mining, livestock, domestic, and commercial. To conserve space in this report, only the four major withdrawal categories of irrigation, thermoelectric power generation, water supply, and industrial/mining are illustrated in this report.

Terminology

Withdrawal is the amount of water withdrawn or diverted from a ground- or surface-water source. Use is the amount of water which is brought into a facility (or to an irrigation area) for use, and is equal to the amount withdrawn minus any losses that occurred prior to use. The following definitions are used by the USGS for each withdrawal category:

1. Irrigation is the artificial application of water on lands to assist in the growing of crops and pastures or maintaining recreational lands such as parks and golf courses.
2. Thermoelectric power generation includes water used in the production of electrical power using fossil-fuel (coal, oil, or natural gas), geothermal or nuclear energy.
3. Water supply includes water withdrawn by public and private water suppliers and delivered to users that do not supply their own water.
4. Industrial use includes water used in the production of steel, chemical and allied products, mining, and petroleum refining.
5. Mining use is water used in the extraction of minerals occurring naturally such as coal, ores, crude petroleum, and natural gas. It also includes quarrying, well operation (dewatering), milling (crushing, screening, washing, flotation, etc.) and other preparations customarily done at the mine site, or as part of a mining activity. Mining withdrawals are combined with the industrial category in this report.
6. Livestock use includes water used by livestock. Livestock as used here includes cattle, sheep, goats, hogs, poultry, horses, rabbits, bees, pets, fur-bearing animals in captivity, and fish in captivity.
7. Domestic use includes water used for normal household purposes such as drinking, food preparation, bathing, washing clothes and dishes, flushing toilets, and watering lawns and gardens. It is also called residential water use.
8. Commercial use includes water used by motels, hotels, restaurants, office buildings, commercial facilities, and institutions, both civilian and military.

Withdrawal data in this report is shown in two types of illustrations. The choropleth maps are those maps of Texas which show ranges of withdrawals by county and are the majority of the illustrations in this report. The choropleth for thermoelectric-power generation is shown as total withdrawals only because 99 percent of the withdrawals are from surface water. The maps of Texas showing the withdrawals by river basin and aquifer indicate amounts and proportions of withdrawals. The circles are sized proportional to the million gallons per day withdrawn. The patterns of pie slices reflect the categories of use for the withdrawals within each basin or aquifer. Table 1 contains the amount of freshwater withdrawals for 1985 by county, source, and use for the 254 counties in Texas.

Approach

The Texas Water Development Board collects water-use data through an annual survey of municipalities and industries. Periodically, the Texas Water Development Board also estimates water use for other categories, such as irrigation and livestock. Additional data are collected or estimated by the Texas Water Commission, the Texas Railroad Commission, several river authorities, and the USGS.

The USGS and the Texas Water Development Board water-use programs compile data differently and have different definitions of several categories of use. The USGS primarily compiles data by site of withdrawal, and the Texas Water Development Board compiles data by site of use or final user. The different definitions and approach to data compilation required the USGS to recompile the Texas Water Development Board data to obtain the information needed for the National program. Thus, all information contained in this report is calculated and cannot be directly compared to the Texas Water Development Board water-use totals.

Total withdrawals by water source were obtained by the Texas Water Development Board from mail-out surveys. For the USGS water-use program, the Texas Water Development Board developed special data retrieval procedures. The data were provided to the USGS as withdrawal site totals by user category for approximately 450 geographic regions in the State. Because of the time constraints of the National Water Use Information Program, water-use data for 1985 were estimated using 1984 Texas Water Development Board data. The percentage of population change between 1984 and 1985 for each geographic subarea was used to extrapolate to 1985 water withdrawals for water supply and for domestic and commercial users. Because industrial use does not necessarily change in proportion to population, and because livestock and mining use is small and relatively constant, the 1984 data were used for these categories. Texas Water Development Board estimates of irrigation use in 1985 were available to make the USGS estimates of irrigation withdrawals. Thermoelectric power generation water use was estimated by the USGS from statistics on the amount of power generated.

Acknowledgments

Water-use data used to derive the information contained in this report were made available to the USGS by the Texas Water Development Board. Details about the water-use data and specialized retrievals of water withdrawal data were provided by William Moltz of the Water Uses and Projection Unit of the Texas Water Development Board.

FRESHWATER WITHDRAWALS

During 1985 an average of about 20,100 Mgal/d (million gallons per day) of freshwater was withdrawn in Texas. Surface-water withdrawals were about 12,900 Mgal/d or 64 percent of the total, and ground-water withdrawals were about 7,190 Mgal/d or 36 percent of the total. More water was withdrawn for irrigation than for any other purpose, accounting for 40 percent of total withdrawals and for 75 percent of ground-water withdrawals. Withdrawals for thermoelectric power generation were 37 percent of the State total and accounted for about 58 percent of the total surface water withdrawn. Water suppliers withdrew about 15 percent of the total freshwater withdrawn. For the purposes of this report, water-use data were rounded to three significant figures. All numbers were rounded independently; therefore, the individual rounded numbers may not add to the totals.

SELECTED REFERENCES

Muller, D.A. and Price, R.D., 1979, Ground-water availability in Texas, estimates and projections through 2030: Texas Department of Water Resources Report 238, 77 p.

Seaber, P.R., Kapinos, F.P., and Knapp, G.L., 1984, State hydrologic unit maps: U.S. Geological Survey Open-File Report 84-708, 198 p.

Solley, W.B., Chase, E.B., and Mann, W.B., IV, 1983, Estimated use of water in the United States in 1980: U.S. Geological Survey Circular 1001, 56 p.

Solley, W.B., Pierce, R.R., and Merk, C.F., 1988, Estimated use of water in the United States in 1985: U.S. Geological Survey Circular 1004, 82 p.

Texas Department of Water Resources, 1981, Water use---Projected water requirements and related data and information for the standard metropolitan statistical areas in Texas: Texas Department of Water Resources LP---141, 224 p.

-----1984, Water for Texas---A comprehensive plan for the future: Texas Department of Water Resources GP---4---1, v. 1, 72 p.

-----1984, Water for Texas---Technical appendix: Texas Department of Water Resources GP---4---1, v. 2

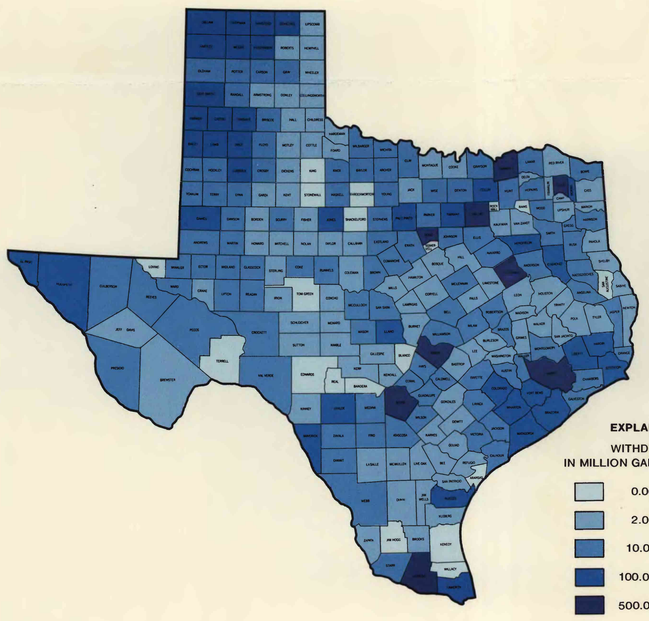
-----1985, Water use---Projected water requirements and related data and information for the metropolitan statistical areas in Texas: Texas Department of Water Resources LP---201, 226 p.

Texas Water Development Board, 1986, Surveys of irrigation in Texas 1958, 1964, 1969, 1974, 1979, 1984: Texas Water Development Board Report 294, 242 p.

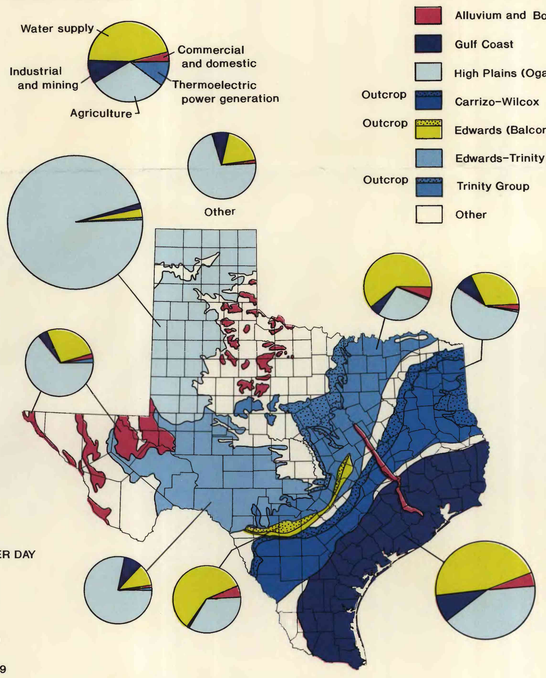
METRIC CONVERSION

The inch-pound units of measurement used in this report may be converted to metric (International System) units by using the following conversion factors:

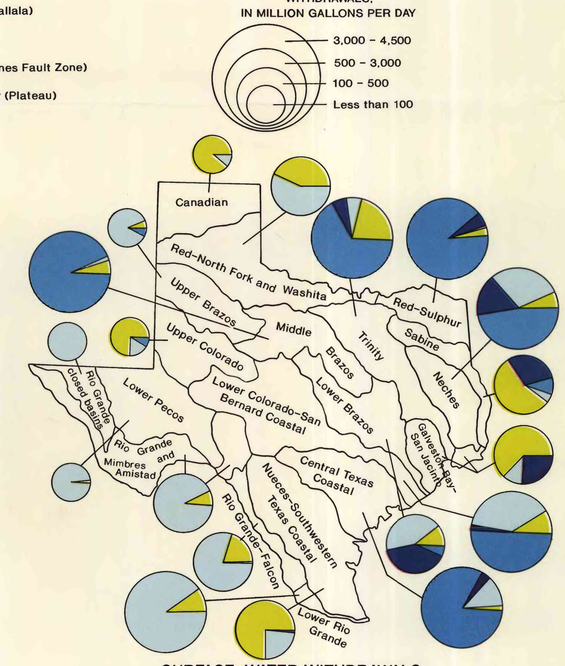
Multiply	By	To obtain
acre	4,047	square meter (m²)
	0.4047	hectare
gallon per day (gal/d)	0.003785	cubic meter per day (m³/d)
million gallons per day (Mgal/d)	0.001	billion gallons per day
	1.121	thousand acre-feet per year
	0.001547	thousand cubic feet per second
	0.6944	thousand gallons per minute
	0.003785	million cubic meters per day



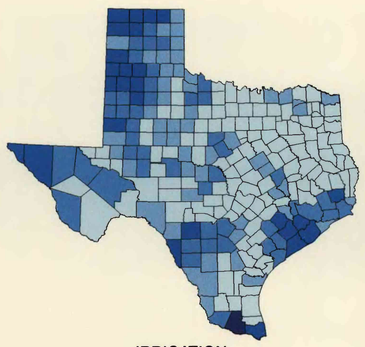
TOTAL WITHDRAWALS OF FRESHWATER



GROUND-WATER WITHDRAWALS
BY MAJOR AQUIFERS



SURFACE-WATER WITHDRAWALS
BY PRINCIPAL RIVER BASINS

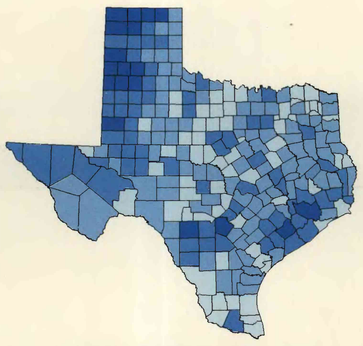


IRRIGATION

Irrigation accounted for about 40 percent of all freshwater withdrawals during 1985. About 6.7 million acres were irrigated during Texas in 1985 with about 8,120 gal/d of freshwater.

The High Plains, located in the western part of the Texas Panhandle, contain almost 70 percent of all the irrigated land in Texas. Major irrigated crops in this area during 1985 were cotton and wheat.

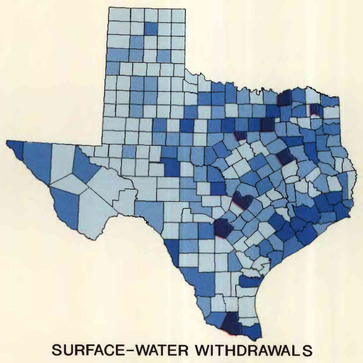
The lower Rio Grande Valley, located at the southern tip of Texas, contains irrigated fields of cotton and grain sorghum. In Hidalgo County, 606 Mgal/d of freshwater were used for irrigation purposes; in Cameron County 292 Mgal/d were used. Most of this water was withdrawn from the Rio Grande.



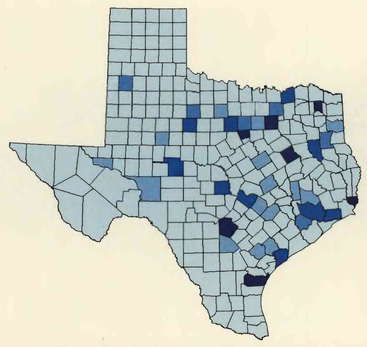
GROUND-WATER WITHDRAWALS
OF FRESHWATER

Ground water accounts for about 36 percent of all freshwater withdrawals. If cooling water for thermoelectric power generation is excluded, ground water supplies 57 percent of all freshwater withdrawals.

Surface water accounts for about 64 percent of all freshwater withdrawals. If cooling water for thermoelectric power generation is excluded, surface water supplies 43 percent of all freshwater withdrawals.



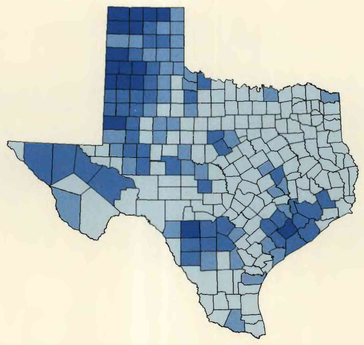
SURFACE-WATER WITHDRAWALS
OF FRESHWATER



THERMOELECTRIC POWER GENERATION

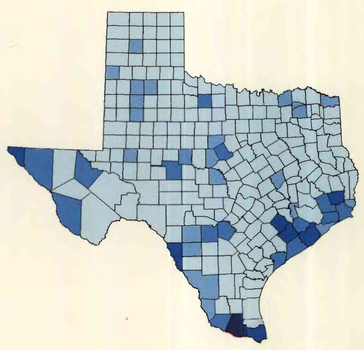
Total freshwater withdrawals for thermoelectric-power generation were 7,450 Mgal/d during 1985, which accounted for about 37 percent of the total freshwater withdrawals in Texas. The total electric power produced during 1985 was about 217,000 gigawatt hours.

Ground-water irrigation withdrawals in the High Plains accounted for 66 percent of the total ground-water irrigation withdrawals in the State.

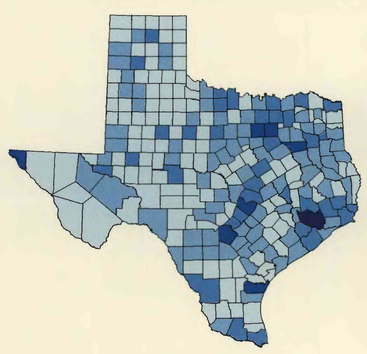


IRRIGATION

Surface-water withdrawals for irrigation in the counties along the Gulf Coast (mostly for rice irrigation) and in counties along the Rio Grande (mostly for cotton) accounted for 78 percent of the total surface-water withdrawals for irrigation in the State.



IRRIGATION

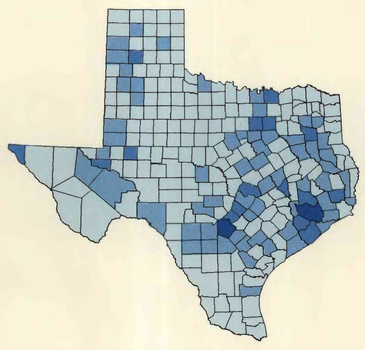


WATER SUPPLY

Harris County, the 14th largest County in Texas, had a population of about 2.8 million and had freshwater withdrawals of 512 Mgal/d for water supply during 1985. The largest county in the State, Brewster, with 3.5 times the land area of Harris, had a population of 8,000 and had freshwater withdrawals of 1.6 Mgal/d for water supply during 1985.

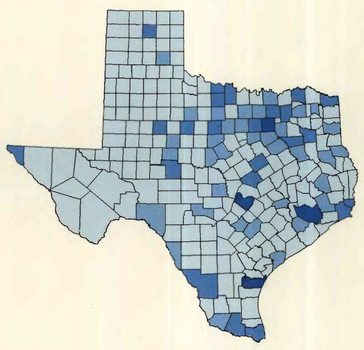
Dallas County had the second largest freshwater withdrawals for water supply--292 Mgal/d--during 1985. Four major surface-water reservoirs, some in surrounding counties, provided 95 percent of the total and the remaining 5 percent was from ground-water sources.

Bexar County had freshwater withdrawals of 242 Mgal/d for water supply during 1985, all of which was ground water from the Edwards Aquifer.

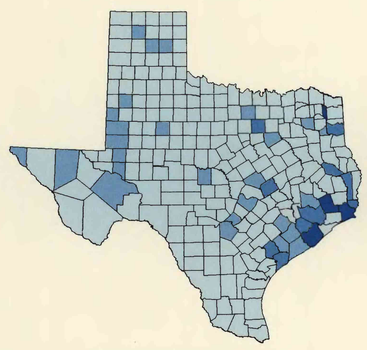


WATER SUPPLY

Public suppliers delivered 86 percent of their total withdrawals to domestic users. Almost one-half of these deliveries went to users in Harris County, Dallas County, Bexar County, and Tarrant County.

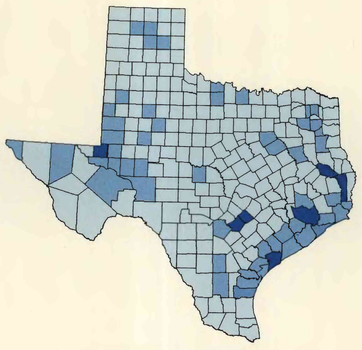


WATER SUPPLY



INDUSTRIAL/MINING

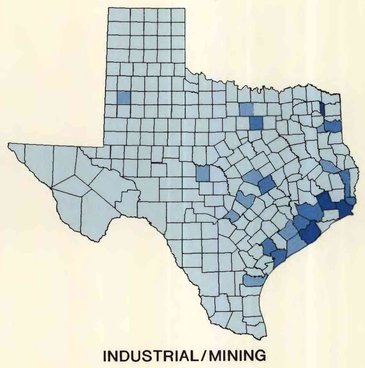
Texas leads the Nation in refining petroleum and producing industrial chemicals, and these industries account for 80 percent of the industrial freshwater withdrawals in the State. These withdrawals are concentrated in the coastal region centered about Harris County.



INDUSTRIAL/MINING

Self-supplied industries withdrew about 983 Mgal/d, or 5 percent of all water withdrawn during 1985. Public suppliers delivered another 284 Mgal/d (9.4 percent of the total water-supply withdrawals) to industrial users.

Counties near the Gulf Coast used 65 percent of the total surface-water industrial withdrawals and 55 percent of the total ground-water industrial withdrawals.



INDUSTRIAL/MINING

Table 1.--Freshwater withdrawals in Texas, 1985, by county, use, and source, in million gallons per day

(---, not detected)

County	Irrigation			Thermoelectric power generation			Water supply			Industrial and mining			Other (domestic, commercial, and livestock)			Total		
	Ground water	Surface water	Total	Ground water	Surface water	Total	Ground water	Surface water	Total	Ground water	Surface water	Total	Ground water	Surface water	Total	Ground water	Surface water	Total
Anderson	0.11	0.33	0.44	---	---	---	3.06	3.23	6.29	0.35	---	0.35	1.44	0.80	2.24	4.96	4.36	9.32
Andrews	5.88	---	5.88	---	---	---	2.73	---	2.73	3.92	---	3.92	.99	.09	1.08	13.52	.09	11.61
Angelina	.40	---	.40	---	---	---	9.12	---	9.12	18.10	5.16	23.26	.63	.32	.95	28.25	5.48	33.73
Aransas	---	---	---	---	---	---	---	---	---	.40	---	.40	.05	.08	.08	.45	.05	.48
Archer	---	.20	.20	---	---	---	11.10	11.10	11.10	.40	---	.40	.15	1.17	1.32	.55	12.47	13.02
Armstrong	4.13	---	4.13	---	---	---	.22	---	.22	.02	---	.02	.48	.10	.58	4.85	.10	4.95
Atascosa	28.17	---	28.17	6.52	---	6.52	5.97	---	5.97	.85	---	.85	.76	1.55	2.31	42.27	1.55	43.82
Austin	6.51	---	6.51	---	---	---	1.93	---	1.93	.05	---	.05	1.16	1.55	2.71	9.65	1.55	11.20
Bailey	138.01	---	138.01	---	---	---	.99	---	.99	.02	---	.02	1.27	.24	1.51	140.29	.26	140.53
Bandera	.08	.14	.22	---	---	---	.37	---	.37	.02	---	.02	.95	.07	1.02	1.42	.21	1.63
Bastrop	.09	.23	.32	---	2.04	2.04	5.40	---	5.40	.07	.05	.12	.70	.84	1.54	6.26	3.16	9.42
Baylor	1.37	62.06	63.43	---	---	---	.94	1.31	2.25	---	---	---	.58	.40	.98	2.40	63.86	66.26
Bee	.64	.02	.66	---	---	---	2.33	---	2.33	.13	.02	.15	1.29	.97	2.26	4.39	1.01	5.40
Bell	.05	.84	.89	---	---	---	.80	34.19	35.00	.16	6.21	6.39	.46	.86	1.00	1.26	44.10	45.36
Bexar	15.14	11.10	26.24	1.70	680.01	681.71	241.42	---	241.42	.32	261.79	4.33	.39	4.72	1.23	1.31	2.54	265.87	693.13	957.00
Blanco	.23	.04	.27	---	---	---	.10	.36	.46	---	---	---	.59	.07	.66	.92	.47	1.39
Borden	.30	---	.30	---	---	---	---	---	---	.54	.04	.58	.11	.29	.40	.95	.33	1.28
Bosque	.20	1.26	1.46	---	---	---	1.83	---	1.83	.51	---	.51	.47	.85	1.32	3.21	1.91	5.12
Bowie	2.21	5.16	7.37	---	---	---	.17	53.13	53.30	.03	1.56	1.59	2.46	.79	3.25	4.87	60.64	65.51
Brazoria	12.12	113.97	126.09	---	---	---	16.58	.65	17.23	2.42	158.89	161.31	5.25	1.05	6.30	36.37	274.56	310.93
Brazos	5.80	1.45	7.25	---	---	---	24.02	---	24.02	.05	---	.05	.73	1.09	1.82	30.60	2.54	33.14
Brewster	.89	---	.89	---	---	---	1.43	.37	1.80	.65	---	.65	.71	.02	.73	3.68	.39	4.07
Briscoe	33.02	.33	33.35	---	---	---	.67	1.38	1.45	---	---	---	.31	.06	.37	33.40	1.77	35.17
Brooks	.22	---	.22	---	---	---	1.12	---	1.12	.14	---	.14	.34	.60	.94	1.82	.60	2.42
Brown	.79	3.06	4.05	---	---	---	.06	6.99	7.05	.06	---	.12	.10	.92	1.02	1.01	11.03	12.04
Burleson	5.40	.17	5.66	---	---	---	1.38	---	1.38	.10	---	.10	.77	.59	1.36	7.76	.76	8.50
Burnet	.54	---	.54	---	---	---	1.20	1.91	3.11	.10	.16	.26	.88	.42	1.30	2.72	2.49	5.21
Caldwell	.13	.32	.45	---	---	---	2.21	1.50	3.71	---	.02	.02	.46	.69	1.15	2.80	2.53	5.33
Calhoun	2.85	39.01	41.86	.06	---	.06	.21	2.46	2.66	---	16.78	16.78	.66	.17	.83	3.80	52.41	56.21
Callahan	.47	.20	.67	---	---	---	.26	.82	1.08	.20	---	.20	.60	.63	1.23	1.51	1.65	3.16
Cameron	---	292.61	292.61	---	---	---	---	41.01	41.01	---	---	---	1.21	1.43	2.64	1.21	335.05	336.26
Camp	.13	.01	.14	---	---	---	1.32	---	1.32	.07	---	.07	.41	.31	.72	1.93	.32	2.25
Carson	69.30	---	69.30	---	---	---	1.99	---	1.99	2.68	---	2.68	1.05	.20	1.25	75.02	.20	75.22
Cass	---	---	---	---	---	---	1.78	---	1.78	.51	.02	.53	1.89	.47	2.36	4.18	.49	4.67
Castro	311.98	---	311.98	---	---	---	2.36	---	2.36	.39	3.89	4.28	.87	.76	1.63	316.56	.87	317.43
Chambers	---	74.55	74.55	.08	---	.08	2.40	.42	2.82	.12	6.05	6.17	.37	.15	.52	2.97	81.17	84.14
Cherokee	.06	.29	.35	.36	410.25	410.61	4.24	.97	5.21	.10	---	.10	.88	.78	1.66	5.64	412.29	417.93
Childress	6.47	---	6.47	---	---	---	---	---	---	.02	---	.02	.04	.38	.42	6.51	.40	6.91
Clay	.39	.32	.71	---	---	---	.36	15.92	16.28	.27	---	.27	.33	.32	.65	1.75	1.36	17.76
Cochran	53.11	---	53.11	---	---	---	.66	---	.66	1.05	---	1.05	.77	.16	.93	55.59	.16	55.75
Coke	.45	---	.45	---	.38	.38	---	9.52	9.52	.35	---	.35	.08	.34	.42	.88	10.24	11.12
Coleman	---	1.11	1.11	---	---	---	---	1.85	1.85	.14	---	.14	.10	.84	1.02	.32	3.80	4.12
Collin	---	---	---	.46	88.68	89.14	1.57	96.11	97.68	.08	---	.08	.16	.12	1.08	1.20	2.23	187.95	190.18
Collingsworth	6.65	.07	6.72	---	---	---	---	.87	.87	---	---	---	.11	.61	.72	7.63	.68	8.31
Colorado	33.42	167.89	201.31	---	---	---	1.78	---	1.78	.95	1.33	2.28	1.61	.53	2.14	37.74	169.75	207.49
Comal	---	---	---	---	---	---	11.48	.22	11.70	.96	2.01	2.97	.33	.08	.41	12.77	2.31	15.08
Comanche	20.07	20.07	40.14	---	---	---	.09	2.11	2.20	.08	---	.08	.97	1.39	2.36	21.21	23.57	44.78
Concho	2.76	.60	3.36	---	---	---	.21	---	.21	---	---	---	.57	.79	1.36	3.54	.79	4.34
Cooke	.38	.06	.44	---	---	---	3.41	---	3.41	.22	.30	.52	1.26	.85	2.11	5.27	1.21	6.48
Coryell	.02	.43	.45	---	---	---	2.38	---	2.38	.09	.07	.16	.62	.54	1.16	3.11	1.04	4.15
Cottle	1.80	.02	1.82	---	---	---	.43	---	.43	---	.02	.02	.04	.33	.37	2.27	.37	2.64
Crane	.07	---	.07	---	---	---	1.10	---	1.10	3.32	---	3.32	.12	.01	.13	4.61	.01	4.62
Crockett	.54	---	.54	2.42	---	2.42	1.40	---	1.40	.54	---	.54	.71	.15	.86	5.61	.15	5.76
Crosby	43.85	1.83	45.68	---	---	---	.31	1.44	1.75	.02	---	.02	.56	.07	.63	44.74	3.34	48.08
Culberson	22.15	---	22.15	---	---	---	.65	---	.65	2.37	---	2.37	.32	.01	.33	25.49	.01	25.50
Dallas	228.29	---	228.29	---	---	---	1.68	---	1.68	---	---	---	1.75	.41	2.16	231.72	.41	232.13
Dallas	.12	.11	.23	1.06	774.47	775.53	15.29	277.14	292.43	1.29	.08	1.37	.29	2.93	3.22	18.05	1,054.73	1,072.78
Dawson	26.06	---	26.06	---	---	---	.23	---	.23	.77	---	.77	.54	.02	.56	27.60	.02	27.62
Deaf Smith	232.30	---	232.30	---	---	---	4.36	---	4.36	1.44	---	1.44	9.38	2.22	11.60	247.48	2.22	249.70
Delta	---	2.68	2.68	---	---	---	.12	.17	.29	---	---	---	.07	.65	.72	.19	3.50	3.69
Denton	.45	---	.45	---	---	---	8.74	5.01	13.75	.08	.09	.17	.68	.65	1.33	9.95	5.75	15.70
De Witt	.26	.04	.30	---	---	---	3.08	---	3.08	.10	---	.10	.94	1.52	2.46	4.38	1.56	5.94
Dickens	4.44	.55	4.99	---	---	---	.20	---	.20	.01	---	.01	.11	.41	.52	4.76	.96	5.72
Dimmit	18.57	1.30	19.87	---	---	---	1.99	---	1.99	.40	---	.40	.73	.17	.90	21.69	1.47	23.16
Donley	4.39	---	4.39	---	---	---	.64	3.63	4.27	.02	.39	.41	.07	.54	.61	5.12	4.56	9.68
Duval	1.82	---	1.82	---	---	---	1.67	---	1.67	1.33	---	1.33	.39	1.04	1.43	5.21	1.04	6.25
Eastland	10.44	2.94	13.38	---	---	---	.08	3.37	3.45	.51	---	.51	.27	.77	1.04	11.04	7.21	18.25
Ector	3.11	1.60	4.71	---	---	---	.35	---	.35	6.43	---	6.43	3.34	.01	3.35	13.43	1.61	15.04
Edwards	---	.20	.20	---	---	---	.29	---	.29	.01	---	.01	.42	.09	.51	.72	.29	1.01
Ellis	---	---	---	---	---	---	4.76	7.65	12.41	2.44	.73	3.17	.09	.82	.91	7.31	9.20	16.51
El Paso	1.13	164.76	164.09	1.79	---	1.79	86.49	14.58	101.07	5.98	.32	6.30	2.13	.18	2.31	97.72	159.86	257.56
Erath	6.25	1.19	7.44	---	---	---	2.53	---	2.53	.01	---	.01	2.02	1.16	3.18	10.81	2.35	13.16
Falls	2.05	.96	3.01	---	---	---	.36	1.43	1.79	.05	---	.05	.40	1.70	2.10	2.86	4.09	6.95
Fannin	.61	2.56	3.17	.31	499.65	499.96	1.60	1.17	2.77	.05	---	.05	.33	1.25	1.58	3.05	504.63	507.68
Fayette	.17	.47	.64	---	7.34	7.34	1.93	---	1.93	.04	.01	.05	.98	1.64	2.62	3.12	9.46	12.58
Fisher	2.59	.23	2.82	---	---	---	---	---	---	.48	---	.48	.06	.56	.62	3.13	.79	3.92
Floyd	84.50	2.61	87.11	---	---	---	.19	---	.19	.06	---	.06	1.08	.20	1.28	85.83	2.81	88.64
Foard	2.60	---	2.60	---	---	---	.05	---	.05	.02	---	.02	.19	.21	.40	2.87	.21	3.08
Fort Bend	28.63	72.81	101.44	.53	20.51	21.04	22.44	7.45	29.89	2.59	55.23	57.82	1.94	.30	2.24	56.13	156.30	212.43
Franklin	---	.18	.18	---	---	---	.03	1.16	1.19	.56	---	.56	.39	.57	.96	.98	1.91	2.89
Freestone	.09	---	.09	.07	946.25	946.32	1.66	.30	1.96	.05	.09	.12	.60	.82	1.42	2.45	947.46	949.91
Frio	43.25	.48	43.71	.06	---	.06	2.32	---	2.32	.29	.29	.57	1.08	1.45	2.53	46.47	1.50	48.03
Gaines	253.27	---	253.27	---	---	---	2.06	---	2.06	4.00	---	4.00	1.02	.13	1.15	260.35	.13	260.48
Galveston	.16	4.18	4.34	---	---	---	8.56	.67	9.23	.02	---	.02	2.12	.19	2.31	11.09	4.86	15.66
Garza	2.45	---	2.45	---	---	---	.01	---	.01	.69	---	.69	.18	.39	.57	3.33	.39	3.72
Gillespie	1.53	.13	1.66	---	---	---	2.06	---	2.06	.01	.07	.08	1.26	.40	1.66	4.86	.60	5.46
Glasscock	21.59	---	21.59	---	---	---	.01	---	.01	---	---	---	.41	.07	.48	22.01	.07	22.08
Goliad	.02	.35	.37	---	---	---	.40	---	.40	.48	---	.48	.50	.99	1.49	1.40	1.34	2.74
Gonzales	.84	.43	1.27	---	---	---	1.10	2.73	3.83	.02	---	.02	.58	3.03	3.61	2.54	6.19	8.73
Grey	19.18	---	19.18	---	---	---	2.66	---	2.66	3.46	.02	3.48	.70	1.69	2.39	26.02	1.71	27.73
Grayson	3.66	1.09	4.75	---	---	---	11.88	5.17	17.05	.47	.53	1.00	.39	.97	1.36	16.40	7.76	24.16
Gregg	---	.06	.06	---	---	---	1.26	.43	20.95	21.38	3.72	25.10	.95	.15	1.10	5.30	26.26	29.86
Grimes	.18	---	.18	---	---	---	2.21	2.21	1.29	---	---	---	.09	1.20	1.07	2.27	2.76	3.28	6.04
Guadalupe	1.12	.99	2.11	---	---	---	.24	4.86	5.10	.08	.24	.32	.27	.81	1.08	1.71	6.90	8.61
Hale	400.07	4.04	404.11	---	---	---	3.23	---	3.23	1.80	---	1.80	2.09	.29	2.38	407.19	4.33	411.52
Hall	8.00	---	8.00	---	---	---	.18	---	.18	---	.02	.02	.04	.33	.37	8.22	.35	8.57
Hamilton	.54	.58	1.12	---	---	---	.22	---	.22	---	---	---	.96	.62	1.58	1.72	1.20	2.92
Hansford	198.29	---	198.29	---	---	---	1.21	---	1.21	.78	---	.78	3.03	.73	3.76	205.31	.73	204.04
Hardeman	6.03	.19	6.22	---	.01	.01	.12	---	.12	---	.02	.02	.11	.37	.48	6.28	.59	6.85
Hardin	1.25	217.85	219.10	---	---	---	15.40	---	15.40	1.02	---	1.02	1.77	1.85	3.62	17.44	217.99	235.35
Harris	20.85	---	20.85	9.86	---	9.86	318.49	193.48	511.97	28.76	46.79	75.55	7.27	.35	7.62	385.23	240.62	625.85
Harrison	.08	---	.08	---	5.58	5.58	1.31	6.79	8.10	.44	30.51	30.95	1.55	.54	2.09	3.38	43.42	46.80
Hartley	170.31	---	170.31	---	---	---	.14	---	.14	---	---	---	2.67	.66	3.33	173.12	.66	173.78
Haskell	9.74	---	9.74	---	70.16	70.16	.12	2.11	2.23	.10	---	.10	.99	.34	1.33	10.95	72.61	83.56
Hays	.17	.81	.98	---	---	---	11.35	.09	11.44	1.04	---	1.04	.87	.11	.98	13.43	1.01	14.44
Hemphill	5.99	.12	6.11	---	---	---	.84	---	.84	---	---	---	.35	1.27	1.62	7.18	1.39	8.57
Henderson	.06	.03	.09	.09	.55	.64	3.20	99.98	103.18	.83	---	.83	1.85	1.22	2.23	5.19	101.78	106.97
Hidalgo	8.88	597.48	606.36	---	1.82	1.82	1.46	49.43	50.89	.52	.56	1.08	3.13	1.06	4.19	13.99	650.35	664