

SECTION 5

SURFACE WATER

5.1 General

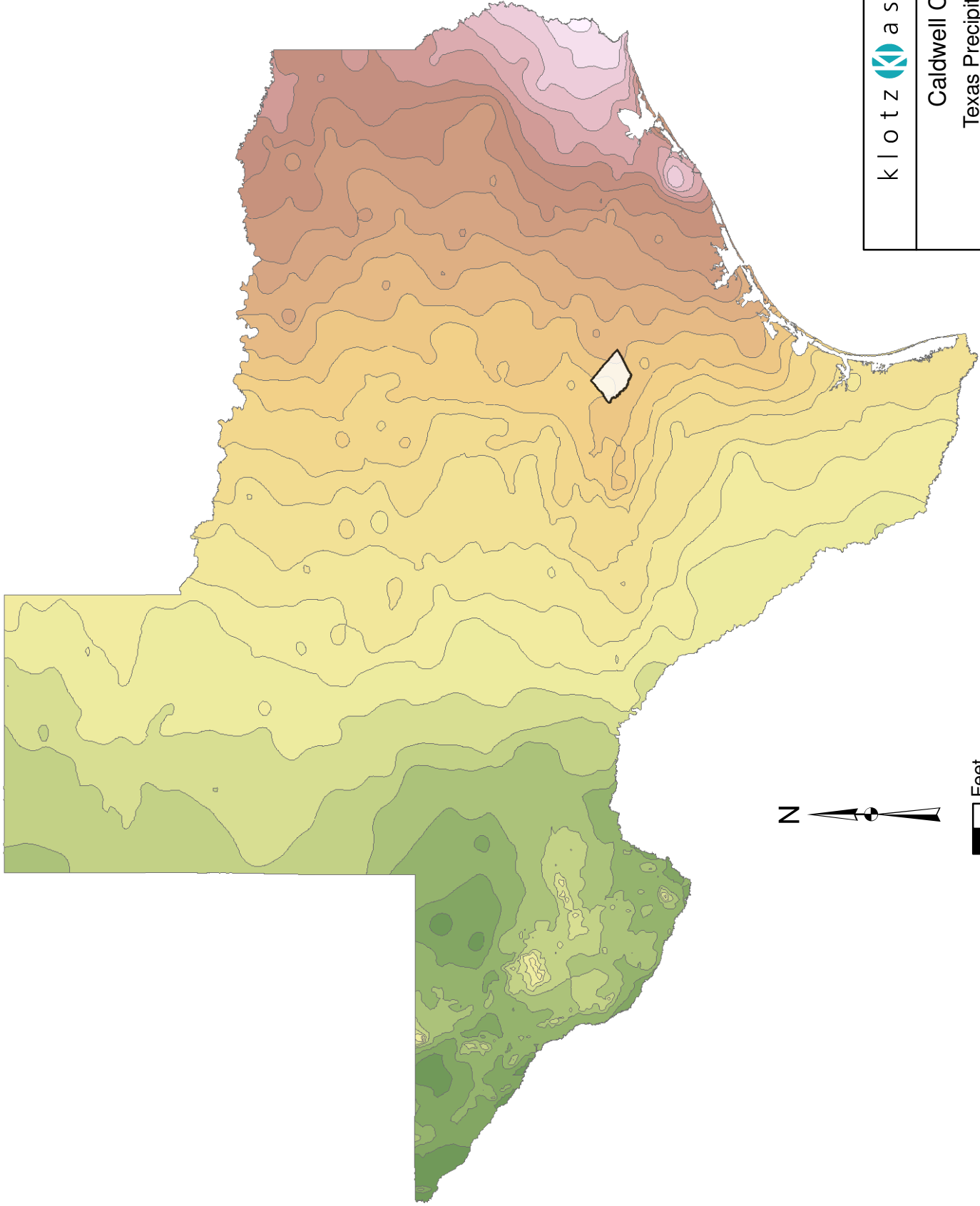
Surface water in Texas is owned by the state and permission to use the water is granted through a “water right”. When a water right is acquired, water may then be diverted from its natural channel for use. However, a water right does not guarantee that water will be available. Water availability is determined by many factors but the most important are precipitation and subsequent water recharge. Average annual precipitation in Texas is illustrated in *Exhibit 5-1* with average annual precipitation in Caldwell County ranging from about 32 inches to 38 inches. Water rights permit allow the holder to divert stream flow for municipal, industrial, irrigation, mining, hydropower, and recreational use provided water is available and the use is not wasteful.

5.2 Surface Water Supply Sources

Surface water use for Caldwell County has ranged annually depending on availability from the Guadalupe and Colorado River Basins. Data obtained from the TWDB indicates that historic annual surface water use for Caldwell County ranged from 2,500 ac-ft to about 3,500 ac-ft. The surface water use illustrated in *Graph 5-1* depicts the total of the Guadalupe and Colorado River Basins from 1974 to 2004. The TWDB reports that provided the data are in **Appendix F**.

5.2.1 Guadalupe River Basin

The Guadalupe River Basin serves as the primary source of surface water for Caldwell County. The Guadalupe River Basin is entirely in Texas and is largely within the statutory district of the GBRA as shown in *Exhibit 5-2*. The Guadalupe River Basin is a valued source of water to local and regional suppliers.



0 Feet
0 200,000

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Caldwell County
Texas Precipitation Map

Water and Wastewater Planning Study

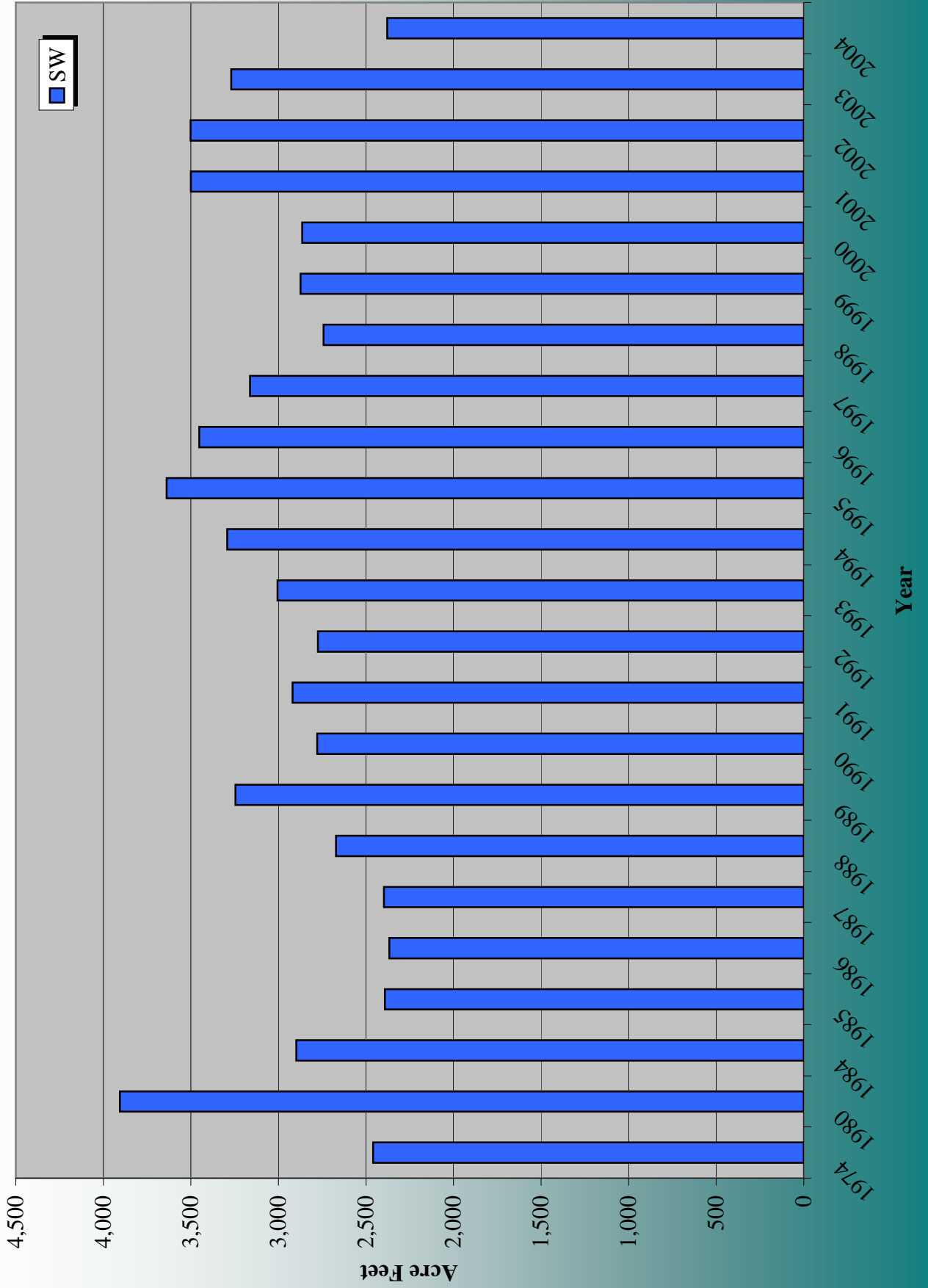
Klotz Proj. No: 0972.001.000

June 2009

EXHIBIT

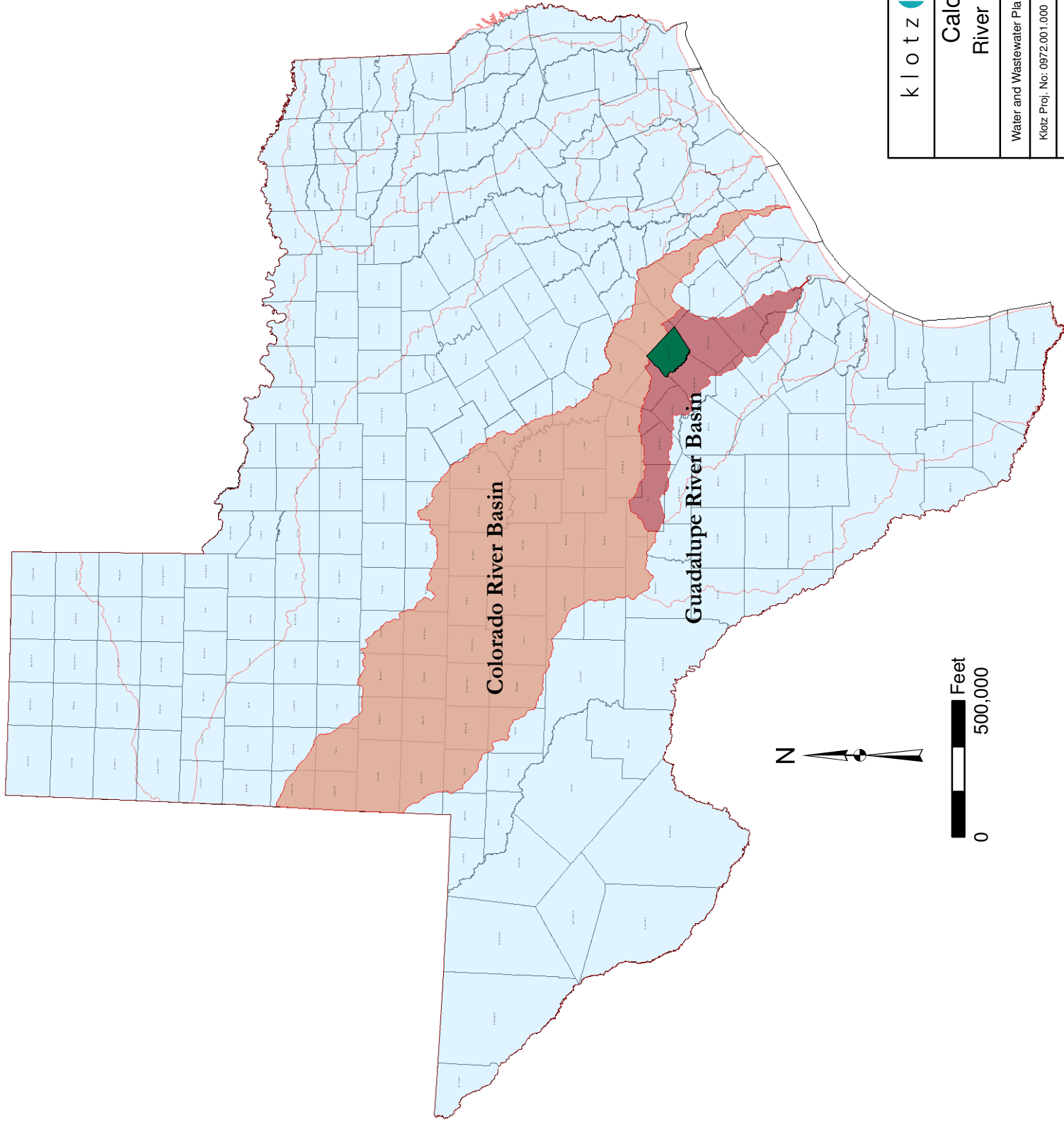
5-1

Graph 5-1
TWDB - Caldwell Surface Water Use Summary



Legend

-  River Basins
-  Counties
-  Caldwell County



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**Caldwell County
River Basin Boundary**

Water and Wastewater Planning Study

Klotz Proj. No: 0972.001.000

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EXHIBIT

5-2

Approximately 66% of the water vendors surveyed indicated that they use surface water purchased from GBRA.

Water (surface water and groundwater) used in Caldwell County from within the boundaries of the Guadalupe River Basin has historically averaged about 6,500 ac-ft per year. The Guadalupe Basin remains the primary source of water for the county. *Graph 5-2* illustrates the historical water in Caldwell County by basin of origin.

5.2.2 Colorado River Basin

The Colorado River Drainage basin has reportedly provided less than 6.5% of the reported water use in Caldwell County. The portion of the drainage basin in the county has yielded an average of 350 ac-ft annually. The Colorado River Basin is managed by the Lower Colorado River Authority (LCRA).

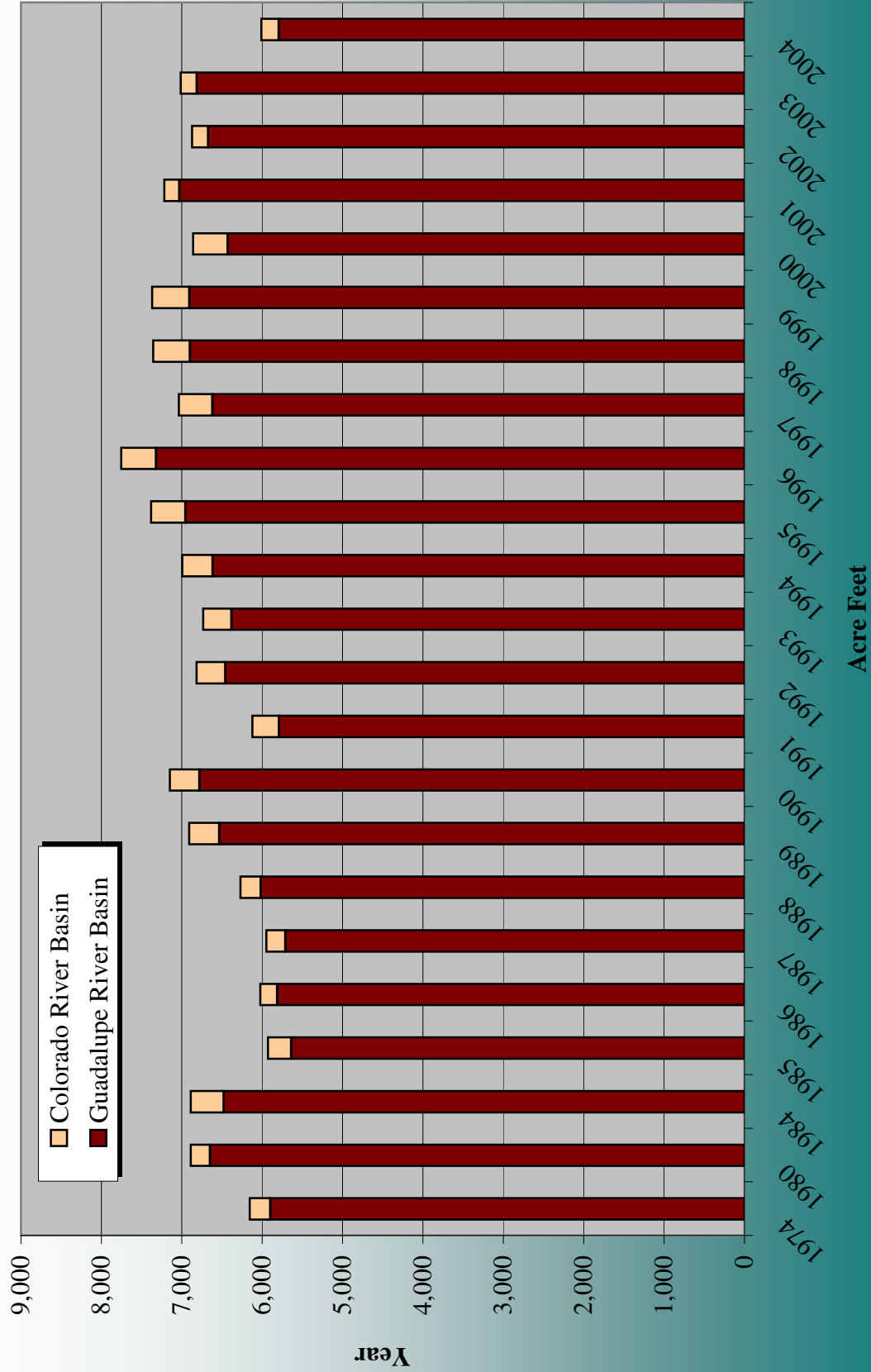
5.3 Surface Water Supply Uses

Municipal use is the county's major use of surface water. Based on historical data from 1990 to 2004, municipal water use has accounted for between 65% and 80% of the total water used in the county. *Graph 5-3* illustrates historical percentages of surface water use for typical categories. Although irrigation and livestock water use have decreased, they still account for about 20%. Mining, steam electric and manufacturing account for less than 0.5% of the water used in the County.

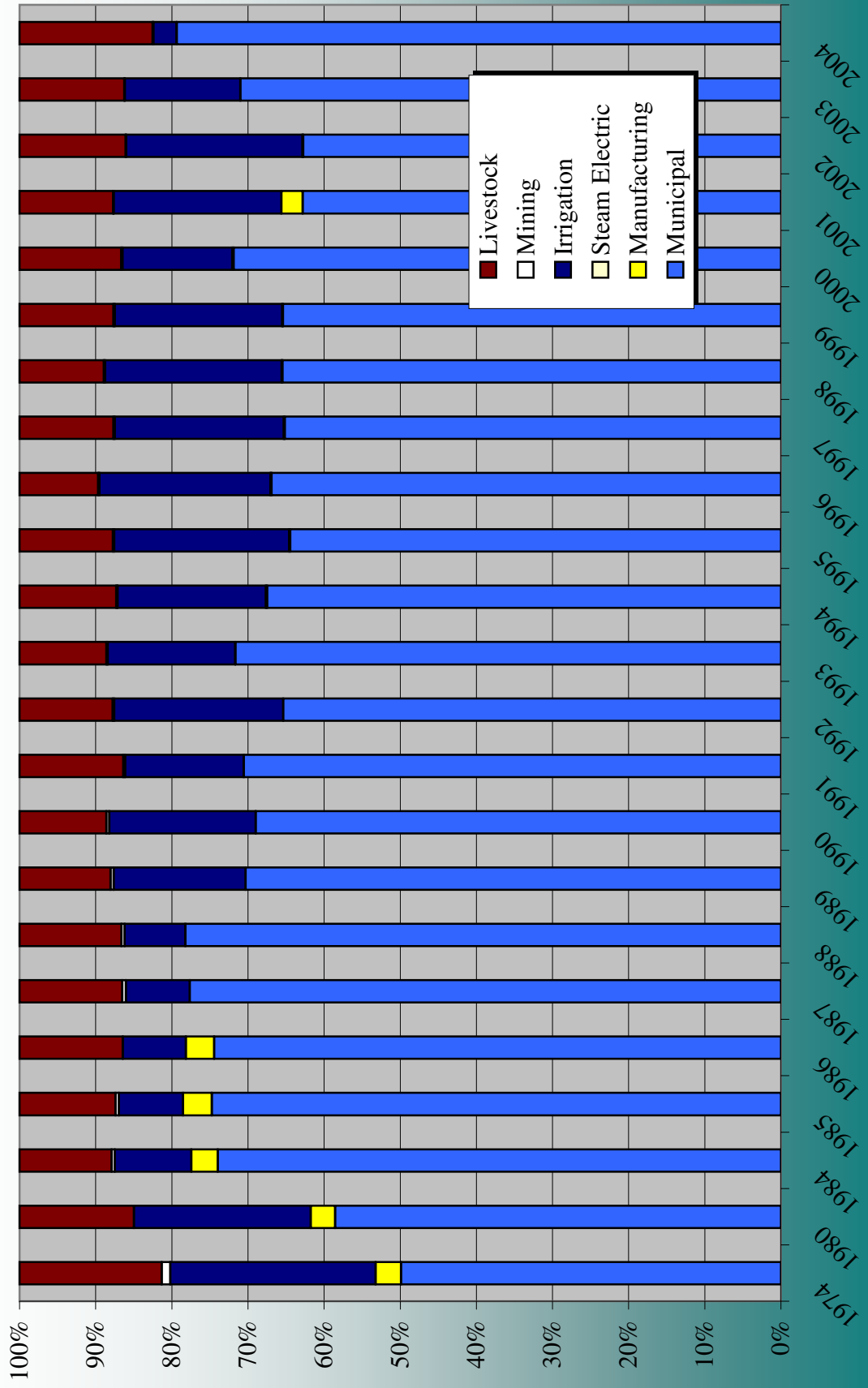
5.4 Surface Water Rights

Currently, surface water is accessed and obtained through a water rights permitting process prescribed by the TCEQ. Anyone desiring to use surface water needs a permit from the State of Texas. Exemptions from this requirement are

Graph 5-2
TWDB- Caldwell County Historic Water Use Summary by River Drainage Basin



**Graph 5-3
Caldwell County Yearly Surface Water Use Percentages**



available for (1) domestic and livestock use, (2) wildlife management, (3) emergency use, and (4) other specified uses listed in the Texas Water Code.

Through these appropriated rights users are allowed to divert and store water for use. However, a priority date is assigned to each right granted. The priority date determines the order of water to be used. It is a pecking order for water use. In drought conditions and when stream flows are lowered and reduced, the TCEQ administers water rights on a priority basis known as “first in time, first in right.”

A list of water rights for Caldwell County can be found in **Appendix G**. This data was obtained from a TCEQ water rights database. Most of the water rights listed for Caldwell County are associated with the San Marcos River. The largest permitted volumes are owned by GBRA and Hydraco Power, Inc.