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*The  
Edwards of Guifer  
of Authority*

DECEMBER 31, 2001

SAN ANTONIO, TEXAS



It has been my privilege to serve as chairman of the Edwards Aquifer Authority Board of Directors since the very first day we came into existence, August 10, 1995.

In our first five years we've made significant progress on many key issues. But, if I had to choose one accomplishment that I'm most proud of, it's the ability we've shown, as a board, to work together for the betterment of the entire region. Of course, the highlight of the last year for all of us was the beginning of the issuance of our Initial Regular Permits for the withdrawal of groundwater from the Edwards Aquifer. This has been a long and difficult task, but our staff has done a superb job and we have now issued well over five hundred permits.

Our success as an agency is a direct reflection of the capability, hard work and dedication of our board and staff. I'm confident that our best work is still ahead of us, and no doubt there is still much more to do! I know we're up to the challenge, and we'll continue to do all that is in our power to fulfill our mission of management, protection, and stewardship.

Michael D. Beldon  
Chairman of the Board

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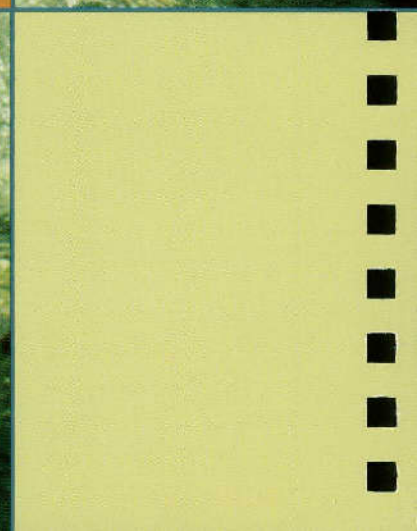
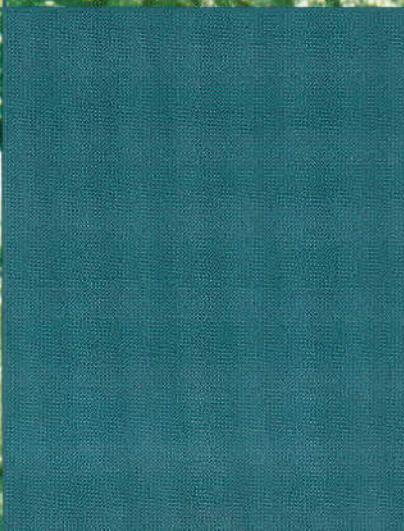
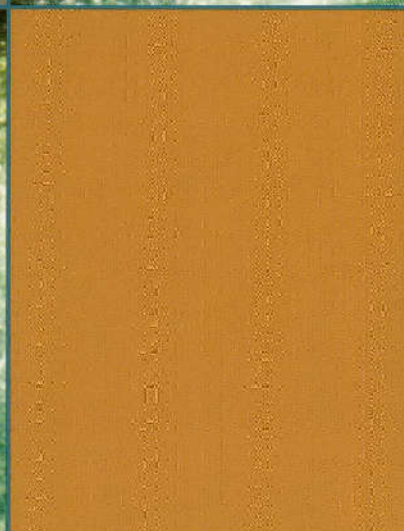
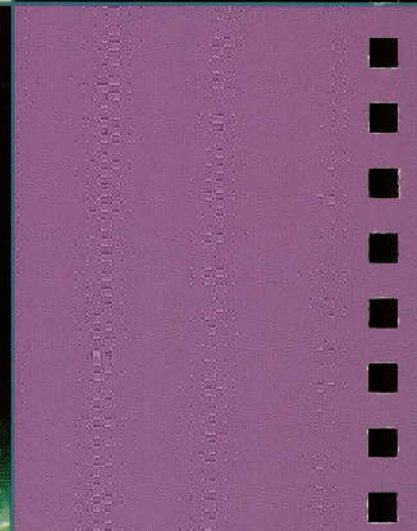
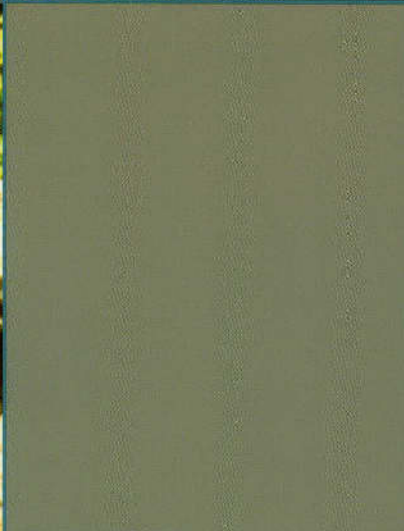
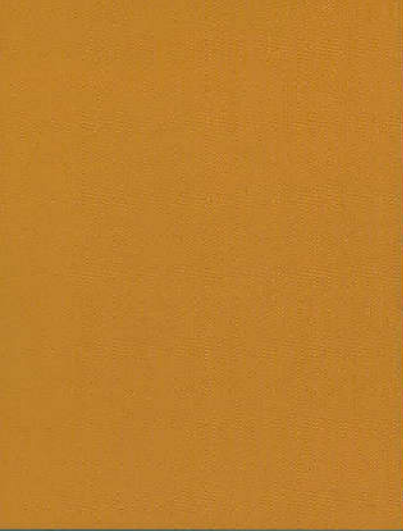
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December 31, 2001

Prepared by  
Administration Team and  
Public Affairs Team

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## MISSION STATEMENT

The Edwards Aquifer Authority is committed to manage and protect the Edwards Aquifer system and work with others to ensure the entire region of a sustainable, adequate, high quality and cost effective supply of water, now and in the future.

## EDWARDS AQUIFER AUTHORITY ACT

The Edwards Aquifer Authority was created by the Texas Legislature to preserve and protect this unique groundwater resource. The Edwards Aquifer Authority Act passed in 1993. However, legal challenges prevented the Authority from operating until June 1996. The Act created a 17-member board of directors that sets policy to manage, conserve, preserve and protect the aquifer, and works to increase recharge and prevent waste or pollution of the aquifer. The board has 15 elected members from the region and two non-voting appointed members to carry out the duties set out in the Act. The Act also established the South Central Texas Water Advisory Committee (SCTWAC), made up of representatives from downstream counties to interact with the Authority when issues related to downstream water rights are discussed.



## EDWARDS AQUIFER AUTHORITY GOALS

The Authority board established a specific set of eight goals. Each of these goals works together to achieve the mission of the agency to:

- Fully implement the requirements of the Edwards Aquifer Authority Act
- Develop an effective, comprehensive management plan based on sound, consensus-based scientific research and technical data
- Maintain continuous springflow
- Protect and ensure the quality of ground to surface water in the Authority's jurisdiction
- Forge solutions that ensure public trust
- Promote healthy economies in all parts of the region
- Research and develop additional sources of water
- Provide strong, professional management for the Authority



April 9, 2002

To the citizens of the Edwards Aquifer Authority:

We are pleased to present the comprehensive annual financial report of the Edwards Aquifer Authority (the Authority) for the fiscal year ending December 31, 2001. This report marks the first such report published by the Authority since its creation in 1996. The Authority is responsible for the accuracy and completeness of the information included in this report. To the best of our knowledge, all information in this report is accurate in all respects and is presented in a manner designed to enable the reader to gain an understanding of the Authority's financial and operational activities.

The comprehensive financial annual report is presented in four sections: introductory; programmatic; financial; and statistical. The introductory section includes our Mission Statement, the Edwards Aquifer Authority Act, Edwards Aquifer Authority Goals, this transmittal letter, the Authority's organizational chart, and a list of the board of directors and management team.

The programmatic section highlights the Authority's primary accomplishments of 2001. These accomplishments include: the Authority's issuing of the first initial regular groundwater withdrawal permit; approval of the 30-year water supply plan; development of a five-year strategic plan; continued operation of a precipitation enhancement program; and continued research conducted as part of the Edwards Aquifer Optimization Program.

The financial section includes the general purpose financial statements, the combining and individual fund and account group financial statements and schedules, as well as the independent auditor's report on the financial statements and schedules. In this report, the firm of Padgett, Stratemann & Co., L.L.P., expresses their unqualified opinion the financial statements are presented fairly and in conformity with generally accepted accounting principles.

The statistical section includes selected financial and demographic information. This information is presented in both single-year and multi-year formats. Multi-year information dates back to 1996, or the first year of Authority operations.





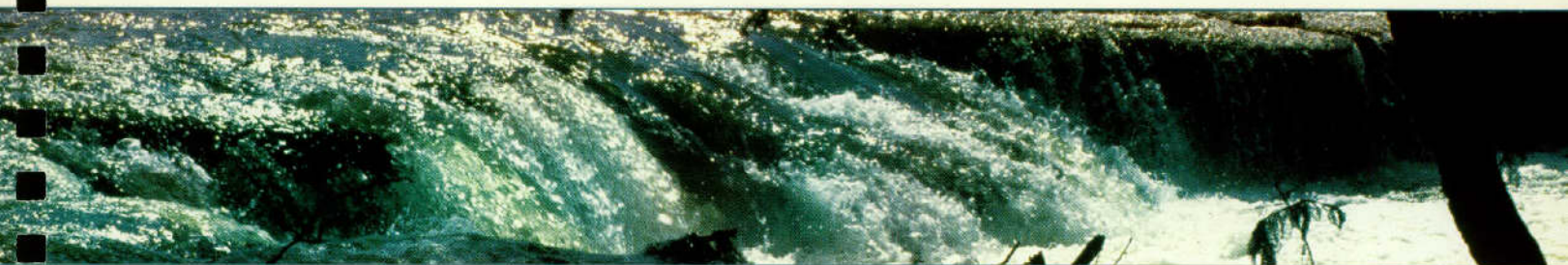
## HISTORY OF THE EDWARDS AQUIFER AUTHORITY

The southern portion of the Edwards Aquifer is one of the world's unique groundwater resources, covering about 180 miles of south central Texas. It is the sole source of water for a unique system of aquatic life, including several threatened and endangered species. Cities, towns, rural communities, and farm and ranch lands all depend on the aquifer's water for household, agricultural, industrial, and recreational purposes.

The diversity of uses illustrates the importance of the aquifer to the lives and livelihoods of residents in the Edwards Aquifer region.

The Authority was created by the Texas Legislature in 1993, to preserve and protect this unique groundwater resource. However, legal challenges prevented the Authority from operating until June 1996. The Edwards Aquifer Authority Act (the Act) created a 17-member board of directors that sets policy to manage, conserve, preserve, and protect the aquifer and works to increase recharge and prevent waste or pollution of the aquifer.

The board has fifteen elected members from the region and two non-voting appointed members to carry out the duties set out in the Act.



## ECONOMIC CONDITION

The Authority's jurisdiction includes all or portions of eight counties in south central Texas – Atascosa, Bexar, Caldwell, Comal, Guadalupe, Hays, Medina, and Uvalde. As is evident in the table below, these counties experienced significant growth between 1990 and 2000.

County	2000 Population (Total)	% Change from 1990 (Total)	2000 Population (Jurisdiction)	% Change from 1990 (Jurisdiction)
Atascosa	38,628	26.5%	2,544	13.1%
Bexar	1,392,931	17.5%	1,392,931	17.5%
Caldwell	32,194	22.0%	20,300	9.6%
Comal	78,021	50.5%	48,315	34.1%
Guadalupe	89,023	37.2%	55,446	54.5%
Hays	97,589	48.7%	53,965	33.1%
Medina	39,304	43.9%	39,304	43.9%
Uvalde	25,926	11.1%	25,926	11.1%

In terms of actual population, Bexar County experienced the most significant growth gaining about 200,000 residents since 1990. San Antonio, the county seat of Bexar County and home to about 1.1 million people, is the nation's ninth largest city. Comal, Guadalupe, and

Hays counties also experienced significant population increases in the last decade. These counties are located between San Antonio and Austin. Medina County's growth is primarily associated with the metropolitan expansion of San Antonio.

Bexar County, representing about 85% of the total population of the Authority's region, was the source of 78% of the Authority's aquifer management fee revenue in 2001. The average unemployment in Bexar County for 2001 was 4.1%; up from 3.5% in 2000. These rates were slightly below the respective state-wide averages for Texas of 4.9% and 4.2%. A significant portion of San Antonio's economy depends on tourism. According to the Greater San Antonio Chamber of Commerce, early indications are that San Antonio's economy is doing well given recent national economic trends following the tragic events of September 11. In particular, San Antonio experienced a modest 1.7% increase in tourist attendance between 2000 and 2001. This increase is generally viewed as a positive sign in the city's tourism industry in light of the negative effect of September 11 on the national tourism

industry. The city's total non-farm employment also increased 1.7% in 2001, primarily because of a 2.9% increase in trade jobs and 2.4% increase in service employment. These two categories represent the largest employment sectors in San Antonio and together with government employment help maintain a diverse workforce that is vital to maintaining a strong economic base.

The Authority plays a critical role in the continued viability of the entire region as a home for citizens and businesses. As the primary source of water for all uses, the amount and the quality of the water provided by the Edwards Aquifer are vital to continued economic growth.



## MAJOR INITIATIVES

### 2001.

The Authority is charged with limiting annual withdrawals from the aquifer to 450,000 acre-feet. (An acre-foot, which is the volume of water required to cover an acre of land to a depth of one foot, equates to about 326,000 gallons.) On January 9, 2001, the board of directors approved the first set of initial regular permits for groundwater withdrawals. In 2001, the board approved 536 initial regular permits, representing 216,275 acre-feet, and denied 161 permits.

### FUTURE.

The Authority will continue to issue groundwater withdrawal permits through 2002. Some other vital projects the Authority expects to complete in the next year are discussed below.

**HABITAT CONSERVATION PLAN.** The Authority is mandated to protect environmental resources while also protecting domestic and municipal water supplies, existing industries, and economic development of the state.

In 1999, the Authority began development of a Habitat Conservation Plan (HCP) for Comal Springs, San Marcos Springs and associated habitats. The HCP is an integral part of an "Incidental Take Permit." An Incidental Take Permit authorizes "taking" endangered or threatened species if the taking is incidental to otherwise lawful activities. The HCP must include measures that would adequately minimize and mitigate the effects of any incidental taking. The draft HCP and related Environmental Impact Statement are scheduled to be completed in 2002.

**WATER QUALITY RULES.** The Authority plans to adopt a number of rules designed to protect water quality over the next few years. These rules are scheduled to be adopted by the board beginning in 2002. All water quality rules should be in effect by 2004.

**DEMAND MANAGEMENT/CRITICAL PERIOD RULES.** The Authority is also developing demand management and critical period rules. These rules, which regulate how much groundwater may be used during times of low rainfall and declining aquifer levels, are scheduled for adoption in 2002.

## FINANCIAL INFORMATION

Authority management is responsible for administering the internal control structure designed to protect the Authority's assets from loss, theft or misuse, and to ensure that adequate accounting data are compiled to allow for the preparation of financial statements conforming with generally accepted accounting principles. The Authority's accounting system and purchasing process serve to safeguard assets and provide reasonable assurance that financial transactions are executed properly and efficiently.

**BUDGETING CONTROLS.** The Authority bylaws adopted by the board of directors require the general manager to prepare an annual budget prior to the start of each fiscal year. The budget includes estimated funds available from all sources and includes appropriations of expenses anticipated in that year to conduct the activities of the Authority. The general manager is authorized to expend

funds in amounts up to but not exceeding the amounts included in the budget adopted by the board. In addition, the bylaws require board approval of any individual Authority expenditure exceeding \$15,000. The board receives regular monthly reports comparing the Authority's actual expenses to the budget.

**GENERAL GOVERNMENT FUNCTIONS.** Funding for all Authority general government programs comes primarily from an aquifer management fee charged to agricultural and non-agricultural users of Edwards Aquifer groundwater. The aquifer management fee for non-agricultural users is assessed on groundwater authorized to be used for the year. Fees for agricultural users are charged on groundwater actually used during the preceding year. The revenue collected from agricultural users in 2001 is based on the aquifer management fee rate assessed in 2000.

Below is a summary of aquifer management fee rates since 1997, the first year these fees were assessed:

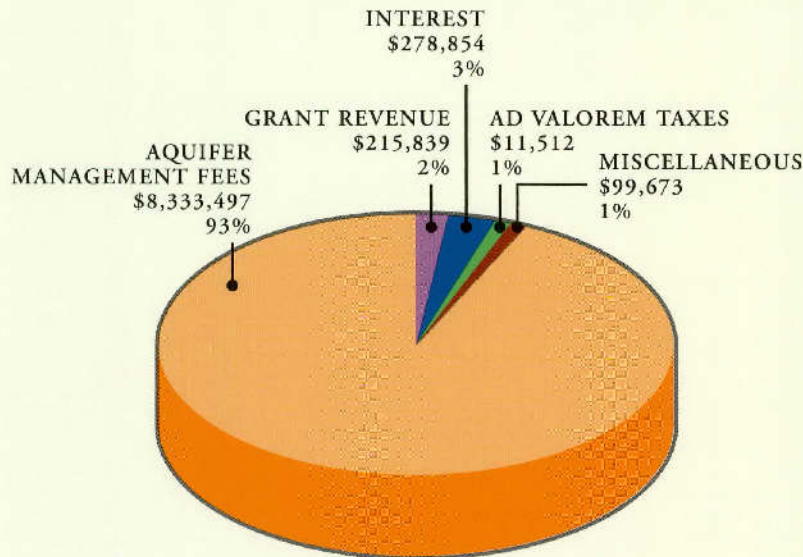
Aquifer Management Fee History (dollars per acre-foot)					
	1997	1998	1999	2000	2001
Non-Agricultural	\$11.00	\$17.00	\$18.50	\$18.50	\$23.00
Agricultural (Base)*	N/A	N/A	N/A	N/A	\$ 3.00
Agricultural (Unrestricted)	\$ 2.00	\$ 3.40	\$ 3.60	\$ 3.70	\$ 4.60

\* Prior to 2001, the Authority assessed only one agricultural aquifer management fee. The Texas Legislature amended the Edwards Aquifer Authority Act to limit the aquifer management fee rate for agricultural groundwater use to \$2.00 per acre-foot and expanded the definition of "agricultural use." These amendments went into effect September 1, 2001. Groundwater used before that date was assessed the fees described above. The fee for groundwater used for agricultural purposes after September 1 was limited to \$2.00 per acre-foot.

The following information, depicted in table and graphic form, summarizes general fund revenue for the fiscal year-ended December 31, 2001, and the amount and percentage of changes from prior year revenue.

Revenue	Amount	Percent of Total	Increase (Decrease) from 2000	Percent of Increase (Decrease)
Aquifer Management Fees	\$8,333,497	93.22%	\$1,591,429	23.60%
Interest	278,854	3.12%	(156,941)	(36.01%)
Ad Valorem Taxes	11,512	0.13%	(8,692)	(43.02%)
Grant Revenue	215,839	2.41%	(146,440)	(40.42%)
Miscellaneous	99,673	1.11%	74,257	292.17%
Total	\$8,939,375	100.00%	\$1,353,613	17.84%

### 2001 General Fund Revenue (by Category)



In 2001, non-agricultural aquifer management fee revenue represented 95% of total aquifer management fee revenue. The 23% increase in revenue from this source over the prior year is primarily the result of a 24% increase in the non-agricultural aquifer management fee rate from \$18.50 per acre-foot in 2000, to \$23.00 in 2001.

Interest revenue decreased by about 36% from the prior year due to average lower interest rates that decreased from 5.9% in 2000, to 3.6% in 2001.

The Authority does not assess ad valorem taxes. However, the Authority does collect delinquent tax revenue owed to the Authority's predecessor agency, the Edwards Underground Water District. Revenue from this source decreased by 43% from 2000.

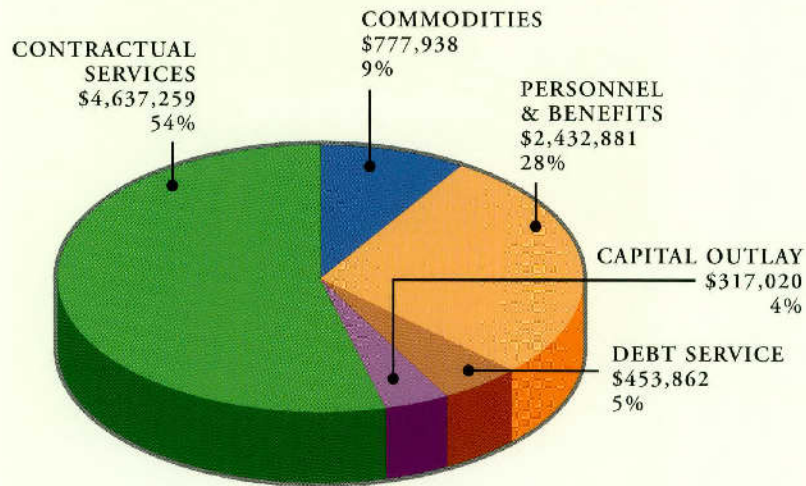
The Authority's precipitation enhancement program was partially funded by a grant from the Texas Natural Resource Conservation Commission (TNRCC). The TNRCC reimburses up to 50% of eligible expenses. In 2001, the Authority's expenses related to precipitation enhancement were less than the expenses in 2000, leading to a 40% reduction in grant revenue.

Miscellaneous revenue increased by 292% over the 2000 amount. There were two events that led to this increase. The Authority contracted with and paid Bexar County to administer the Authority's 2000 director elections. The expenses associated with election were less than expected. Therefore, Bexar County refunded about \$33,000 to the Authority in 2001. The Authority also received about \$34,000 in revenue associated with hosting a water symposium held in September 2001.

The following information, also depicted in table and graphic form, summarizes general fund expenditures for the fiscal year-ended December 31, 2001, and the amount and percentage of changes from prior year expenditures.

Expenditures	Amount	Percent of Total	Increase (Decrease) from 2000	Percent of Increase (Decrease)
Personnel	\$2,432,881	28.23%	\$262,992	12.12%
Commodities	777,938	9.03%	299,587	62.63%
Contractual Services	4,637,259	53.80%	421,690	10.00%
Capital Outlay	317,020	3.68%	(243,874)	(43.48%)
Debt Service	453,862	5.21%	160	.04%
Total	\$8,618,960	100.00%	740,555	9.40%

### 2001 General Fund Expenditure (by Category)



The 12% increase in the Authority's 2001 personnel expenditures over 2000 is the result of a combination of factors. These factors include the addition of two new positions in 2001, a lower employee turnover rate compared to 2000, and increased funding for employee health insurance benefits.

The Authority experienced a 62% increase in commodities expense over 2000. A good portion of this increase is attributed to increased printing costs for public awareness, groundwater withdrawal permits, and materials to support the Authority's efforts during the 2001 Texas Legislative Session. The Authority also experienced increased expenses associated with an enhanced public education program.

Contractual services expenses in 2001 were about 10% higher than in the prior year. This increase was due to surface water project payments to the City of San Marcos, purchase of groundwater rights, and the beginning of special counsel activity related to contested case hearings.

The Authority purchased a number of capital items such as well meters, well logging equipment, and water testing equipment in 2000. Because the Authority's need for new and replacement capital equipment in 2001 was less than in 2000, the Authority spent about 43% less in this category in 2001.

### DEBT ADMINISTRATION

The Authority has never issued any bonds. However, the Authority in 1998 and again in 2001 received loans from the Texas Water Development Board (TWDB) to fund the Agricultural Water Conservation Loan Program. The funds borrowed by the Authority are used to issue subsequent loans to irrigators to install high efficiency irrigation equipment. Irrigators are required to repay these collateralized loans at interest rates slightly higher than the interest rate the Authority pays the TWDB. The Authority uses this additional interest to help defray the cost of administering the program. The Authority borrowed \$3,000,000 in 1998, and \$500,000 in 2001.

### GENERAL FUND BALANCE

The balance of the Authority's general fund increased 24% in 2001. This increase, which is due to increased revenue and decreased expenses, will enable the Authority to minimize the aquifer management fee rate in 2002.

### SPECIAL REVENUE FUNDS BALANCE

The Authority's balance of the special revenue fund increased a slight 1.4%.

### EMPLOYEE RETIREMENT PROGRAM

The Authority and all full-time employees participate in two retirement programs. Employees participating in these programs contribute a total of 7% of their gross earnings. The Authority matches a total of 7%. The Texas Counties and Districts Retirement System (TCDRS) is a non-traditional defined benefit program governed by state law. The TCDRS contribution rate for employees is 4% of gross earnings. The Authority contributed 2.74% of employee salaries to TCDRS in 2001. The Authority also participates in a defined contribution retirement plan sponsored by the International City Management Association (ICMA) Retirement Corporation. Under the terms of this program, employees contribute 3% of their gross earnings. For 2001, the Authority contributed 4.26% to ICMA on behalf of employees.

### CASH MANAGEMENT

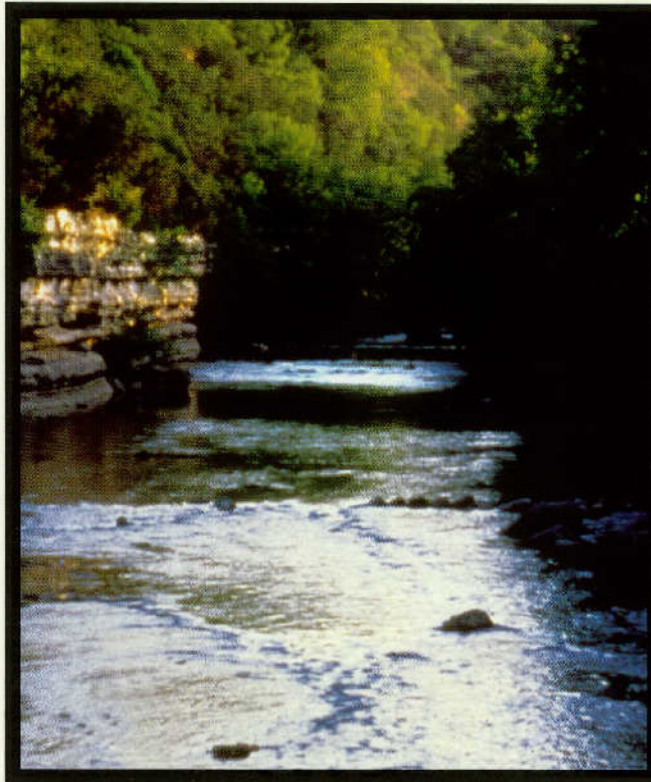
The Authority, in compliance with the State of Texas' Public Funds Investment Act, has adopted and reviews annually its Investment Policy and Investment Strategy Statement. This statement, which is a section of the Authority's Bylaws, identifies the organization's investment objectives. In priority order, these objectives are: the preservation and safety of the principal; liquidity; investment diversification; reasonable yield; appropriate maturity dates; and the enhanced quality and capability of investment management.

Cash temporarily idle during 2001 was invested in demand deposit accounts, money market accounts, certificates of deposit and U.S. Treasury Bills. Demand deposit and money market accounts are fully collateralized by the Authority's central depository. Certificates of deposit were purchased in a number of regional banks in \$100,000 increments. These certificates are insured by the Federal Deposit Insurance Corporation. The Authority's treasury bills are guaranteed by the full faith and credit of the United States government.

The Authority earned \$278,854 in interest revenue during 2001 through an average yield on investments of 3.56%. At December 31, 2001, the total cash balances of the Authority were \$147,378, and the investment balances were \$6,073,847, representing an investment of 97.6% of all available cash.

### RISK MANAGEMENT

The Authority finances its risks of loss through the purchase of commercial property and casualty, and workers compensation insurance. In addition, the Authority maintains directors and officers liability and employee dishonesty insurance coverage.



### INDEPENDENT AUDIT

Section 36.153 of the Texas Water Code requires an annual audit to be conducted by an independent certified public accountant or an auditor licensed by the Texas Board of Public Accountancy within 120 days after the fiscal year-end. The board of directors selected the accounting firm of Padgett, Stratemann & Co., L.L.P. The auditor's report on the general purpose financial statements is included in the financial section of this report.

### AWARDS

The Government Finance Officers Association (GFOA) awards a Certificate of Achievement for Excellence in Financial Reporting to governmental entities for their comprehensive annual financial reports. To be awarded such a certificate, a governmental reporting entity must publish an easily readable and efficiently organized comprehensive annual financial report, whose contents conform to the program standards. Such reports must meet both generally accepted accounting principles and applicable legal requirements.

We believe the attached report for the Edwards Aquifer Authority conforms to the requirements established by GFOA, and we are submitting it to them to determine its eligibility for the Certificate of Achievement for Excellence in Financial Reporting.

### ACKNOWLEDGMENTS

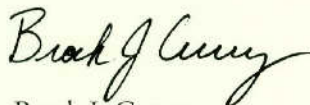
This report was produced by the Authority's Administration and Public Affairs Teams. In particular, we would like to thank Ms. Lupita Hernandez, Accounting Coordinator, and Ms. Deana Watson, Accounting Clerk, for their contributions made in preparing this report.

In closing, we would like to thank the Edwards Aquifer Authority Board of Directors, without whose leadership and support this report would not have been possible.

Sincerely,



Gregory M. Ellis  
General Manager



Brock J. Curry  
Program Manager of Administration

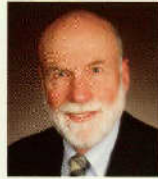
## THE EDWARDS AQUIFER 2001 BOARD OF DIRECTORS



**Carol Patterson**  
Secretary  
Bexar County  
District 1



**Levi Jackson, III, Ph.D.**  
Bexar County  
District 2



**Weir Labatt**  
Bexar County  
District 3



**Michael D. Beldon**  
Chairman  
Bexar County  
District 4



**Rafael Zendejas**  
Bexar County  
District 5



**Susan K. Hughes**  
Bexar County  
District 6



**Jerry Green**  
Bexar County  
District 7



**Rita Ellis Banda**  
Comal County  
District 8



**Doug Miller**  
Vice Chairman  
Comal/Guadalupe  
counties  
District 9



**W. Kenneth Barnes**  
Hays County  
District 10



**W. Bailey Barton**  
Hays/Caldwell  
counties  
District 11



**Hunter Schuehle**  
Treasurer  
Medina County  
District 12



**Luana Buckner**  
Medina/Atascosa  
counties  
District 13



**Rogelio Muñoz**  
Uvalde County  
District 14



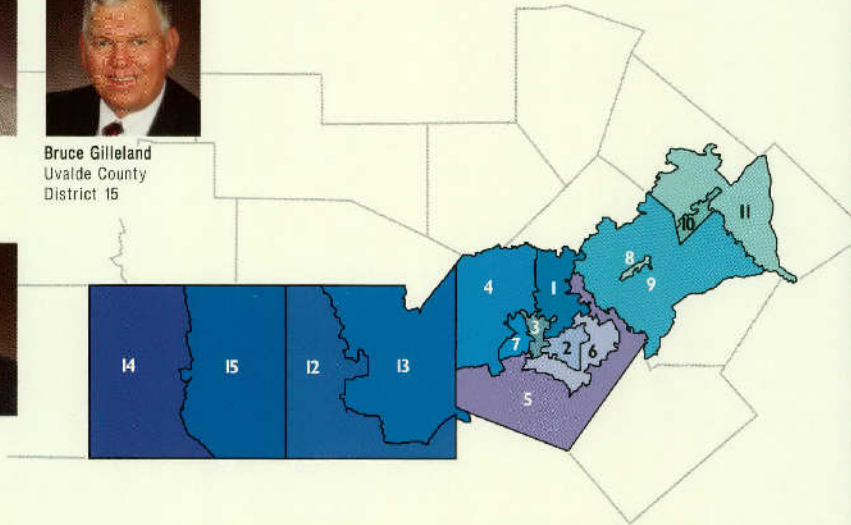
**Bruce Gilleland**  
Uvalde County  
District 15



**Bob Keith**  
South Central  
Texas Water Advisory  
Committee (SCTWAC)  
Representative



**Maurice Rimkus**  
Medina/Uvalde  
counties  
Representative



## THE EDWARDS AQUIFER AUTHORITY MANAGEMENT TEAM



**Gregory M. Ellis**  
General Manager



**Velma R. Danielson**  
Deputy General  
Manager



**Geary Schindel**  
Chief Technical  
Officer



**Brock J. Curry**  
Administrative  
Program Manager



**Margaret Garcia**  
Public Affairs  
Program Manager



**John Hoyt**  
Aquifer Science  
Program Manager



**Rick Illgner**  
Planning &  
Conservation  
Program Manager



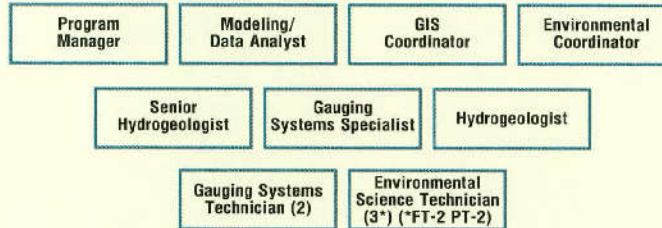
**Steve Walthour**  
Permitting &  
Enforcement  
Program Manager



E X E C U T I V E

General Manager  
Deputy General Manager  
Chief Technical Officer  
Administrative Assistant  
Executive Assistant

A Q U I F E R S C I E N C E



P E R M I T T I N G



P L A N N I N G & C O N S E R V A T I O N



P U B L I C A F F A I R S



A D M I N I S T R A T I O N



EDWARDS AQUIFER AUTHORITY  
2001 ORGANIZATIONAL TEAM STRUCTURE

## EDWARDS AQUIFER AUTHORITY PERMITTING PROCESS

The Edwards Aquifer Authority was created by the Texas Legislature to preserve and protect a truly unique groundwater resource: the Edwards Aquifer. Passed in 1993, the Edwards Aquifer Authority Act established a mechanism to issue permits for groundwater rights, create a market for those water rights, and protect surface water flows dependant upon groundwater springs. However, legal challenges prevented the Authority from operating until June 1996, and as the litigation continued, dependence on the aquifer grew. When the Authority actually began operations in June 1996, the region was suffering through one of the worst droughts in many years, and the aquifer was at its lowest level in decades. It was in this atmosphere that the agency began the long journey toward the most comprehensive groundwater regulation in the history of the State of Texas.

The Authority's jurisdictional boundaries include an eight-county region, encompassing all of Uvalde, Medina, and Bexar counties, and portions of Atascosa, Caldwell, Guadalupe, Comal, and Hays counties. The Act created a 17-member board of directors that sets policy to manage, conserve, preserve, and protect the aquifer; and works to increase recharge and prevent waste or pollution of the aquifer. The board has 15 elected members from the region and two non-voting appointed members to carry out the duties set out in the Act. The Act also established the South Central Texas Water Advisory Committee made up of representatives from downstream counties to interact with the Authority on issues related to downstream water rights.

The Balcones fault zone of the Edwards Aquifer, located around the San Antonio region, is approximately 180 miles long, stretches from Bracketville in Kinney

County to Kyle in Hays County, and varies in width from 5 to 40 miles. People have settled in this region for centuries because of the bountiful water supply available from springs and rivers. Urban and rural communities both rely on the aquifer for municipal, agricultural, industrial, and recreational uses. As more and more communities tapped into the aquifer, less and less water flowed from the springs, creating a problem for the communities centered on those springs and downstream.

The Edwards Aquifer is one of the most permeable and productive aquifers in the United States. There are three major components of the Edwards Aquifer system: the drainage area, the recharge zone, and artesian zone. Streams carry rainfall runoff from the drainage area to the recharge zone, where it penetrates the ground to begin its journey inside the aquifer, generally from west to east. Water flows through the artesian zone under pressure, moving through fractures, conduits, and caves. Groundwater is then discharged through natural spring openings or wells.

The need to manage this resource is continuous. For the period of record from 1934 to 2000, average annual recharge to the Edwards Aquifer was 679,000 acre-feet and the average discharge by wells and springs was 668,700 acre-feet. In 2000, recharge totaled 614,500 acre-feet and the estimated total discharge from the Aquifer by wells and springs totaled 752,300 acre-feet. The Act established a means to share the water, limiting regular permits to a total of 450,000 acre-feet per year, and allowing 200,000 acre-feet per year to springflow.

In addition, the Authority is mandated to manage the southern portion of the Edwards Aquifer to protect important environmental resources while also protecting domestic and municipal water



supplies, existing industries, and economic development of the state. The Act also directed the Authority to reduce annual permitted withdrawals from the aquifer from 450,000 acre-feet to 400,000 acre-feet by 2008, unless the board of directors determines that additional aquifer supplies are available. Further, by the end of 2012, the Authority is required to implement and enforce water management procedures to ensure that continuous minimum springflows at Comal and San Marcos springs are maintained to protect endangered and threatened species, to the extent that federal law requires protection.

Permitting groundwater use is a complex mix of economic, political, social, and geophysical elements. Permits play a vital role in conserving water, protecting water quality, monitoring, measuring water availability, usage, and managing supply and demand in an effective, efficient, and equitable way. All municipal, industrial, and irrigation users of the Edwards Aquifer were required to file a declaration of historical use and application for initial regular permit based on the period from June 1, 1972, through May 31, 1993. Declarations had to be filed by December 30, 1996. On November 9, 2000, Authority staff proposed Initial Regular Permits to 822 of the 1,085 applicants based on historical use. Of the original 1,085 applications evaluated, 632 were classified as irrigation, 161 as municipal, 211 as industrial, and 81 were considered to be domestic/livestock. Of the 822 applications Authority staff proposed the board grant, 530 were for irrigation use, 150 were for industrial use, and 142 were for municipal use. Through this process, staff identified at least 534,754 acre-feet of Edwards groundwater withdrawal rights were beneficially used during the historical period, and therefore were entitled to a regular permit.



The board took final action on 679 applications, issuing initial regular permits to 536 applicants and denying 161 applications. The board has only taken action on uncontested applications or those where the parties settled.

Applicants originally filed protests and requests for contested case hearings on 389 applications. Since January 2001, applicants have withdrawn 67 requests for contested case hearings as a result of a massive pre-referral conference campaign to review permit proposals before the contested case hearing process began. The remaining 322 protests will be addressed through settlement agreements and a contested case hearing process. The State Office of Administrative Hearings (SOAH) and administrative law judges retained by the Authority will conduct contested case hearings in 2002 and 2003.

The Authority's enabling act required that all users receive their maximum historical use from 1972-1993, providing total permitted amounts did not exceed the 450,000 acre-foot cap. Because the aggregate in proposed permits does exceed that cap, the total is proportionately reduced until the cap is reached. However, the legislature also added guaranteed minimums for each qualified applicant, requiring the Authority to step each permit amount back up to that minimum.

According to the Edwards Aquifer Hydrologic Report for 2000, irrigation use of Edwards Aquifer groundwater from 1955 to 2000 averaged 108,700 acre-feet per year with a maximum recorded use of 203,100 acre-feet in 1985. Since 1991, average irrigation use has dropped to 99,600 acre-feet annually with the maximum use reported in 1996 at 181,300 acre-feet. Though the most total groundwater withdrawals for irrigation occurred in 1985, the maximum aggregate permitted withdrawal

amount for irrigation is 253,737 acre-feet. The Authority's enabling act required that all irrigators receive at least two acre-feet of water for each acre they irrigated in any one year during the historical period. Staff anticipates issuing 249,536 acre-feet of groundwater withdrawal rights to irrigators, 68,000 acre-feet more than has ever been used in one year. The non-irrigation applicants did not fare as well.

Municipal and industrial uses of Edwards Aquifer groundwater averaged 228,400 acre-feet per year from 1955 to 2000. Municipal pumpers recorded their maximum annual withdrawals of 287,200 acre-feet in 1984, and industrial pumpers reached their maximum annual withdrawal of 67,500 acre-feet in 1991, primarily caused by a single catfish farm that used almost 35,000 acre-feet that year. Since 1991 municipal and industrial users have withdrawn groundwater an average of 294,600 acre-feet per year with maximum use totaling 340,800 acre-feet. The maximum aggregate withdrawals for municipal and industrial users were approximately 380,100 acre-feet during the historical period. All municipal and industrial users were to receive permits of at least their historical average. Staff proposed total permits of 285,300 acre-feet for municipal and industrial pumpers. Municipal and industrial pumpers' average use has grown since 1993. These aquifer users rely heavily on their maximum historical uses to provide adequate groundwater resources for their systems and will need to make up approximately 50,000 acre-feet of water not permitted to them, discounting the 45,000 acre-foot request filed by the catfish farm, which is no longer in operation. Fortunately, the Act provides a solution: free market transfers of permitted water rights.

Authority staff believes that the future maximum irrigation requirement for the region will be near 100,000 acre-feet per year, providing surplus groundwater for withdrawals elsewhere in the Edwards Aquifer region. The transfer program is the mechanism to move surplus groundwater withdrawal rights to aquifer users that require additional supplies. A transfer can change all or part of a groundwater withdrawal permit's purpose of use (municipal, industrial, or irrigation), place of use, point of withdrawal, or withdrawal amount. The Authority allows permit holders to transfer groundwater rights to other aquifer users and uses throughout the region. Two primary exceptions to transfers are that only one-half of the initial regular permit issued for irrigation groundwater can be transferred, and all transfers that cross Cibolo Creek in northeastern Bexar County from west to east may be subject to a hearing to prove that the transfer will not harm Comal or San Marcos springs.

Since the inception of the Authority's program, the Authority completed 497 transfers representing 95,108.354 acre-feet of groundwater withdrawal rights, though many of the transfers represent temporary leases. These transfers included 14 approvals in December 2001 to transfer 198 acre-feet from west of Cibolo Creek to points east of the creek, the first transfers across Cibolo Creek. Another transfer request was filed seeking to move 800 acre-feet of pumping rights across Cibolo Creek, and the board will be considering that request in February.

In considering a transfer request, Authority staff determines if the transferor has the available groundwater withdrawal rights for transfer, has paid all applicable aquifer management fees,

and is not under an enforcement action. For temporary transfers, or leases, a notice is issued to the transferor and transferee that the transfer is complete. Permanent transfers require the staff to issue a new permit to the transferee and an amended permit to the transferor. Permanent transfer is not complete until the permits are filed with the county clerk and a copy of the filing provided to the Authority.

The gap between the municipal and industrial permitted rights and their current needs will have to be filled through transfers from irrigators. But the Authority also has to "retire" enough groundwater withdrawal rights to reach the 450,000 acre-foot cap. As proposed, the regular permits exceed the cap by almost 85,000 acre-feet. So between the need to retire permits and the municipal/industrial needs, there is demand for over 135,000 acre-feet of permitted groundwater rights. Fortunately, the irrigators will receive almost 150,000 acre-feet in excess of their current demand.

The solution the legislature crafted for the Edwards Aquifer was truly unique. The combination of a cap on water rights, permits based on historical use, and free market transfers has never been tried in Texas. Even though the Authority had to create this system from whole cloth, and there have been a few snags along the way, the overall permitting program is a success. There are still a few challenges ahead as the contested cases are tried, but those challenges will be met head on. The board of directors has already demonstrated the willingness and determination to prevail in any and all litigation that may arise. The Authority's purpose is to implement this unique regulatory scheme and effectively protect the unique resource of the Edwards Aquifer.

## The First Permit Issued

On Tuesday, January 9, 2001, the Authority achieved a much-awaited goal as directors issued the first initial regular groundwater withdrawal permit to the Stein Family, irrigators in Medina County. The Steins drilled one of the first irrigation wells in Medina County in 1955, and the family has continuously irrigated since that time.



The permit the Stein Family received was part of an Omnibus Final Order granting applications and issuing initial regular permits for groundwater withdrawals to over 300 applicants.

## STRATEGIC PLAN

In July 2001, the Authority retained MGT of America, Inc. to develop a strategic and operational plan for the Authority. The desired outcome of the strategic planning process was a clear road-map for Authority staff that reflects the policy direction and will of the board of directors (the board).

The plan is the culmination of a number of steps, which include:

- Personal interviews with Authority board members
- Personal interviews with the Authority management team
- Telephone interviews with nearly 20 external stakeholders
- A weekend work session with the board and management team, and
- Two public meetings

### Structure of the Strategic Plan

The plan is organized into the following seven functional areas, derived from the Act and presented to the board at the September 2001 work session:

- Groundwater Withdrawal Permit Program
- Planning
- Research
- Water Quality
- Enforcement and Compliance
- Public Affairs, and
- Administrative

For each functional area, the plan identifies a series of objectives. The objectives were identified and prioritized (by year) during the September 2001 work session, and represent the means by which the Authority will accomplish board goals.

The following information is included for each objective:

- **BOARD GOAL** – Which of the board goals does the objective seek to accomplish?
- **STATUTORY AUTHORITY** – Which sections of the Act require or authorize the Authority to take action on this objective?

- **BACKGROUND** – What is the purpose of the objective and the essential background for understanding the objective?
- **STRATEGIES** – How will the objective be accomplished? What actions will be taken?
- **TIMELINE** – When will the objective be completed? Which actions are ongoing?
- **LINKAGES** – How is the objective linked to other plan objectives?
- **FISCAL IMPACT** – What additional financial and human resources are needed to implement this objective above base operating costs?

The strategic plan also represents the Authority's efforts to:

- Swiftly and efficiently implement the Edwards Aquifer Authority Act, especially permit issuance and plan development
- Maximize the Authority's investments in research and upgrade existing technical capacity and resources
- Define the Authority's role in water quality and recharge zone protection
- Continue to develop a more formal enforcement program
- Strengthen the Authority's public affairs efforts, and
- Ensure the efficient administration and operation of Authority activities

The strategic plan includes seven appendices. **Appendix One** is the graphic historical map developed by the Board at the weekend work session. **Appendix Two** is a detailed implementation matrix for the strategic plan, organized by the seven functional areas listed above. The matrix lists each strategy (i.e., action) to be undertaken by the Authority and the time period and resources (including new personnel) required. **Appendix Three** illustrates the multiple planning processes that affect the Authority. **Appendix Four** is the Optimization Technical Studies (OTS) schedule. **Appendix Five** is the Authority's rule-making schedule. **Appendix Six** outlines the personnel implications of the strategic plan. To provide a comparative perspective, **Appendix Seven** of this strategic plan includes some benchmarking information, including a comparison of the Authority to select Texas river authorities, and an overview of the Southwest Florida Water Management District.

## 2001 LEGISLATIVE SESSION

Each new legislative session, the legislature considers a number of measures that directly or indirectly impact the operations of the Authority. Every session, Authority staff works with members of the Legislature, other local government representatives, agency personnel, and private individuals to assess the potential impact of the legislation and to inform legislators of those impacts.

The 77th Session of the Texas Legislature was extremely active in terms of water law. The Edwards Aquifer Authority was directly affected by and involved in a number of bills as they were considered. In the final analysis, Senate Bill No. 2 was the only bill that passed amending the Authority enabling statute. A variety of other bills passed amending the Water Code or other Codes that affect various aspects of the Authority's operations, but none of them directly affect the primary issues facing the Authority.

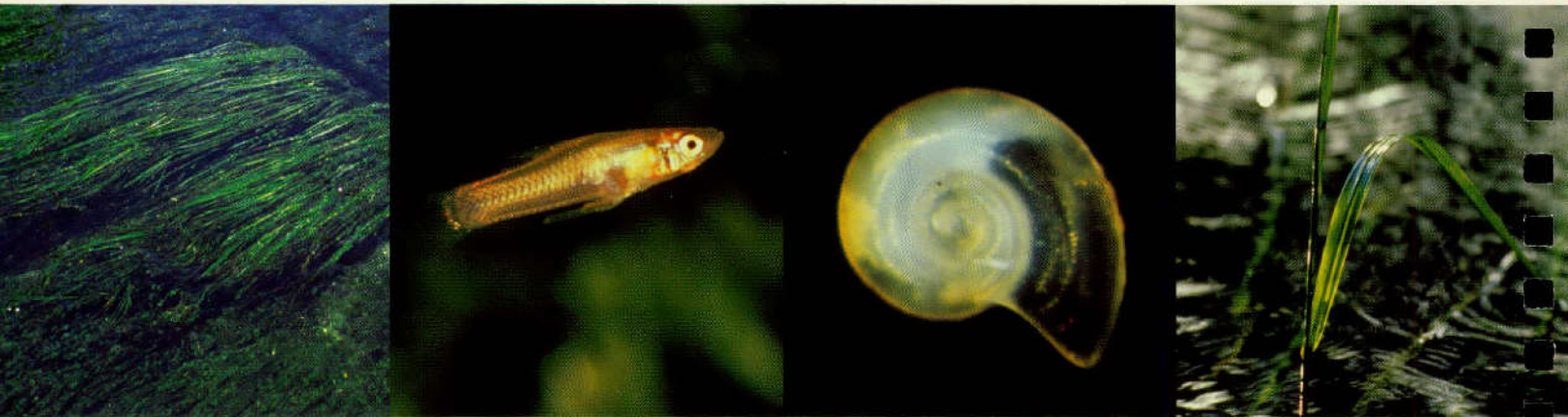
Below is a synopsis of the changes to the Act in Senate Bill No. 2.

1. Added Sec. 1.115 to the Act to establish special rule-making procedures (including special procedures for emergency rulemaking).
2. Amended Sec. 1.15 of the Act to specify that the Authority "shall conduct a contested case hearing on a permit application if a person with a personal justiciable interest related to the application requests a hearing on the application." It also directs the EAA to "adopt rules establishing procedures for contested case hearings consistent with Subchapters C, D, and F" of the APA.
3. Repealed Sec. 1.11(h) and 1.41(e).
4. Clarified that this legislation shall not be construed as repealing the applicability of the Open Meetings Act or the Public Information Act as to the Authority.
5. Clarified that the Authority rules adopted before the effective date of this legislation are in effect until repealed, amended, or re-adopted.
6. Directed the Secretary of State to delete 31 TAC Part 20 (the previously adopted Authority rules).
7. Added a definition of "agricultural use" to the Act to include irrigation, horticulture, silviculture, and wildlife management. This definition would be consistent with the definitions used in the Water Code and Agriculture Code.
8. Added a definition of the term "nursery grower" to the Act.
9. Amended Sec. 1.29 of the Act (Fees) to specify that "[t]he fee rate for agricultural use shall be based on the volume of water withdrawn and may not be more than \$2 per acre foot [20 percent of the fee rate for municipal use]."
10. Added a subsection (e) to Sec. 1.44 of the Act (Cooperative Contracts for Artificial Recharge) stating that "[t]he Authority may contract for injection or artificial recharge under this section only if a provision is made for protecting and maintaining the quality of groundwater in the receiving part of the aquifer and: (1) the water used for artificial recharge is groundwater withdrawn from the aquifer; or (2) the water is recharged through a natural recharge feature."

There will very likely be further changes offered to the the Authority statute in the next legislative session. As long as water issues remain in the forefront of legislative issues, the Authority will continue to be a trailblazer for groundwater management.

## BIO-MONITORING

In 2000, the Authority implemented a bio-monitoring program for the Comal and San Marcos springs ecosystems. The Authority contracted with a private firm to conduct regular periodic monitoring of Comal and San Marcos springs to assess the impacts of reduced flow on the threatened and endangered species. The wetted area and vegetation in Comal



Springs and San Marcos Springs and representative segments of the Comal and San Marcos rivers were mapped and categorized. Monitoring included species counts, population counts, physical condition, predation, parasitism, food availability, and overall habitat suitability.

In addition, important biologic water quality parameters have also been sampled. This data is of significant importance in the evaluation of the impacts reduced flows have on the threatened and endangered species found in the Comal Springs and San Marcos Springs and Comal and San Marcos rivers aquatic ecosystems.



In 2001, the Authority approved an amendment to this effort that included monitoring the effects of unusually high flow events and extended the monitoring to include determining the range of the Comal Springs Riffle Beetle in the Comal Springs and Landa Lake aquatic ecosystems. High flow events have been shown to cause significant impacts



to habitats because of the scouring effects and deposits of large amounts of sediments.

Also in 2001, the Authority approved two additional studies. One investigation monitored the tolerance and impact of thermal differentials on the reproductive capabilities of the fountain darter. A second study monitored the response of the Comal Springs Riffle Beetle to drought conditions in a laboratory setting. All the data collected will be included in the Authority's draft Habitat Conservation Plan (HCP) to be completed in September 2002. A final HCP is due by December 2002.

## EDWARDS AQUIFER OPTIMIZATION PROGRAM

The Authority has undertaken the Edwards Aquifer Optimization Program (EAOP), a comprehensive program for the study and management of the Edwards Aquifer. The EAOP consists of numerous interrelated, mission-directed biologic and hydrogeologic research studies known as the Optimization Technical Studies (OTS). The OTS are designed to evaluate potential technical options for increasing the amount of water stored in the Edwards Aquifer and to identify effective methods for optimizing the amount of water available for withdrawal. Data and information obtained from the OTS will provide aquifer managers with the tools necessary to make scientifically sound decisions. The studies will benefit aquifer users and preserve the environment supported by the aquifer, including the Comal and San Marcos springs, and downstream aquatic habitats. Optimization studies that were in progress in 2001 include:

### **Texas Wild-Rice Reproduction**

The purpose of this study is to assess the reproduction requirements for Texas wild-rice, which will assist in the evaluation of potential impacts from aquifer optimization strategies. The study includes both laboratory and field analyses to identify factors that influence sexual and asexual reproduction in Texas wild-rice. The work is being performed by the U.S. Fish and Wildlife Service – San Marcos National Fish Hatchery and Technology Center through a joint funding agreement (JFA) with the Authority.

### **Comprehensive and Critical Period Monitoring of the Aquatic Ecosystem at Comal and San Marcos Springs**

This study assesses the effect of varying springflows on biological resources, including endangered species that depend on springflow from the Edwards Aquifer. The work is being performed by BIO-WEST, Inc. under contract to the Authority.

### **Assessment of Instream Flow and Habitat Requirements for Cagle's Map Turtle**

The Cagle's Map Turtle is endemic, depends on flows in the Guadalupe River, and is a candidate for inclusion on the federal endangered species list. Understanding its flow and habitat requirements are important as regional water management strategies are being considered. The work is being performed by North Texas A&M University through a JFA with the Authority.

### **Development of an Edwards Aquifer Computerized Groundwater Model**

A state-of-the-art computer model will be developed using MODFLOW software. Once a scientifically correct model is constructed, the model can be used to

simulate various management scenarios for the aquifer. The model is being developed by the U.S. Geological Survey (USGS) and the University of Texas – Bureau of Economic Geology (BEG) through a JFA with the Authority. The U.S. Department of Defense (DOD) also provides funding for the project.

### **Aquifer Parameter Estimation for Computer Model Input Data Sets**

Measurements of hydraulic conductivity from pumping tests and other sources were statistically analyzed to create the data input files for the Edwards Aquifer model. A statistical technique was used to upscale measurements from individual wells to generate a representative value for the model grid cell in which the wells are located. The statistical distribution was then evaluated with respect to geologic conditions to create the final input file. The work is being performed by Southwest Research Institute (SWRI) through a JFA between the Authority and the U.S. Army Corps of Engineers (COE) Planning Assistance to States Program.

### **Aquifer Freshwater/Saline Water Interface Studies**

This project is being conducted to assess the possibility of movement of saline water into the freshwater portion of the Edwards Aquifer, especially during drought conditions. Studies were initiated by the USGS in 1985, conducted by the Edwards Underground Water District (EUWD) from 1989 to 1993, and are currently being performed by San Antonio Water System (SAWS) and the Texas Water Development Board (TWDB) in cooperation with the Authority.

### **Hydrologic Budgets of Medina Lake and Diversion Lake in Support of North Medina County Flow Path Studies**

These lakes are located in northeastern Medina County on the Medina River. The study will refine the estimates of water recharged to the Edwards Aquifer from the two lakes and will provide information to be used in the ongoing North Medina County Flow Path Study. The work is being performed by the USGS through a JFA with the Authority.

### **Evaluation of Recharge Calculation Methods**

This recharge methodology study will develop pilot recharge models for the Nueces and Blanco River basins. The project will produce an updated method of calculating recharge to the Edwards Aquifer in these two basins. If successful, the updated methodology will be applied to the seven remaining surface water basins that recharge the aquifer. An updated method of recharge calculation is needed to provide daily recharge values for future aquifer modeling projects. The work is being performed by HDR Engineering, Inc. under contract to the Authority.

### **Statistical Analysis of Hydrologic Data**

This study was completed in late 2001 and focused on the water level and springflow response of the Edwards Aquifer system to a major storm event in October 1998. This statistical analysis demonstrated the rapid response of the Edwards Aquifer to storm events. Runoff quickly enters streams and rivers, which in turn rapidly recharges the aquifer. Surface water that does not recharge the aquifer flows out of the region within a few days. As the water migrates to the artesian zone, the pressure head propagates within hours to the

springs and increases discharge. The statistical analysis clearly showed this flow-path from the artesian zone to San Marcos and Comal Springs. Other specific flowpaths could not be traced because the storm event of October 17 and 18, 1998, produced rainfall over the entire area and impacted all flowpaths nearly simultaneously. Groundwater elevations and springflows, reflecting the amount of water stored in the Edwards Aquifer system, returned to pre-October 1998 levels within about one year after the October 1998 storm event. The work was performed by Argonne National Laboratory through a JFA between the Authority and the U.S. Army Corps of Engineers (COE) Planning Assistance to States Program.

### **Fracture/Conduit Study**

The purpose of this study is to investigate the influence of faults and conduits on groundwater flow paths in both the recharge and artesian zones of the Edwards Aquifer. Investigators will assess the locations of conduits with respect to fracture zones, faults, streams, and specific stratigraphic horizons within the Edwards Group. The work is being performed by the University of Texas – Bureau of Economic Geology (BEG) through a JFA with the Authority.

### **Range Management of Woody Species**

This study is being performed to evaluate best management practices for woody species that may enhance water quality and increase aquifer recharge in rangeland watersheds. Two pilot projects are being performed in the San Antonio area. The work is being performed by the U.S. Department of Agriculture – Natural Resource Conservation Service (NRCS) and the USGS in cooperation with SAWS and the Authority.



## Data Collection Programs Active in 2001

Authority data collection programs are designed to provide information for the calculation of recharge and discharge from the Edwards Aquifer, as well as monitor water quality in the aquifer. The data collection programs also support the various Optimization Technical Studies being performed in the Edwards Aquifer region. The following data collection programs were active in 2001:

- **Ongoing Collection of Water Level and Water Quality Data by Authority Personnel from Wells and Streams Throughout the Edwards Aquifer Region.** In 2001, the Authority operated continuous water level recorders in 41 wells and collected periodic measurements in an additional 16 wells. Water quality samples were collected from 74 wells, 5 springs, and 9 streams. Water quality sampling included 10 of the 30 monitoring wells installed in the Edwards Aquifer Recharge Zone in northern Bexar County by the USGS National Water Quality Assessment Study to investigate the effect of urban land use on groundwater quality.
- **Real-time Precipitation Gauging System.** The Authority operates 64 rain gauges that transmit data to the Authority office every 6 minutes. The gauges are generally located over the Edwards Aquifer Recharge Zone and drainage area and are used to evaluate the precipitation enhancement program and provide data for aquifer recharge estimates.
- **Annual Hydrologic Data and Edwards Aquifer Bibliography Reports.** These reports are prepared to aid managers, researchers, and outside agencies by compiling information into readily available reference sources.
- **Synoptic Water Level Measuring Program.** This program is designed to collect water level measurements throughout the Edwards Aquifer region over a short period of time. Measurements are collected three times each year to collect data during periods of high and low aquifer water levels. Data from the measurement events are used to interpret aquifer responses and groundwater flow conditions. The project is conducted in cooperation with the USGS, TWDB, and SAWS.
- **JFA Between the Authority and the USGS for Data Collection.** This joint funding agreement (JFA) is primarily for the gauging of surface water streams that cross the Edwards Aquifer Recharge Zone and the gauging of discharge from major Edwards Aquifer springs. The JFA also includes annual recharge calculations, storm water runoff quality sampling at two sites, and geologic mapping in Uvalde County.





### **Edwards Aquifer Freshwater/ Saline Water Interface Studies**

The Authority is working with San Antonio Water Systems (SAWS) to investigate the stability of the Edwards Aquifer Freshwater Saline Water Interface. Studies of the interface are being performed to advance the understanding of any possible movement of the interface, especially during extended drought periods.

### **National Water Quality Assessment Program**

The United States Geological Survey (USGS) is conducting the National Water Quality Assessment (NAWQA) program, a water quality assessment of the nation's major river basins and groundwater systems. South Central Texas NAWQA, including an assessment of the Edwards Aquifer, was conducted between 1996 and 1998. Thirty water quality monitoring wells were installed on the Edwards Aquifer Recharge Zone in northern Bexar County and are now included in the Authority's network of water quality monitoring wells. Wells are sampled at least once every three years.



## 30-YEAR WATER SUPPLY PLAN

In 2001, the Authority approved its 30-year water supply plan, a portion of the Comprehensive Water Management Plan. To maintain consistency, the plan is extracted from the Region L water supply plan. The 30-year water supply plan contains narrative and numerical descriptions of the population growth, water demands, and groundwater supply solutions for the Edwards Aquifer area. The plan also contains 7 identified management strategies currently in implementation and 13 new strategies ranging from conservation to recharge. All of the water supply strategies combined may provide an additional 542,832 acre-feet/year. The water supply from strategies currently in implementation, plus the 13 new strategies and water currently available, offset the projected water demand and provide a surplus of 130,209 acre-feet/year of water for the Edwards Aquifer area in 2030.



## DEMAND MANAGEMENT/CRITICAL PERIOD MANAGEMENT PROGRAM

In 2001, the Authority continued efforts to develop a demand management/critical period management program. In late 2000, the Critical Period Work Group asked the Authority to form a Critical Period Technical Advisory Group (CPTAG) to evaluate the relationship between rainfall, aquifer levels, and springflow. The CPTAG, composed of Authority staff and consultants from LBG-Guyton, HDR Engineering, Worthington Groundwater, and Hicks & Company evaluated the temporal and spatial relationship between precipitation, recharge, aquifer withdrawals, aquifer levels, and spring discharge for numerous low rainfall/low springflow periods for the Edwards Aquifer. The CPTAG also reviewed critical period management scenarios implemented in the past. A series of computer simulations were performed to evaluate various

management options. The CPTAG completed its work in early 2001 and presented its findings and recommendations for a demand management/critical period program to the Critical Period Work Group (CPWG) in February 2001.

From February 2001 through June 2001, the CPWG met twice each month to review staff's recommendations and receive input from stakeholders and other interested parties. After revising the staff recommendations based on comments received during these meetings, the CPWG presented their recommendations to a committee of the board, who then directed staff to identify key critical period program policy issues and provide recommendations on these issues to the board.



In September 2001, while building upon the concepts contained in the CPWG critical period management program recommendations, the board directed staff to evaluate additional critical period management concepts using the following guidelines:

- Demand management/critical period management would begin at 650' above mean sea level (msl) at the Bexar County Index Well (Well J-17).
- If demand management/critical period management is not initiated by water levels at Well J-17, a five-day average springflow level of 220 cubic feet per second (cfs) at Comal Springs and a five-day average springflow level of 110 (cfs) at San Marcos Springs would initiate critical period management for Stage I.
- Two Edwards Aquifer "pools," as defined in the Act were to be used in the demand management/critical period program. The Knippa Gap would be the boundary separating the pools and not the Uvalde County line. Additional pools would be added at a later date, if additional data warranted establishing other pools.
- Reductions to agricultural use would not occur until the level at Well J-17 declined to 630' msl.



The board also directed staff to include the following components in the Authority's demand management/critical period management program:

- Mandate year-round lawn watering restrictions;
- Mandate inverted block pricing;
- Possibly prohibit transfers of groundwater withdrawals between pools during critical period; and
- Define "discretionary" and "non-discretionary" water use.

After conducting additional analysis, staff determined that reductions in permitted withdrawals have a positive effect on Well J-17 water levels and springflow discharge rates. Specifically, reducing authorized groundwater withdrawal amounts on a quarterly basis by 10%, 15%, and 20%, and reducing authorized groundwater withdrawal amounts by 30% after 30 days if the level at Well J-17 remains below 630' msl, would preserve continued flow at Comal Springs during most of the historic severe drought periods on record. By the end of December 2001, staff and counsel were drafting rules for the demand management/critical period management program to present to the board in February 2002.

The demand management/critical period management program developed in 2001 offers a new approach to regional droughts by addressing regional groundwater demand through reductions by permit holders rather than by type of use. This approach allows all groundwater withdrawal permit holders to have greater flexibility in regulating and reducing their groundwater use, while providing for springflows as required in the Act.



## PRECIPITATION ENHANCEMENT PROGRAM

The Edwards Aquifer provides drinking water to 1.7 million people in South Central Texas and is the backbone of the region's agriculture industry. The Edwards Aquifer Precipitation Enhancement Program was developed to increase the precipitation in the area, increase recharge, and reduce demand on the aquifer. Significant benefits can be attained with increased precipitation. Agricultural benefits include increased crop yield, improved grazing conditions for livestock, reduced irrigation costs, and improved water quality. Social benefits include increased rainfall runoff into reservoirs used for drinking water supplies and recreation. In precipitation enhancement, also called weather modification, silver iodide crystals are introduced to alter the microphysical characteristics of a cloud to extend its life span and increase the amount of precipitation it generates.

- In February 1999, Weather Modification, Inc. (WMI) was awarded a contract to conduct the Edwards Aquifer Authority Precipitation Enhancement Program. WMI has been a leader in the field of precipitation modification since the early 1960s. WMI is recognized for its successful operations and services around the world. The precipitation enhancement program is operated pursuant to a permit issued by the Texas National Resource Conservation Commission (TNRCC).
- The 2001 cloud-seeding season was completed with the final flight on September 9. During the 2001 season, one or more seeding and reconnaissance flights were made on 35 days. Total flight time was 153 hours, ejecting 834 flares, and burning the wing-mounted generators for 34.5 hours during cloud-seeding operations.

- The Edwards Aquifer Authority Precipitation Enhancement Program covers a 12-county area in South Central Texas (approximately 6.3 million acres). Included in the program target area are Bandera, Bexar, Blanco, Caldwell, Comal, Guadalupe, Hays, Kendall, Kerr, Medina, Real (east of US Hwy 83), and Uvalde.
- Funds allocated by the Authority for the 2001 program totaled \$449,692. Based on the total number of acres in the target area (approximately 6 million acres), the total program cost averages about 5 cents per acre. The Authority is reimbursed for approximately 50% of the total cost of the program by the TNRCC.

### SEEDING CLOUDS

To be successfully seeded, clouds must pass the following three tests.

**SUPER-COOLED:** The cloud top must be significantly colder than 32°F (14°F is ideal).

**ICE-FREE:** If the cloud contains a significant concentration of ice, it may not be seeded, as nature is already acting efficiently.

**UPDRAFT:** The cloud must sustain an updraft of at least several hundred feet per minute. This updraft conveys a continuous supply of moisture into the cloud. Factors that determine cloud top or cloud base seeding are storm top structure, visibility, cloud base height,

or time available to reach seeding altitude. The seeding agent injected in the clouds is silver iodide, which has a crystalline structure that resembles natural ice in the atmosphere. This material is released from ejectable flare cartridges at cloud top and burns as it drops through the cloud. At cloud base, acetone generators disperse the seeding agent, releasing the material into the updraft of the cloud. Cloud top seeding is conducted between +23°F and +5°F. The pencil-sized flares fall approximately 1 mile during their 50-second burn time. The seeding aircraft penetrate the edges of single convective cells meeting the seed criteria. Cloud base seeding is conducted by flying at cloud base within the main inflow of single cell storms, or the inflow associated with multi-cell storms.

Seeding effects can range from almost immediately to up to 30 minutes depending on the seeding delivery method (direct injection at the top of the cloud, or base seeding, releasing seeding agent in the updraft at the cloud base). The average time required before a seeded cloud reverts to its natural characteristics is between 15 to 30 minutes. The 2001 program was conducted from a field office at the airport in Hondo, Texas. The facility was equipped with two Cessna 340 aircraft, a 5-cm WSR-74C weather radar unit, and TITAN Software. Seeding equipment designed by WMI include belly-mounted ejectable flare racks and wingtip generators.

Financial Report  
December 31, 2001

## Independent Auditors' Report

To the Board of Directors  
Edwards Aquifer Authority  
San Antonio, Texas

We have audited the general purpose financial statements, as listed in the table of contents herein, of Edwards Aquifer Authority (the Authority) as of December 31, 2001, and for the year then ended. These general purpose financial statements are the responsibility of the Authority's management. Our responsibility is to express an opinion on these general purpose financial statements based on our audit.

We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the general purpose financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the general purpose financial statements referred to above present fairly, in all material respects, the financial position of Edwards Aquifer Authority as of December 31, 2001, and the results of its operations for the year then ended, in conformity with accounting principles generally accepted in the United States of America.

Our audit was made for the purpose of forming an opinion on the general purpose financial statements taken as a whole of Edwards Aquifer Authority as of and for the year ended December 31, 2001. The supplemental information listed in the table of contents is presented for purposes of additional analysis and is not a required part of the general purpose financial statements. Such information has been subjected to the audit procedures applied in the audit of the general purpose financial statements and, in our opinion, is fairly stated in all material respects in relation to the general purpose financial statements taken as a whole.

*Padgett, Stratman & Co., L.L.P.*

Certified Public Accountants  
February 8, 2002

Edwards Aquifer Authority  
 Combined Balance Sheet – Governmental Fund Types and Account Groups  
 December 31, 2001

	Governmental Fund Types		Account Groups		Totals (Memo Only)
	General	Special Revenue	General Fixed Assets	General Long-Term Debt	
<b>ASSETS AND OTHER DEBITS</b>					
Cash	\$ 147,378	\$ -	\$ -	\$ -	\$ 147,378
Investments	4,734,138	1,339,709	-	-	6,073,847
	<u>4,881,516</u>	<u>1,339,709</u>	-	-	<u>6,221,225</u>
Receivables:					
Delinquent ad valorem taxes – net of allowance for uncollectibles of \$31,534	91,083	-	-	-	91,083
Interest	-	58,748	-	-	58,748
Aquifer management fees – net of allowance for uncollectibles of \$39,256	115,867	-	-	-	115,867
Grant receivable	109,463	-	-	-	109,463
Long-term agriculture loans – net of allowance for uncollectibles of \$80,000	-	1,728,491	-	-	1,728,491
Fixed assets	-	-	5,272,266	-	5,272,266
Amount to be provided for retirement of general long-term debt	-	-	-	2,542,560	2,542,560
Total assets and other debits	<u>\$ 5,197,929</u>	<u>\$ 3,126,948</u>	<u>\$ 5,272,266</u>	<u>\$ 2,542,560</u>	<u>\$16,139,703</u>
<b>LIABILITIES</b>					
Accounts payable	\$ 878,981	\$ 56,080	\$ -	\$ -	\$ 935,061
Accrued salaries payable	55,458	-	-	-	55,458
Deferred revenue for delinquent ad valorem taxes	91,083	-	-	-	91,083
Compensated absences	90,589	-	-	48,060	138,649
Long-term loan payable	-	-	-	2,494,500	2,494,500
Total liabilities	<u>1,116,111</u>	<u>56,080</u>	<u>-</u>	<u>2,542,560</u>	<u>3,714,751</u>
<b>EQUITY AND OTHER CREDITS</b>					
Investment in general fixed assets	-	-	5,272,266	-	5,272,266
Fund balance:					
Reserved for long-term agriculture loans receivable	-	1,728,491	-	-	1,728,491
Reserved for current portion of long-term debt	-	365,500	-	-	365,500
Unreserved	4,081,818	976,877	-	-	5,058,695
Total equity and other credits	<u>4,081,818</u>	<u>3,070,868</u>	<u>5,272,266</u>	<u>-</u>	<u>12,424,952</u>
Total liabilities and equity and other credits	<u>\$ 5,197,929</u>	<u>\$ 3,126,948</u>	<u>\$ 5,272,266</u>	<u>\$ 2,542,560</u>	<u>\$16,139,703</u>

The accompanying notes are an integral part of this statement.

Edwards Aquifer Authority  
 Combined Statement of Revenues, Expenditures, and Changes in Fund Balances  
 All Governmental Fund Types  
 Year Ended December 31, 2001

Governmental Fund Types

	General	Special Revenue	Totals (Mcmo Only)
<b>REVENUES:</b>			
Aquifer management fees – net of discount	\$ 8,333,497	\$ -	\$ 8,333,497
Interest	174,835	104,019	278,854
Ad valorem taxes	11,512	-	11,512
Grant revenue	215,839	-	215,839
Miscellaneous	98,923	750	99,673
<b>Total revenues</b>	<b>8,834,606</b>	<b>104,769</b>	<b>8,939,375</b>
<b>EXPENDITURES:</b>			
Personnel	2,432,881	-	2,432,881
Commodities	776,660	1,278	777,938
Contractual services	4,370,659	266,600	4,637,259
Capital outlay	317,020	-	317,020
Debt service:			
Principal	-	350,000	350,000
Interest	-	103,862	103,862
<b>Total expenditures</b>	<b>7,897,220</b>	<b>721,740</b>	<b>8,618,960</b>
<b>Excess of revenues over (under) expenditures</b>	<b>937,386</b>	<b>(616,971)</b>	<b>320,415</b>
<b>OTHER FINANCING SOURCES (USES):</b>			
Operating transfer in	-	160,000	160,000
Operating transfer out	(160,000)	-	(160,000)
Proceeds from long-term debt	-	500,000	500,000
<b>Total other financing sources (uses)</b>	<b>(160,000)</b>	<b>660,000</b>	<b>500,000</b>
<b>Excess of revenues and other financing sources over expenditures and other financing uses</b>	<b>777,386</b>	<b>43,029</b>	<b>820,415</b>
Fund balances at January 1, 2001	3,304,432	3,027,839	6,332,271
Fund balances at December 31, 2001	\$ 4,081,818	\$ 3,070,868	\$ 7,152,686

The accompanying notes are an integral part of this statement.

Edwards Aquifer Authority  
 Combined Statement of Revenues, Expenditures, and Changes in Fund Balances  
 Budget (GAAP Basis) and Actual – General and Special Revenue Fund Types  
 Year Ended December 31, 2001

	General Fund			Special Revenue Fund		
	Budget	Actual	Variance Favorable (Unfavorable)	Budget	Variance Favorable Actual	(Unfavorable)
<b>REVENUES:</b>						
Aquifer management fees – net of discount	\$ 8,495,470	\$ 8,333,497	\$ (161,973)	\$ -	\$ -	\$ -
Interest	175,000	174,835	(165)	125,000	104,019	(20,981)
Ad valorem taxes	10,000	11,512	1,512	-	-	-
Grant revenue	286,000	215,839	(70,161)	-	-	-
Miscellaneous	34,725	98,923	64,198	160,750	750	(160,000)
Total revenues	<u>9,001,195</u>	<u>8,834,606</u>	<u>(166,589)</u>	<u>285,750</u>	<u>104,769</u>	<u>(180,981)</u>
<b>EXPENDITURES:</b>						
Personnel	2,518,849	2,432,881	85,968	-	-	-
Commodities	1,019,380	776,660	242,720	1,020,365	1,278	1,019,087
Contractual services	6,746,518	4,370,659	2,375,859	476,600	266,600	210,000
Capital outlay	345,319	317,020	28,299	-	-	-
Contingency	645,832	-	645,832	-	-	-
Debt service:						
Principal	-	-	-	335,000	350,000	(15,000)
Interest	-	-	-	118,702	103,862	14,840
Total expenditures	<u>11,275,898</u>	<u>7,897,220</u>	<u>3,378,678</u>	<u>1,950,667</u>	<u>721,740</u>	<u>1,228,927</u>
Excess of revenues over (under) expenditures	<u>(2,274,703)</u>	<u>937,386</u>	<u>3,212,089</u>	<u>(1,664,917)</u>	<u>(616,971)</u>	<u>1,047,946</u>
<b>OTHER FINANCING SOURCES (USES):</b>						
Operating transfer in	-	-	-	160,000	160,000	-
Operating transfer out	-	(160,000)	(160,000)	-	-	-
Proceeds from long-term debt	-	-	-	-	500,000	500,000
Total other financing sources (uses)	<u>-</u>	<u>(160,000)</u>	<u>(160,000)</u>	<u>160,000</u>	<u>660,000</u>	<u>500,000</u>
Excess of revenues and other financing sources over (under) expenditures and other financing uses	<u>\$(2,274,703)</u>	<u>777,386</u>	<u>\$ 3,052,089</u>	<u>\$(1,504,917)</u>	<u>43,029</u>	<u>\$ 1,547,946</u>
Fund balances at January 1, 2001		<u>3,304,432</u>			<u>3,027,839</u>	
Fund balances at December 31, 2001		<u>\$ 4,081,818</u>			<u>\$ 3,070,868</u>	

The accompanying notes are an integral part of this statement.



## NOTE A – SUMMARY OF ACCOUNTING POLICIES

A summary of Edwards Aquifer Authority's (the Authority) significant accounting policies consistently applied in the preparation of the accompanying financial statements follows:

### 1. The Reporting Entity

The Authority is governed by a 17-member board, with 15 voting members elected and 2 nonvoting members appointed by other governmental entities. The reporting entity consists of the primary government, organizations for which the primary government is financially accountable, and other organizations for which the primary government is not accountable, but for which the nature and significance of their relationship with the primary government are such that exclusion would cause the reporting entity's financial statements to be misleading or incomplete.

Financial accountability exists if a primary government appoints a voting majority of an organization's governing board and is either able to impose its will on that organization or there is a potential for the organization to provide specific financial benefits to, or impose specific financial burdens on, the primary government. A primary government may also be financially accountable for governmental organizations with a separately-elected governing board, a governing board appointed by another government, or a jointly-appointed board that is fiscally dependent on the primary government.

In accordance with Governmental Accounting Standards Board (GASB) requirements, the Authority has reviewed other entities and activities for possible inclusion in the reporting entity and has determined that there are none. However, certain expenditures of the South Central Texas Water Advisory Committee (SCTWAC) are included in the Authority's financial statements. SCTWAC was created under H.B. No. 3189, Section 1.09.1, which also created the Authority. SCTWAC advises the Authority's board on downstream water rights and issues. SCTWAC members appointed under this Section are not entitled to compensation by the Authority, but are entitled to reimbursement by the Authority for actual and necessary expenditures incurred in performing their duties. Accordingly, the Authority budgeted \$3,000 and expended \$2,659 for the year ended December 31, 2001.

### 2. Fund Accounting

The Authority's accounts are organized on the basis of funds or account groups, each of which is considered to be a separate accounting entity. The operations of each fund are accounted for by providing a separate set of self-balancing accounts which are comprised of each fund's assets, liabilities, fund equity, revenues, and expenditures. The following is a description of the fund types and account groups used by the Authority in the accompanying financial statements:

#### GOVERNMENTAL FUND TYPES

##### General Fund

The General Fund accounts for the resources used to finance the fundamental operations of the Authority. It is the basic fund of the Authority and covers all activities for which a separate fund has not been established.

##### Special Revenue Fund

The Special Revenue Fund accounts for projects and programs related to the permanent retirement of the Authority's groundwater rights, and leasing of groundwater rights to interested parties. It also accounts for loans from the Texas Water Development Board (TWDB) Agricultural Water Conservation Loan program.

#### ACCOUNT GROUPS

##### General Fixed Assets

This account group is established to account for the fixed assets owned by the Authority. Expenditure transactions to acquire general fixed assets occur in the General and Special Revenue Funds.

##### General Long-Term Debt

This account group records the long-term portion of accrued vacation pay and the long-term loan payable to TWDB and is offset by the amount to be provided in future years.

### 3. Memorandum Only – Total Columns

Total columns on the general purpose financial statements are captioned "memorandum only" to indicate that they are presented only to facilitate financial analysis. Data in these columns do not present financial position, results of operations, or changes in financial position in conformity with accounting principles generally accepted in the United States of America. Neither are such data comparable to a consolidation. Interfund eliminations have not been made in the aggregation of this data.





#### 4. Basis of Accounting

The accompanying financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America as prescribed by GASB.

The Authority employs the modified accrual basis of accounting in all funds. The modified accrual basis recognizes revenues that are susceptible to accrual when measurable and available and recognizes expenditures when incurred except for unmaturing interest on general long-term debt. Property tax revenue is susceptible to accrual and is considered available to the extent of delinquent taxes collected within sixty (60) days after the fiscal year-end. Aquifer management fees are also susceptible to accrual.

The Authority's major source of revenue is from the collection of aquifer management fees. Collection of these fees is granted under Sections 1.29(b) and (e) of the Edwards Aquifer Act of May 30, 1993, 73rd Leg., R.S. ch. 626, 1993 Tex. Gen. Laws 2350, as amended. The fees are set each year by the board of directors. Municipal and industrial users are assessed aquifer management fees on the amount of groundwater a permit holder is authorized to withdraw under the permit. Agricultural users pay fees based on the volume of groundwater withdrawn. The Act limits the aquifer management fee for agricultural users to no more than 20% of the fee for municipal and industrial users.

All Authority funds are accounted for on a spending "financial flow" measurement focus. This means that only current assets and current liabilities are generally included on their balance sheets. Their reported fund balance (net current assets) is considered a measure of "available spendable resources." Governmental fund operating statements present increases (revenues and other financing sources) and decreases (expenditures and other financing uses) in net current assets. Accordingly, they are said to present a summary of sources and uses of "available spendable resources" during a period. Property, plant, and equipment used in the Authority's operations are accounted for in the General Fixed Assets Account Group, rather than in Authority funds. Long-term debt is accounted for in the General Long-Term Debt Account Group rather than in Authority funds.

#### 5. Budgets

	General Fund	Special Revenue Fund
Original budget	\$11,240,364	\$ 3,340,412
Amendments – increase (decrease)	<u>35,534</u>	<u>(1,389,745)</u>
Final amended budget	<u>\$11,275,898</u>	<u>\$ 1,950,667</u>

The original budget is adopted by the board of directors in September. Amendments are made during the year on approval by the board. The final amended budget for the year ended December 31, 2001 is used in this report.

Budgets are required for all governmental funds. The budgets are adopted on the same basis of accounting as described in Note A4. Budgets should not be exceeded at the fund total level. Unused appropriations lapse at the end of each fiscal year.

#### 6. Investments

Investments consist of certificates of deposit, interest-bearing money market accounts, and U.S. Treasury Bills valued at amortized cost, which approximates fair value.

#### 7. Delinquent Taxes Receivable

Effective July 28, 1996, certain legislation abolished any taxing power of the Authority. However, delinquent taxes from prior years have been reported in the financial statements net of the allowance for uncollectible taxes. Tax revenues are recognized as they become available. Accordingly, an amount equal to taxes not yet available (not collectible within sixty (60) days after year-end) has been reported as deferred revenue.

#### 8. General Fixed Assets

General fixed assets are recorded at original cost or, if donated, are recorded at fair market value on the date donated. Costs incurred for the purchase or construction of general fixed assets are recorded as capital outlay expenditures in the General and Special Revenue Funds. All such costs are capitalized in the General Fixed Assets Account Group.

#### 9. Compensated Absences

Vested or accumulated vacation leave that is expected to be liquidated with expendable available financial resources is reported as an expenditure and a fund liability of the governmental fund that will pay it. Amounts of vested or accumulated vacation leave that are not expected to be liquidated with expendable available resources are reported in the General Long-Term Debt Account Group. At December 31, 2001, accumulated vacation leave amounts to \$138,649. The current portion of vacation leave payable, \$90,589, is recorded in the General Fund, and the long-term portion, \$48,060, is recorded in the General Long-Term Debt Account Group.

In accordance with the provisions of GASB Statement No. 16, *Accounting for Compensated Absences*, no liability is recorded for noninvesting accumulating rights to receive sick pay benefits.



**NOTE B – CASH AND INVESTMENTS**

All cash, certificates of deposit, and money market accounts are held in various financial institutions and are carried at cost plus accrued interest, which approximates fair value. U.S. Treasury Bills are held in one financial institution and are carried at amortized cost, as the time between purchase and maturity dates is less than one year.

Cash and investments shown on the balance sheet at December 31, 2001 are comprised of:

	General Fund	Special Revenue Fund	Total
Checking account	\$ 146,874	\$ -	\$ 146,874
Money market accounts	1,427,313	1,115,505	2,542,818
Certificates of deposit	805,588	-	805,588
Total in financial institutions	2,379,775	1,115,505	3,495,280
U.S. Treasury Bills	2,501,237	224,204	2,725,441
Petty cash	504	-	504
Total cash and investments	<u>\$ 4,881,516</u>	<u>\$ 1,339,709</u>	<u>\$ 6,221,225</u>

Deposits held at financial institutions can be categorized according to three levels of risk. These three levels of risk are as follows:

Category 1: Deposits which are insured or collateralized with securities held by the Authority or by its agent in the Authority's name.

Category 2: Deposits which are collateralized with securities held by the pledging financial institution's trust department or agent in the Authority's name.

Category 3: Deposits which are not collateralized.

Based on these three levels of risk, all of the Authority's deposits are classified as Category 1.

The Authority may legally invest in, at a minimum, obligations of the United States Government, obligations of the state of Texas, other states, cities, and counties with an A rating, common trust funds held in banks in Texas, certificates of deposit, money market accounts, and repurchase agreements.

Similar to cash deposits, investments held at a financing institution can be categorized according to three levels of risk. These three levels of risk are as follows:

Category 1: Investments which are insured, registered, or held by the Authority or by its agent in the Authority's name.

Category 2: Investments which are uninsured and unregistered held by the counterparty, its trust department, or agent in the Authority's name.

Category 3: Uninsured and unregistered investments held by the counterparty, its trust department, or its agent, but not in the Authority's name.

	Category 1	Category 2	Category 3	Carrying Amount	Fair Value
U.S. Treasury Bills	\$ 2,725,441	\$ -	\$ -	\$ 2,725,441	\$ 2,725,441

**NOTE C – AGRICULTURE LOANS RECEIVABLE**

The Authority has loan borrowings from TWDB (see Note F). The proceeds from these loans are used to provide loans to third parties for eligible agricultural water conservation projects and equipment. The agriculture loans receivable are secured by the water conservation projects and related equipment.

Changes in the agriculture loans receivable during the year ended December 31, 2001 are as follows:

	Balance at December 31, 2000	Additions	Deletions	Balance at December 31, 2001
Agriculture loans	\$ 1,976,899	\$ 89,638	\$ 258,046	\$ 1,808,491
Less allowance for uncollectibles				80,000
				<u>\$ 1,728,491</u>

Payments on the agriculture loans carry an interest rate of 4.93% and are made to the Authority annually through fiscal year 2007 as follows:

Year ending December 31,	
2002	\$ 308,402
2003	309,954
2004	325,292
2005	341,389
2006	358,284
Thereafter	<u>165,170</u>
	<u>\$ 1,808,491</u>

#### NOTE D – GENERAL FIXED ASSETS

The following is a summary of changes in general fixed assets:

	Balance at December 31, 2000	Additions	Deletions	Balance at December 31, 2001
Land	\$ 625,244	\$ -	\$ -	\$ 625,244
Buildings and improvements	1,645,853	141,027	-	1,786,880
Furniture, fixtures, and equipment	2,896,742	175,994	406,953	2,665,783
Vehicles	228,537	-	34,178	194,359
	<u>\$ 5,396,376</u>	<u>\$ 317,021</u>	<u>\$ 441,131</u>	<u>\$ 5,272,266</u>

#### NOTE E – RETIREMENT PLANS

##### Texas County and District Retirement System

###### PLAN DESCRIPTION

The Authority provides retirement, disability, and death benefits for all of its full-time employees through a nontraditional defined benefit pension plan in the statewide Texas County and District Retirement System (TCDRS). The Board of Trustees of TCDRS is responsible for the administration of the statewide agent multiple-employer public employee retirement system consisting of 506 nontraditional defined benefit pension plans. TCDRS, in the aggregate, issues a comprehensive annual financial report (CAFR) on a calendar year basis. The CAFR is available upon written request from the TCDRS Board of Trustees at P.O. Box 2034, Austin, Texas 78768-2034.

The plan provisions are adopted by the governing body of the Authority, within the options available in the Texas state statutes governing TCDRS (TCDRS Act). Members can retire at ages 60 and above with 8 or more years of service, with 30 years of service regardless of age, or when the sum of their age and years of service equals 75 or more. Members are vested after 8 years of service but must leave their accumulated contributions in the plan to receive any employer-financed benefit. Members who withdraw their personal contributions in a lump sum are not entitled to any amounts contributed by their employer.

Benefit amounts are determined by the sum of the employee's contributions to the plan, with interest, and employer-financed monetary credits. The level of these monetary credits is adopted by the governing body of the employer within the actuarial constraints imposed by the TCDRS Act so that the resulting benefits can be expected to be adequately financed by the employer's commitment to contribute. At retirement, death, or disability, the benefit is calculated by converting the sum of the employee's accumulated contributions and the employer-financed monetary credits to a monthly annuity using annuity purchase rates prescribed by the TCDRS Act.

###### FUNDING POLICY

The Authority has elected the annually-determined contribution rate plan provisions of the TCDRS Act. The plan is funded by monthly contributions from both employee members and the employer based on the covered payroll of employee members. Under the TCDRS Act, the contribution rate of the employer is actuarially determined annually. It was 2.74% for calendar year 2001. The contribution rate payable by the employee members is the rate of 4.00% as adopted by the governing body of the Authority. The employee contribution rate and the employer contribution rate may be changed by the governing body of the employer within the options available in the TCDRS Act.

###### ANNUAL PENSION COST

For the Authority's accounting year ended December 31, 2001, the annual pension cost for the TCDRS plan for its employees was \$53,244, and the actual contributions were \$53,244.

The annual required contributions were actuarially determined as a percent of the covered payroll of the participating employees, and were in compliance with GASB Statement No. 27 parameters based on the actuarial valuation as of December 31, 1998, the basis for determining the contribution rate for calendar year 2001. The December 31, 2000 actuarial valuation is the most recent valuation.



Edwards Aquifer Authority  
Notes to Financial Statements  
December 31, 2001

ACTUARIAL VALUATION INFORMATION

Actuarial valuation date	December 31, 2000	December 31, 1999	December 31, 1998
Actuarial cost method	Entry age	Entry age	Entry age
Amortization method	Level percentage of payroll, open	Level percentage of payroll, open	Level percentage of payroll, open
Amortization period in years	30	30	30
Asset valuation method	Long-term appreciation with adjustment	Long-term appreciation with adjustment	Long-term appreciation with adjustment
Actuarial assumptions:			
Investment return*	8.0%	8.0%	8.0%
Projected salary increases*	5.9%	5.9%	5.9%
Inflation	4.0%	4.0%	4.0%
Cost-of-living adjustments	-	-	-

\*Includes inflation at the stated rate.

TREND INFORMATION FOR THE RETIREMENT PLAN  
FOR THE EMPLOYEES OF EDWARDS AQUIFER AUTHORITY

Accounting Year-End	Annual Pension Cost (APC)	Percentage of APC Contributed	Contribution in Excess of APC
December 31, 2001	\$ 53,244	100.0%	-
December 31, 2000	\$ 43,471	100.0%	-
December 31, 1999	\$ 81,530	112.5%	\$ 10,224

SCHEDULE OF FUNDING PROGRESS FOR THE RETIREMENT PLAN  
FOR THE EMPLOYEES OF EDWARDS AQUIFER AUTHORITY

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Annual Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a)/c)
12/31/00	\$ 2,728,015	\$ 2,592,527	(\$135,488)	105.23%	\$ 1,732,443	(7.82%)
12/31/99	\$ 2,442,181	\$ 2,297,726	(\$144,455)	106.29%	\$ 1,310,776	(11.02%)
12/31/98	\$ 2,113,823	\$ 1,969,256	(\$144,567)	107.34%	\$ 1,103,690	(13.10%)

**DEFINED CONTRIBUTION PLAN**

Effective January 1, 2000, the Authority established a defined contribution retirement plan, known as Edwards Aquifer Authority Retirement Plan (the Plan), to provide benefits at retirement to all full-time employees. The International City Management Association (ICMA) Retirement Corporation is the administrator of the Plan. Employees are eligible to participate upon employment. Employees that have enrolled as Plan members are required to contribute 3.00% of covered salary. The Authority is required to contribute 4.49% of covered salary. Plan provisions and contribution requirements are established and may be amended by the Authority's board of directors. For the year ended December 31, 2001, actual contributions made by the employees were \$57,611 and actual contributions made by the Authority were \$81,756.

**NOTE F – LONG-TERM DEBT**

Changes in long-term debt during the year ended December 31, 2001 are as follows:

	Balance at December 31, 2000		Additions	Deletions	Balance at December 31, 2001	
Compensated absences	\$ 63,499	\$ 75,150	\$ 90,589	\$ 48,060		
Long-term loan payable	<u>2,344,500</u>	<u>500,000</u>	<u>350,000</u>	<u>2,494,500</u>		
	<u>\$ 2,407,999</u>	<u>\$ 575,150</u>	<u>\$ 440,589</u>	<u>\$ 2,542,560</u>		

In 1998, the Authority obtained a \$3,000,000 loan from TWDB for an agricultural loan program. In 2001, the Authority obtained another \$1,000,000 loan from TWDB of which only \$500,000 has been drawn. This program is designed to allow the Authority to provide loans to third parties for eligible agricultural water conservation projects and equipment. The Authority has granted TWDB a parity first lien interest in all conservation loans entered into between the Authority and any borrowers. The loans carry an interest rate ranging from 4.41%-4.70% with principal payments due annually through 2008 as follows:

Year ending December 31,

2002	\$ 365,500
2003	460,500
2004	480,000
2005	501,000
2006	521,500
Thereafter	<u>166,000</u>
	<u>\$ 2,494,500</u>

**NOTE G – RISK MANAGEMENT**

The Authority is exposed to various risks of loss related to torts; theft of, damage to, and destruction of assets; errors and omissions; and natural disasters for which the Authority carries commercial insurance. There have been no significant reductions in insurance coverage for these risks of loss since the prior year and there have been no settlements in excess of the insurance coverage for any of the past three fiscal years.

The Authority contracts with the Texas Water Conservation Association (TWCA) to provide workers' compensation insurance. This multiple-employer account provides for a combination of modified self-insurance and stop-loss coverage. Contributions are set annually by TWCA. Liability by the Authority is generally limited to the contributed amounts.

**NOTE H – COMMITMENTS**

The legislation creating the Authority required the Authority to assume all liabilities and commitments of its predecessor, the Edwards Underground Water District. An interlocal agreement with the City of San Marcos, executed in 1992, requires funding for the purchase of surface water. Funding for the term of this agreement is approximately \$1.1 million over five years beginning in the year 2001.

During the current year, the Authority paid \$223,800 that pertained to this commitment. As of December 31, 2001, the unpaid commitment is approximately \$876,000.

**NOTE I – MAJOR CUSTOMER**

Approximately \$4,427,500 of the Authority's management fee revenue, which accounts for approximately 50% of the total General Fund revenue, was derived from billings rendered to a single customer with which the Authority has a recurring business relationship.



Edwards Aquifer Authority  
 Schedule of General Fund Expenditures – Budget and Actual  
 Year Ended December 31, 2001

	Budget	Actual	Variance Favorable (Unfavorable)		Budget	Actual	Variance Favorable (Unfavorable)
<b>Personnel:</b>				<b>Contractual Services:</b>			
Salaries and benefits	\$ 2,366,902	\$ 2,318,708	\$ 48,194	Contractual			
Interns	15,500	-	15,500	professional services	4,647,569	2,694,899	1,952,670
Allowances	21,000	21,000	-	General counsel	770,000	748,993	21,007
Overtime	18,400	12,053	6,347	Special counsel	250,000	150,451	99,549
Temporary services	19,547	14,460	5,087	Other legal services	7,800	5,850	1,950
Tuition reimbursement	10,000	3,252	6,748	Electrical	28,800	19,016	9,784
Medical allowance distribution	67,500	63,408	4,092	Equipment maintenance	69,315	37,172	32,143
	<u>2,518,849</u>	<u>2,432,881</u>	<u>85,968</u>	Equipment rental	56,645	35,006	21,639
				Facilities maintenance	43,600	31,184	12,416
				Facilities rental	71,430	52,167	19,263
				Land acquisition	500,000	500,000	-
<b>Commodities:</b>				Payments to others	202,464	30,106	172,358
Clothing	2,350	1,812	538	Pest control	1,200	955	245
Computer supplies	29,461	26,401	3,060	Pre-employment services	1,950	329	1,621
Conferences, seminars, and training	100,906	69,584	31,322	Rain gauge observers	1,670	1,180	490
Education supplies	198,435	195,568	2,867	Record services	3,375	2,361	1,014
Field supplies	16,800	11,908	4,892	Security and fire	2,640	1,874	766
Supplies	86,425	71,692	14,733	Telecommunications services	69,860	52,173	17,687
Fuel	12,000	10,262	1,738	Vehicles maintenance	15,000	4,583	10,417
Kitchen and janitorial	6,000	4,963	1,037	Waste disposal	1,400	696	704
Meeting expense	70,525	46,697	23,828	Water and sewage	1,800	1,664	136
Membership	19,045	14,251	4,794		<u>6,746,518</u>	<u>4,370,659</u>	<u>2,375,859</u>
Postage	60,850	50,215	10,635				
Printing	206,378	135,980	70,398	<b>Capital Outlay:</b>			
Public and legal notices	105,200	57,874	47,326	Software	10,000	8,068	1,932
Subscriptions	17,875	8,318	9,557	Hardware upgrade	26,769	26,573	196
Property and casualty	43,100	41,310	1,790	Office equipment	41,100	34,943	6,157
Furniture and equipment	44,030	29,825	14,205	Building improvements	133,400	128,040	5,360
	<u>1,019,380</u>	<u>776,660</u>	<u>242,720</u>	Water sampling and monitoring equipment	47,050	44,364	2,686
				Water meters	65,000	63,032	1,968
				Meter testing equipment	10,000	-	10,000
				Building expansion design	12,000	12,000	-
					<u>345,319</u>	<u>317,020</u>	<u>28,299</u>
				<b>Contingency</b>	<u>645,832</u>	<u>-</u>	<u>645,832</u>
				<b>Total expenditures</b>	<u>\$11,275,898</u>	<u>\$ 7,897,220</u>	<u>\$ 3,378,678</u>

Statistical Section  
December 31, 2001

**General Governmental Expenditures by Function (Unaudited)\*  
 Last Five Fiscal Years<sup>1</sup>**

Fiscal Year	Personnel	Commodities	Contractual Services	Capital Outlay	Debt Service	Total
2001	2,432,881	777,938	4,637,259	317,020	453,862	\$ 8,618,960
2000	2,169,889	478,351	4,215,569	560,894	453,702	\$ 7,878,405
1999	1,651,845	364,191	2,709,426	476,710	441,587	\$ 5,643,759
1998	1,340,351	288,233	1,956,108	477,139	0	\$ 4,061,831
1997 <sup>2</sup>	1,312,340	265,433	3,685,628	553,635	0	\$ 5,817,036

\*Includes general and special revenue funds.

<sup>1</sup> Edwards Aquifer Authority was created on June 28, 1996.

<sup>2</sup> 1997 includes 15-months from October 1996 to December 1997.

**General Governmental Revenues by Function (Unaudited)\*  
 Last Five Fiscal Years<sup>1</sup>**

Fiscal Year	Aquifer Management Fees	Interest	Ad Valorem Taxes <sup>3</sup>	Grant Revenue	Miscellaneous	Total
2001	8,333,497	278,854	11,512	215,839	99,673	\$ 8,939,375
2000	6,742,068	435,795	20,204	362,279	25,416	\$ 7,585,762
1999	6,334,505	197,722	23,983	199,281	58,709	\$ 6,814,200
1998	5,051,077	94,810	26,784	0	104,190	\$ 5,276,861
1997 <sup>2</sup>	2,171,118	82,219	48,823	0	2,402,759	\$ 4,704,919

\*Includes general and special revenue funds.

<sup>1</sup> Edwards Aquifer Authority was created on June 28, 1996.

<sup>2</sup> 1997 includes 15-months from October 1996 to December 1997.

<sup>3</sup> Includes delinquent property tax collections owed to the Authority's predecessor agency, Edwards Underground Water District. The Authority does not collect property taxes.





**Principal Aquifer Management Fee Payers/December 31, 2001**

Fee Payer	County	Type of Business	Total Fee	Percentage of Total Collected
San Antonio Water System	Bexar	Water Purveyor	\$ 4,427,500	55.80%
Bexar Met Water District	Bexar	Water Purveyor	635,366	8.01%
City of San Marcos	Hays	Government	166,331	2.10%
Cemex USA Construction Materials, Inc.	Comal	Construction Materials	149,937	1.89%
Martin Marietta Materials Southwest	Bexar	Quarry	120,076	1.51%
City of San Antonio	Bexar	Government	119,830	1.51%
Flying W Properties, Ltd.	Comal	Quarry	118,314	1.49%
City of Uvalde	Uvalde	Government	115,777	1.46%
Alamo Concrete Products, Ltd.	Bexar	Concrete Products	90,169	1.14%
San Antonio Zoo	Bexar	Zoo	68,690	0.87%
Totals			\$ 6,011,991	75.77%

**Miscellaneous Statistics/December 31, 2001**

Authority Created Under	Act of May 30, 1993, 73rd Leg., R.S., ch. 626, 1993 Tex. Gen. Laws 2350; as amended by Act of May 29, 1995, 74th Leg., R.S., ch. 261, 1995 Tex. Gen. Laws 2505; Act of May 16, 1995, 74th Leg., R.S., ch. 524, 1995 Tex. Gen. Laws 3280; Act of May 6, 1999, 76th Leg., R.S., ch. 163, 1999 Tex. Gen. Laws 634; and Act of May 28, 2001, 77th Leg., R.S., ch. 966, §§ 2.60 - 2.62 and 6.01 - 6.05, 2001 Tex. Gen. Laws 1880, 1910 and 1961 - 62; and see also Act of May 23, 2001, 77th Leg., R.S., ch. 1192, Tex. Gen. Laws 2552.
Year Created	1996
Domicile	San Antonio, Texas
Last Revision of Enabling Act	2001
Population of Authority (8 counties)	1,793,616 (2000 Census Bureau)
Authority created under	Bexar, Medina and Uvalde counties, plus portions of Atascosa, Caldwell, Guadalupe, Comal and Hays counties
Area of Edwards Aquifer	3,600 square miles, 180 miles long from west to east; 5-40 miles wide
5-Year Average Recharge	737,820 acre feet (for period 1996-2000)
Average Annual Recharge	679,000 acre feet (for period 1934-2000)
5-Year Average Discharge	807,080 acre feet (for period 1996-2000)
Average Annual Discharge	668,700 acre feet (for period 1934-2000)
Number of Employees	56
Water Level Record High	703.3 feet above sea level, June 1992, recorded at San Antonio, Texas
Water Level Record Low	612.5 feet above sea level, August 1956, recorded at San Antonio, Texas
Permits Issued	536 through December 31, 2001



**Demographic Statistics/Last Five Years<sup>1</sup>**

**ATASCOSA COUNTY**

Fiscal Year	Population <sup>2</sup>	Per Capita Income <sup>3</sup>	School Enrollment <sup>4</sup>	Unemployment Rate <sup>5</sup>
2001	39,288	18,286	8,343	4.2
2000	38,628	17,570	8,241	3.9
1999	37,442	16,992	8,206	4.1
1998	36,389	16,464	8,100	4.7
1997	35,344	14,923	8,103	4.8
2000 Median Age <sup>2</sup>	32.3			

**BEXAR COUNTY**

Fiscal Year	Population <sup>2</sup>	Per Capita Income <sup>3</sup>	School Enrollment <sup>4</sup>	Unemployment Rate <sup>5</sup>
2001	1,409,258	25,881	263,038	4.1
2000	1,392,931	24,712	258,594	3.5
1999	1,372,867	24,061	255,972	3.2
1998	1,354,837	22,839	254,806	3.8
1997	1,336,027	21,632	251,348	4.2
2000 Median Age <sup>2</sup>	32.1			

**CALDWELL COUNTY**

Fiscal Year	Population <sup>2</sup>	Per Capita Income <sup>3</sup>	School Enrollment <sup>4</sup>	Unemployment Rate <sup>5</sup>
2001	32,888	20,018	6,266	4.2
2000	32,194	19,139	6,210	3.2
1999	32,820	18,211	6,067	3.4
1998	32,023	16,973	5,993	3.8
1997	31,282	15,958	5,883	4.2
2000 Median Age <sup>2</sup>	34.4			

**COMAL COUNTY**

Fiscal Year	Population <sup>2</sup>	Per Capita Income <sup>3</sup>	School Enrollment <sup>4</sup>	Unemployment Rate <sup>5</sup>
2001	79,857	28,880	16,718	3.5
2000	78,021	27,981	16,488	2.5
1999	76,770	26,865	16,189	2.5
1998	73,519	25,734	15,607	2.7
1997	70,446	24,115	15,011	3.0
2000 Median Age <sup>2</sup>	39			

**GUADALUPE COUNTY**

Fiscal Year	Population <sup>2</sup>	Per Capita Income <sup>3</sup>	School Enrollment <sup>4</sup>	Unemployment Rate <sup>5</sup>
2001	90,729	22,317	16,409	3.0
2000	89,023	21,424	15,973	2.5
1999	82,808	20,314	15,607	2.5
1998	80,453	20,080	14,960	2.5
1997	77,592	18,494	14,288	3.0
2000 Median Age <sup>2</sup>	34.9			

**HAYS COUNTY**

Fiscal Year	Population <sup>2</sup>	Per Capita Income <sup>3</sup>	School Enrollment <sup>4</sup>	Unemployment Rate <sup>5</sup>
2001	100,790	22,970	16,558	3.3
2000	97,589	21,933	18,483	2.3
1999	92,755	20,910	17,885	2.7
1998	89,304	19,498	17,479	2.7
1997	85,580	18,299	16,796	3.2
2000 Median Age <sup>2</sup>	28.4			

**MEDINA COUNTY**

Fiscal Year	Population <sup>2</sup>	Per Capita Income <sup>3</sup>	School Enrollment <sup>4</sup>	Unemployment Rate <sup>5</sup>
2001	39,996	19,012	8,404	4.3
2000	39,304	18,102	8,296	3.6
1999	37,698	17,539	8,177	3.4
1998	36,910	17,139	8,141	4.6
1997	35,920	15,947	8,000	4.3
2000 Median Age <sup>2</sup>	34.4			

**UVALDE COUNTY**

Fiscal Year	Population <sup>2</sup>	Per Capita Income <sup>3</sup>	School Enrollment <sup>4</sup>	Unemployment Rate <sup>5</sup>
2001	26,174	18,986	6,391	7.6
2000	25,926	17,979	6,425	7.1
1999	26,002	17,569	6,453	8.0
1998	25,448	16,535	6,349	10.2
1997	25,480	15,288	6,427	12.2
2000 Median Age <sup>2</sup>	32.2			

<sup>1</sup> Edwards Aquifer Authority was created on June 28, 1996.

<sup>2</sup> U.S. Census Bureau

<sup>3</sup> Bureau of Economic Analysis

<sup>4</sup> Texas Education Agency

<sup>5</sup> Texas Workforce Commission

1 cubic foot.....7.48 gallons.....62.31 lbs. of water; • 1 acre-foot.....43,560 cubic feet.....325,851 gallons; • 1 cubic foot per second.....448.80 gallons per minute; • 1 cubic foot per second.....646,272 gallons per day • For 24 hours.....1.98 acre-feet • For 30 days.....59.50 acre-feet • For 1 year.....724 acre-feet • 1 million gallons.....3.07 acre-feet • 1 million gallons per day.....1,120 acre-feet per year • 1,000 gallons per minute.....2.23 cubic feet per second • 1,000 gallons per minute.....4.42 acre-feet per day • An acre-foot covers one acre of land one foot deep. • An acre-foot supplies a family of 5 for 1 year. • 1 cubic foot.....7.48 gallons.....62.31 lbs. of water; • 1 acre-foot.....43,560 cubic feet.....325,851 gallons; • 1 cubic foot per second.....448.80 gallons per minute; • 1 cubic foot per second.....646,272 gallons per day • For 24 hours.....1.98 acre-feet • For 30 days.....59.50 acre-feet • For 1 year.....724 acre-feet • 1 million gallons.....3.07 acre-feet • 1 million gallons per day.....1,120 acre-feet per year • 1,000 gallons per minute.....2.23 cubic feet per second • 1,000 gallons per minute.....4.42 acre-feet per day • An acre-foot covers one acre of land one foot deep. • An acre-foot supplies a family of 5 for 1 year. • 1 cubic foot.....7.48 gallons.....62.31 lbs. of water; • 1 acre-foot.....43,560 cubic feet.....325,851 gallons; • 1 cubic foot per second.....448.80 gallons per minute; • 1 cubic foot per second.....646,272 gallons per day • For 24 hours.....1.98 acre-feet • For 30 days.....59.50 acre-feet • For 1 year.....724 acre-feet • 1 million gallons.....3.07 acre-feet • 1 million gallons per day.....1,120 acre-feet per year • 1,000 gallons per minute.....2.23 cubic feet per second • 1,000 gallons per minute.....4.42 acre-feet per day • An acre-foot covers one acre of land one foot deep. • An acre-foot supplies a family of 5 for 1 year.



**EDWARDS AQUIFER**  
A U T H O R I T Y

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