



# TEXAS WATER DEVELOPMENT BOARD

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## EVALUATION OF FINANCIAL, LEGAL AND INSTITUTIONAL FACTORS AFFECTING THE PROVISION OF WATER AND SEWERAGE SERVICES

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*This research project was sponsored by the Texas Water  
Development Board's Research and Planning Fund.*

FINAL REPORT

DECEMBER 1987

 **Arthur Young**

A MEMBER OF ARTHUR YOUNG INTERNATIONAL



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# Arthur Young

1100 Norwood Tower  
114 West Seventh Street  
Austin, Texas 78701

December 31, 1987

Mr. M. Reginald Arnold II  
Executive Administrator  
Texas Water Development Board  
Post Office Box 13231  
Capital Station  
Austin, Texas 78711-3231

Dear Mr. Arnold:

Arthur Young & Company is pleased to submit this report on our project to evaluate the costs of water supply and sewerage facilities and services for different types of public and private utilities. Our efforts were supplemented by those of the law firm of Vinson & Elkins which provided information on the legal and historical aspects of entities delivering water and sewerage services. As further described in Chapter I, the overall objective of this study has been to evaluate the service costs of the various existing entities in order to present information essential in helping to determine the most cost-effective types of management arrangements and levels of service to meet future service needs throughout the state of Texas.

It has been our pleasure to have the opportunity of working with you and your staff on this project and we wish to acknowledge the support and insight of the TWDB personnel involved with the study. Please feel free to call Tim Barnes at (404) 581-1300 if you have any questions regarding the report.

Very truly yours,

*Arthur Young & Company*



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**I. INTRODUCTION**

## I. INTRODUCTION

This section provides an overview of the project goal and objectives, a summary of the report content, a description of the major tasks that were completed during the course of the study, and acknowledgement of those parties who played an important part in the completion of this effort.

### A. PROJECT GOAL AND OBJECTIVES

The overall goal of this research project funded by the Texas Water Development Board has been to evaluate the cost of service of various water and wastewater purveyors and to provide summary data regarding the various institutional arrangements and key operating statistics for each type of entity directly involved in the delivery of water and/or wastewater services. The report contains findings concerning methods and institutional arrangements to deliver water and wastewater services to the citizens of Texas in the most cost-effective manner. Specific project objectives included:

1. Computation of capital, debt service, maintenance, and operating costs for water supply and sewerage services based on a representative statewide sample of different size water service provision arrangements (cities, municipal utility districts, water control and improvement districts, river authorities, major water supply districts, and private water corporations);
2. Computation of estimates of capital, debt service, maintenance, and operating costs for the most common types of water and sewerage utilities -- city, municipal utility district, and private for-profit corporation -- for five areas of the state (east, west, north, south, and central). The selection of specific community settings in each area was negotiated with the TWDB staff. Computations are expressed in standardized terms so as to provide comparisons of cost of the same levels of service by different types of water and sewerage utilities, as well as for combinations of water and sewerage utilities serving a single area;

3. Development of procedures for individually evaluating and comparing alternative arrangements;
4. Based on computations in objectives (1) and (2) and the procedure developed in objective (3), conduct a comparative evaluation and make recommendations on the most cost-effective arrangements for providing water service, sewerage service, and combinations of both for different size service areas and populations;
5. Evaluation of the institutional and legal basis for the creation or establishment of the different types of cost-effective water and sewerage service provision arrangements identified in objective (4); and
6. Comparison of the cost-effectiveness and institutional/legal influences for each of the utility types and development of findings on the most beneficial service provision arrangements for different size service areas, populations, and institutional settings.

## B. ORGANIZATION OF REPORT

This report is organized into seven sections. In addition to this introductory section, the sections are as follows:

- II. Executive Summary - summarizes the project scope and methodology as well as key findings resulting from the study.
- III. Current Legal and Institutional Framework - presents an overview of the history of water and wastewater service in the state of Texas and a summary of the legal powers, institutional arrangements, financing capabilities and service area provisions for each of the entities involved in the delivery of water and wastewater services.
- IV. Survey and Interview Process - describes the survey and interview process used to collect the data presented in Chapters V and VI, including the compilation of the list of entities, preparation of the

survey questionnaires, the sample and interview site selection process, and response rates by type of entity and region within the state.

- V. Summary of Financial and Operating Information - presents key water and wastewater financial and operating data for the entities responding to the survey including, among others, items such as number of employees, revenue and expenditure data, annual bill and tax data, and system capacity.
  
- VI. Summary of Qualitative Information - provides a discussion of the qualitative data collected during the interview process on such items as water quality, ability to address growth requirements, customer satisfaction, and management systems, as well as a summary of significant comments received either during the interview process or on the survey questionnaires.
  
- VII. Issues in Meeting Future Water and Sewerage Service Needs - provides an evaluation of the ability of current institutional arrangements to meet the future needs of the state and findings as to changes to be considered in order to deliver service in the most efficient and effective manner.

### C. STUDY METHODOLOGY

The methodology used in completing this project involved the following six major tasks:

1. Data Collection - This task included (1) a literature search to identify relevant statewide or regional water/wastewater service evaluations, and (2) compilation of a list of the various types of entities involved in the delivery of such service and down-

loading of available selected operating or regulatory information for each entity to microcomputer files.

2. Sampling and Survey Process - Included in this task was the development of the survey questionnaires to address the established evaluation criteria and the selection of a representative sample for each entity type and region of the state (Far West, Plains, Central, East, South).
3. On-Site Interviews - A critical task in this study was the conduct of over twenty on-site interviews with utility managers in each of the regions. These interviews provided an important opportunity for these managers to convey their impressions and thoughts regarding the current delivery of water and/or wastewater services and how they saw future challenges might be met.
4. Analysis of Financial and Operating Data - This task included tabulation of the survey results, review of the results for reasonableness, confirmation of selected data with state records, and an extensive effort to format and compile the information for presentation in Chapter V.
5. Analysis of Legal and Institutional Factors - This effort incorporated a review of the history of water and wastewater service delivery within the state and an overview of the legal authority, powers, financing capabilities and service area limits for each type of water and/or wastewater service purveyor.
6. Development of Findings and Conclusions - Based on the collected information, interviews, and overview of the history and institutional arrangements for service delivery within the state, the final task involved development of findings regarding the most beneficial methods and institutional arrangements to deliver water and sewerage services to the citizens of Texas.

#### **D. ACKNOWLEDGEMENTS**

We wish to acknowledge the support and insight of the Texas Water Development Board staff members, particularly those in the Water Data Collection, Studies, and Planning Division, for their valuable insight and assistance in the sample selection and interview process as well as their coordination of the extraction

of data from the Texas State Department of Health computer listing of entities supplying drinking water to consumers. We also thank the staffs of the Texas Water Commission and the State Department of Health for access to their listings of water and/or wastewater service purveyors and for their assistance in formatting and preparing such data for our use.

A special word of thanks goes to the many utility managers, elected officials, and numerous utility staff members who assisted in the completion of the survey questionnaires and who provided useful and candid comments during the on-site interviews.

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## II. EXECUTIVE SUMMARY

## II. EXECUTIVE SUMMARY

This chapter presents an overview of the project goal, the study methodology, and a summary of key findings. This chapter does not provide a complete picture of all the major issues confronted during the study and, as such, the remainder of the report and, in particular, Chapter VII (Issues in Meeting Future Water and Sewerage Service Needs) should be referred to for further discussion and analysis.

### A. PROJECT GOAL

The goal of this project, sponsored by the Texas Water Development Board's Research and Planning Fund, has been to collect and evaluate cost of service and other operating information of various water and wastewater utilities throughout the state. Findings have been prepared concerning methods and institutional arrangements to deliver water and wastewater services to the citizens of Texas in the most cost-effective and efficient manner. The computation of capital, debt service, maintenance and operating costs for the various types of service arrangements and different regions of the state has been included. The institutional and legal basis for the creation or establishment of the different types of service provision arrangements has been examined and comparisons have been made among each of the utility types in developing the findings contained in the report.

### B. STUDY METHODOLOGY

The results of this project were accomplished primarily through an intensive survey process which included the mailing of 1,000 questionnaires to a sample of utilities all across the state and the completion of twenty on-site interviews with utility managers in each of the five regions identified in the report. This effort was followed by (1) the analysis of the finan-

cial and operating data collected through the survey process, (2) an evaluation of legal and institutional factors including legal authority, powers, financing capabilities and service area limits, and (3) development of findings.

### **C. OVERVIEW OF WATER AND WASTEWATER SERVICE IN TEXAS**

The institutional framework for water and wastewater systems in Texas has evolved throughout the history of Texas. Early Spanish systems known as acequias were used mainly for irrigation purposes. Subsequently, private canal companies and privately-owned utility companies arose. Gradually, the role of municipalities increased in operating water and sewer systems for cities. Special purpose water districts authorized to be created by constitutional amendments were also formed in the early 1900s. Under those same constitutional amendments, river authorities were created in the late 1920s and early 1930s to implement vast public works projects to tame the major rivers of the state by constructing dams and reservoirs. Use of such special districts evolved further in the 1950s and 1960s as they were used to facilitate development of major metropolitan areas such as Houston. Proliferation of local districts, combined with other matters including the increased public awareness of water quality problems, led to an increasing state role beginning in the late 1950s in financing, planning and regulating water and wastewater facilities.

### **D. KEY FINDINGS**

#### **1. Water and Wastewater Service Providers**

During the course of this project, a summary of all active utilities was constructed by consolidating information obtained from the State Department of Health and the Texas Water Commission. Over 2,800 active utilities serving a minimum of 150 water

connections or with wastewater plant capacities of 100,000 gallons per day or more were identified. The breakdown of utilities by type and region, as shown in Exhibit II-1, is as follows:

<u>Utility Type</u>	<u>Total Number Identified</u>	<u>Percentage</u>
Fresh Water Supply District	39	1.4%
Municipal Utility District	683	24.0
Municipality	888	31.2
Privately Held/Investor Owned	368	12.9
River Authority	15	0.5
Water Control & Improvement District	238	8.4
Water Improvement District	18	0.6
Water Supply Corporation	536	18.9
All Others	59	2.1
Total	<u>2,844</u>	<u>100.0%</u>

Exhibit II-1 also identifies the number of entities responding to the survey questionnaire. A survey response rate of approximately 48% was achieved as 478 out of 1,000 questionnaires were returned.

## 2. Financial and Operating Information

Comparing financial and operating data among various types of utilities can provide insight into the efficiency and effectiveness of various organizational forms. Care should be taken, however, in drawing conclusions solely from these comparisons. Given the wide variation of climate, natural resources, and demographics across the state, one would expect to see corresponding impacts on the cost of service and other aspects of utility operations. A multitude of other factors including customer constituency, age of facilities, receipt of different levels of grant funding, and varying treatment requirements also affect water and wastewater service delivery. Summarized below are a number of key statistics resulting from this research effort. Please note that this information is self-reported data voluntarily provided by the agencies participating in the survey and has not been

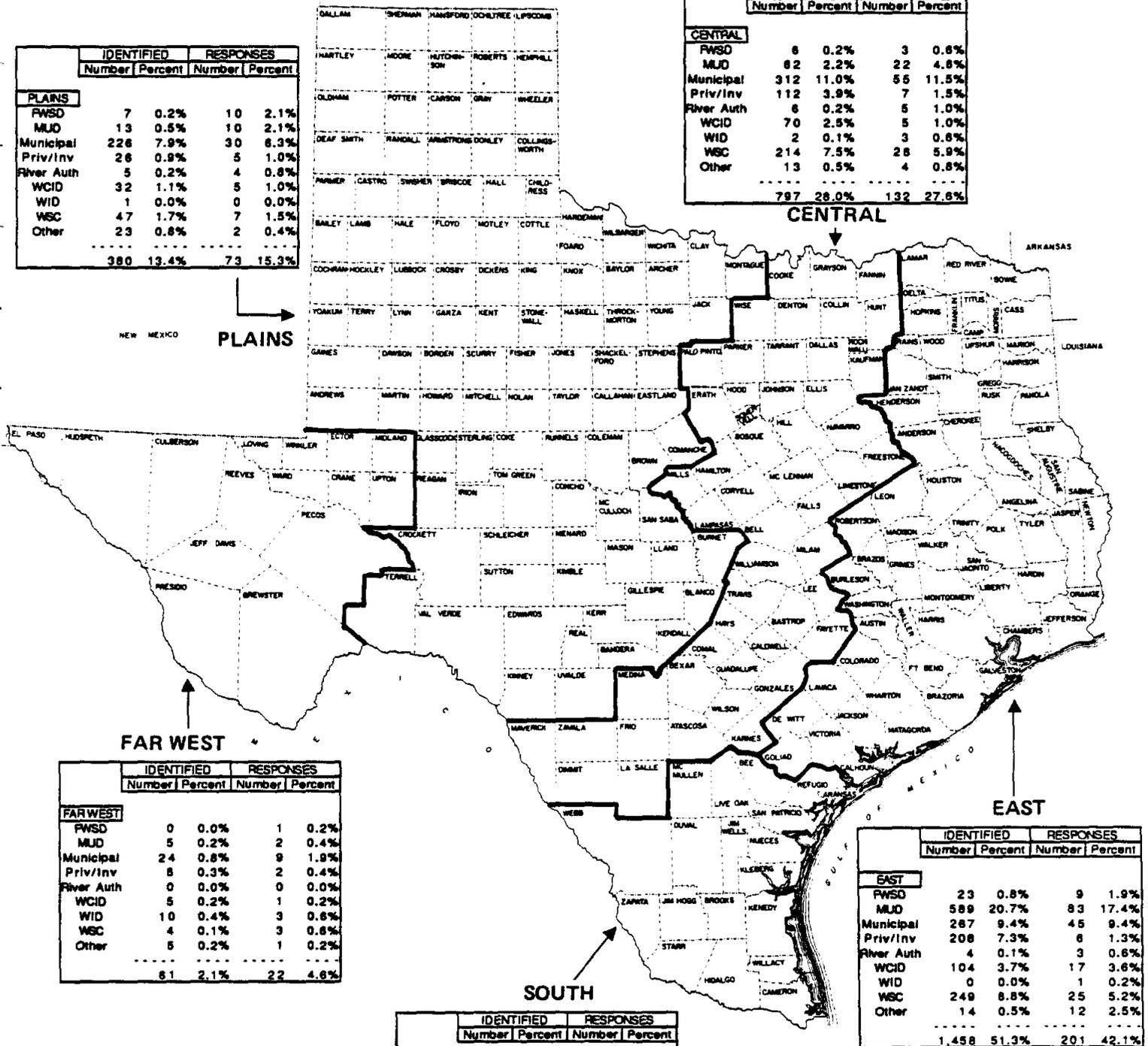
audited by either Arthur Young or the Texas Water Development Board.

- As shown in Exhibit II-2, the number of customers served per utility based on both the median and mean responses is generally quite low. For water and wastewater the percentage of utilities serving 1,000 or fewer customers is 63.2% and 54.8%, respectively. Over 95% of both water and wastewater service providers served 20,000 or fewer customers.
- The relatively small size of most utilities is confirmed by the data presented in Exhibit II-3. The median number of employees devoted to water and/or wastewater operations is below ten per utility for all utility types except river authorities. Even when using the mean (average) number of employees, only municipalities, river authorities and "other" (primarily public utility agencies) exceed this amount.
- Approximately 53% of water systems and 65% of wastewater systems have capacities of 1,000,000 gallons per day or less.
- The great number of agencies who receive at least a portion of their annual revenues from taxes affects the analysis of cost of service and the matching of revenues with those costs. This is because tax revenues are most often available to jointly fund both water and wastewater operating expenses and capital improvements. As such, there is no uniform method by which to allocate these tax revenues between water and wastewater operations. Thus, while one may be able to comment about a utility's overall financial condition it is often less apparent whether water revenues are adequate to meet water costs, etc.
- As depicted in Exhibit II-4, the allocation of total revenues (both water and wastewater) among the six major categories below best illustrates the varying degree to which operating rates and taxes support utility operations. The "not itemized" category results from an inability of some utilities to readily segregate their revenues into the indicated categories or the failure of the survey form to reflect revenue categories used by a particular utility.
- For utilities, the debt service coverage ratio (Exhibit II-5) often serves as an important indicator of financial strength. This ratio, which is generally defined as total operating revenues less operating expenses

TEXAS REGIONS AND UTILITIES

	IDENTIFIED		RESPONSES	
	Number	Percent	Number	Percent
<b>PLAINS</b>				
PWSO	7	0.2%	10	2.1%
MUD	13	0.5%	10	2.1%
Municipal	226	7.9%	30	6.3%
Priv/Inv	26	0.9%	5	1.0%
River Auth	5	0.2%	4	0.8%
WCID	32	1.1%	5	1.0%
WID	1	0.0%	0	0.0%
WSC	47	1.7%	7	1.5%
Other	23	0.8%	2	0.4%
<b>TOTAL</b>	<b>380</b>	<b>13.4%</b>	<b>73</b>	<b>15.3%</b>

	IDENTIFIED		RESPONSES	
	Number	Percent	Number	Percent
<b>CENTRAL</b>				
PWSO	8	0.2%	3	0.6%
MUD	82	2.2%	22	4.6%
Municipal	312	11.0%	55	11.5%
Priv/Inv	112	3.9%	7	1.5%
River Auth	6	0.2%	5	1.0%
WCID	70	2.5%	5	1.0%
WID	2	0.1%	3	0.6%
WSC	214	7.5%	28	5.9%
Other	13	0.5%	4	0.8%
<b>TOTAL</b>	<b>797</b>	<b>28.0%</b>	<b>132</b>	<b>27.6%</b>



	IDENTIFIED		RESPONSES	
	Number	Percent	Number	Percent
<b>FAR WEST</b>				
PWSO	0	0.0%	1	0.2%
MUD	5	0.2%	2	0.4%
Municipal	24	0.8%	9	1.9%
Priv/Inv	8	0.3%	2	0.4%
River Auth	0	0.0%	0	0.0%
WCID	5	0.2%	1	0.2%
WID	10	0.4%	3	0.6%
WSC	4	0.1%	3	0.6%
Other	5	0.2%	1	0.2%
<b>TOTAL</b>	<b>61</b>	<b>2.1%</b>	<b>22</b>	<b>4.6%</b>

	IDENTIFIED		RESPONSES	
	Number	Percent	Number	Percent
<b>EAST</b>				
PWSO	23	0.8%	9	1.9%
MUD	589	20.7%	83	17.4%
Municipal	287	9.4%	45	9.4%
Priv/Inv	208	7.3%	6	1.3%
River Auth	4	0.1%	3	0.6%
WCID	104	3.7%	17	3.6%
WID	0	0.0%	1	0.2%
WSC	249	8.8%	25	5.2%
Other	14	0.5%	12	2.5%
<b>TOTAL</b>	<b>1,458</b>	<b>51.3%</b>	<b>201</b>	<b>42.1%</b>

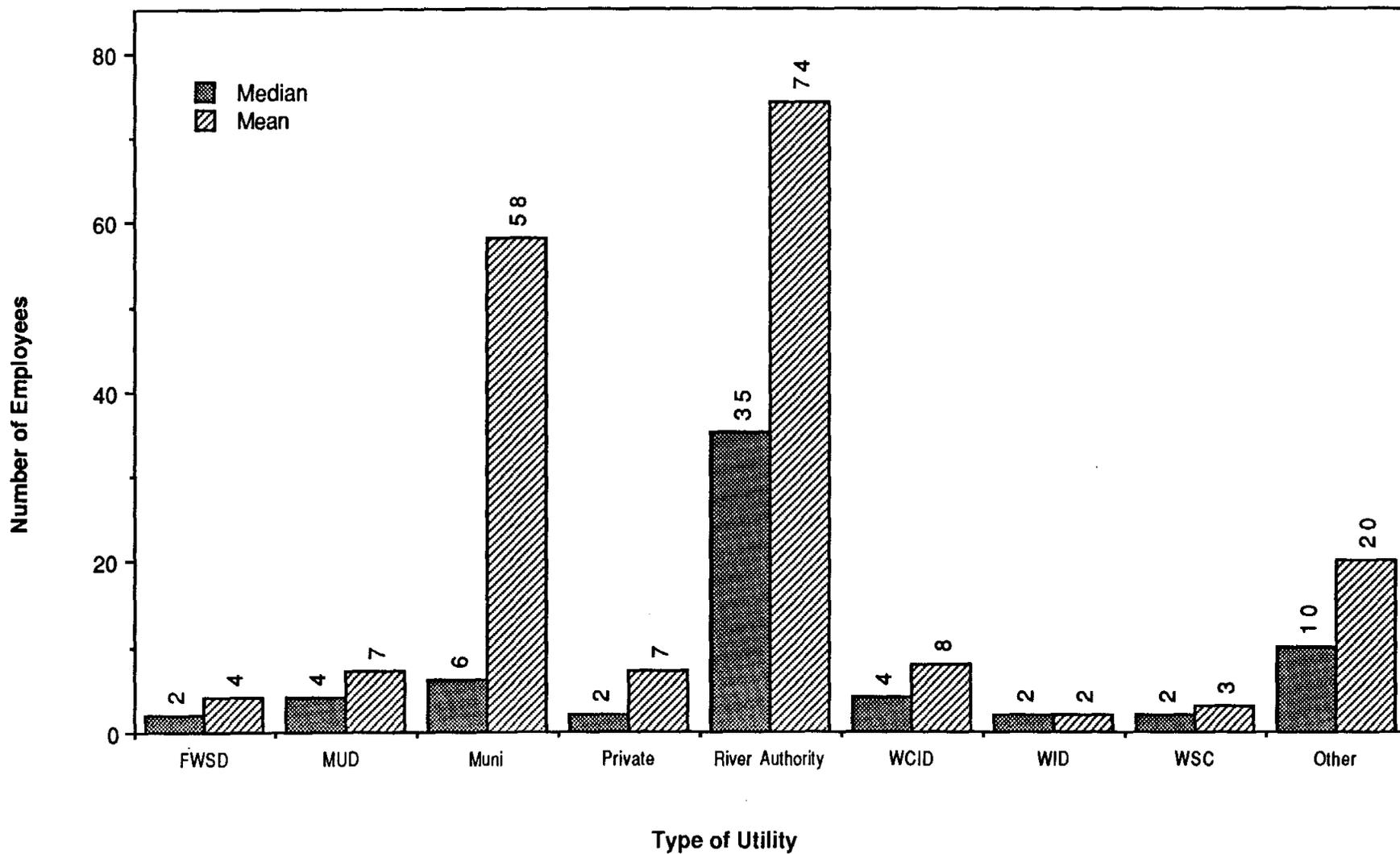
	IDENTIFIED		RESPONSES	
	Number	Percent	Number	Percent
<b>SOUTH</b>				
PWSO	3	0.1%	2	0.4%
MUD	14	0.5%	8	1.7%
Municipal	59	2.1%	19	4.0%
Priv/Inv	14	0.5%	1	0.2%
River Auth	0	0.0%	0	0.0%
WCID	27	0.9%	9	1.9%
WID	5	0.2%	3	0.6%
WSC	22	0.8%	8	1.3%
Other	4	0.1%	2	0.4%
<b>TOTAL</b>	<b>148</b>	<b>5.2%</b>	<b>50</b>	<b>10.5%</b>

**NUMBER OF CUSTOMERS SERVED**

<u>Number of Customers</u>	<u>WATER</u>			<u>WASTEWATER</u>		
	<u>Number of Utilities Falling Within the Range</u>	<u>Percentage of Utilities Falling Within the Range</u>	<u>Cumulative Percentage</u>	<u>Number of Utilities Falling Within the Range</u>	<u>Percentage of Utilities Falling Within the Range</u>	<u>Cumulative Percentage</u>
0 - 100	46	11.1 %	11.1 %	23	8.1 %	8.1 %
101 - 500	134	32.5	43.6	92	32.3	40.4
501 - 1,000	81	19.6	63.2	41	14.4	54.8
1,001 - 5,000	120	29.1	92.3	99	34.7	89.5
5,001 - 20,000	20	4.8	97.1	18	6.3	95.8
> 20,000	<u>12</u>	<u>2.9</u>	100.0 %	<u>12</u>	<u>4.2</u>	100.0 %
<b>Totals</b>	<b>413</b>	<b>100.0 %</b>		<b>285</b>	<b>100.0 %</b>	

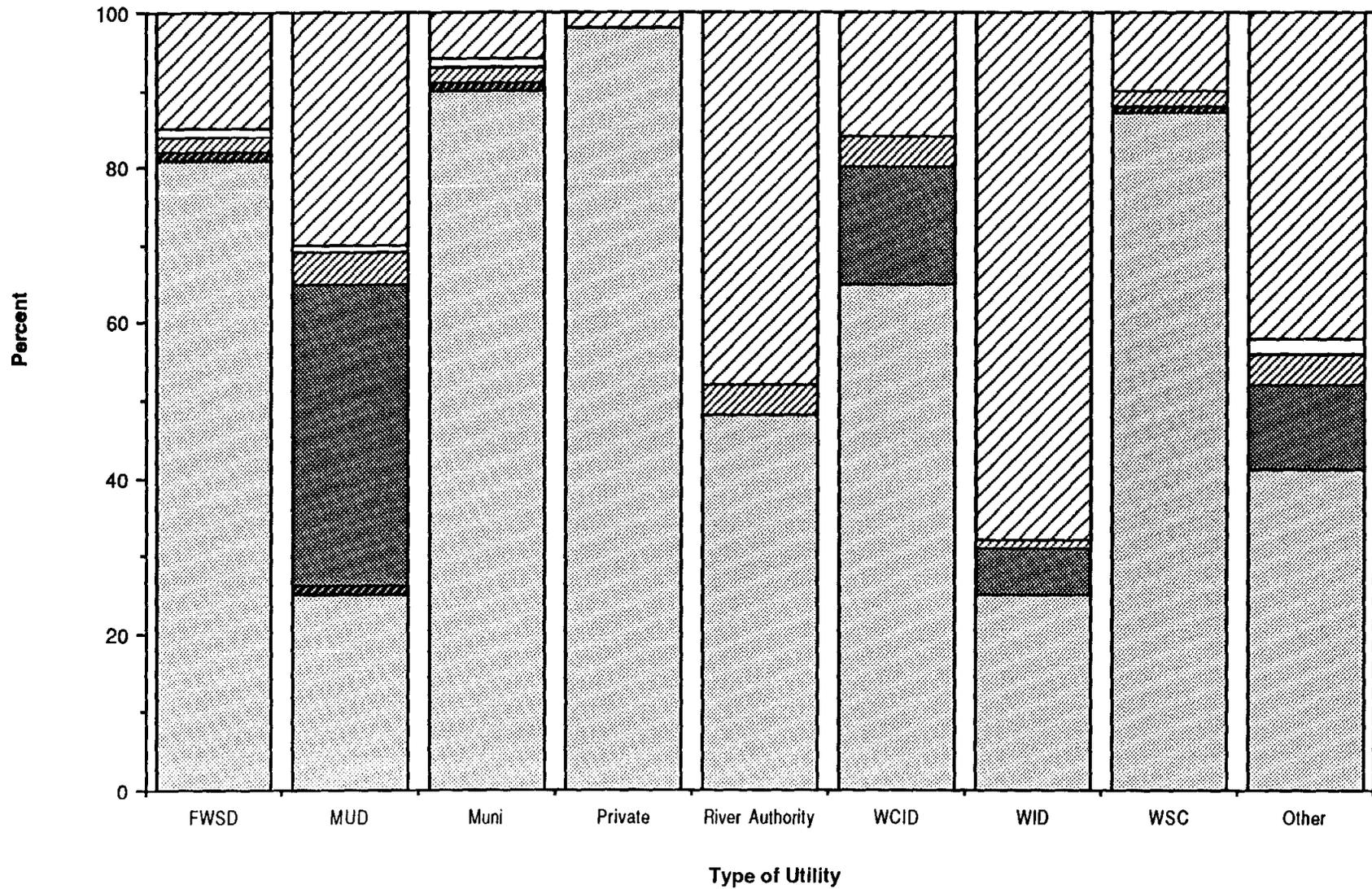
Note: Total number of utilities do not equal number of survey respondents because not all respondents provided customer data and not all utilities provide both water and wastewater service.

**Number of Employees by Type of Utility**

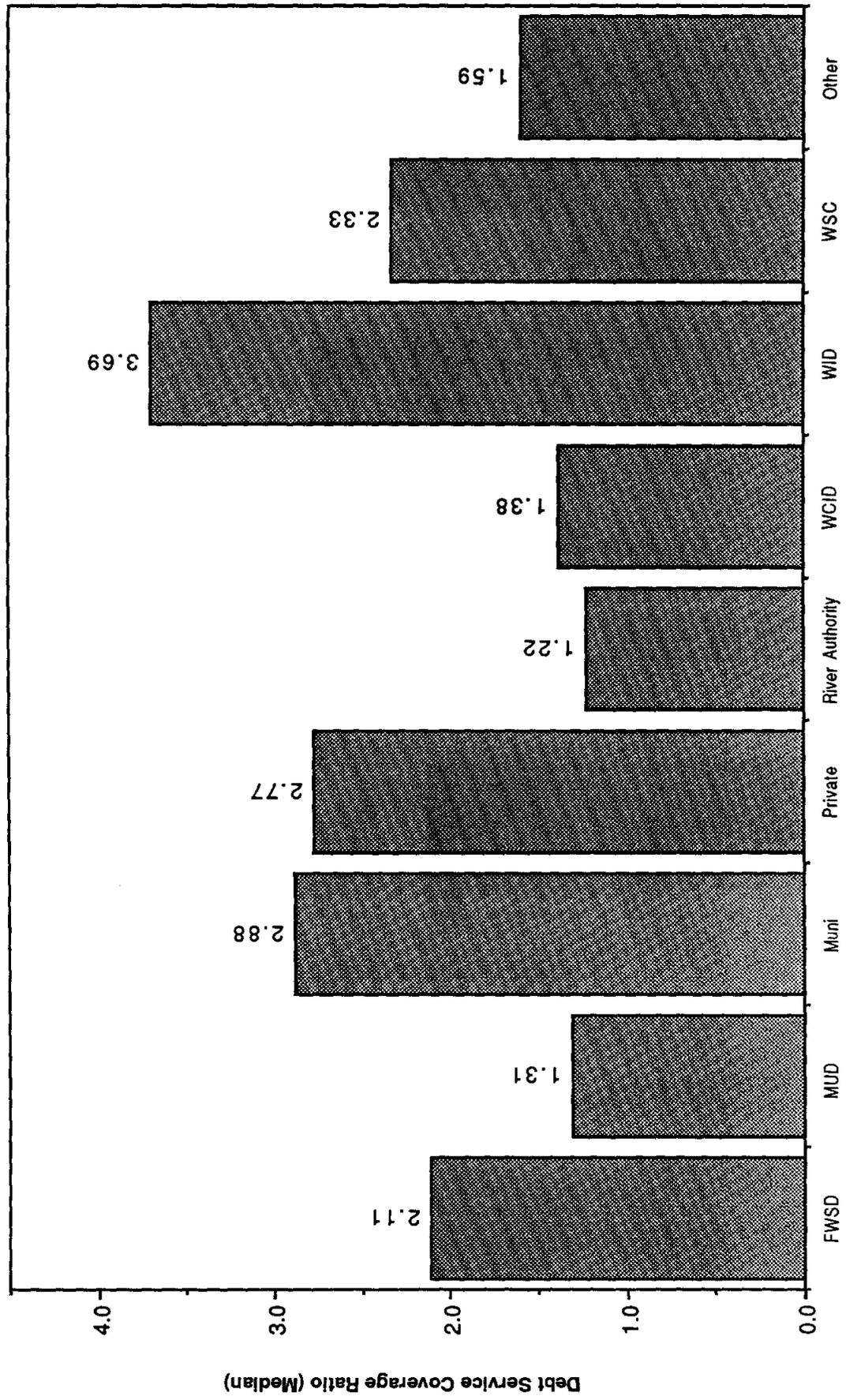


**Percentage of Total  
Revenue by Component**

- ▣ Operating Rates
- ▨ Capital Charges
- ▩ Taxes
- ▧ Interest Income
- Other
- ▤ Not Itemized



Debt Service Coverage Ratio by Type of Utility



Type of Utility

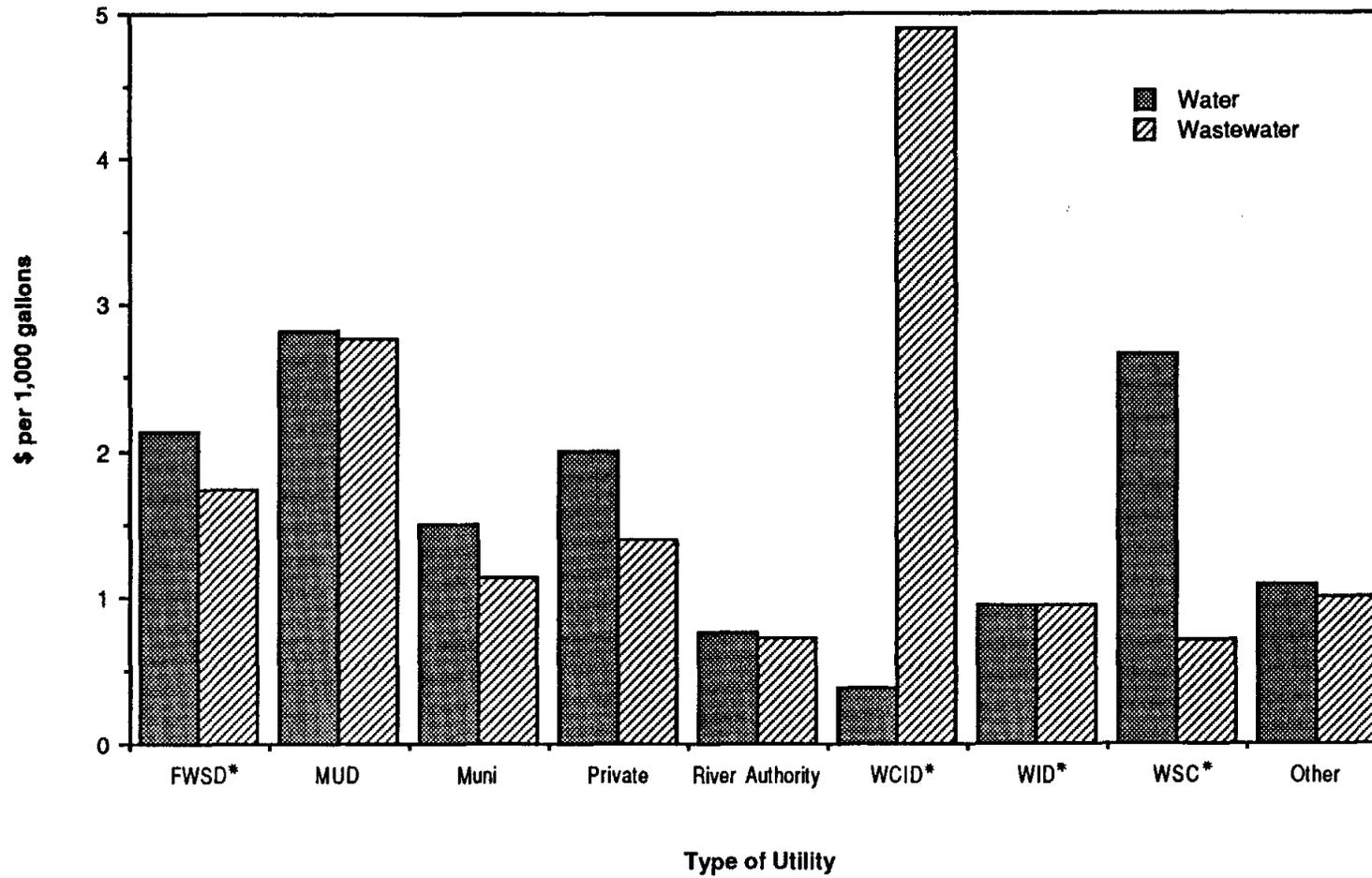
(excluding depreciation) divided by the annual debt service requirement (principal and interest), is an indicator of a utility's ability to meet its debt payments. For example, a utility with a 2.0 coverage ratio would have \$2,000,000 in net revenues after operating expenses to meet an annual debt service payment of \$1,000,000. The median ratios shown in this exhibit fall within the expected range for utilities although the lower numbers for MUDs, river authorities and WCIDs are likely reflective of their respective roles in (1) high growth areas, (2) financing agreements of river authorities which are often structured to exclude a specific coverage requirement and (3) the role of WCIDs in serving more costly rural areas.

- Total expenditures by utility type per 1,000 gallons of water delivered to the system or per 1,000 gallons of wastewater treated are depicted in Exhibit II-6. The same statistics by region are:

	Water - Total Expenditures Per 1,000 Gallons Delivered	Wastewater - Total Expenditures Per 1,000 Gallons Treated
Far West	\$2.48	\$ .83
Plains	1.84	.86
Central	2.29	1.14
East	1.56	1.49
South	1.55	1.44
<b>Overall Median</b>	<b>\$1.87</b>	<b>\$1.26</b>

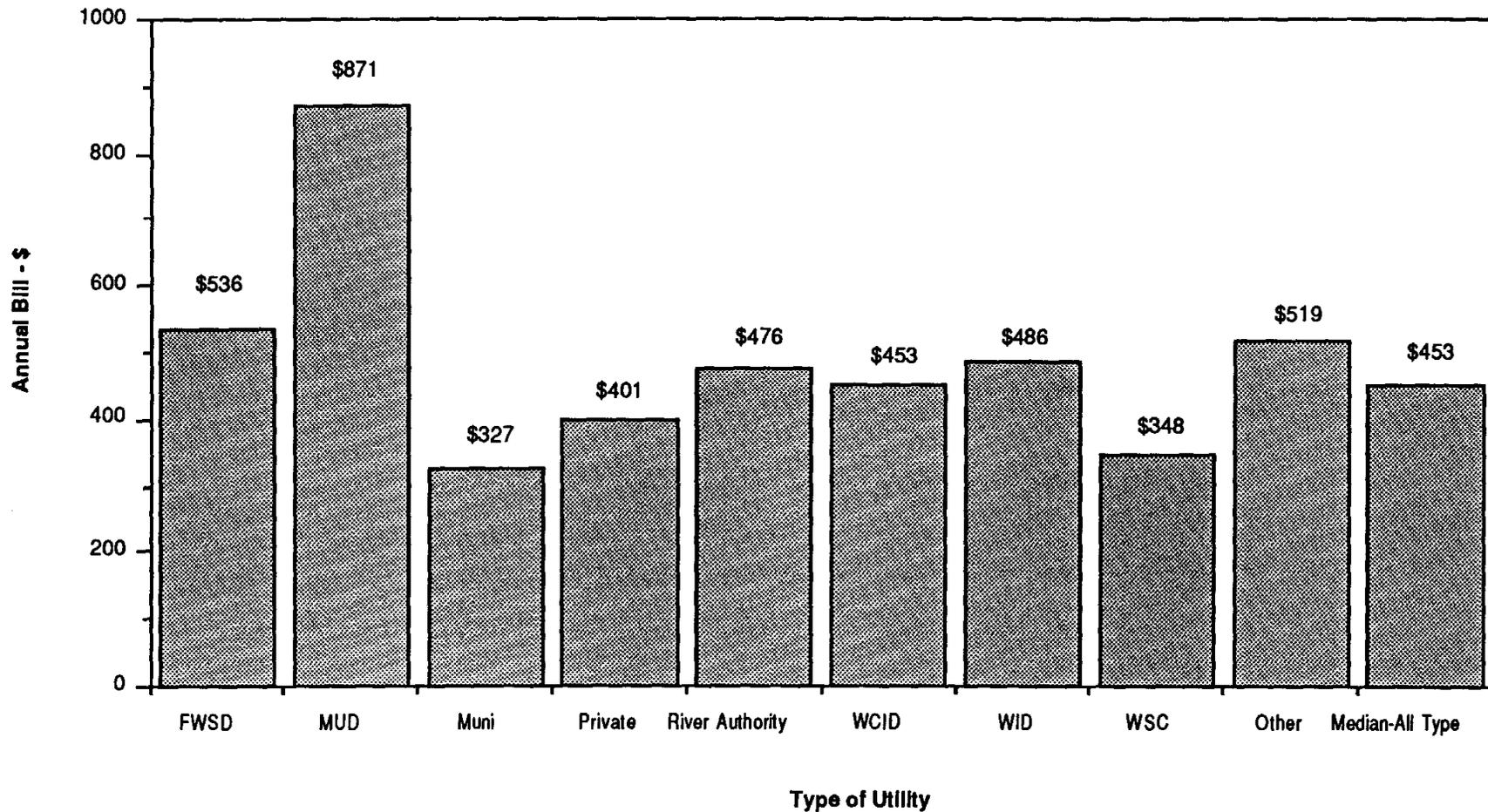
- As shown in Exhibit II-7, the amount of money spent annually on water and wastewater services by a homeowner, assuming an average usage of 8,000 gallons per month, varies widely depending upon the type of utility and region within the state. The median water and wastewater bill for the entire state is approximately \$453 or slightly more than \$38 per month. This amount accounts for both water and wastewater bills as well as the portion of taxes devoted to utility services, where applicable. Tax figures were calculated assuming an \$80,000 value for a typical single-family dwelling. One should be careful in comparing these figures between types of utilities as, for example, municipal utility districts are the highest because of their role in developing services in high growth areas and their reliance on taxing powers for the funding of necessary capital improvements. In contrast, in a subdivision where the developer funds the construction of necessary water or wastewater improvements without the use of a MUD, the cost of these improvements gets recouped

**Total Expenditure per 1,000 Gallons  
Water Delivered or Wastewater Treated (Median)**



\*Wastewater number is based on only one observation.

**Annual Water and Wastewater Bill (Median) for  
Homeowner Using Average of 8,000 Gallons Per Month\***



\*Median bill representing combination of water and wastewater user rates plus taxes, where applicable. Tax amount based on single family dwelling valued at \$80,000.

Sample excludes utilities providing only one service (i.e., just water or just wastewater).

through the sale of the land and homes built on it. Therefore, while customers in this situation would experience lower water and wastewater bills they are indirectly paying for a portion of necessary utility improvements through their monthly mortgage payments rather than in a tax bill paid to a municipal utility district. This example is only one of the many variations in financing of capital improvements and annual cost recovery that affect the level of water and wastewater bills.

### 3. Qualitative Data

- Areas receiving the highest percentage of survey respondents indicating major problems were:
  - Wastewater - Infiltration/Inflow (22%)
  - Wastewater - Financial Capability (17%)
  - Water - Financial Capability (16%)
  - Wastewater - Plant Capacity (15%)
  - Water - Fire Protection (12%)
  - Water - Source of Supply (9%)

In response to self-evaluation questions included on the long-form survey questionnaire, those areas receiving the greatest percentage responding "needs improvement" or "poor" were:

- Office Automation and Data Processing (16%)
- Employee Compensation (16%)
- Personnel Policies (9%)
- Training and Education (9%)

### 4. Summary of Significant Comments

The following summary of significant comments resulted from the twenty on-site interviews with utility managers and comments made on the survey questionnaires. While they are not the results of a statistically valid sample, they do represent the consensus of comments which were received.

- There appears to be concern regarding the financial stability of some of the smaller utilities in the state -- many of these being municipal utility districts. The economic slowdown in the state has caught a number of districts in the early stages of development before the breakeven point has been reached. Because each district has its own separate financing structure, the

financial stability and resources available in larger organizations (municipalities, regional districts, public utility boards, etc.) does not exist.

- A number of individuals commented that the legal powers and various forms of utilities were well suited in promoting growth and development. Because utilities could be formed relatively easily to meet the needs of defined areas, commercial and residential development could occur more rapidly and over a broader land area than would be the case if, for example, water transmission mains and/or wastewater interceptor lines had to be constructed to connect these developments into a larger, existing utility. However, this ability to respond quickly to development needs has, in some instances, created problems including a proliferation of smaller package treatment plans, overuse of groundwater, the lack of a networked system to address fire protection or water quality problems and the maintenance of high levels of debt by some utilities to discourage annexation by an adjoining municipality.
- River authorities are taking a more active role in the delivery of water and wastewater services, but feel their abilities are constrained by legal or revenue-generating capabilities. Frustration was evident as to the ability of river authorities to address water quality concerns. While many expect river authorities to be the solution for water quality problems in the rivers and streams, authority personnel stated that there are no funds to pay for a solution, no taxing power exists, and water rates can not include the costs.
- Larger municipalities and regional utilities (i.e., public utilities agency, regional district) see themselves as having a significant role in addressing water supply and quality problems. For example, it was stated that only the larger utilities can "bankroll" the sums of monies necessary for larger water supply projects. They are also taking the lead in urbanized areas by consolidating the numerous smaller treatment plants and collector systems constructed during the earlier periods of high growth. Representatives of one larger municipality stated that while the concept of regionalizing utility service is an apparent solution, care must be taken to ensure that development incentives are not destroyed.
- Many of the smaller utilities (MUDs, WCIDs, etc.) felt they do a better job than, for example, an adjoining

municipality because they provide more personalized service, are more responsive than a city would be, and citizens have a better chance for input.

- Several utilities feel that current customers are getting bargain water and sewer rates. As water supplies become more costly and as wastewater treatment standards and enforcement are increased, those accustomed to relatively inexpensive water and sewer service will experience significant increases.
- Increasingly more stringent wastewater treatment standards will cause a movement towards a greater number of regional treatment facilities. In urbanized areas, it appears that the role of municipal utility districts and water control and improvement districts will move more towards the construction of local distribution and collection lines and connection of these to an adjoining utility which provides water treatment and transmission as well as wastewater treatment.
- Water supply corporations and private water companies appear to be experiencing the greatest amount of problems. Water supply corporations, usually located in rural areas, expressed significant concern over (1) their ability to fund improvements, (2) the need for monies necessary to put in larger line sizes to correct fire protection and supply problems caused by putting in 2-inch lines with FmHA funds, (3) their lack of exemption from ad valorem and sales taxes and (4) the high cost of serving customers in sparsely populated areas. Private water companies expressed frustration with regard to the rate approval process at the Public Utilities Commission, although hope was expressed that the Texas Water Commission would provide a simpler rate consideration process. It appears the recent passage of House Bill 1459, by simplifying the rate adjustment process, will play a large part in addressing this concern. An opinion was expressed that the new tax laws also serve as a significant detriment to the operation of private water companies since the only way to keep private systems healthy is to assure cash flow sufficient to fund improvements and adequate operating expenses.
- All forms of utilities appear to be putting an increasing share of the burden of capital improvements on the developer and, therefore, the parties buying new homes or commercial property. Most require developers to put in all necessary lines at their expense and construct

the lines necessary to connect the new development to the existing system. Also, many of the entities have substantial fees (\$250 to \$1,000 per home) to connect to the system.

## 5. Significant Issues and Proposed Changes

This section summarizes significant issues resulting from the study and presents proposed changes for consideration by the state in order to deliver water and sewerage service in the most cost-effective and beneficial manner.

### Issue No. 1

The institutional arrangements and legal powers afforded the various entities responsible for water and sewerage service appear to have played a major role in keeping up with the demand for new housing and commercial development during the last decade. Some, however, question whether these entities are best suited to meet the challenges of insufficient or poor quality water supply, increasingly stringent drinking water standards, and the need to protect water quality by proper collection and treatment of wastewater.

### Findings

Texas has at their disposal an extremely broad range of entities to provide water and sewerage service needs. These range from the rural, non-profit water supply corporations serving only a handful of customers to the major municipalities and regional utilities which have invested hundreds of millions of dollars in infrastructure improvements to serve thousands of customers. However, just four categories (municipal utility districts, municipalities, privately held/investor-owned, and water supply corporations) make up approximately 87 percent of the total utility systems within the state.

Exclusive of areas within municipal limits, there is no single political entity other than the state responsible for the planning and coordination of the use of the state's natural re-

sources. This leaves major portions of the state where the responsibility for water resource planning and development is met by any number of combinations of existing entities. While each of these entities has been developed to meet a specific need, no single local or regional entity exists to make sure that the wisest use is made of the state's natural resources. However, as problems have arisen, action has been taken to address those needs on a case-by-case basis. For example, in the Houston area the Harris-Galveston Coastal Subsidence District was formed to address the specific problem of subsidence due to overuse of the ground water resources. More recently, legislation has been enacted that allows for the creation of regional utility systems to address the water quality problems caused by a multitude of small package wastewater treatment plants.

Given the broad range of entities available to manage the state's water resources, no need is seen for any sweeping changes in how water and sewerage service is delivered. It appears that the state of Texas, through its existing utility organizations and its change of legal powers in response to demonstrated need, can better serve its citizens than would a "formula" approach to meeting water and sewerage needs that are so vastly different across the several regions.

This conclusion does not imply that all areas of the state are being efficiently served. There are clearly needs to improve the financial strength of certain utilities and to reduce the number of potential pollution sources by reducing the number of package treatment facilities, and there is the need to move towards coordinated supply and treatment where efficient use of scarce water supply sources and the need to protect both underground and surface waters is apparent.

## Issue No. 2

Is the recent emphasis on regionalization of utility service warranted and what are its advantages and disadvantages? How can the desire to encourage regional service be balanced with the desire to continue the encouragement of development. Does the size of a utility (i.e., number of customers served) correlate with the cost of service?

## Findings

An increasing awareness of the regional impacts of utility service and the need for increased regional planning is apparent within the state of Texas. This fact is evidenced by the laws and regulations that have been modified to address key environmental and water and sewerage service needs. Among these modifications are the formation of coastal subsidence districts and underground water conservation districts to address important groundwater problems. Additionally, the ability to form regional systems for wastewater collection and treatment has been addressed. Likewise, laws have been modified to make it easier for existing utilities to annex adjoining areas thereby promoting the formation of larger regional utilities versus a multitude of smaller, independent utilities.

While a number of advantages and disadvantages associated with regionalization are discussed in the main body of the report, in the final analysis, the major question is how the desire to encourage regional service can be balanced with the desire to continue the encouragement of development. Texas has made several modifications to its policies in order to promote a balance between these two issues. The first of these was a modification of the manner in which existing districts or municipalities can annex adjacent areas without increasing the costs of existing customers. This can be done by imposing a surcharge on the rates of annexed customers until the debt associated with their improvements is retired. Also, the Texas Water Code now allows the

formation of regional districts to provide wastewater service within any standard metropolitan statistical area in the state.

Other means by which the balance of regional needs versus developmental needs can be achieved would be the extension of the current six-month period that municipalities have to provide service in areas where they oppose the formation of districts. The extension of this time frame to, for example, one to two years, would provide a more flexible time frame for regional utilities to respond to the needs of development while still not drastically limiting the ability to develop areas in the extra-territorial jurisdiction (ETJ) of a municipality.

In areas where there are critical water supply or water pollution problems, the state might make provisions that within a municipality's boundaries and its ETJ the districts would be restricted from building water supply or wastewater treatment facilities but at the same time place a burden on the municipality or regional utility to both plan for and construct facilities to meet the needs of the region in a timely fashion.

The final item under this issue was whether the size of a utility (i.e., number of customers served) correlates with the cost of service. In a study conducted for the Office of Drinking Water of the United States Environmental Protection Agency in 1982, the results clearly showed that the cost of service does decrease with the increased size of the utility. Chapter VII contains an exhibit which illustrates the study findings. These results are in agreement with our survey results.

### Issue No. 3

The financial strength of a number of utilities has been impaired by the economic slowdown resulting from the oil industry crisis. Are there any steps which can be taken to improve the financial strength of utilities and should the burden of risk incurred when developing be shared differently?

## Findings

The financial strength of a number of utilities, particularly that of municipal utility districts, has been severely weakened by the recent economic slowdown within the state of Texas. MUDs have been most severely impacted in cases where only a few homes have been built, but the utility improvements constructed by the district are sufficient to serve several hundred homes. In these cases, the financial burden of servicing the district's debt and funding operating and maintenance expenses falls disproportionately on the owners of improved lots. In these cases, the economic slowdown and resulting reduction in home sales has prevented the district from reaching a breakeven point where the district's debt and operating expenses could be met by a combination of interest and sinking fund taxes, maintenance taxes, user fees or standby charges set at a reasonable level. In cases where the breakeven point has not yet been reached, it has been common practice for the developer to put up cash during the early stages to serve a portion of the debt and operating expenses. However, as the length of period increases, the financial resources of the developer may be exhausted. Thus arises the dilemma that a number of MUDs have experienced recently. Because the MUD's bonds are general obligation debt and carry with them an unlimited taxing pledge, the tax rate will need to be set at a level sufficient to service the debt. In a number of cases, this has resulted in tax rates for water and sewer which would exceed \$3,000 to \$4,000 per year on a \$100,000 home. This is in addition to any school district, county, or municipal taxes. Thus, through the issuance of tax-exempt debt, much of the risk of not reaching the breakeven point passes to the bondholders and, accordingly, to the owners of improved lots.

This situation arises only in those states where special-purpose districts are used as an aid to development. In other areas of the country where districts are not so prevalent, the

local government (city or county) generally dictates the construction materials and standards that will be followed by the developers, requires the developer to construct all subdivision utilities at his own expense and then have him deed the assets over to the local government for continued operation and maintenance. In most cases, there will be an additional requirement to either pay for in full or share in the construction of "off-site" utilities necessary to connect the area being developed with existing water and/or wastewater mains. In these cases, the ability of a developer to build his own water supply system or wastewater treatment facilities to service his development is greatly restricted. Thus, in comparison with those states where districts can construct independent stand-alone utilities, development may be less expedient. The ability to develop in areas where the use of districts is prevented or restricted is dependent upon the ability and willingness of existing entities to provide utility main and treatment capacity. Also, because the areas where water transmission or wastewater interceptors are available is limited, the land base which is suitable for development is greatly diminished and, therefore, can be expected to be more costly. On the other hand, this dependence on an existing entity prevents "leapfrogging" development and promotes a more coordinated and efficiently constructed series of utility lines and plants.

The desire to provide some control over the development process has been recognized, both by individual municipalities as well as through the state legislature by the enactment of laws outlining a process for the creation of regional or areawide systems to provide wastewater collection and treatment (Sections 26.08 through 26.987 of the Texas Water Code). Individual municipalities have restricted the use of MUDs by opposing their formation in their ETJ or requiring that, for example, wastewater treatment facilities be installed on an interim basis until interceptor lines are constructed to connect them to the larger

regional treatment facilities. At that time, the package plants would be taken off-line and the connection to the regional interceptors would be made. Opposition to MUD formation within the ETJ by a municipality carries with it an obligation. If a developer petitions the city to provide water and sewer service and such service is not made available within six months, then the MUD may be formed over the city's objections. Given the substantial size of the ETJ (five miles) for larger municipalities, it is often the case that lines will not be available in a particular area or they can not be made available within the six-month limit.

Because of the availability of tax-exempt public financing, it is apparent that some developments, if dependent on private (i.e., bank) financing or developer capital, have been undertaken that otherwise might not have been constructed. The TWC's 30 percent rule, which was adopted in 1974, requires developers to fund 30 percent of the cost of improvements which have only local benefit such as sewerage collection lines and water distribution lines. Water plants, sewage treatment facilities, and central mains are reimbursed 100 percent. This rule was enacted to ensure the viability of the MUD's bonds, much like a bank requires a prospective homeowner to make a downpayment in order to receive mortgage financing. In order to reduce the burden that falls on homeowners when development occurs at a slower pace than anticipated, consideration should be made to increase the percentage of local improvements from 30 percent to possibly 50 percent or 60 percent that must be funded through private financing or by the developer. In doing so, the financial exposure of persons purchasing property is limited. If a project does not reach the breakeven point in a timely fashion, this would place a greater portion of the burden on the developer or the party providing the private financing. Although this would reduce the amount of improvements financed at lower tax-exempt rates and likely raise home prices by some moderate amount, it would more appropriately

place the assessment of risk with the developer and private financiers, who are presumably best able to make this assessment.

#### Issue No. 4

Privately held/investor-owned utilities expressed significant concern over their ability to meet the needs of their customers given the current tax laws and the difficulty of the rate submittal and approval process. What might be done to improve the effectiveness with which these utilities serve customers?

#### Findings

The major concern expressed by the operators of privately held or investor-owned utilities was the ability to obtain approval of water and sewer rates at levels sufficient to fund operating and maintenance expenses plus an adequate return on the capital investment. This concern, which echoes the concerns of private utilities in other states where private for-profit utilities are a major factor, is brought about by the regulatory law, administrative procedures, and costs of rate filing and testimony. Until recently, these utilities fell under the jurisdiction of the Texas Public Utilities Commission and were subject to many of the rate consideration processes applicable to gas, electric and telecommunication utilities. With the transfer of the regulatory rate process to the Texas Water Commission, at least one utility manager held out hope that since "water and sewer is the TWC's business" the rate consideration process would be streamlined and be structured more for their smaller operations than for the larger utilities who typically have large, full-time staffs to handle the rate regulation process.

It appears, from our experience, that the concern over the costs and burden of the rate process for smaller, private utilities is justified. In several cases where Arthur Young has provided assistance to either private utilities or to state and local governments with regulatory powers, the costs of preparing

necessary filings and direct testimony as well as rebuttal testimony have exceeded well over \$250,000 in professional fees and expenses for a utility with fewer than 10,000 customers. Combining this expense with the regulatory lag inherent in such a process, one can easily see that full cost recovery can be a major problem for private utilities.

House Bill 1459, sponsored by the Texas Water Commission, resulted in legislation which became effective in September 1987 that should address many of the concerns raised by the private utilities. The legislation simplified the rate approval process by allowing private utilities to institute and implement rate increases automatically but no more often than once every twelve months. The rates are still subject to the regulatory review process based upon the Commission's own action or upon the desire of 10 percent or more of the customers for such a review.

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### **III. CURRENT LEGAL AND INSTITUTIONAL FRAMEWORK**

### III. CURRENT LEGAL AND INSTITUTIONAL FRAMEWORK

Before one can evaluate existing service delivery or make recommendations as to future service arrangements, it is important to have a solid understanding as to how the various types of existing arrangements arose and the powers, duties, and capabilities of each. As such, this chapter provides a summary of the history of water and wastewater service in Texas. In addition, information with respect to methods of creation, powers and duties, management structure, financing, and service area delineation is given for each of the public and private entities directly involved in the delivery of water and/or wastewater services.

#### A. HISTORY OF WATER AND WASTEWATER SERVICE IN TEXAS

The earliest water systems of any significance in the state of Texas were organized to provide water for irrigation rather than for domestic and municipal purposes. The vast majority of early water law focuses on the use of water in connection with irrigation. The principal organized water systems in the early 1800s were used in the vicinity of San Antonio and the Rio Grande Valley for irrigation purposes. Dobkins, The Spanish Element in Texas Water Law, University of Texas Press, Austin, 1959, pp. 123-158.

During the 1800s, most of the Spanish acequia (canal & irrigation) systems began to be operated by private companies. With the advent of municipal water systems, private for-profit companies often organized to operate the water utility system. However, the cities and towns which were developing in the state played an equally important role in this regard.

By the time of Texas independence in 1836, there were less than two dozen municipal areas which were allowed to organize under special charters. From 1836 to 1845, more than 50 cities were chartered, and from 1845 to 1865, another 50 or more char-

ters were granted by the Legislature. Each of these special law cities had a charter granted by the Legislature which contained the specific authority for the chartered city. O'Quinn, History, Status and Functions of Cities, Towns and Villages, Title 28, Tex. Rev. Cit. Stat. Ann., pp. XXI-XXIII.

In 1858, the Legislature adopted the first general law pertaining to the incorporation of cities. Cities incorporated in this manner are referred to as general law cities. By the turn of the century there were 200 incorporated cities and towns in Texas. An act passed in 1874 allowed cities to amend their charters by proposal of the aldermen submitted to a vote of the people. This act, amended again in 1881, allowed cities to adapt to changing local needs and was a precursor of the Home Rule Amendment (discussed later). In 1876, Article XI, Sections 4 and 5 of the Texas Constitution were adopted, specifying that the Legislature could, by special act, only grant charters to cities having more than 10,000 inhabitants, and that all cities under 10,000 were to be governed by the general law (the 10,000 person requirement was later reduced to 5,000). It should be noted that, in 1870, only two cities, Galveston and San Antonio, had a population in excess of 10,000 and only one other, Houston, was close to 10,000. Austin and Dallas quickly followed by obtaining a population of 10,000 in 1880. Braden, George D., The Constitution of the state of Texas: An Annotated and Comparative Analysis, Volume 2, p. 682. Thus, by 1912, there were two distinct types of cities -- those incorporated under general law and those incorporated under special law.

In 1912, Texas adopted the Home Rule Amendment, by amending Article XI, Section 5, Texas Constitution. This amendment created a new classification of cities, known as home rule cities, which were authorized to adopt their own charter.

Today, nearly all cities which had been granted special charters have become subject to either the general laws or home

rule laws by act of the Legislature or by adoption of the general laws or a home rule charter. Thus today only general law cities and home rule cities merit further attention.

By the early 1900s, municipal water systems were owned and operated by either cities, since both general law and home rule cities were authorized by law to own and operate water systems, or by private corporations. Cities often were authorized to contract with private water corporations to supply water to the city. In the 1930s, Texas courts held that the statutes did not authorize cities to provide water service outside their boundaries. City of Paris v. Sturgeon, 110 S.W.2d 459 (Tex. Civ. App.--1908) no writ history; City of Sweetwater v. Hamner, 259 S.W.2d 191 (Tex. Civ. App.--1923) writ dismissed. Immediately thereafter, the Legislature responded by expressly authorizing cities and towns to "extend" their water and wastewater systems to provide service outside the corporate limits of the city or town. Article 1108, Tex. Rev. Civ. Stat. Ann.

By this time, the Legislature had also authorized cities and towns to issue bonds payable from the net revenues of the city's utility system to purchase, build, improve, enlarge, extend or repair the utility system. The bonds were an obligation not of the city, but of the system from which the revenues were pledged. This financing mechanism proved increasingly popular, but was limited by court interpretation that only one series of bonds could be issued. If additional bonds payable from the same source were required, the outstanding bonds would need to be refunded by the issuance of bonds sufficient in amount to provide the additional money required. In 1949, the Legislature changed this awkward result by authorizing the issuance of additional parity revenue bonds and subordinate lien revenue bonds. Morrow, Elbert, Financing of Capital Improvements by Texas Cities and Counties, 25 Southwestern Law Journal 373(171). Over the years, revenue bonds have become the most accepted way for cities and

towns to finance water and wastewater utility system improvements.

Meanwhile, beside cities and private companies, other institutions were authorized to be created to provide water and wastewater services. In response to the passage in 1902 of the Federal Reclamation Act, Texas adopted an amendment to Article III, Section 52, Texas Constitution, which authorized the creation of special districts for irrigation, drainage and navigation. Districts were authorized to issue bonds in an amount not to exceed twenty-five percent of the assessed valuation of the real property in the district upon a two-thirds majority vote. In 1905, the Legislature authorized the creation of irrigation districts by county commissioners courts upon petition by the majority landowners and approval by a two-thirds majority vote. These districts were used mainly in the Lower Rio Grande Valley and rice belt areas of the state. In 1913, the Legislature authorized the creation of water improvement districts for irrigation purposes. In 1917, the Legislature provided that all newly-created districts must be water improvement districts. Existing irrigation districts created under the 1905 Act were grandfathered from this requirement and allowed to change their names to water improvement districts.

In response to severe flooding in 1913 and 1914, the Texas Constitution was again amended in 1917 to include Article XVI, Section 59, which authorized the creation of conservation and reclamation districts. In addition to broadening the powers of the districts to include essentially any purpose concerning resource development and conservation, the "Conservation Amendment" also authorized districts to issue an unlimited amount of debt, to tax at an unlimited rate to pay the debt and to approve bonds upon a majority rather than a two-thirds vote. In 1918, the Legislature adopted the Canales Act, which authorized all existing districts to convert to the more broadly empowered conservation and reclamation districts should they so desire.

The Canales Act was quickly followed in 1919 by the passage of a general law authorizing the creation of fresh water supply districts, now Chapter 53, Texas Water Code. These districts, which were authorized to be created by the county commissioners court, had power to provide water for domestic and commercial purposes.

In 1925, the Legislature adopted provisions authorizing the creation of water control and improvement districts, now Chapter 51, Texas Water Code. Water control and improvement districts, created either by the commissioners court or the State Board of Water Engineers, were authorized to provide water for domestic, irrigation and commercial purposes. Like the previously authorized districts, fresh water supply districts and water control and improvement districts were used primarily in the Lower Rio Grande Valley and rice belt areas.

With the depression of the late 1920s and 1930s, and the subsequent inability of private water companies to obtain funds for major construction projects, the Legislature began creating special purpose districts, many of which are now known as river authorities. During the 1930s, the Legislature created a number of river authorities to construct reservoirs to tame the flood waters of the state's major rivers. An important aspect of these river authorities was their ability to gain access to federal money for public works projects. Because of the nature of the projects envisioned, river authorities covered vast areas. However, because of the availability of federal money, river authorities were usually not authorized to levy taxes. Creation of special purpose districts, including river authorities, continued actively throughout the 1940s and 1950s.

Abundant availability of groundwater led to the rapid proliferation of relatively small utility districts in the Houston area. In 1971, the Legislature authorized the creation of municipal utility districts (Chapter 54, Texas Water Code) by the

Texas Water Commission. These districts were specifically designed for the provision of urban water, wastewater and drainage services.

Meanwhile, in 1929, the Legislature added wastewater reclamation power to the existing powers of water control and improvement districts. In 1941, this power was added for fresh water supply districts located in counties with populations greater than 500,000, and in 1957 all fresh water supply districts were given such power. Passage of these amendments reflects the tremendous growth in the urban areas of the state after World War II and the corresponding use, particularly in the Houston area, of water control and improvement districts and fresh water supply districts to provide domestic, municipal and commercial water and wastewater services.

In 1957, the Texas Water Development Board was created by adoption of Article III, Section 49c, Texas Constitution. Originally authorized to issue bonds to make loans or grants to local political subdivisions to construct water projects, the Board's authority has been increased by subsequent amendments to allow it to construct its own water supply projects, to purchase storage in water supply projects, to make loans to construct wastewater systems, to purchase capacity in water and wastewater systems, and to make loans for a number of other purposes, including flood control.

By the 1960s, the tremendous growth in the state focused the public's attention on the need for the improved efficiency and operation provided by regional water and wastewater systems. Also, a rapid increase in the development of wastewater technology had occurred in the 1940s and 1950s. Thus, beginning with the passage in 1959 of Article 1109j, Tex. Rev. Civ. Stat. Ann., the Legislature began to adopt a number of laws facilitating or requiring regionalization. Article 1109j authorized cities and towns to contract with water districts for their water supply.

In 1967, Chapter 30, Texas Water Code, was adopted. This chapter authorized cities, towns and water districts to contract for regional wastewater services and authorized districts to issue bonds for the construction of such systems. In the same year, Section 26.081, et seq., Texas Water Code, was adopted. These provisions required, in certain instances, regionalization of wastewater services upon order of the Texas Water Quality Board, the predecessor of the Texas Water Commission. Several other examples of laws facilitating regional systems can be found, including Article 1110f, Tex. Rev. Civ. Stat. Ann., (1979) which authorizes the creation of public utility agencies for the provision of regional wastewater services and Section 50.451, et seq., Texas Water Code, (1985) which authorizes regional municipal utility districts.

During this same time, state regulation and control of water and wastewater providers was increasing dramatically. In 1967, the Water Rights Adjudication Act (Section 11.301, et seq., Texas Water Code) was adopted, authorizing the Texas Water Rights Commission, predecessor of the Texas Water Commission, to adjudicate and thenceforth regulate all surface water rights in the state except for domestic and livestock uses. In 1975, adoption of the Public Utility Regulatory Act placed privately-owned water and wastewater utilities under the jurisdiction of the Public Utility Commission for purposes of service area certification and rate regulation. This jurisdiction was transferred to the Texas Water Commission in 1985. During this time period, by various amendments to Chapter 50, Texas Water Code, the Texas Water Commission assumed increasing jurisdiction over districts which provided urban water and wastewater services.

In 1949, the Legislature authorized the creation of underground water conservation districts to regulate groundwater pumpage. This act was amended significantly in 1985, and although the Texas Water Commission was not given direct regulatory powers over underground water supplies, the Commission is required to

hold hearings which could lead to the creation of underground water conservation districts in the critical underground water areas of the state. Further, the 1985 amendments to Chapter 52, Texas Water Code, authorized underground water conservation districts to supply surface or groundwater and to issue bonds, supported by revenues or an unlimited tax pledge, to finance the construction of water systems.

The history of the various methods of providing water and wastewater service illustrates an ongoing conflict between increasing state regulation and the proliferation of water and wastewater systems in the state. Increased state regulatory activity has encouraged and promoted regionalization of water and wastewater systems. As small systems are integrated into regional systems, a number of existing rights will have to be reconciled, including existing contractual rights, outstanding bond covenants, complicated debt structures, varied taxing jurisdictions and vested rights in surface waters and groundwaters.

**B. SUMMARY OF INSTITUTIONAL ARRANGEMENTS AND LEGAL POWERS FOR ENTITIES INVOLVED IN DELIVERY OF WATER AND/OR WASTEWATER SERVICES**

Exhibit III-1 presents a summary of the institutional arrangements and legal powers or constraints for each of the fifteen different entities within the state involved directly in the delivery of water and/or wastewater services. This exhibit is presented in a matrix format to allow for a ready comparison of each element for the various types of entities. This exhibit is a summary of more detailed information incorporated in Appendix A. The information in Appendix A, as well as the history of services provided earlier, was prepared by the law firm of Vinson & Elkins. Appendix A, as well as specific legislation, should be referred to when making more detailed comparisons of the powers and mode of operation for each entity. The elements summarized in this exhibit include the following:

- Legal Authority - What specific statute, special act or article of the Texas Constitution gives the entity its legal authority?
- Water/Wastewater Powers - What are the powers each entity has with respect to the provision of water and/or wastewater services?
- Method of Creation - How is each entity formed?
- Management Control - What are the number and qualifications of the directors, supervisors, etc., their terms, and method of selection?
- Capital Financing Authority - What authority is given to each entity with respect to the issuance of tax, revenue, or combination tax/revenue debt and what restrictions or privilege accompany that authority?
- Operation and Maintenance Financing - How can each of the entities fund its operation and maintenance through rates, maintenance taxes, standby fees, special assessment, or debt issuance?
- Annexation - What powers are given to each entity to add territory and how is this accomplished?
- Exclusion - How are service area exclusions provided?
- Service Area Limits - What limits are there to providing water/wastewater within or without each entities boundaries? Is a certificate of convenience and necessity (CCN) necessary?
- Eminent Domain - What powers does the entity have to condemn or acquire land or acquire a fee simple or easement both within and without its boundaries?

This information, as well as the historical summary, is intended to be referred to by the reader as the remainder of the report is reviewed.

SUMMARY OF INSTITUTIONAL ARRANGEMENTS  
AND LEGAL POWERS FOR ENTITIES DIRECTLY  
INVOLVED IN DELIVERY OF WATER AND/OR WASTEWATER SERVICES

Type of Entity	Legal Authority			Water/Wastewater Powers	Method of Creation
	Texas Constitution	Texas Revised Civil Statutes Annotated	Texas Water Code		
1. Texas Water Development Board	Art. III, Secs. 49-c, d, d-1 and d-2		Chs. 16 and 17	Power to acquire ownership interests in water and wastewater facilities; to sell, transfer or lease such facilities or services from same.	By passage and approval by voters of Art. III, Sec. 49-c, Texas Constitution
2. County	Art. IX, Sec. 1; Art. 5, Sec. 18; Art. 8, Sec. 9	Title 33 Arts. 717-2, 717n, 2351, 2352, 2352e, 2368 a-1, 3264a		County has water power but no wastewater authority.	By legislature upon majority or 2/3 vote depending upon type of county to be created.
3. General Law City	Art. XI, Sec. 4	Title 28, Chs. 1-10		Has both water and wastewater powers.	An existing city, town, or village with at least 600 residents or a city, town or village with one or more manufacturing establishments may, by ordinance, accept provisions of Chs.1-10, Title 28.
4. Home Rule City	Art. XI, Sec. 5	Title 28, Ch. 13		Has both water and wastewater powers.	An existing city of over 5,000 population may, by council action and voter approval, adopt a home rule charter.
5. River Authority	Art. XVI, Sec. 59		Various special laws	Generally has both water and wastewater powers.	Generally by special act of legislature.
6. Public Utility Agency		Art. 1110f		Has only wastewater powers.	By agreement of governing bodies of two or more political subdivisions with wastewater powers.
7. Regional District	Art. XVI, Sec. 59		Ch.50, Subch.M	Has both water and wastewater powers.	By TWC hearing upon petition in county with population of 2.2 million or in adjoining county. (see detail)
8. Water Control and Improvement District	Art. III, Sec. 52 or Art. XVI, Sec.59		Ch.51	A III-52 district may not provide municipal water or wastewater service; A XVI-59 district has water power and may acquire wastewater power from TWC.	By county commissioners court for single-county district and by TWC for multi-county districts, after hearing upon petition signed by 50 or majority in value of landowners in district.

Note: The following summary is intended to be used as a general reference for most situations described. Exceptions to these general rules exist. For specific information concerning specific institutional arrangements or powers, qualified legal counsel should be consulted.

SUMMARY OF INSTITUTIONAL ARRANGEMENTS  
AND LEGAL POWERS FOR ENTITIES DIRECTLY  
INVOLVED IN DELIVERY OF WATER AND/OR WASTEWATER SERVICES

Type of Entity	Legal Authority			Water/Wastewater Powers	Method of Creation
	Texas Constitution	Texas Revised Civil Statutes Annotated	Texas Water Code		
9. Underground Water Conservation District	Art. XVI, Sec. 59		Ch. 52	Has only water powers.	Created, subject to confirmation, by TWC upon its own motion or petition signed by 50 or majority of landowners in district.
10. Fresh Water Supply District	Art. XVI, Sec. 59		Ch. 53	Has water powers; may acquire wastewater powers after election if otherwise unavailable.	By election ordered by county commissioners court, after hearing upon petition signed by 50 or majority of landowners in district.
11. Municipal Utility District	Art. XVI, Sec. 59		Ch. 54	Has both water and wastewater powers.	By TWC after hearing upon petition signed by 50 or majority in value of landowners in district.
12. Water Improvement District	Art. III, Sec. 52 or Art. XVI, Sec. 59		Ch. 55	A III-52 district has neither water nor wastewater powers; A XVI-59 district has only water powers.	Similar to water control and improvement district.
13. Special Utility District	Art. XVI, Sec. 59		Ch. 65	Has both water and wastewater powers.	By TWC upon request by board of non-profit water supply corporation created under Art. 1434a prior to January 1, 1985.
14. Article 1434A Water Supply Corporation		Art. 1434a; Art. 1396		Has both water and wastewater powers.	By adoption of articles of incorporation by three or more persons and filing with Secretary of State.
15. For Profit Corporation		Texas Business Corporation Act		Has both water and wastewater powers.	By adoption of articles of incorporation by three or more persons and filing with Secretary of State.

SUMMARY OF INSTITUTIONAL ARRANGEMENTS  
AND LEGAL POWERS FOR ENTITIES DIRECTLY  
INVOLVED IN DELIVERY OF WATER AND/OR WASTEWATER SERVICES

Type of Entity	Management Control			Capital Financing Authority		
	Number and Qualification	Term	Method of Selection	Tax Debt	Revenue Debt	Combination Tax/Revenue Debt
1. Texas Water Development Board	Six persons, each from different section of State	Six years, staggered every two years	Appointed by Governor, confirmed by Senate	No authority to issue ad valorem tax debt, but may issue general obligation debt (see combination tax/revenue debt).	Authorized legislation in 1987 regular session; limits - rate (15%), term (50 years). Requires A.G. approval.	\$1,380,000,000 in general obligation bonds; limits - rate (12%), term (50 years). Requires voter and A.G. approval.
2. County	County Judge and four county commissioners	Four year staggered terms	County Judge elected by voters of county at large; Commissioners elected by voters of respective precincts	May not exceed par value of \$250,000. Limits - tax rate (80¢/\$100), rate (15%), term (40 years); requires voter and A.G. approval.	Same general provisions as tax debt.	Same as tax debt.
3. General Law City	Mayor and two alderman from each ward, if wards; if no wards, mayor plus five altermen	Two years	Mayor elected by voters of city at large; Aldermen elected by voters of respective wards	No limit on amount; however, total tax rate is limited; limits - rate (15%), term (40 years); Certificates of obligation do not require voter approval, bonds do. A.G. approval required for both.	No limit on amount; limits - rate (15%), term (40 years). Generally does not require voter approval except in certain instances; requires A.G. approval.	No limit on amount; limits - rate (15%), term (40 years). Certificates of obligation do not require approval, bonds do. A.G. approval required for both.
4. Home Rule City	Fixed by city charter or ordinance	Fixed by city charter or ordinance	Fixed by city charter or ordinance	No limit on amount; however, total tax rate and debt portion is limited; limits - rate (15%), term (certificates of obligation 40 years, bonds per city charter).	No limit on amount; limits - rate (15%), term (certificates of obligation 40 years, bonds per city charter). Do not require voter approval. Do require A.G. approval.	Same provisions as tax debt.
5. River Authority	Determined by special act	Determined by special act	Determined by special act; usually appointed by Governor, confirmed by Senate.	Generally, no authority to issue tax debt.	Usually, no limit on amount; limits - rate (15%), term (usually 40 years). Usually requires A.G. approval.	Usually not authorized.
6. Public Utility Agency	Determined by agreement of political subdivisions creating public utility agency	Determined by agreement of political subdivisions creating public utility agency	Appointed by governing bodies of political subdivisions creating public utility agency	No authority to issue tax debt.	No limit on amount; limits - rate (15%), term (40 years); requires A.G. approval	No authority to issue combination debt.

SUMMARY OF INSTITUTIONAL ARRANGEMENTS  
AND LEGAL POWERS FOR ENTITIES DIRECTLY  
INVOLVED IN DELIVERY OF WATER AND/OR WASTEWATER SERVICES

Type of Entity	Management Control			Capital Financing Authority		
	Number and Qualification	Term	Method of Selection	Tax Debt	Revenue Debt	Combination Tax/Revenue Debt
7. Regional District	Five directors - residents of state and at least 18 years old	Six year staggered terms (permanent directors)	Initial and permanent directors appointed by TWC	May be issued unlimited in amount; limits-rate (15%), term (40 years); must be approved by voters, TWC, and A.G.	Notes/bonds may be issued in unlimited amounts; limits-rate (15%), term (notes 20 years, bonds 40 years). Voter approval not required for notes or bonds. TWC and A.G. approval required for bonds.	Same provisions as tax debt.
8. Water Control and Improvement District	Five directors - residents of state, at least 21 years of age, own land in district, and not disqualified	Four year staggered terms	Initial directors - appointed by county commissioners; subsequent directors elected by voters in district	III-52 district bonds limited to 1/4 of assessed valuation of real property; XVI-59 district bonds unlimited; limits - rate (15%), term (40 years). Require voter, TWC and A.G. approval.	Notes may be issued in unlimited amounts; limits - rate (15%), term 20 years). Notes do not require voter, TWC or A.G. approval. All provisions for bonds same as for tax debt.	Same provisions as tax debt.
9. Underground Water Conservation District	Five persons - reside in or own property in district, at least 18 years of age	Four year staggered terms	Initial directors appointed by TWC; subsequent directors elected by voters, by precinct.	May be issued unlimited in amount; limits - rate (15%) term (50 years). Require voter, TWC and A.G. approval.	May be issued unlimited in amount; limits - rate (15%), term (50 years). Require TWC and A.G. approval.	Same provisions as tax debt.
10. Fresh Water Supply District	Five supervisors - resident of district, owners of land in district, at least 21 years of age, and not disqualified	Initial supervisors - hold office until 1st or 2nd general election; subsequent supervisors - four year staggered terms.	Initial and subsequent supervisors elected by voters in the district.	May be issued unlimited in amount; limits - rate (15%), term (40 years). Require voter and A.G. approval.	Maybe issued unlimited in amount; limits - rate (15%), term (40 years). Notes do not require voter, TWC or A.G. approval. Bonds require A.G. approval.	Same provisions as tax debt.
11. Municipal Utility District	Five directors - resident of state, own land or qualified voter within district, at least 21 years of age, not disqualified	Initial temporary directors - serve until 1st or 2nd general election; Permanent - four year staggered terms	Initial - appointed by TWC; permanent - elected by voters in district.	Unlimited amounts; limits - rate (15%), term (40 years); require voter, TWC, and A.G. approval	Notes/bonds may be issued in unlimited amounts; rate (15%) term (notes 20 years, bonds 40 years). Notes do not need approval; bonds require TWC and A.G. approval.	Same provisions as tax debt.

SUMMARY OF INSTITUTIONAL ARRANGEMENTS  
AND LEGAL POWERS FOR ENTITIES DIRECTLY  
INVOLVED IN DELIVERY OF WATER AND/OR WASTEWATER SERVICES

<u>Type of Entity</u>	<u>Number and Qualification</u>	<u>Management Control</u>		<u>Capital Financing Authority</u>		
		<u>Term</u>	<u>Method of Selection</u>	<u>Tax Debt</u>	<u>Revenue Debt</u>	<u>Combination Tax/Revenue Debt</u>
12. Water Improvement District	Five directors - residents of state, own land in district, more than 21 years of age	Four year terms - may be staggered	Initial and subsequent directors elected by voters in district.	Generally same provisions as W.C.I.D., with requirements for validation.	Same provisions as W.I.D. tax debt, except no voter approval required.	Generally, same provisions as W.C.I.D., with requirements for validation.
13. Special Utility District	Five to 11 directors - at least 18 years of age; own land, user of facilities or qualified voter in district	Any term up to three years as determined by initial board of directors	Initial directors appointed by TWC; subsequent directors elected by majority vote within the district.	No authority.	Unlimited amounts; limits - rate (15%), term (40 years); require TWC and A.G. approval.	No authority.
14. Article 1434A Water Supply Corporation	Any number of directors up to 21 - no specific qualifications	Three year staggered terms	Initial - specified in articles of incorporation; subsequent - elected by shareholders/members of corporation.	No authority.	Unlimited amounts; rate limited by usury laws, no limit on term. No approval necessary.	No authority.
15. For Profit Corporation	Board of Directors - one or more members; need not be resident of state or shareholder	Generally, serve one year terms; may be classed.	Initial - specified in articles of incorporation; subsequent - elected by shareholders at annual meeting.	No authority.	Unlimited amounts; rate limited by usury laws, no limit on term. Requires SEC and Texas Securities Commission approval.	No authority.

SUMMARY OF INSTITUTIONAL ARRANGEMENTS  
AND LEGAL POWERS FOR ENTITIES DIRECTLY  
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Type of Entity	Operation and Maintenance Financing				
	Rates	Maintenance Tax	Standby Fees	Special Assessment	Debt Issuance
1. Texas Water Development Board	May sell or lease water or wastewater facilities for price sufficient to pay O&M expenses and debt service	No authority	Specific authority for water standby fees; no specific authority for wastewater standby fees	No authority	No specific authority to issue debt to pay O&M expenses
2. County	Commissioners court must impose sufficient rates and charges to operate and maintain the project	No express authority for maintenance tax; however, tax may be imposed for a general fund for county expenses	No express authority	No authority	Has authority to issue additional bonds to repair a project (see detail)
3. General Law City	Specific authority to establish rates and charges for water and wastewater service	No specific authority for maintenance tax; however, general taxes may be used for water/wastewater system expenses	No specific authority; however, city has general authority to adopt rates and charges	Various statutes authorize assessments in certain instances	Has authority to issue debt for repair of water and wastewater systems.
4. Home Rule City	Specific authority to establish rates and charges	No specific maintenance tax; however, general taxes may be used for water/wastewater system expenses	No specific authority, however, city has general authority to adopt rates and charges	Various statutes authorize assessments in certain instances	Has authority to issue revenue bonds to repair water and wastewater systems
5. River Authority	Specific authority to impose rates. Rates not regulated by TWC unless complaint filed by purchaser of water and if water is surface water; wastewater rates not regulated	Usually no authority	Usually no specific authority	Usually has no authority	Usually has authority to issue debt for O&M expenses
6. Public Utility Agency	Specific authority to impose rates. Rates not regulated by TWC unless complaint filed by purchaser and if water is surface water	No authority	No specific authority; however, agency has general rate-making authority	No authority	Has authority to issue revenue debt for O&M expenses
7. Regional District	Has authority to impose all necessary charges	Has authority to levy a maintenance tax only after approved by voters	Has authority to impose all necessary standby fees	No specific authority for special assessments, but has general authority to impose	Has authority to issue bonds for expenses related to operation and repair

SUMMARY OF INSTITUTIONAL ARRANGEMENTS  
AND LEGAL POWERS FOR ENTITIES DIRECTLY  
INVOLVED IN DELIVERY OF WATER AND/OR WASTEWATER SERVICES

Type of Entity	Operation and Maintenance Financing				
	Rates	Maintenance Tax	Standby Fees	Special Assessment	Debt Issuance
8. Water Control and Improvement District	Unlimited authority to impose charges for services rendered	After election, has authority to levy maintenance tax	A renewable charge on undeveloped property may be adopted ( <u>see detail</u> )	No specific authority	Has limited authority to issue debt to fund O&M expenses
9. Underground Water Conservation District	Has authority to charge rates to pay O&M expense and debt service. Rates need not be approved by TWC unless complaint filed and water is surface water	Has authority to levy up to 50¢ per \$100 assessed valuation	No specific authority	No authority	No specific authority to issue debt to fund O&M expenses
10. Fresh Water Supply District	Has authority to impose rates for the sale of water to pay for O&M expenses	After election, has authority to levy maintenance tax	No express authority	No specific authority	Bonding authority contemplates capital improvements, but is general in nature; may be interpreted to include authority for O&M bonds
11. Municipal Utility District	Has authority to impose all necessary charges ( <u>see detail</u> )	After election, has authority to levy maintenance tax	Same as W.C.I.D.	No specific authority	Has authority to issue bonds for O&M expenses
12. Water Improvement District	Has authority to impose charges for use and sale of water and other services	No express authority	No express authority	Assessments must be imposed for O&M expenses ( <u>see detail</u> )	Has authority to issue debt for O&M expenses. Does require voter approval
13. Special Utility District	Specific authority to impose rates. Rates not regulated by TWC unless complaint filed by purchaser and if water is surface water; wastewater rates are unregulated	No authority	Specific authority to impose standby fee	No authority	Has authority to issue revenue debt to pay O&M expenses
14. Article 1434A Water Supply Corporation	Has authority to adopt rates without approval of TWC; TWC may assume jurisdiction upon petition of ratepayers ( <u>see detail</u> )	No authority	No specific authority	No authority	Has authority to issue revenue debt for O&M expenses

SUMMARY OF INSTITUTIONAL ARRANGEMENTS  
AND LEGAL POWERS FOR ENTITIES DIRECTLY  
INVOLVED IN DELIVERY OF WATER AND/OR WASTEWATER SERVICES

<u>Type of Entity</u>	<u>Operation and Maintenance Financing</u>				<u>Debt Issuance</u>
	<u>Rates</u>	<u>Maintenance Tax</u>	<u>Standby Fees</u>	<u>Special Assessment</u>	
15. For Profit Corporation	Has authority to impose rates as are allowed by municipality in which corporation is located and the TWC	No authority	Has authority to impose under same provisions as rates	No authority	Has authority to issue revenue debt for O&M expenses

SUMMARY OF INSTITUTIONAL ARRANGEMENTS  
AND LEGAL POWERS FOR ENTITIES DIRECTLY  
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<u>Type of Entity</u>	<u>Annexation</u>	<u>Exclusion</u>	<u>Service Area Limits</u>	<u>Eminent Domain</u>
1. Texas Water Development Board	Not applicable	Not applicable	No service area limits except 50 year interbasin transfer provisions	No specific authority
2. County	In limited circumstances, boundaries may be changed by act of legislature	In limited circumstances, boundaries may be changed by act of legislature	County may sell water inside or outside its boundaries	Counties may condemn a fee simple or an easement on public or private land
3. General Law City	May annex upon petition signed by landowners or majority of voters in area to be annexed, subject to favorable election within area to be annexed	May exclude land upon petition of landowner. Must grant petition for exclusion filed by majority of landowners or voters in annexed area if municipal services not provided within a specified time	May serve areas outside city by extending inside-city system	Has power to acquire land and any interest therein for utility system purposes
4. Home Rule City	May annex property on its own initiative or upon petition of landowner	Same as general law city	Same as general law city	Same as general law city; may be broader if provisions in charter
5. River Authority	Boundaries usually fixed by legislation with no provision for annexation	Usually cannot exclude land	Often has specific authority to serve outside its boundaries	Usually has power to acquire land or any interest therein within or without its boundaries
6. Public Utility Agency	Boundaries are same as political subdivisions creating agency; additional political subdivisions may be added by agreement	Boundaries are same as political subdivisions creating agency; additional political subdivisions may be added by agreement	No specific authority to serve outside its boundaries	No power of eminent domain; political subdivisions may exercise power of eminent domain on its behalf
7. Regional District	Land may be added by petition followed by hearing and board action ( <u>see detail</u> )	Before first tax bond authorization election, land may be excluded upon board initiative or upon petition from a landowner	May serve areas inside or outside its boundaries	May use eminent domain to acquire a fee simple or easement inside or within five miles of district boundaries
8. Water Control and Improvement District	Land may be added upon petition of landowner and board action; land may be added by petition of majority of landowners in designated areas ( <u>see detail</u> )	Before initial bond authorization election, must hold hearing and exclude land from district ( <u>see detail</u> for other provisions)	Same as regional district	May use eminent domain to acquire a fee simple or easement on public or private land inside or outside the district

SUMMARY OF INSTITUTIONAL ARRANGEMENTS  
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INVOLVED IN DELIVERY OF WATER AND/OR WASTEWATER SERVICES

<u>Type of Entity</u>	<u>Annexation</u>	<u>Exclusion</u>	<u>Service Area Limits</u>	<u>Eminent Domain</u>
9. Underground Water Conservation District	Areas may be annexed only upon finding of TWC and favorable election	No authority for exclusion	Same as public utility agency	Power to condemn land or any interest therein within the district
10. Fresh Water Supply District	Land may be added by board action after hearing upon petition of 50 or majority of landowners in area to be annexed; election necessary to finalize ( <u>see detail</u> )	Provisions exist for exclusion of land ( <u>see detail</u> for explanation)	Has authority to construct and maintain improvements inside and outside its boundaries	May use eminent domain to acquire a fee simple or easement across public or private land inside or outside the district
11. Municipal Utility District	Land may be added upon petition by individual landowner; defined area may be added upon petition of 50 or majority in value of landowners in defined area ( <u>see detail</u> )	Before first bond authorization, land may be excluded by board action, after hearing based upon petition or board initiative	May serve areas inside or outside its boundaries	May use eminent domain to acquire a fee simple or easement inside or within five miles of district boundaries
12. Water Improvement District	Land may be added by board action upon petition by individual landowner; defined area may be added by petition of 50 majority of landowners in defined area ( <u>see detail</u> )	Before issuance of bonds, land may be excluded by board action after hearing upon petition by landowner; land may be excluded upon petition of owner of at least ten areas after election ( <u>see detail</u> )	May serve areas inside or outside its boundaries	May use eminent domain to condemn any property interests located inside or outside the district on private or public land
13. Special Utility District	Land may be annexed upon petition by majority of landowners in area to be annexed	Under certain circumstances, may exclude land on its own motion or on a petition filed by landowners	Same as public utility agency	May use eminent domain to acquire land or any interest therein inside or outside the district
14. Article 1434A Water Supply Corporation	Not applicable	Not applicable	Must obtain CCN for original service area; may extend lines without CCN unless within certificated area of another utility	Power of eminent domain to condemn land for construction of supply reservoirs or standpipes for water works
15. For Profit Corporation	Not applicable	Not applicable	Must obtain CCN for original service area; may extend lines without CCN unless within certificated area of another utility	May use public property and may use eminent domain to acquire private property necessary for construction of water supply reservoirs or standpipes for waterworks

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#### IV. SURVEY AND INTERVIEW PROCESS

#### IV. SURVEY AND INTERVIEW PROCESS

In order to obtain meaningful and reliable information about water and sewerage utilities throughout Texas, it was imperative to follow a careful data collection process. This chapter outlines the numerous steps taken to promote utility participation in the survey process and to ensure the representation of utilities by type and by region across the state.

##### A. LOCATING AND IDENTIFYING WATER AND SEWERAGE UTILITIES

The logical first step in the survey and interview process was to compile a comprehensive list of water and sewerage utilities in the state by type and region. As no single state agency maintains a comprehensive list of both water and wastewater service purveyors, it was necessary to consolidate the various utility tracking lists maintained by other agencies. TWDB staff sent us to the Texas Water Commission (TWC) and the State Department of Health for the most promising specialized listings containing subsets of the utilities sought. Although printed listings from these agencies could have been somewhat useful, the vast number of utilities dictated the necessity of manipulating any list on a computer. State mainframe reports were therefore translated to ASCII files, which were then converted for use on the commonly found microcomputer software packages LOTUS 1-2-3 for IBM compatible equipment and Microsoft EXCEL for Apple devices.

1. **State Department of Health** - The Health Department tracks all entities supplying drinking water directly to consumers through its Water Hygiene Inventory. In addition to providing the name, county, address, telephone number, and responsible official of a particular agency, this database lists numerous pieces of information about the number of service connections, water source(s) of supply, and treatment processes. This listing, however, contains neither those entities providing water

exclusively on a wholesale basis to water retailers nor those offering only sewerage services. Owner types were designated as one of the following categories and the number of occurrences for those with at least 300 connections are as follows:

	<u>Number</u>
Municipality	742
Authority/District	375
Trust/Cooperative (Water Supply Corp.)	311
Investor	130
Federal	13
State	2
County	<u>1</u>
Total	<u>1,574</u>

Federal, state, and county entities were eliminated since they were almost always parks, schools, or other non-utilities. The original minimum of 300 connections was based on the Health Department database also including several thousand very small water purveyors such as campgrounds, mobile home parks, motels, and service stations. Upon later reflection in the study, the TWDB and Arthur Young decided to also include utilities from this list with 150 to 300 connections in order to assure representation of all sizes of utilities in the state.

**2. Texas Water Commission District Lists** - All districts and authorities in the state must annually submit a report to the TWC. It was necessary to download two major TWC mainframe files: (1) a list of all water districts created in the state regardless of status and (2) a list of only active districts. The master district list was necessary to obtain the county and functions of each entity. Addresses, telephone numbers, and types were already available on the "active" list. It was not

possible to segregate districts by number of service connections or by system capacity. The composition of reported types was as follows:

	<u>Active</u>	<u>Master</u>
Fresh Water Supply District	38	120
Municipal Utility District	654	938
Water Control & Improvement Dist.	227	750
Water Improvement District	18	59
Drainage District	44	100
Irrigation District	20	21
Levee and Flood Control District	41	122
Navigation District	26	31
River Authorities and Others	<u>74</u>	<u>139</u>
Total	<u>1,142</u>	<u>2,280</u>

The active utilities were combined with the Health Department list, with TWC information replacing Department information for utilities contained on both. Drainage, irrigation, navigation, levee and flood control districts were eliminated unless there was any evidence of one supplying potable water or treating wastewater. The only major logistical problem with the district address lists in terms of eventually mailing questionnaires was that the addresses found were often for law firms handling district affairs rather than for the utility operator. Of the 1,000 surveys mailed, approximately 200 were sent to attorneys. In general, these attorneys handle the administrative paperwork of smaller or newly formed districts.

**3. Texas Water Commission Wastewater Permit List** - The Water Quality Division of the TWC tracks all wastewater treatment plants in the state. Names and addresses of wastewater treatment providers were essential to our study in order to prevent our inadvertently missing entities which were on neither the Health Department list nor the district lists. A minimum capacity requirement of 100,000 gallons per day (GPD) was selected. Unfortunately, the only report which could be reasonably downloaded from the TWC mainframe computer was DW2525 listing the permit

number, name, average flow, and stream segment of all permitted plants in the state. Addresses and counties were not included. These 2,800 plants were designated into the following categories:

	<u>Number</u>
Municipality	1,051
Authority/District	458
Trust/Cooperative (Water Supply Corp.)	2
Corporation	669
Privately Owned	333
Federal	53
State	114
County	21
Other	<u>99</u>
Total	<u>2,800</u>

It was then necessary to compare this list manually with a print-out of those plants with at least 100,000 GPD capacity and to enter the address and county for those utilities. This eliminated the vast majority of corporations and privately owned utilities from the list. The remaining entities were incorporated into the combined list.

#### **B. DESIGNATION OF REGIONS**

The TWDB has recognized that it is essential to consider not only the type of utility but also to examine potential differences among utilities based on location. For example, one obviously would expect a utility in a part of the state where ground water is abundant and readily available to have lower treatment costs per gallon than a utility required to use surface water, regardless of the type of utility. Segregation by region is particularly important in a state with as vast a land area and as varied in climates and topography as Texas. The two foremost concerns in designating regions were to select boundaries which represent meaningful differences among conditions and to avoid having so many areas as to preclude receiving a sufficient number of responses from which to draw conclusions. Several region

designations were considered. In response to the existence of numerous previous studies done in the state with regional distinctions, TWDB staff suggested using some form of regions drawn in existing studies so that a degree of comparability would be available for users of the survey results. The Texas Department of Water Resources produced Water For Texas: A Comprehensive Plan For The Future in 1984. Eight geographical regions are presented along county boundaries in that study. A decision was made to create five regions for our study from the eight in Water For Texas. The combinations are as follows:

<u>Water For Texas Regions</u>	<u>TWDB Regions</u>
1. Upper Rio Grande and Far West Texas	1. Far West
2. High Plains and Trans-Pecos Region (1/5) (4/5)	1. Far West 2. Plains
3. West Central Texas Region	2. Plains
4. North Texas Region	3. Central
5. Northeast Texas Region	4. East
6. South Central Texas Region (2/3) (1/3)	2. Plains 3. Central
7. South Texas and Lower Gulf Coast Region	5. South
8. Southeast Texas and Upper Gulf Coast	4. East

Below are the number of counties and 1980 population contained in each of the designated five regions:

<u>TWDB Regions</u>	<u>Counties</u>	<u>1980 Population</u>
1. Far West	15	747,691
2. Plains	105	1,652,499
3. Central	51	5,455,578
4. East	64	5,160,045
5. South	<u>19</u>	<u>1,117,357</u>
Total	<u>254</u>	<u>14,133,170</u>

Given that no county is included in more than one of these regions, it was a simple matter to assign each utility in our databases to its respective region once its county was identi-

fied. The only potential problem is with river authorities including so many counties as to be in more than one region. In all cases, the utility was assigned to the region of its main office. Exhibit IV-1 is a map of Texas with regional boundaries marked and the number of utilities in each region identified. Exhibit IV-2 lists all 254 counties in the state in alphabetical order with the region to which each is assigned.

### **C. SURVEY QUESTIONNAIRES**

The principal data collection mechanisms for this project have been two water and sewerage utility questionnaires. These are referred to as the "short" and "long" questionnaires throughout this report. The short form primarily focuses on the following information:

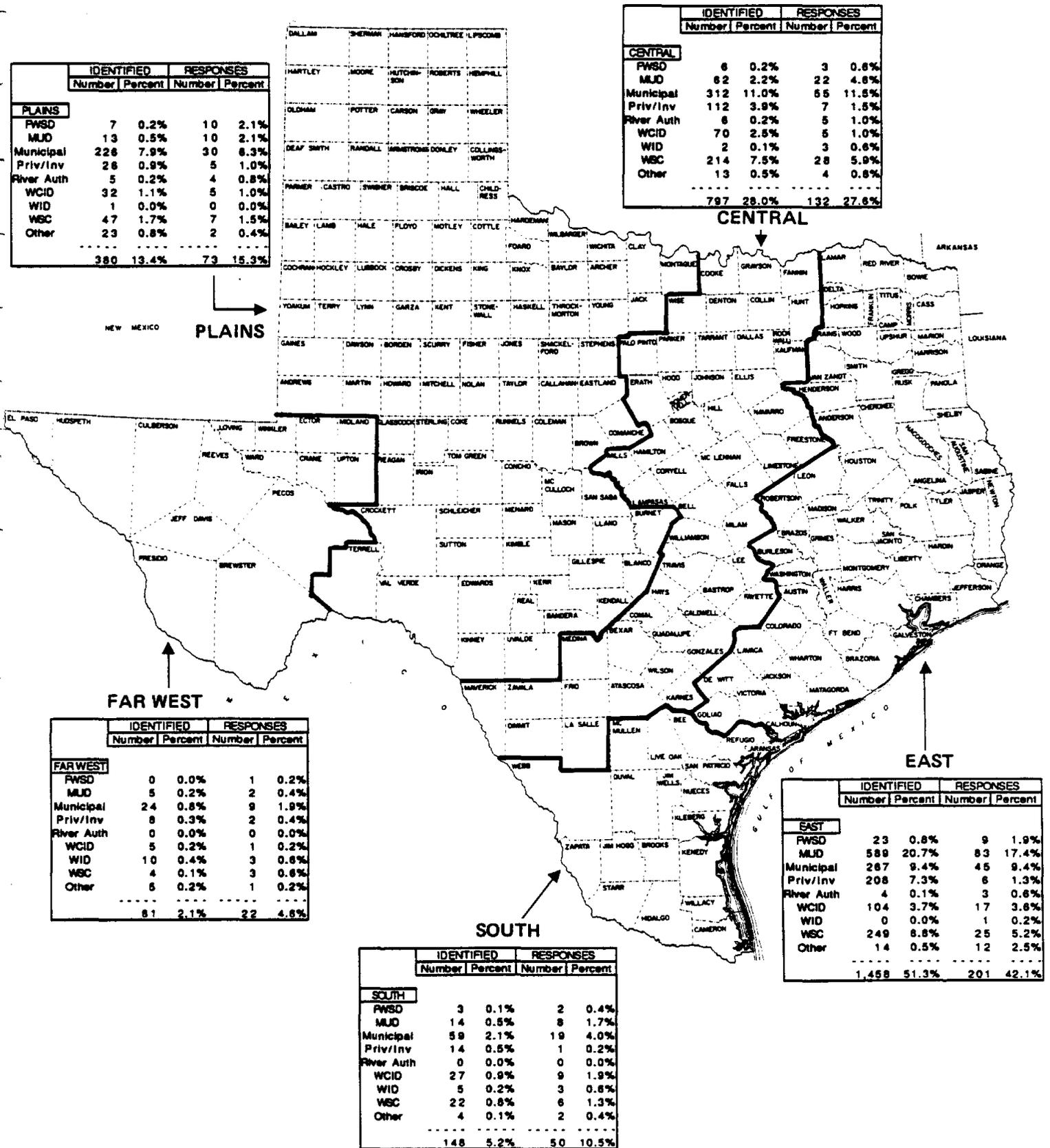
- Annual revenues by source
- Annual operating costs
- Fixed assets and outstanding debt
- Plant capacities
- Volumes treated, produced, and billed
- Annual bills and taxes

All questions on the short form are contained on the long form as well. In addition, the long form contains questions about the following topics:

- Services provided
- Governing body
- Capital financing methods
- Scale ranking of subjective and qualitative information

Copies of the short and long forms are contained in Appendices B and C, respectively. Throughout the study process, it was acknowledged that many more short forms would be used than long forms. The original thought was to mail 500 short forms and 100 long forms. When the TWDB requested incorporating some utilities with 150 to 300 connections from the Health Department

TEXAS REGIONS AND UTILITIES



	IDENTIFIED		RESPONSES	
	Number	Percent	Number	Percent
<b>PLAINS</b>				
FWSD	7	0.2%	10	2.1%
MUD	13	0.5%	10	2.1%
Municipal	226	7.9%	30	6.3%
Priv/Inv	26	0.9%	5	1.0%
River Auth	5	0.2%	4	0.8%
WCID	32	1.1%	5	1.0%
WID	1	0.0%	0	0.0%
WSC	47	1.7%	7	1.5%
Other	23	0.8%	2	0.4%
	380	13.4%	73	15.3%

	IDENTIFIED		RESPONSES	
	Number	Percent	Number	Percent
<b>CENTRAL</b>				
FWSD	6	0.2%	3	0.6%
MUD	62	2.2%	22	4.6%
Municipal	312	11.0%	65	11.5%
Priv/Inv	112	3.9%	7	1.5%
River Auth	6	0.2%	5	1.0%
WCID	70	2.5%	5	1.0%
WID	2	0.1%	3	0.6%
WSC	214	7.5%	28	5.9%
Other	13	0.5%	4	0.8%
	797	28.0%	132	27.6%

	IDENTIFIED		RESPONSES	
	Number	Percent	Number	Percent
<b>FAR WEST</b>				
FWSD	0	0.0%	1	0.2%
MUD	5	0.2%	2	0.4%
Municipal	24	0.8%	9	1.9%
Priv/Inv	8	0.3%	2	0.4%
River Auth	0	0.0%	0	0.0%
WCID	5	0.2%	1	0.2%
WID	10	0.4%	3	0.6%
WSC	4	0.1%	3	0.6%
Other	5	0.2%	1	0.2%
	61	2.1%	22	4.6%

	IDENTIFIED		RESPONSES	
	Number	Percent	Number	Percent
<b>EAST</b>				
FWSD	23	0.8%	9	1.9%
MUD	589	20.7%	83	17.4%
Municipal	267	9.4%	45	9.4%
Priv/Inv	208	7.3%	6	1.3%
River Auth	4	0.1%	3	0.6%
WCID	104	3.7%	17	3.6%
WID	0	0.0%	1	0.2%
WSC	249	8.8%	25	5.2%
Other	14	0.5%	12	2.5%
	1,458	51.3%	201	42.1%

	IDENTIFIED		RESPONSES	
	Number	Percent	Number	Percent
<b>SOUTH</b>				
FWSD	3	0.1%	2	0.4%
MUD	14	0.5%	8	1.7%
Municipal	59	2.1%	19	4.0%
Priv/Inv	14	0.5%	1	0.2%
River Auth	0	0.0%	0	0.0%
WCID	27	0.9%	9	1.9%
WID	5	0.2%	3	0.6%
WSC	22	0.8%	6	1.3%
Other	4	0.1%	2	0.4%
	148	5.2%	50	10.5%

## LISTING OF TEXAS COUNTIES WITH REGION DESIGNATION AND NUMBER OF RESPONSES TO SURVEY

Region Codes: 1 = Far West 2 = Plains 3 = Central 4 = East 5 = South											
REGION		RESPOND	REGION		RESPOND	REGION		RESPOND	REGION		RESPOND
Anderson	4	1	Donley	2	1	Kaufman	3	3	Reagan	2	1
Andrews	2	0	Duval	5	1	Kendall	2	0	Real	2	0
Angelina	4	4	Eastland	2	0	Kenedy	5	0	Red River	4	1
Aransas	5	2	Ector	1	2	Kent	2	0	Reeves	1	4
Archer	2	2	Edwards	2	0	Kerr	2	2	Refugio	5	3
Armstrong	2	1	Ellis	3	3	Kimble	2	0	Roberts	2	0
Atascosa	3	1	El Paso	1	4	King	2	0	Robertson	4	0
Austin	4	3	Erath	3	0	Kinney	2	1	Rockwall	3	0
Bailey	2	0	Falls	3	1	Kleberg	5	1	Runnels	2	2
Bandera	2	2	Fannin	3	6	Knox	2	0	Rusk	4	2
Bastrop	3	1	Fayette	3	0	Lamar	4	1	Sabine	4	0
Baylor	2	2	Fisher	2	0	Lamb	2	0	San Augustine	4	0
Bee	5	3	Floyd	2	1	Lampasas	3	1	San Jacinto	4	2
Bell	3	8	Foard	2	0	La Salle	3	0	San Patricio	5	3
Bexar	3	6	Fort Bend	4	15	Lavaca	4	0	San Saba	2	1
Blanco	2	1	Franklin	4	1	Lee	3	2	Schleicher	2	0
Borden	2	0	Freestone	3	0	Leon	4	1	Scurry	2	0
Bosque	3	2	Frio	3	0	Liberty	4	2	Shackelford	2	0
Bowie	4	2	Gaines	2	0	Limestone	3	2	Shelby	4	1
Brazoria	4	7	Galveston	4	7	Lipscomb	2	1	Sherman	2	0
Brazos	4	0	Garza	2	0	Live Oak	5	1	Smith	4	3
Brewster	1	0	Gillespie	2	1	Llano	2	2	Somervell	3	0
Briscoe	2	1	Glasscock	2	0	Loving	1	0	Starr	5	1
Brooks	5	1	Goliad	4	0	Lubbock	2	1	Stephens	2	0
Brown	2	2	Gonzales	3	0	Lynn	2	0	Sterling	2	0
Burleson	4	2	Gray	2	1	McCulloch	2	0	Stonewall	2	0
Burnet	2	2	Grayson	3	7	McLennan	3	8	Sutton	2	1
Caldwell	3	2	Gregg	4	4	McMullen	5	1	Swisher	2	0
Calhoun	4	1	Grimes	4	3	Madison	4	1	Tarrant	3	9
Callahan	2	1	Guadalupe	3	2	Marion	4	0	Taylor	2	3
Cameron	5	14	Hale	2	1	Martin	2	0	Terrell	2	0
Camp	4	0	Hall	2	0	Mason	2	1	Terry	2	0
Carson	2	1	Hamilton	3	0	Matagorda	4	3	Throckmorton	2	1
Cass	4	2	Hansford	2	0	Maverick	3	2	Titus	4	1
Castro	2	0	Hardeman	2	0	Medina	3	1	Tom Green	2	2
Chambers	4	2	Hardin	4	0	Menard	2	0	Travis	3	13
Cherokee	4	2	Harris	4	75	Midland	1	1	Trinity	4	0
Childress	2	1	Harrison	4	0	Milam	3	3	Tyler	4	3
Clay	2	1	Hartley	2	0	Mills	3	0	Upshur	4	0
Cochran	2	0	Haskell	2	1	Mitchell	2	0	Upton	1	1
Coke	2	1	Hays	3	2	Montague	2	3	Uvalde	2	1
Coleman	2	1	Hemphill	2	0	Montgomery	4	12	Val Verde	2	0
Collin	3	3	Henderson	4	5	Moore	2	0	Van Zandt	4	4
Collingsworth	2	2	Hidalgo	5	6	Morris	4	0	Victoria	4	0
Colorado	4	2	Hill	3	5	Motley	2	0	Walker	4	0
Cornal	3	2	Hockley	2	0	Nacogdoches	4	0	Waller	4	0
Comanche	2	0	Hood	3	0	Navarro	3	3	Ward	1	2
Concho	2	0	Hopkins	4	3	Newton	4	1	Washington	4	2
Cooke	3	0	Houston	4	0	Nolan	2	3	Webb	5	1
Coryell	3	2	Howard	2	2	Nueces	5	6	Wharton	4	3
Cottle	2	0	Hudspeth	1	1	Ochiltree	2	0	Wheeler	2	1
Crane	1	1	Hunt	3	5	Oldham	2	1	Wichita	2	3
Crockett	2	0	Hutchinson	2	3	Orange	4	2	Wilbarger	2	0
Crosby	2	1	Irion	2	1	Palo Pinto	3	3	Willacy	5	4
Culberson	1	1	Jack	2	1	Panola	4	2	Williamson	3	7
Dallam	2	0	Jackson	4	2	Parker	3	1	Wilson	3	2
Dallas	3	3	Jasper	4	1	Parmer	2	1	Winkler	1	1
Dawson	2	1	Jeff Davis	1	0	Pecos	1	3	Wise	3	2
Deaf Smith	2	1	Jefferson	4	4	Polk	4	2	Wood	4	1
Delta	4	1	Jim Hogg	5	1	Potter	2	1	Yoakum	2	0
Denton	3	3	Jim Wells	5	0	Presidio	1	1	Young	2	0
DeWitt	4	1	Johnson	3	3	Rains	4	1	Zapata	5	1
Dickens	2	0	Jones	2	1	Randall	2	2	Zavala	3	1
Dimmitt	3	0	Karnes	3	2						

files in the short form process, it was agreed that the survey would consist of 200 long forms and 800 short forms, of which 100 would be in the supplemental group of utilities with 150 to 300 connections.

#### **D. SELECTING THE SURVEY SAMPLES**

With each entity assigned a type and region code, the various utility databases were consolidated into one file of identified utilities meeting the selection criteria of size (when identifiable) and recorded type. The latter point is important because a utility's name and type are often not the same. Additionally, the type entered in the sample database occasionally differed from the type a utility later reported in the survey. In all cases, the type specified by the utility has been used in reporting the results. Exhibit IV-3 lists the total number of utilities identified first by type and then by region. Exhibit IV-4 lists them by region and then by type.

Once the number of utilities was stratified by type and region, the survey sample could be selected. The basic premise behind the sample selection was to keep the number chosen in each category proportional to the relative percentage of the total with the following key exception: higher than representative amounts were selected from those utilities with the least relative numbers. For example, although river authorities comprise 0.5% of utilities identified, all 15 or 1.5% were surveyed. Likewise by region, 61 total utilities in the Far West comprise 2.1% of identified utilities but 44 or 4.4% were surveyed. This exception is understandable in light of the risks to survey validity if several utilities fail to respond to the questionnaire in the low occurrence groups. The large groups could much more easily absorb a lower response rate. Of 683 MUDs identified, 241 (35% of MUDs) were surveyed and 125 (18% of MUDs) responded, yet this response was still 26% of the total received from all

COMPARISON OF UTILITIES IDENTIFIED, SURVEYED, AND RESPONDING

Categories	SAMPLE SELECTION AND RESPONSE BY OWNER TYPE									
	Identified		Survey Samples					Responses		
	Number	Percent	"Short"	"150-299"	"Long"	Total	Percent	Number	Percent	Rate
<b>FRESH WATER SUPPLY DISTRICT</b>										
Far West	0	0.0%	0	0	0	0	0.0%	1	0.2%	100%
Plains	7	0.2%	5	0	2	7	0.7%	10	2.1%	143%
Central	6	0.2%	4	0	2	6	0.6%	3	0.6%	50%
East	23	0.8%	16	1	6	23	2.3%	9	1.9%	39%
South	3	0.1%	2	0	1	3	0.3%	2	0.4%	67%
	39	1.4%	27	1	11	39	3.9%	25	5.2%	64%
<b>MUNICIPAL UTILITY DISTRICT</b>										
Far West	5	0.2%	3	0	2	5	0.5%	2	0.4%	40%
Plains	13	0.5%	7	0	5	12	1.2%	10	2.1%	83%
Central	62	2.2%	25	1	10	36	3.6%	22	4.6%	61%
East	589	20.7%	142	5	28	175	17.5%	83	17.4%	47%
South	14	0.5%	8	0	5	13	1.3%	8	1.7%	62%
	683	24.0%	185	6	50	241	24.1%	125	26.2%	52%
<b>MUNICIPALITY</b>										
Far West	24	0.8%	10	1	4	15	1.5%	9	1.9%	60%
Plains	226	7.9%	50	8	13	71	7.1%	30	6.3%	42%
Central	312	11.0%	70	8	18	96	9.6%	55	11.5%	57%
East	267	9.4%	60	6	16	82	8.2%	45	9.4%	55%
South	59	2.1%	25	1	8	34	3.4%	19	4.0%	56%
	888	31.2%	215	24	59	298	29.8%	158	33.1%	53%
<b>PRIVATELY HELD/INVESTOR OWNED</b>										
Far West	8	0.3%	2	1	1	4	0.4%	2	0.4%	50%
Plains	26	0.9%	7	3	2	12	1.2%	5	1.0%	42%
Central	112	3.9%	17	9	4	30	3.0%	7	1.5%	23%
East	208	7.3%	27	16	7	50	5.0%	6	1.3%	12%
South	14	0.5%	4	2	2	8	0.8%	1	0.2%	13%
	368	12.9%	57	31	16	104	10.4%	21	4.4%	20%
<b>RIVER AUTHORITY</b>										
Far West	0	0.0%	0	0	0	0	0.0%	0	0.0%	0%
Plains	5	0.2%	4	0	1	5	0.5%	4	0.8%	80%
Central	6	0.2%	4	0	2	6	0.6%	5	1.0%	83%
East	4	0.1%	3	0	1	4	0.4%	3	0.6%	75%
South	0	0.0%	0	0	0	0	0.0%	0	0.0%	0%
	15	0.5%	11	0	4	15	1.5%	12	2.5%	80%
<b>WATER CONTROL &amp; IMPROVEMENT DIST.</b>										
Far West	5	0.2%	4	0	1	5	0.5%	1	0.2%	20%
Plains	32	1.1%	11	0	3	14	1.4%	5	1.0%	36%
Central	70	2.5%	17	2	5	24	2.4%	5	1.0%	21%
East	104	3.7%	23	1	7	31	3.1%	17	3.6%	55%
South	27	0.9%	9	1	2	12	1.2%	9	1.9%	75%
	238	8.4%	64	4	18	86	8.6%	37	7.7%	43%
<b>WATER IMPROVEMENT DISTRICT</b>										
Far West	10	0.4%	7	0	3	10	1.0%	3	0.6%	30%
Plains	1	0.0%	1	0	0	1	0.1%	0	0.0%	0%
Central	2	0.1%	1	0	1	2	0.2%	3	0.6%	150%
East	0	0.0%	0	0	0	0	0.0%	1	0.2%	100%
South	5	0.2%	4	0	1	5	0.5%	3	0.6%	60%
	18	0.6%	13	0	5	18	1.8%	10	2.1%	56%
<b>WATER SUPPLY CORPORATIONS</b>										
Far West	4	0.1%	1	1	0	2	0.2%	3	0.6%	150%
Plains	47	1.7%	12	4	4	20	2.0%	7	1.5%	35%
Central	214	7.5%	39	11	10	60	6.0%	28	5.9%	47%
East	249	8.8%	38	16	10	64	6.4%	25	5.2%	39%
South	22	0.8%	8	2	3	13	1.3%	6	1.3%	46%
	536	18.8%	98	34	27	159	15.9%	69	14.4%	43%
<b>ALL OTHERS</b>										
Far West	5	0.2%	2	0	1	3	0.3%	1	0.2%	33%
Plains	23	0.8%	12	0	4	16	1.6%	2	0.4%	13%
Central	13	0.5%	7	0	2	9	0.9%	4	0.8%	44%
East	14	0.5%	7	0	2	9	0.9%	12	2.5%	133%
South	4	0.1%	2	0	1	3	0.3%	2	0.4%	67%
	59	2.1%	30	0	10	40	4.0%	21	4.4%	53%
<b>TOTAL UTILITIES</b>										
	2,844	100.0%	700	100	200	1,000	100.0%	478	100.0%	48%

COMPARISON OF UTILITIES IDENTIFIED, SURVEYED, AND RESPONDING

EXHIBIT IV-4

Categories	SAMPLE SELECTION AND RESPONSE BY REGION									
	Identified		Survey Samples					Responses		
	Number	Percent	"Short"	"150-299"	"Long"	Total	Percent	Number	Percent	Rate
<b>FAR WEST</b>										
Fresh Water Supply District	0	0.0%	0	0	0	0	0.0%	1	0.2%	100%
Municipal Utility District	5	0.2%	3	0	2	5	0.5%	2	0.4%	40%
Municipality	24	0.8%	10	1	4	15	1.5%	9	1.9%	60%
Privately Held/Investor Owned	8	0.3%	2	1	1	4	0.4%	2	0.4%	50%
River Authority	0	0.0%	0	0	0	0	0.0%	0	0.0%	0%
Water Control & Improvement District	5	0.2%	4	0	1	5	0.5%	1	0.2%	20%
Water Improvement District	10	0.4%	7	0	3	10	1.0%	3	0.6%	30%
Water Supply Corporations	4	0.1%	1	1	0	2	0.2%	3	0.6%	150%
All Others	5	0.2%	2	0	1	3	0.3%	1	0.2%	33%
	61	2.1%	29	3	12	44	4.4%	22	4.6%	50%
<b>PLAINS</b>										
Fresh Water Supply District	7	0.2%	5	0	2	7	0.7%	10	2.1%	143%
Municipal Utility District	13	0.5%	7	0	5	12	1.2%	10	2.1%	83%
Municipality	226	7.9%	50	8	13	71	7.1%	30	6.3%	42%
Privately Held/Investor Owned	26	0.9%	7	3	2	12	1.2%	5	1.0%	42%
River Authority	5	0.2%	4	0	1	5	0.5%	4	0.8%	80%
Water Control & Improvement District	32	1.1%	11	0	3	14	1.4%	5	1.0%	36%
Water Improvement District	1	0.0%	1	0	0	1	0.1%	0	0.0%	0%
Water Supply Corporations	47	1.7%	12	4	4	20	2.0%	7	1.5%	35%
All Others	23	0.8%	12	0	4	16	1.6%	2	0.4%	13%
	380	13.4%	109	15	34	158	15.8%	73	15.3%	46%
<b>CENTRAL</b>										
Fresh Water Supply District	6	0.2%	4	0	2	6	0.6%	3	0.6%	50%
Municipal Utility District	62	2.2%	25	1	10	36	3.6%	22	4.6%	61%
Municipality	312	11.0%	70	8	18	96	9.6%	55	11.5%	57%
Privately Held/Investor Owned	112	3.9%	17	9	4	30	3.0%	7	1.5%	23%
River Authority	6	0.2%	4	0	2	6	0.6%	5	1.0%	83%
Water Control & Improvement District	70	2.5%	17	2	5	24	2.4%	5	1.0%	21%
Water Improvement District	2	0.1%	1	0	1	2	0.2%	3	0.6%	150%
Water Supply Corporations	214	7.5%	39	11	10	60	6.0%	28	5.9%	47%
All Others	13	0.5%	7	0	2	9	0.9%	4	0.8%	44%
	797	28.0%	184	31	54	269	26.9%	132	27.6%	49%
<b>EAST</b>										
Fresh Water Supply District	23	0.8%	16	1	6	23	2.3%	9	1.9%	39%
Municipal Utility District	589	20.7%	142	5	28	175	17.5%	83	17.4%	47%
Municipality	267	9.4%	60	6	16	82	8.2%	45	9.4%	55%
Privately Held/Investor Owned	208	7.3%	27	16	7	50	5.0%	6	1.3%	12%
River Authority	4	0.1%	3	0	1	4	0.4%	3	0.6%	75%
Water Control & Improvement District	104	3.7%	23	1	7	31	3.1%	17	3.6%	55%
Water Improvement District	0	0.0%	0	0	0	0	0.0%	1	0.2%	100%
Water Supply Corporations	249	8.8%	38	16	10	64	6.4%	25	5.2%	39%
All Others	14	0.5%	7	0	2	9	0.9%	12	2.5%	133%
	1,458	51.3%	316	45	77	438	43.8%	201	42.1%	46%
<b>SOUTH</b>										
Fresh Water Supply District	3	0.1%	2	0	1	3	0.3%	2	0.4%	67%
Municipal Utility District	14	0.5%	8	0	5	13	1.3%	8	1.7%	62%
Municipality	59	2.1%	25	1	8	34	3.4%	19	4.0%	56%
Privately Held/Investor Owned	14	0.5%	4	2	2	8	0.8%	1	0.2%	13%
River Authority	0	0.0%	0	0	0	0	0.0%	0	0.0%	0%
Water Control & Improvement District	27	0.9%	9	1	2	12	1.2%	9	1.9%	75%
Water Improvement District	5	0.2%	4	0	1	5	0.5%	3	0.6%	60%
Water Supply Corporations	22	0.8%	8	2	3	13	1.3%	6	1.3%	46%
All Others	4	0.1%	2	0	1	3	0.3%	2	0.4%	67%
	148	5.2%	62	6	23	91	9.1%	50	10.5%	55%
<b>TOTAL UTILITIES</b>										
	2,844	100.0%	700	100	200	1,000	100.0%	478	100.0%	48%

types. The higher percentages sampled in the smaller groups have alleviated the necessity to draw conclusions based on two or three responses.

With the number of questionnaire recipients by type and region selected, the final step was to select the specific utilities within each group to which to mail the survey. Each utility was given a computer-generated random number. If four water supply corporations in the Plains region were to be selected for the long questionnaire, for example, the four with the highest random numbers were each mailed a survey at the address in the data base.

#### **E. SURVEY RESPONSE**

Surveys were mailed to survey participants in January 1987. Accompanying each form was a letter from the Executive Administrator of the TWDB requesting that the utility complete the questionnaire and return it along with their most recent audited financial statements. Every participant was promised in the letter that the data received would be kept strictly confidential and presented only in statistical summaries. Participants were asked to return the form in the middle part of February.

Questions were received by telephone and letter in Arthur Young's Austin office. Relatively few completed questionnaires had been received by the requested return date of mid-February. A second letter was mailed at that time to participants who had not yet returned the form. By late March, the majority of the questionnaires to be submitted had been received. Nevertheless, quite a number of completed surveys were received and entered in our database as late as July 1.

Exhibit IV-5 presents a summary of the information from the previous two exhibits regarding the response rate by utility type and region. The total number of completed surveys was 478.

COMPARISON OF UTILITIES IDENTIFIED, SURVEYED, AND RESPONDING

IDENTIFIED		SAMPLED		RESPONSES		
Number	Relative Percent	Number	Relative Percent	Number	Relative Percent	Response Rate

**BY TYPE OF UTILITY**

Fresh Water Supply District	39	1.4%	39	3.9%	25	5.2%	64%
Municipal Utility District	683	24.0%	241	24.1%	125	26.2%	52%
Municipality	888	31.2%	298	29.8%	158	33.1%	53%
Privately Held/Investor Owned	368	12.9%	104	10.4%	21	4.4%	20%
River Authority	15	0.5%	15	1.5%	12	2.5%	80%
Water Control & Improvement District	238	8.4%	86	8.6%	37	7.7%	43%
Water Improvement District	18	0.6%	18	1.8%	10	2.1%	56%
Water Supply Corporations	536	18.8%	159	15.9%	69	14.4%	43%
All Others	59	2.1%	40	4.0%	21	4.4%	53%

**BY REGION**

Far West	61	2.1%	44	4.4%	22	4.6%	50%
Plains	380	13.4%	158	15.8%	73	15.3%	46%
Central	797	28.0%	269	26.9%	132	27.6%	49%
East	1,458	51.3%	438	43.8%	201	42.1%	46%
South	148	5.2%	91	9.1%	50	10.5%	55%

**OVERALL**

	2,844	100.0%	1,000	100.0%	478	100.0%	48%
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Approximately 100 additional surveys were returned either explaining that the entity did not provide utility services or merely attaching an audit report without completing any of the questionnaire. Thus, approximately 48% of the utilities surveyed took the time and effort to complete these thorough questionnaires even though participation was not required and budget constraints prohibited calling each utility. The results of this study are substantially strengthened by this comparatively high response rate.

In examining the response statistics, one may notice in Exhibits IV-3 and IV-4 that more Central region water improvement districts (WID) and a few other types by region responded than were surveyed. This seemingly impossible finding is due to utilities labeling themselves a different type than the sample database listed them as. This partially accounts for fresh water supply districts having the second highest response rate in Exhibit IV-5 at 64% in the largest group, the East, to 55% in the South. Of the long forms, 101 of 200 were completed. Of the short forms, 377 of 800 were completed. In both forms, the relative percentages identified, sampled, and received are very consistent. The results of the questionnaires will be discussed in subsequent chapters.

#### **F. INTERVIEW PROCESS**

One concern that arises in studies of this nature is that surveys often fail to adequately convey the day-to-day pressures and problems of water or wastewater operations as well as successful approaches to meeting customer needs. To supplement the survey results, the TWDB contract required that ten on-site utility interviews be conducted. By listening to utility operators and managers discuss their operations and concerns at their own office, one gains a much greater sense of the daily conditions under which various types of utilities must operate across the state. Although required to conduct only 10 interviews, Arthur

Young suggested that the number be doubled to 20 in order to gain more variety of location, organization, and experience. Nevertheless, given that there are ten types being evaluated in five regions, or 50 possible combinations, the selection of the 20 interviews was never envisioned as being able to achieve statistical validity. Rather, the interview process has served the essential role of supplementing the rigorous data analysis with numerous examples of the advantages and disadvantages utilities face due to available natural resources, how they are organized, and their specific service area concerns.

The TWDB staff was instrumental in identifying 50 utilities across the state from which to select 20 to interview. Emphasis was placed on utilities located in areas putting major demands on operating and/or financial resources. The 20 utilities selected were extremely gracious in each allotting two to three hours to discuss their operations, finances, problems, and perspectives. All comments were made with the understanding of the confidentiality of the interviews. Among the varied concerns expressed, as further discussed in Chapter VI, were the following:

- Water supply corporations mentioned the difficulty in obtaining FmHA loans or any other sources of capital financing;
- Utilities in the metropolitan Houston area are preparing to make the transition from ground water to surface water in order to alleviate subsidence;
- Allocation of the limited waters of the Rio Grande and searching for alternatives continue to cause strife among utilities and even between states;
- Resort areas confront wide swings in demand, thereby posing problems in terms of sizing facilities and cash flow;
- Private utilities must now adapt to the major changes in the nation's tax laws including more restrictive depreciation provisions and the elimination of the investment tax credit;

- Downswings in the state economy and the parallel decline of the housing market in certain areas lead managers to worry about the ability of some utilities to meet their tax needs for servicing debt.

In summary, the careful survey and interview processes have produced a tremendous amount of insightful quantitative and qualitative information. The obvious other key to the success of this process has been the high degree of cooperation from utilities across the state in supplying information and opinions. Ensuing chapters will summarize the collected data and discuss the resulting implications for utilities across the state.

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**V. SUMMARY OF FINANCIAL AND  
OPERATING INFORMATION**

## V. SUMMARY OF FINANCIAL AND OPERATING INFORMATION

### A. DATA ANALYSIS

This section presents a comparison of financial and operating information reported by the surveyed utilities. It represents a consolidation of primarily the quantitative data common to both the long and short form survey questionnaires. The qualitative data and self-evaluation responses included only on the long form are presented separately in Chapter VI. Various presentation formats are used throughout this chapter in order to present what is considered to be the most appropriate comparative statistic. For example, depending upon the statistic being evaluated, data is presented showing the (1) mean, (2) median, (3) number of entities responding within a defined range, (4) minimum, or (5) maximum. Statistics are presented by type of entity, by region and for the state as a whole. It is key to the evaluation process to make certain that the appropriate statistic is chosen. For example, the arithmetic mean (average) of the number of employees for the entities surveyed is 30. In contrast, the median, or the middle value when the employee count is sorted from lowest to highest number of employees, is only 4. In this case, the median value is actually a more relevant statistic as it indicates an equal number of utilities have an employee count of less than 4 and the remaining half have a higher number. Use of the mean fails to account for the fact that it takes only one or two large utilities to dwarf the total employees of a dozen or more smaller utility districts or water supply corporations and may give one the false impression that utilities operations within the state of Texas, in general, are larger operations than is really the case.

In analyzing the data, numerous reviews and tests of reasonableness, such as comparing total employees with revenues of the utility, were performed in an attempt to eliminate data reported

in error, keypunching errors or information reported for other than water or wastewater operations. However, the number of data points for each short- and long-form questionnaire were 123 and 186, respectively, and the degree to which each questionnaire was completed varied by respondent. It should be emphasized that the data incorporated in this study was self-reported and has not been audited by either Arthur Young or the Texas Water Development Board.

## B. USE OF REPORTED DATA IN ADDRESSING KEY STUDY ISSUES

As discussed earlier, the overall goal of this study is to evaluate the costs of various water and sewerage service arrangements in order to determine the most beneficial management and operating structure to meet future water and sewerage service needs. Accordingly, it is important to address a number of key questions. These include:

- How do cost of service and operating characteristics differ among various forms of entities providing water and sewerage service?

Is a particular form of organization and operation more efficient than another form providing the same service? Does a particular form have a greater ability to finance necessary capital improvements?

- How do cost of service and operating characteristics vary across geographic locations?

Distinguishing characteristics include required water and wastewater treatment levels, quality and availability of water supply, density of customers, and ability of the customers to finance necessary utility improvements.

- To what extent do legal and institutional factors dictate the form of organization and operation a service provider must take?

It is important to understand whether current legal and institutional parameters serve to promote the most beneficial and responsive service arrangement and, if not, what are the contributing factors?

- Do legal and institutional parameters need to be modified to allow for service provision arrangements that exist in other areas or that may be more suited to particular geographic areas?

Existing entities have arisen from a need to serve customers at the local level. An issue that arises with rural water districts is that they are generally designed to meet the need of less densely populated areas. As an area becomes urbanized, the service boundaries of various districts often become contiguous and competition over available sources of supply increases. The question then arises over whether these numerous entities are the most efficient to serve a defined area or whether some other form of organization might be better able to serve the entire area.

- If so, how might this be accomplished?

Certain changes to these parameters could be achieved at a local level but others may require modifications to state legislation.

The data analysis in this chapter and Chapter VI, as well as the development of findings, is designed to address these and other key issues.

### **C. CONSIDERATIONS IN COMPARING FINANCIAL AND OPERATING DATA AMONG UTILITIES**

Comparing financial and operating data among various types of utilities can provide insight into the efficiency and effectiveness of various organizational forms. Care should be taken, however, in drawing conclusions solely from these comparisons. High operating costs and utility or tax bills may not mean the utility is managed inefficiently; conversely, those utilities with low costs and bills are not necessarily efficient. Many factors affect the costs incurred in providing service and how those costs may or may not be recovered from the users of the system. Some of the most common factors include:

- Geographic Location;
- Demand;
- Customer Constituency;
- Level of Treatment;
- Level of General Fund Subsidization;
- Level of Grant Funding;
- Age of System;
- Infiltration and Inflow Problems;
- Other Evaluation Criteria.

A brief discussion of these factors is presented below.

- Geographic Location

Geographic location and topography significantly affect the design and cost of water and wastewater facilities and their operation. In some areas, pumping and transmission costs can be major system costs. Service areas located far from the source of water supply can have high water supply costs. Likewise, a waste treatment plant located far from its discharge stream can have high disposal costs. Another geographical consideration is customer density. In areas where customers are relatively close together, collection and distribution costs can be significantly lower than in rural areas where customers are less dense.

- Demand

Customer demand plays an important role in sizing water and wastewater facilities, and therefore impacts water and wastewater rates. Facilities have to be designed to provide for seasonal and hourly demand, as well as potential growth in a system. Peak demand usage may be significantly higher than average annual usage of water and wastewater facilities. As a result, customers may have to pay a relatively higher rate during non-peak periods to have facilities available to be used during peak periods.

Resort areas provide a good example of the impact of peak demand on water and wastewater costs. Facilities are sized to meet vacation demand and have high facil-

ity costs when computed on an average annual gallon basis. Communities which maintain stringent fire protection standards might have relatively high peak hour water demands, and therefore, incur additional operating and facility costs related to providing fire protection. (Many jurisdictions, however, recover fire protection costs through charges to either the city's or county's general fund or to special fire districts with taxing authority. In these cases, the water customer rate base can be relieved of recovering the cost to provide fire protection.) Other areas offer only limited fire protection.

- Customer Constituency

The types of customers served by a water or wastewater system affect administrative, customer, treatment and transmission costs. In communities with numerous high volume users, administrative, customer and transmission costs can be relatively low. Factors contributing to this lower rate include: (1) more gallons can be consumed or discharged per foot of line; (2) fewer meters need to be read and bills prepared; and (3) less administration is involved with delinquencies, disconnects and customer service. On the other hand, areas with high industrial discharge can incur significantly more operating and capital costs to: (1) treat and process wastewater; (2) maintain an industrial waste control or pretreatment section; and (3) provide for more expensive monitoring equipment.

- Level of Treatment

A wastewater plant's effluent quality standards are established by the state and identified in the plant's National Pollution Discharge Elimination System permit. These standards are influenced by the water quality of the receiving stream, as well as the pollutants that must be treated. The level and type of wastewater treatment influences wastewater treatment design and related operating and capital costs. Communities with advanced treatment or land application systems typically incur greater costs than communities served by secondary treatment plants.

For water treatment, the quality of the raw water supply affects treatment costs. In many situations, ground water is relatively pure and can be distributed after little treatment. Treatment of surface water is more complicated and, therefore, more costly.

- Level of General Fund Subsidization

Many public water and wastewater operations are organizationally within municipal governments. The municipal government often provides administrative services which benefit water or wastewater operations. These services might include personnel services, purchasing, administration, accounting and data processing. If the general fund does not recover sufficient administrative costs from water or wastewater operations, a subsidy to these operations would result. On the other hand, over-recovery of administrative costs from water or wastewater operations could result in a subsidy to the general fund. In certain cases, payments in lieu of taxes or a percentage of revenues are turned over to the local municipality.

- Level of Grant Funding

Grant funding from state and federal agencies can be an offset to water and wastewater capital costs and ultimately water and wastewater rates. In comparing rates, one would think that grant funding would have a similar impact on all communities receiving grant funds. This is not necessarily true; however, since (1) each area may have a different level of project eligible for funding, and (2) some states supplement federal funding with a state match. As a result, the local share can be significantly different from community to community, and rates will be impacted accordingly.

In the case of grant funding for water projects, some communities have received state water grants or other federal assistance (FmHA, EDA, etc.). Again, the level of water grant funding would impact water capital requirements, and the level of capital revenue requirements to be recovered from water customers.

- Age of the System

Typically, older systems require more maintenance. However, with a new system, significant debt service costs may be required as compared with older systems where debt has been repaid or the debt is based upon much lower historical dollars and interest rates. As a result, the age of the system should be evaluated to determine operating and capital revenue requirements as well as the impact on cost and rate comparisons.

- Infiltration and Inflow Levels

A major problem with many wastewater systems is the level of infiltration and inflow (I/I) present. A high

level of I/I means additional capacity requirements and related operating costs. These additional costs translate into higher revenue requirements.

- Other Evaluation Criteria

Other factors influencing the comparison of operating costs are too numerous to mention. These factors relate to levels of efficiency, organizational considerations, and considerations such as availability of labor, compensation scales, and levels of employee training.

In summary, care should be taken in drawing conclusions regarding water or wastewater operations in a particular community. Comparisons among communities can signal to management, however, that there should be reasons why one community's costs are higher or lower than those of another community. Analysis into why there is a difference is helpful in examining the effectiveness of a water or wastewater operation.

#### **D. OVERVIEW OF FINANCIAL AND OPERATING INFORMATION**

This section presents, following this introductory narrative, exhibits summarizing information from both the short and long survey forms. These exhibits include an analysis of reported data for the following areas:

- Utility Activities (Exhibit V-1)
- Employees (Exhibits V-2 and V-3)
- Number of Customers (Exhibit V-4)
- Analysis of Water and Wastewater System Capacities (Exhibit V-5)
- Expenditure Data (Exhibit V-6)
- Long-Term Debt and Fixed Assets Information (Exhibit V-7)
- Methods of Financing Capital Improvements (Exhibit V-8)

- Water/Sewer Bill and Tax Information (Exhibit V-9)
- Connection Fee Data (Exhibit V-10)

This section is intended to serve as an overview of the reported data, as a source of data for both current and future reference, and as a foundation for the calculation of standardized data for evaluation of the various utility types in the next section. Additional supporting detail to the exhibits contained in this chapter can be found in Appendix D. Brief descriptions of each area analyzed are provided below:

- Utility Activities and Responsibilities - Exhibit V-1 depicts activities for each utility type as to whether they provide water service only, wastewater (sewer) service only, or both. As shown, over 65 percent of the reporting utilities render both water and sewer service, approximately 32 percent offer water-only service and only 9 out of 468 provide sewer-only service.
- Employees - Exhibit V-2 gives the number of entities with total employees falling within indicated ranges. For example, of the utilities reporting the number of employees devoted to water activities, 271 or nearly 82 percent indicated they have ten or fewer employees. Only 17 reported having more than fifty employees. Exhibit V-3 shows the median and mean number of employees by type of utility and region. This information should give the reader a picture of the great number of small utility operations that exist throughout the state.
- Number of Customers and Type - Exhibit V-4 provides a summary of water and sewer customer data. This exhibit gives the number of utilities with total customers falling within the indicated ranges.
- Water and Wastewater System Capacities - Exhibit V-5 illustrates the number of utilities with water production and sewage treatment capacities falling within the given ranges. The percentage of utilities with total capacities of 500,000 gallons per day or less are 35 percent and 48 percent for water and wastewater, respectively.

ACTIVITIES REPORTED BY UTILITIES

EXHIBIT V-1

ACTIVITIES OF UTILITY	WATER ONLY	SEWER ONLY	WATER & SEWER	TOTALS
<b>By Type of Utility</b>				
Fresh Water Supply District	16	0	8	24
Municipal Utility District	16	3	106	125
Municipality	9	1	148	158
Privately Held/Investor Owned	13	1	7	21
River Authority	5	1	6	12
Water Control & Improvement Dist.	11	1	20	32
Water Improvement District	7	0	2	9
Water Supply Corporation	65	0	4	69
Other	10	2	6	18
<b>By Region</b>				
Far West	10	1	11	22
Plains	35	1	35	71
Central	46	2	81	129
East	40	3	153	196
South	21	2	27	50
<hr style="border-top: 1px dashed black;"/>				
<b>Overall</b>	<b>152</b>	<b>9</b>	<b>307</b>	<b>468</b>

RANGES OF NUMBER OF EMPLOYEES

WATER						
NUMBER OF EMPLOYEES	0-10	11-25	26-50	51-100	> 100	Total
<b>By Type of Utility</b>						
Fresh Water Supply District	18	1	0	0	0	19
Municipal Utility District	37	2	2	0	0	41
Municipality	107	18	6	5	7	143
Privately Held/Investor Owned	14	1	1	0	0	16
River Authority	1	3	2	3	1	10
Water Control & Improvement Dist.	15	2	0	1	0	18
Water Improvement District	7	0	0	0	0	7
Water Supply Corporation	62	0	1	0	0	63
Other	10	3	1	0	0	14
<b>By Region</b>						
Far West	12	0	1	0	1	14
Plains	52	4	1	0	2	59
Central	89	10	4	2	3	108
East	90	11	3	5	1	110
South	28	5	4	2	1	40
<hr/>						
Overall	271	30	13	9	8	331

SEWER						
NUMBER OF EMPLOYEES	0-10	11-25	26-50	51-100	> 100	Total
<b>By Type of Utility</b>						
Fresh Water Supply District	6	0	0	0	0	6
Municipal Utility District	24	3	0	0	0	27
Municipality	101	11	8	4	4	128
Privately Held/Investor Owned	4	1	0	0	0	5
River Authority	3	2	0	1	1	7
Water Control & Improvement Dist.	10	1	0	0	0	11
Water Improvement District	2	0	0	0	0	2
Water Supply Corporation	2	0	0	0	0	2
Other	4	1	0	0	1	6
<b>By Region</b>						
Far West	5	0	1	0	1	7
Plains	30	1	1	1	0	33
Central	51	7	1	1	2	62
East	54	7	4	1	2	68
South	16	4	1	2	1	24
<hr/>						
Overall	156	19	8	5	6	194

COMBINED						
NUMBER OF EMPLOYEES	0-10	11-25	26-50	51-100	> 100	Total
<b>By Type of Utility</b>						
Fresh Water Supply District	19	1	0	0	0	20
Municipal Utility District	42	7	3	1	0	53
Municipality	104	26	10	4	12	156
Privately Held/Investor Owned	16	1	0	1	0	18
River Authority	1	3	2	2	3	11
Water Control & Improvement Dist.	21	2	1	1	0	25
Water Improvement District	7	0	0	0	0	7
Water Supply Corporation	61	0	1	0	0	62
Other	10	5	2	0	1	18
<b>By Region</b>						
Far West	15	1	0	1	1	18
Plains	57	5	1	0	2	65
Central	89	17	5	2	5	118
East	88	16	9	4	5	122
South	32	6	4	2	3	47
<hr/>						
Overall	281	45	19	9	16	370

	NUMBER OF EMPLOYEES		
	Water	Sewer	Total
<b>MEDIANS</b>			
<b>BY TYPE OF UTILITY</b>			
Fresh Water Supply District	2	1	2
Municipal Utility District	2	2	4
Municipality	5	2	6
Privately Held/Investor Owned	2	2	2
River Authority	32	20	35
Water Control & Improve. Dist.	3	2	4
Water Improvement District	2	2	2
Water Supply Corporation	2	0	2
Other	8	5	10
<b>BY REGION</b>			
Far West	4	3	4
Plains	2	2	3
Central	4	2	5
East	3	3	4
South	5	5	4
<b>OVERALL MEDIAN</b>			
	3	2	4

<b>MEANS</b>			
<b>BY TYPE OF UTILITY</b>			
Fresh Water Supply District	3	2	4
Municipal Utility District	5	4	7
Municipality	34	32	58
Privately Held/Investor Owned	6	4	7
River Authority	52	43	74
Water Control & Improve. Dist.	8	3	8
Water Improvement District	2	2	2
Water Supply Corporation	3	4	3
Other	8	35	20
<b>BY REGION</b>			
Far West	31	34	36
Plains	8	5	10
Central	14	18	23
East	27	41	48
South	16	20	24
<b>OVERALL MEAN</b>			
	20	25	30

WATER AND SEWER RANGES OF CUSTOMERS

EXHIBIT V-4

WATER							
CUSTOMER RANGES	0-100	100-500	500-1,000	1,000-5,000	5,000-20,000	>20,000	Total
<b>By Type of Utility</b>							
Fresh Water Supply District	2	11	2	3	0	0	18
Municipal Utility District	19	35	16	27	3	0	100
Municipality	2	32	31	61	15	12	153
Privately Held/Investor Owned	2	9	2	5	1	0	19
River Authority	7	1	0	2	0	0	10
Water Control & Improvement Dist.	4	13	5	7	0	0	29
Water Improvement District	4	1	0	1	0	0	6
Water Supply Corporation	1	28	24	11	1	0	65
Other	5	4	1	3	0	0	13
<b>By Region</b>							
Far West	2	5	3	4	0	2	16
Plains	8	20	16	17	1	2	64
Central	8	35	24	42	6	2	117
East	22	61	32	45	9	3	172
South	6	13	6	12	4	3	44
<hr/>							
Overall	46	134	81	120	20	12	413

SEWER							
CUSTOMER RANGES	0-100	100-500	500-1,000	1,000-5,000	5,000-20,000	>20,000	Total
<b>By Type of Utility</b>							
Fresh Water Supply District	1	3	1	2	0	0	7
Municipal Utility District	13	28	15	28	2	0	86
Municipality	1	40	20	58	13	12	144
Privately Held/Investor Owned	0	5	0	2	1	0	8
River Authority	4	1	1	0	1	0	7
Water Control & Improvement Dist.	2	9	3	7	0	0	21
Water Improvement District	0	0	0	1	0	0	1
Water Supply Corporation	0	4	0	0	0	0	4
Other	2	2	1	1	1	0	7
<b>By Region</b>							
Far West	0	4	2	2	0	2	10
Plains	0	13	7	13	0	2	35
Central	5	26	7	29	6	2	75
East	18	44	19	44	9	3	137
South	0	5	6	11	3	3	28
<hr/>							
Overall	23	92	41	99	18	12	285

Wholesale Customers Are Treated As One Customer Each, Regardless of Size

WATER AND SEWER SYSTEM CAPACITIES (Million Gallons Per Day)

EXHIBIT V-5

WATER PRODUCTION						
PLANT CAPACITY (MGD)	0-0.5	0.5-1.0	1.0-5.0	5.0-10.0	> 10.0	Total
<b>By Type of Utility</b>						
Fresh Water Supply District	11	4	1	3	0	19
Municipal Utility District	25	14	47	3	1	90
Municipality	40	25	56	10	20	151
Privately Held/Investor Owned	9	2	5	0	1	17
River Authority	0	1	1	1	5	8
Water Control & Improvement Dist.	10	5	7	1	2	25
Water Improvement District	2	1	1	0	0	4
Water Supply Corporation	36	16	7	1	0	60
Other	2	2	3	1	3	11
<b>By Region</b>						
Far West	4	3	4	2	2	15
Plains	22	17	18	1	5	63
Central	39	23	31	6	10	109
East	59	20	65	6	11	161
South	11	7	10	5	4	37
<hr/>						
<b>Overall</b>	<b>135</b>	<b>70</b>	<b>128</b>	<b>20</b>	<b>32</b>	<b>385</b>

SEWAGE TREATMENT						
PLANT CAPACITY (MGD)	0-0.5	0.5-1.0	1.0-5.0	5.0-10.0	> 10.0	Total
<b>By Type of Utility</b>						
Fresh Water Supply District	4	1	0	0	0	5
Municipal Utility District	38	16	15	0	1	70
Municipality	43	14	35	5	11	108
Privately Held/Investor Owned	3	2	1	0	0	6
River Authority	2	0	0	2	2	6
Water Control & Improvement Dist.	14	3	2	0	1	20
Water Improvement District	0	0	0	0	0	0
Water Supply Corporation	2	0	0	0	0	2
Other	2	1	2	1	1	7
<b>By Region</b>						
Far West	2	0	2	0	2	6
Plains	14	6	2	0	2	24
Central	26	3	13	3	6	51
East	55	26	29	5	3	118
South	11	2	9	0	3	25
<hr/>						
<b>Overall</b>	<b>108</b>	<b>37</b>	<b>55</b>	<b>8</b>	<b>16</b>	<b>224</b>

- Expenditure Data - Exhibit V-6 provides annual expenditure data by utility type and region for the following categories:
  - Operation & Maintenance (O&M) Expense
  - Debt Service Payments
  - Capital Improvements
  - Transfers to Other Agencies
  - Increase/Decrease in Reserves or Fund Balance
  - Not Itemized.
  
- Long-Term Debt and Fixed Asset Information - Exhibit V-7 summarizes total outstanding debt and the net book value of fixed assets devoted to water and wastewater operations. The net book value of assets represents the historical estimated cost or value of property, plant, or equipment less accumulated depreciation.
  
- Methods of Financing Capital Improvement - Exhibit V-8 indicates the average percentage of each funding source used in the financing of major capital improvements.
  
- Water Sewer Bill and Tax Information - Exhibit V-9 provides a summary of annual bills for two example customers using the following amounts of service:
  - Residential Customer (8,000 gallons per month)
  - Commercial (375,000 gallons per month).

The 8,000 gallons per month figure is intended to represent an average household's consumption although one may expect to see wide variations from this amount based upon climate, income, size of family and other factors.

Ad valorem tax data (per \$100 of assessed value) are also shown. Further analysis of this data indicating total annual costs for water and wastewater is given in the next section.

- Connection Fee Data - Exhibit V-10 summarizes water and sewer connection charge data for each type of utility and by region.

## **E. COMPARISON OF RATIOS**

Using the financial and operating information provided previously, this section presents comparisons of ratios of key statistics. Ratios are an effective means of analyzing the relative

## COMPONENTS OF ANNUAL EXPENDITURES

KEY RATIOS	ANNUAL EXPENDITURES					
	O&M Expense	Debt Service	Capital Improve- ments	Transfer To Other Agency	Increase In Fund Balances	Not Itemized
<b>MEDIANS</b>						
<b>BY TYPE OF UTILITY</b>						
Fresh Water Supply District	35%	7%	0%	0%	0%	58%
Municipal Utility District	28%	34%	1%	0%	0%	37%
Municipality	54%	10%	3%	0%	0%	33%
Privately Held/Investor Owned	49%	7%	6%	0%	0%	38%
River Authority	37%	21%	3%	0%	0%	39%
Water Control & Improve. Dist.	61%	16%	2%	0%	0%	21%
Water Improvement District	91%	0%	0%	0%	0%	9%
Water Supply Corporation	56%	10%	0%	0%	0%	34%
Other	47%	0%	0%	0%	0%	53%
<b>BY REGION</b>						
Far West	54%	5%	0%	0%	0%	41%
Plains	53%	10%	0%	0%	0%	37%
Central	44%	12%	2%	0%	0%	42%
East	47%	21%	2%	0%	0%	30%
South	62%	6%	0%	0%	0%	31%
<b>OVERALL MEDIAN</b>						
	47%	13%	1%	0%	0%	39%
<b>MEANS</b>						
<b>BY TYPE OF UTILITY</b>						
Fresh Water Supply District	35%	18%	4%	0%	0%	42%
Municipal Utility District	32%	36%	10%	3%	4%	15%
Municipality	50%	14%	12%	5%	6%	13%
Privately Held/Investor Owned	43%	11%	15%	0%	2%	30%
River Authority	41%	24%	10%	0%	3%	22%
Water Control & Improve. Dist.	53%	19%	9%	1%	5%	13%
Water Improvement District	64%	7%	3%	0%	1%	25%
Water Supply Corporation	49%	13%	4%	1%	5%	26%
Other	46%	10%	4%	1%	5%	34%
<b>BY REGION</b>						
Far West	49%	7%	6%	3%	4%	31%
Plains	49%	20%	8%	3%	4%	17%
Central	40%	16%	11%	3%	7%	23%
East	44%	25%	9%	3%	3%	16%
South	53%	11%	7%	2%	7%	19%
<b>OVERALL MEAN</b>						
	45%	19%	9%	3%	4%	19%

FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

	OUTSTANDING LONG-TERM DEBT			NET BOOK VALUES OF FIXED ASSETS			
	Water -----	Sewer -----	Total -----	Water -----	Sewer -----	General -----	Total -----
<b>MEDIANS</b>							
<b>BY TYPE OF UTILITY</b>							
Fresh Water Supply District	\$515,000	\$226,645	\$500,000	\$844,873	\$321,066	\$74,818	\$1,699,565
Municipal Utility District	1,987,500	2,232,500	3,780,000	1,036,119	1,499,051	768,160	3,624,752
Municipality	337,338	282,789	466,820	1,109,587	1,052,812	786,702	2,805,605
Privately Held/Investor Owned	180,000	427,482	300,000	258,340	709,300	14,558	380,198
River Authority	66,000,000	20,449,190	66,000,000	36,941,483	25,344,764	528,471	17,097,175
Water Control & Improve. Dist.	1,120,525	499,712	1,128,600	1,138,907	959,420	289,240	1,065,106
Water Improvement District	177,000	195,000	274,500	273,832	368,461	271,520	273,832
Water Supply Corporation	403,120	128,388	432,646	680,406	112,423	69,267	680,406
Other	13,900,000	13,044,000	13,900,000	14,314,882	5,135,666	2,894,928	8,959,287
<b>BY REGION</b>							
Far West	855,065	12,178,850	1,010,000	2,334,070	806,303	25,000	1,764,611
Plains	475,000	155,756	515,000	865,689	429,197	162,243	1,250,969
Central	776,000	505,500	892,570	974,000	1,001,638	466,312	1,500,031
East	349,932	533,500	1,600,000	821,704	1,499,051	603,467	2,534,257
South	435,650	325,350	386,000	595,201	1,515,891	3,632,101	1,003,000
<b>OVERALL MEDIAN</b>	<b>466,392</b>	<b>444,300</b>	<b>943,762</b>	<b>872,707</b>	<b>1,001,638</b>	<b>503,740</b>	<b>1,752,548</b>

<b>MEANS</b>							
<b>BY TYPE OF UTILITY</b>							
Fresh Water Supply District	2,160,628	276,072	1,927,758	2,278,353	417,871	78,328	2,371,124
Municipal Utility District	2,919,941	3,404,194	7,116,376	2,715,515	2,603,050	2,170,532	5,393,823
Municipality	7,456,753	7,324,602	9,496,515	9,267,492	9,961,017	2,458,938	15,433,003
Privately Held/Investor Owned	219,796	455,804	402,118	892,583	2,767,126	112,785	1,372,843
River Authority	66,826,712	37,329,370	69,115,940	47,628,643	53,325,295	2,318,498	56,331,976
Water Control & Improve. Dist.	2,391,545	889,543	1,887,301	2,717,155	2,334,994	1,010,124	2,678,458
Water Improvement District	177,000	195,000	274,500	281,482	368,461	271,520	352,921
Water Supply Corporation	784,392	128,388	786,644	1,130,921	112,423	176,035	1,234,632
Other	14,730,342	10,601,918	14,006,589	10,649,914	10,896,033	8,175,192	13,746,204
<b>BY REGION</b>							
Far West	1,607,131	12,178,850	7,187,873	12,719,876	12,231,317	25,000	14,662,820
Plains	4,518,849	2,130,633	4,468,492	5,082,208	2,861,717	519,992	5,891,944
Central	8,745,969	16,091,499	14,449,133	7,872,347	15,739,889	1,155,932	14,626,559
East	5,167,189	1,707,028	5,731,422	5,021,822	4,032,945	3,115,073	7,435,589
South	6,936,817	1,019,841	5,448,948	6,125,053	9,601,589	3,959,444	9,379,768
<b>OVERALL MEAN</b>	<b>\$6,314,809</b>	<b>\$6,953,026</b>	<b>\$8,011,594</b>	<b>\$6,343,753</b>	<b>\$8,291,862</b>	<b>\$2,258,194</b>	<b>\$9,733,319</b>

METHODS OF FINANCING MAJOR CAPITAL IMPROVEMENTS

<<LONG FORM>>	METHODS OF FINANCING MAJOR CAPITAL IMPROVEMENTS											
	General Obligation Bonds	Revenue Bonds	Contract Revenue Bonds	Pay As You Go	Taxes	Short Term Borrow	Federal Grants	State Grants	Special Assessments	Capital Recovery Charges	Other	Total
<b>AVERAGE RESPONSE</b>												
<b>BY TYPE OF UTILITY</b>												
Fresh Water Supply District	20%	16%	10%	24%	10%	3%	0%	0%	0%	1%	16%	100%
Municipal Utility District	29%	23%	5%	13%	16%	0%	2%	0%	0%	0%	12%	100%
Municipality	10%	43%	2%	31%	0%	2%	7%	1%	1%	3%	1%	100%
Privately Held/Investor Owned	0%	0%	0%	3%	0%	19%	0%	0%	0%	0%	78%	100%
River Authority	0%	0%	40%	50%	0%	0%	10%	0%	0%	0%	0%	100%
Water Control & Improvement Dist.	31%	28%	0%	8%	14%	0%	19%	0%	0%	0%	0%	100%
Water Improvement District	0%	23%	0%	50%	27%	0%	0%	0%	0%	0%	0%	100%
Water Supply Corporation	0%	9%	0%	29%	0%	5%	21%	10%	0%	0%	27%	100%
Other	35%	31%	19%	1%	0%	0%	10%	0%	0%	0%	4%	100%
<b>BY REGION</b>												
Far West	18%	42%	0%	10%	1%	1%	8%	0%	18%	0%	3%	100%
Plains	10%	18%	0%	39%	3%	4%	7%	0%	0%	0%	19%	100%
Central	10%	26%	9%	18%	8%	2%	7%	0%	1%	3%	16%	100%
East	27%	31%	5%	13%	11%	2%	5%	0%	0%	0%	6%	100%
South	9%	13%	2%	36%	0%	0%	18%	11%	0%	1%	10%	100%
<hr/>												
Overall Average	17%	26%	5%	21%	7%	2%	7%	1%	1%	1%	11%	100%

KEY RATIOS	ANNUAL WATER BILL		ANNUAL SEWER BILL		AD VALOREM
	Resident	Commercial	Resident	Commercial	TAX RATE
	8,000 Gal/Mon	375,000 Gal/Month	8,000 Gal/Mon	375,000 Gal/Month	Per \$100 Assessed Value

**MEDIANS**

**BY TYPE OF UTILITY**

Fresh Water Supply District	\$222	\$8,482	\$146	\$7,394	\$0.298
Municipal Utility District	147	4,572	108	3,363	0.850
Municipality	170	5,048	98	2,989	0.438
Privately Held/Investor Owned	251	5,799	156	3,375	
River Authority	392		162		0.046
Water Control & Improve. Dist.	144	4,346	94	2,820	0.300
Water Improvement District	263	6,110	139	3,222	0.306
Water Supply Corporation	348	8,854	60	3,282	
Other	132	3,053	96	3,812	0.130

**BY REGION**

Far West	151	4,651	72	2,786	0.320
Plains	300	4,584	72	1,102	0.320
Central	225	6,703	138	3,802	0.440
East	145	4,596	108	3,375	0.670
South	164	5,880	84	2,276	0.338

**OVERALL MEDIAN**

183 5,082 108 3,300 0.550

**MEANS**

**BY TYPE OF UTILITY**

Fresh Water Supply District	\$224	\$7,660	\$151	\$7,394	0.339
Municipal Utility District	185	5,497	144	4,407	0.884
Municipality	187	5,398	115	3,630	0.440
Privately Held/Investor Owned	240	5,523	239	3,822	
River Authority	355	14,400	164	6,792	0.046
Water Control & Improve. Dist.	144	4,244	107	2,826	0.389
Water Improvement District	253	6,110	139	3,222	0.306
Water Supply Corporation	276	8,738	93	3,282	0.874
Other	169	4,288	120	3,689	0.257

**BY REGION**

Far West	168	4,592	72	2,139	0.307
Plains	228	5,615	95	1,702	0.493
Central	249	7,068	160	5,618	0.476
East	172	5,397	127	3,693	0.784
South	193	5,470	107	2,686	0.427

**OVERALL MEAN**

203 5,818 128 3,926 0.647

CONNECTION FEES

<<LONG FORM>>	CONNECTION CHARGES	
	Water	Sewer

**AVERAGE RESPONSE**

**BY TYPE OF UTILITY**

Fresh Water Supply District	\$499	\$500
Municipal Utility District	334	316
Municipality	389	429
Privately Held/Investor Owned	255	200
River Authority		
Water Control & Improvement Dist.	377	350
Water Improvement District	155	55
Water Supply Corporation	664	
Other	475	450

**BY REGION**

Far West	446	500
Plains	275	117
Central	653	645
East	329	310
South	234	169

**Overall Average**

414	380
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size or strength of a particular value. Ratios offer a valuable way to compare the relative operations of utilities of different sizes. It is in the exhibits which follow that standardized information offers some of the best indications of the viability of various utility types. It should be noted that on several exhibits a category called "not itemized" had to be used to include responses from utilities who were unable, using their existing accounting system, to provide such detail or who chose not to break out the total revenue or expense amounts. Descriptions of each area analyzed are provided below:

- Annual Revenue Components - Exhibit V-11 presents the relative composition of the five major categories of water and wastewater utility revenue. The exhibits for water alone and sewer alone show operating rates to be the dominant component of revenues. However, the combined exhibit shows a much different story. This is primarily because many utilities choose not to separate tax and other revenues between water and sewer. Taxes are 39 percent of the median combined revenue of MUDs and 15 percent of WCIDs. River authorities report that 49 percent of revenue does not meet the given categories. In that case, revenues from electricity generation and other activities may help fund water and sewer needs.
- Revenue Per Customer - Exhibit V-12 shows the ratio of water, sewer, and total revenues divided by the number of customers. In order that a utility offering only one of these services can be compared with those providing both, the "total" denominator is water plus sewer customers. No method was available to show the number of customers actually receiving water through wholesale arrangements. Thus, river authorities, which usually serve on a wholesale basis, have a median value of \$519,000 per water customer. In every case, the water revenue per customer exceeds that for sewer. Private utilities have the closest parity between water and sewer.
- Components of Operation and Maintenance Expense (O&M) - The portion labor, chemicals, energy, and other expenses have in total O&M is shown in Exhibit V-13. Labor ranges from 18 percent of the total for Water Improvement Districts to 44 percent for private utilities. The Far West region clearly has the highest proportion of energy costs (23%), most likely due to the costs of

## ANNUAL REVENUE COMPONENTS

KEY RATIOS	COMBINED - ANNUAL REVENUES AND OTHER INCOME					
	Revenue Components					
	Operating Rates	Capital Charges	Taxes	Interest Income	Other	Not Itemized

**MEDIANS****BY TYPE OF UTILITY**

Fresh Water Supply District	81%	1%	0%	2%	1%	16%
Municipal Utility District	25%	1%	39%	4%	1%	30%
Municipality	90%	1%	0%	2%	1%	6%
Privately Held/Investor Owned	98%	0%	0%	0%	0%	2%
River Authority	48%	0%	0%	4%	0%	49%
Water Control & Improve. Dist.	65%	0%	15%	4%	0%	15%
Water Improvement District	25%	0%	6%	1%	0%	68%
Water Supply Corporation	87%	1%	0%	2%	0%	10%
Other	41%	0%	11%	4%	2%	43%

**BY REGION**

Far West	79%	0%	0%	2%	1%	18%
Plains	87%	0%	0%	2%	0%	10%
Central	83%	1%	0%	2%	0%	13%
East	70%	1%	0%	3%	0%	26%
South	86%	0%	0%	2%	0%	11%

**OVERALL MEDIAN**

	81%	1%	0%	2%	0%	16%
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**MEANS****BY TYPE OF UTILITY**

Fresh Water Supply District	77%	4%	6%	5%	8%	0%
Municipal Utility District	36%	3%	34%	7%	6%	14%
Municipality	80%	4%	2%	4%	4%	7%
Privately Held/Investor Owned	82%	2%	0%	1%	3%	12%
River Authority	53%	5%	7%	6%	10%	18%
Water Control & Improve. Dist.	48%	1%	17%	10%	5%	19%
Water Improvement District	52%	1%	20%	11%	4%	12%
Water Supply Corporation	66%	4%	0%	3%	1%	26%
Other	51%	1%	27%	7%	8%	6%

**BY REGION**

Far West	64%	1%	4%	7%	6%	18%
Plains	71%	2%	4%	6%	7%	11%
Central	65%	6%	7%	4%	5%	14%
East	57%	2%	21%	6%	3%	10%
South	65%	3%	8%	3%	4%	17%

**OVERALL MEAN**

	63%	3%	12%	5%	4%	12%
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REVENUE PER CUSTOMER

KEY RATIOS	REVENUE PER CUSTOMER		
	Water	Sewer	Total
<b>MEDIANS</b>			
<b>BY TYPE OF UTILITY</b>			
Fresh Water Supply District	\$265	\$164	\$247
Municipal Utility District (1)	281	122	614
Municipality	243	126	189
Privately Held/Investor Owned	265	235	257
River Authority (1) (2)	519,294	24,142	255,754
Water Control & Improve. Dist.	454	118	309
Water Improvement District	546	148	546
Water Supply Corporation	304	160	304
Other	2,157	167	1,909
<b>BY REGION</b>			
Far West	348	118	350
Plains	249	79	212
Central	318	145	304
East	245	151	279
South	295	119	221
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<b>OVERALL MEDIAN</b>	275	135	272

(1) Higher total values reflect tax revenues which were not always allocated between water and sewer.

(2) High values reflect predominance of wholesale customers.

## COMPONENTS OF O&amp;M EXPENSE

KEY RATIOS	OPERATION AND MAINTENANCE EXPENSE				
	(Excluding Depreciation)				
	Labor	Chemicals	Energy	Other	Not Itemized

**MEDIANS****BY TYPE OF UTILITY**

Fresh Water Supply District	38%	1%	12%	45%	4%
Municipal Utility District	25%	0%	10%	46%	20%
Municipality	35%	3%	16%	35%	11%
Privately Held/Investor Owned	44%	2%	15%	36%	3%
River Authority	33%	4%	16%	32%	15%
Water Control & Improve. Dist.	36%	1%	11%	32%	19%
Water Improvement District	18%	0%	0%	35%	48%
Water Supply Corporation	28%	1%	10%	57%	4%
Other	32%	2%	12%	47%	7%

**BY REGION**

Far West	35%	1%	23%	33%	8%
Plains	37%	2%	13%	28%	21%
Central	33%	2%	12%	42%	10%
East	32%	1%	12%	40%	14%
South	37%	1%	9%	45%	10%

**OVERALL MEDIAN**

	34%	1%	12%	38%	15%
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**MEANS****BY TYPE OF UTILITY**

Fresh Water Supply District	44%	4%	14%	38%	0%
Municipal Utility District	22%	3%	10%	46%	18%
Municipality	39%	6%	16%	34%	5%
Privately Held/Investor Owned	51%	2%	16%	32%	0%
River Authority	36%	4%	19%	30%	11%
Water Control & Improve. Dist.	32%	4%	12%	37%	15%
Water Improvement District	39%	0%	9%	34%	17%
Water Supply Corporation	35%	2%	13%	47%	3%
Other	33%	3%	15%	48%	0%

**BY REGION**

Far West	31%	5%	16%	27%	21%
Plains	43%	5%	16%	30%	7%
Central	35%	6%	13%	40%	6%
East	30%	3%	14%	43%	10%
South	36%	3%	12%	38%	11%

**OVERALL MEAN**

	34%	4%	14%	39%	8%
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pumping from deep wells. The total O&M expense from the previous exhibit becomes one component of total utility expenditures shown previously in Exhibit V-6. While O&M expense is a majority of most types and regions, a significant amount of "not itemized" expenses are found with each group. As noted earlier, this "not itemized" category contains the expenses of those entities who chose not to report amounts segregated into the various categories or whose accounting system does not provide the requested detail. MUDs (34%), river authorities (21%), and WCIDs (16%) report the highest relative concentration of debt service among expenditures.

- Revenues and Expenditures Per 1,000 Gallons - In order to give a means by which the various utility types can be compared in a common manner, Exhibit V-14 illustrates the revenue and costs per 1,000 gallons of water delivered and billed as well as wastewater treated and billed. For example, the water analysis shows that revenues on a per 1,000 gallons billed basis (medians) are highest for water supply corporations (\$3.81) and privately-owned systems (\$2.76), followed by fresh water supply districts (\$2.47) and MUDs (\$2.36). In addition, water distribution system losses, or percent of unaccounted-for water, is also provided.
- Assets Per Customer and Volume and Debt Ratio Statistics - Exhibit V-15 is a key exhibit illustrating several critical ratios. First is the net book value of assets per customer illustrating the investments that various systems are making to provide service. Next is the same value of assets divided by water provided and sewage treated. Finally, long-term debt as a percentage of fixed asset values and debt service coverage ratios is presented. Debt service coverage indicates the ability of a utility to make annual principal and interest payments (ratio is net revenues divided by the annual debt service payment; net revenues is gross revenue or income less O&M expenses -- net of depreciation, amortization and interest requirements). Texas statistics are in line with national statistics reported by Moody's Investors Service which recently reported median coverage ratios for municipal water and sewer operations of 2.21 and 2.41, respectively.
- Annual Water and Sewer Bill Comparison - Exhibit V-16 attempts to give an overall picture of the total dollars devoted annually to water and sewer services, including billed water and sewer amounts plus taxes

REVENUES AND EXPENDITURES PER 1,000 GALLONS

KEY RATIOS	WATER - COMPARISONS BASED ON VOLUME				DISTRIBU- TION  System Losses	SEWER - COMPARISONS BASED ON VOLUME			
	Revenue	Revenue	O&M	Expenditures		Revenue	Revenue	O&M	Expenditures
	per 1,000 Gallons...					per 1,000 Gallons...			
	Delivered	Billed	Delivered	Delivered		Treated	Billed	Treated	Treated

**MEDIANS (1)**

**BY TYPE OF UTILITY**

Fresh Water Supply District	\$2.04	\$2.47	\$1.87	\$2.13	12%	\$1.52	\$2.20	\$0.93	\$1.74
Municipal Utility District	1.86	2.36	1.65	2.81	16%	1.42	1.33	1.24	2.77
Municipality	1.51	1.81	0.81	1.50	15%	1.16	1.37	0.73	1.14
Privately Held/Investor Owned	2.22	2.76	1.01	1.99	18%	2.15	2.16	1.21	1.39
River Authority	1.06	0.35	0.57	0.76	14%	1.17	1.61	0.47	0.72
Water Control & Improve. Dist.	1.49	1.51	1.38	0.38	14%	0.73	1.05	3.34	4.89
Water Improvement District	0.09	0.89	0.86	0.95	11%	1.21	1.21	0.85	0.94
Water Supply Corporation	3.31	3.81	1.92	2.66	15%	3.59	5.55		0.70
Other	0.98	0.98	0.54	1.09	13%	1.66	0.86	0.62	0.99

**BY REGION**

Far West	1.66	2.22	0.51	2.48	9%	1.17	1.48	0.35	0.83
Plains	1.70	1.97	1.19	1.84	17%	0.98	1.07	0.42	0.86
Central	2.71	2.59	1.32	2.29	15%	1.35	1.50	0.75	1.14
East	1.57	1.97	1.05	1.56	17%	1.23	1.33	0.85	1.49
South	1.67	1.78	0.81	1.55	14%	1.16	1.02	0.87	1.44

**OVERALL MEDIAN**

	1.81	2.15	1.08	1.87	15%	1.23	1.35	0.75	1.26
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**MEANS (1)**

**BY TYPE OF UTILITY**

Fresh Water Supply District	2.31	2.66	1.61	2.63	14%	1.47	2.20	0.93	1.74
Municipal Utility District	3.33	3.81	1.69	4.01	19%	1.70	1.70	1.70	5.90
Municipality	1.94	2.23	1.18	1.94	16%	2.22	2.91	0.77	2.06
Privately Held/Investor Owned	2.35	2.68	1.01	2.23	19%	2.37	1.90	1.56	1.96
River Authority	0.88	1.01	0.74	1.17	14%	5.67	1.42	0.61	1.35
Water Control & Improve. Dist.	2.17	2.10	1.68	3.15	19%	1.59	1.05	3.34	4.89
Water Improvement District	1.16	1.49	1.11	1.57	11%	1.21	1.21	0.85	0.94
Water Supply Corporation	3.44	4.07	2.09	3.11	16%	3.59	5.55		0.70
Other	1.20	1.14	0.43	0.84	14%	1.79	1.67	0.48	1.85

**BY REGION**

Far West	1.75	2.90	0.74	2.63	9%	1.08	0.87	0.53	1.25
Plains	2.34	2.45	1.41	2.23	17%	1.30	1.12	0.55	2.34
Central	3.09	3.33	1.78	3.04	17%	2.62	3.01	0.84	1.59
East	2.24	2.72	1.25	2.21	19%	2.42	2.28	1.09	3.05
South	2.15	2.42	1.02	1.70	14%	1.30	2.31	0.93	3.25

**OVERALL MEAN**

	2.51	2.86	1.43	2.49	17%	2.20	2.43	0.93	2.37
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(1) Instances where median and mean are the same reflect a single observation.

## NET BOOK VALUE AND DEBT RATIO STATISTICS

EXHIBIT V-15

KEY RATIOS	NET BOOK VALUE PER 1,000 GALLONS OF		Long-Term Debt Ratio to Net Book Value	Debt Service Coverage
	Water Produced	Sewage Treated		
<b>MEDIANS</b>				
<b>BY TYPE OF UTILITY</b>				
Fresh Water Supply District	\$10	\$7	50%	2.11
Municipal Utility District	17	16	97%	1.31
Municipality	5	9	30%	2.88
Privately Held/Investor Owned	3	7	66%	2.77
River Authority	4	4	87%	1.22
Water Control & Improve. Dist.	4	29	50%	1.38
Water Improvement District	2	2	73%	3.69
Water Supply Corporation	11	3	72%	2.33
Other	8	31	81%	1.59
<b>BY REGION</b>				
Far West	5	2	82%	3.98
Plains	8	6	52%	3.02
Central	9	8	61%	2.53
East	9	14	76%	1.41
South	5	6	30%	2.14
<b>OVERALL MEDIAN</b>				
	8	10	62%	1.94

<b>MEANS</b>				
<b>BY TYPE OF UTILITY</b>				
Fresh Water Supply District	12	17	49%	4.23
Municipal Utility District	29	29	176%	1.68
Municipality	7	47	40%	6.08
Privately Held/Investor Owned	4	18	66%	2.70
River Authority	7	5	144%	3.28
Water Control & Improve. Dist.	8	22	59%	1.61
Water Improvement District	6	2	76%	3.14
Water Supply Corporation	14	3	75%	4.04
Other	91	36	107%	3.53
<b>BY REGION</b>				
Far West	9	1	50%	3.95
Plains	10	12	56%	4.18
Central	11	61	126%	4.38
East	18	37	88%	2.90
South	26	6	44%	7.13
<b>OVERALL MEAN</b>				
	16	37	89%	4.05

## ANNUAL WATER AND SEWER BILL COMPARISON

KEY RATIOS	ANNUAL WATER AND SEWER BILL COMPARISON			
	8,000 Gallon Per Month Water & Sewer Bill	Tax Bill On \$80,000 House	For Customer Charged Water, Sewer, and Tax	Combination of Water, Sewer and/or Taxes
<b>MEDIANS</b>				
<b>BY TYPE OF UTILITY</b>				
Fresh Water Supply District	\$396	\$238	\$700	\$536
Municipal Utility District	254	680	1,069	871
Municipality	287	351	690	327
Privately Held/Investor Owned	401			401
River Authority	476	37		476
Water Control & Improve. Dist.	213	240	496	453
Water Improvement District	292	245	486	486
Water Supply Corporation	348			348
Other	228	104	717	519
<b>BY REGION</b>				
Far West	198	256	643	198
Plains	275	256	759	276
Central	352	351	817	449
East	240	536	777	590
South	267	270	754	337
<b>OVERALL MEDIAN</b>	275	440	771	453

<b>MEANS</b>				
<b>BY TYPE OF UTILITY</b>				
Fresh Water Supply District	365	271	700	524
Municipal Utility District	311	707	1,038	901
Municipality	303	352	670	409
Privately Held/Investor Owned	440			440
River Authority	476	37		476
Water Control & Improve. Dist.	237	311	557	476
Water Improvement District	292	245	486	486
Water Supply Corporation	329			329
Other	289	205	717	500
<b>BY REGION</b>				
Far West	161	140	643	219
Plains	304	394	716	388
Central	383	380	858	532
East	278	621	893	693
South	283	313	742	390
<b>OVERALL MEAN</b>	307	518	866	588

collected in support of these services. For presentation purposes, tax amounts have been calculated using an \$80,000 assessed value for the home and land of an average residential customer.

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**VI. SUMMARY OF QUALITATIVE INFORMATION**

## VI. SUMMARY OF QUALITATIVE INFORMATION

This chapter presents a summary of responses to qualitative questions included on only the long form survey. These questions included the evaluation by approximately 100 utilities regarding such topics as availability of resources, water quality, system indicators (pressure, water losses, etc.), factors affecting wastewater treatment capabilities, general indicators such as service response time or delinquent customers, and a number of self-evaluation questions on management systems, planning and budgeting, and communications with the utilities' governing body and customers. As the number of utilities responding to the long form survey was much smaller than that for the information obtained from both the long and short surveys and incorporated in Chapter V, the reader should be cautious in drawing conclusions for utilities as a whole across the state. This information, however, is important as supplementary material to both the earlier financial and operating information and the interview/survey comments presented in the second half of this chapter.

The remainder of this chapter presents a summary of significant comments received either during the on-site interviews or in writing on the "general comments" section of the survey forms. In order to protect confidentiality the information presented in this section is not identified with any specific agency and comments have been paraphrased to avoid identifying the utility. In summarizing these comments, an attempt has been made to present the overall message and tone of the comment.

Comments were received from over fifty different entities, but do not reflect a statistically valid sample. As such, they may not reflect the opinion of utility managers as a whole or for that specific type of institutional arrangement (municipal utility district, water supply corporation, river authority, etc.). It is hoped that the summary of these comments will stimulate

discussion and contribute, in an overall manner, to the ongoing process of developing solutions to address water and wastewater service needs.

**A. SUMMARY OF RESPONSES TO QUALITATIVE AND SELF-EVALUATION QUESTIONS (LONG-FORM SURVEY QUESTIONNAIRE)**

This section summarizes responses to question numbers 8 and 9 on the long-form survey questionnaire. To aid in analysis, responses to individual questions have been grouped in the following categories:

**QUESTION NO. 8 - POTENTIALLY TROUBLESOME AREAS**

**(Scale is 1 - Major Problem; 2 - Occasional Problem; 3 - Not a Problem)**

**I. WATER**

**A. Resources**

- Source of supply
- Plant capacity
- Ability to provide water for fire protection
- Water line capacity

**B. Water Quality**

- Water color
- Water taste/odor
- Contaminated supplies
- Potential cross-connections

**C. System Indicators**

- Water pressure
- System leaks - water losses
- Properly certified operators

**D. Financial and Other**

- Financial ability to expand
- Legal ability to expand
- Customer service costs and rates
- Compliance with legal/regulatory requirements

## **II. WASTEWATER**

### **A. Resources**

- Plant capacity for growth
- Sewer line capacity

### **B. Factors Affecting Treatment Capabilities**

- Seasonal flows
- Customers discharging high strength/toxic wastes

### **C. System Indicators**

- Infiltration/inflow
- Properly certified operators
- Seasonal plant performance

### **D. Financial and Other**

- Financial ability to expand service
- Legal ability to expand service area
- Customer service costs and rates
- Compliance with legal/regulatory requirements

## **III. GENERAL INDICATORS**

- Service response time
- Delinquent customers
- Laboratory services
- Service area contracts
- Ability to borrow funds

## **QUESTION NO. 9 - SELF EVALUATIONS**

**(Response choices were from 1 (excellent) to 5 (poor))**

### **A. Budget and Planning**

- Long-range financial planning
- Long-range facility planning
- Operating and capital budgeting

### **B. Internal/External Relations**

- Communication with governing body
- Communication with customers
- Customer satisfaction

### **C. Support Systems**

- Financial and accounting systems
- Office automation/data processing
- Preventive maintenance

#### D. Personnel

- Organization structure/job classification
- Personnel policies
- Employee compensation structure
- Work scheduling (overtime)
- Employee training/continuing education

Detailed responses to question 8 are presented in Appendix D. Those categories where 50 percent or more of the respondents indicated they had a major or occasional problem included:

##### Water

- Financial capability to expand (51%)
- Water line leaks/water losses (65%)

##### Wastewater

- Infiltration/Inflow (73%)

##### Water and Wastewater

- Delinquent Customers (76%)

For water, the area where the highest percentage of utilities responded they had a major problem was financial capability (16%) followed by fire protection (12%) and source of supply (9%). For wastewater, the highest percentage responding they had a major problem were in the categories of infiltration/inflow (22%), financial capability (17%), and plant capacity (15%).

For the general indicators (service response, delinquent customers, lab service, service area contracts and ability to borrow) no responses exceeded 5 percent relative to having a major problem although 72 percent indicated they had occasional problems with delinquent customers. Responses for the individual types of utilities are again summarized in Appendix D.

The results of the self evaluation question (Question No. 9) summarized with the areas identified as most needing improvement are:

- Office automation and data processing (16%)
- Employee compensation (13%)
- Personnel policies (9%)
- Employee training/education (9%)

Although a relatively small percentage of utilities gave themselves "poor" markings on the self-evaluations the two areas receiving the highest percentage were:

- Personnel policies (5%)
- Long-range financial planning (4%)

The areas receiving the highest overall scores (excellent or good indication) were:

- Communications with governing body (86%)
- Communications with customers (74%)
- Financial and accounting systems (74%)
- Long-range facility planning (73%)

Responses for individual utility types are also shown in Appendix D.

## **B. SIGNIFICANT ON-SITE INTERVIEW AND SURVEY COMMENTS**

The following comments were made during either our on-site interviews or on the comments section of the survey questionnaire. They are presented here to give, from the perspective of approximately fifty entities, their view of the problems and concerns with respect to the delivery of water and wastewater services.

1. There appears to be a great amount of concern with respect to the financial stability of some of the smaller utilities in the state -- many of these being municipal utility districts. The economic slowdown in the state has caught a number of districts in the early stages of development before the breakeven point has been reached. Because each district has its own separate financing structure, the financial stability and resources available in larger organizations (municipalities, regional districts, public utility boards, etc.) does not exist.
  
2. A number of individuals commented that the legal powers and various forms of utilities were well suited in promoting growth and development. Because utilities could be formed relatively easy to meet the needs of defined areas, commercial and residential development could occur more rapidly and over a broader land area than would be the case if, for example, water transmission mains and/or wastewater interceptor lines had to be constructed to connect these developments into a larger, existing utility. However, this ability to respond quickly to development needs has, in some instances, created problems. These include:
  - Proliferation of smaller package treatment plants which, in the view of some utility operators, makes little environmental sense and fails to take advantage of economies of scale.
  - In some parts of the state, specifically the Houston area, groundwater has been overly exploited and utilities will have to spend large sums of money converting to surface water.
  - The lack of a network among smaller utilities limits response in regards to fire protection or water quality problems.
  - A desire on the part of some utilities to maintain relatively high levels of indebtedness in order to discourage annexation by an adjoining municipality.
  
3. River authorities are taking a more active role in the delivery of water and wastewater services, but feel their abilities are constrained by legal or revenue-generating capabilities. Frustration was evident as to the ability of river authorities to address water quality concerns. While many expect river authorities to be the solution for water quality problems in the rivers and streams, authority personnel stated there are no funds to pay for a solution, no taxing power exists, and

water rates can not include the costs. One river authority expressed the need for a planning grant from the state to address overall water and wastewater needs.

4. Larger municipalities and regional utilities (i.e., public utilities agency, regional district) see themselves as having a significant role in addressing water supply and quality problems. For example, it was stated by one entity that only the larger utilities can "bank-roll" the sums of monies necessary for larger water supply projects. They are also taking the lead in urbanized areas in consolidating the numerous smaller treatment plants and collector systems constructed during the earlier periods of high growth. One larger municipality stated that while the concept of regionalizing utility service is an apparent solution, care must be taken to ensure that development incentives are not destroyed.
5. Many of the smaller utilities (MUDs, WCIDs, etc.) felt they do a better job than, for example, an adjoining municipality because they provide more personalized service, are more responsive than a city would be, and citizens have a better chance for input.
6. Several utilities feel that current customers are getting bargain water and sewer rates. As water supplies become more costly and as wastewater treatment standards and enforcement are increased, those accustomed to relatively inexpensive water and sewer service will experience significant increases.
7. Increasingly more stringent wastewater treatment standards will cause a movement towards a greater number of regional treatment facilities. One municipal utility district gave three reasons for abandoning its current treatment plant including (1) pressure from an environmental group, (2) a belief that it is good public relations, and (3) it is economical. In urbanized areas, it appears that the role of municipal utility districts and water control and improvement districts will be to construct local distribution and collection lines and then connect these to an adjoining utility which provides water treatment and transmission as well as wastewater treatment.
8. Water supply corporations and private water companies appear to be experiencing the greatest amount of problems. Water supply corporations, usually located in rural areas, expressed significant concern over (1) their ability to fund improvements, (2) need for monies necessary to put in larger line sizes to correct fire protection and supply problems caused by putting in 2-inch lines with FmHA funds, (3) their lack of exemption

from ad valorem and sales taxes and (4) the high cost of serving customers in sparsely populated areas. Private water companies expressed frustration with regard to the rate approval process at the Public Utilities Commission, although hope was expressed that the Texas Water Commission would provide a simpler rate consideration process. These comments were received prior to the passage of House Bill 1459 which has substantially streamlined the rate adjustment process by allowing for rate increase filings which become effective immediately but are subject to a review process initiated either by petition of customers or the Texas Water Commission. An opinion was expressed that the new tax laws also serve as a significant detriment to the operation of private water companies since the only way to keep private systems healthy is to assure cash flow sufficient to fund improvements and adequate operating expenses.

9. All forms of utilities appear to be putting an increasing share of the burden of capital improvements on the developer and, therefore, the parties buying new homes or commercial property. Most require developers to put in all necessary lines at their expense and construct the lines necessary to connect the new development to the existing system. Also, many of the entities have substantial fees (\$250 to \$1,000 per home) to connect to the system.

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**VII. ISSUES IN MEETING FUTURE WATER AND  
SEWERAGE SERVICE NEEDS**

## VII. ISSUES IN MEETING FUTURE WATER AND SEWERAGE SERVICE NEEDS

This chapter provides an evaluation of the ability of current institutional arrangements to meet the future needs of the state. Changes to be considered in order to deliver service in the most efficient and effective manner are also presented.

This chapter is divided into the following sections:

- A. Findings Regarding Current Water and Sewerage Service Delivery - summarizes major findings resulting from the utility survey, on-site interviews and review of current institutional arrangements for the delivery of water and sewerage service.
- B. Analysis of Service Delivery Within Specific Community Settings - outlines specific community setting and presents selected demographic data, water resource information, and revenue/cost data for each respondent to the survey.
- C. Significant Issues and Proposed Changes - describes significant issues resulting from the study and presents proposed changes for consideration by the state in order to deliver water and sewerage service needs in the most beneficial manner.

### A. FINDINGS REGARDING CURRENT WATER AND SEWERAGE SERVICE DELIVERY

Major findings resulting from the utility survey, on-site interviews and other research material fall into five categories. As presented below, these include:

- 1. Availability and Comparability of Data
- 2. Institutional Arrangements and Legal Powers
- 3. Utility Operational Information
- 4. Financial Data
- 5. Qualitative Data

1. Availability and Comparability of Data

- Texas has no ongoing program that allows for the collection and summarization of utility financial and operating data providing a ready comparison among the hundreds of public agencies providing service. While a great amount of detailed information is available concerning specific entities through audit reports submitted to the state and other sources such as the Texas Municipal Reports published by the Municipal Advisory Council of Texas, no regularly updated comparison of statistics is available.
- The information contained in this report is self-reported data voluntarily provided by the agencies participating in the survey process. While a determined effort has been made to review the information for reasonableness and consistency, the lack of a standard reporting format and differences in the capability of various agencies' accounting systems to track costs affects the use of the data. This same conclusion was reached by the Office of the State Auditor (SAO) which stated, in Volume II of the Report to the 70th Texas Legislature by the Water District and River Authority Study Committee, that "the lack of standardization in reporting among the authorities and districts made it difficult to obtain and present comparable financial data in a useful format. One of the categories of information considered most helpful to users was revenues and expenditures by program area. However, as this information could not be obtained from the audited financial statements, it was necessary to request from each authority and district a supplementary listing of revenues classified by source and expenditures/expense classified by function or program." As such, the SAO recommended that the river authorities and larger water districts be required to prepare a Comprehensive Annual Financial Report (CAFR) to address this and other identified needs. It should be emphasized that a high degree of cooperation was received from the numerous entities during the survey process and a great deal of valuable data was obtained.
- The great number of agencies who receive a portion of their annual revenues from taxes affects the analysis of cost of service and the matching of revenues with those costs. Because tax revenues are most often jointly available to fund both water and sewer operating expenses and capital

improvements, there is no uniform method by which to allocate these tax revenues between water and sewer operations. In most cases, utilities could allocate user fees, penalties and miscellaneous service charges between water and sewer operations but were unable to or declined to do so for tax revenues. While this inability to allocate tax revenues appears reasonable given the nature of the tax-secured debt it does affect one's ability to draw conclusions about how a utility's water and sewer revenues match with its water and sewer expenses, respectively. Thus, while one may be able to say, for example, that a municipal utility district is financially stable, it is often less apparent whether water revenues are adequate to meet water costs, etc.

- As detailed in Chapter V, there are a multitude of factors affecting the cost of service for each agency providing water and sewerage service. While the comparison of financial and operating data among various types of utilities can provide insight into the efficiency and effectiveness of various organizational forms, care should be taken in drawing conclusions solely from these comparisons. Many factors affect the costs incurred in providing service and how those costs are recovered from users of the system.

## 2. Institutional Arrangements and Legal Powers

- As described in Chapter III, state laws in Texas offer an extremely broad range of entities which have at their disposal significant institutional flexibility, revenue generating capability, and powers to meet the water and sewerage service needs of citizens. While the need for changes to or expansion of existing authority and powers was mentioned frequently during our interviews or the survey response form, there does not appear to be a need for the creation of wholly new forms of agencies to meet the state's current or future needs.
- The use of special purpose districts, such as municipal utility districts or water control and improvement districts, within the state of Texas is similar to that in other fast growing states such as California, Colorado, and Florida. These entities offer a ready means of response to the demands for new service and allow for the finan-

cing of infrastructure at lower tax-exempt interest rates. Some would argue, however, that they do contribute to a more disjointed service area and fail to adequately address regional problems or scarce resources.

- The role of districts and river authorities in the management of the state's water resources has come under increased scrutiny. This has been the result of a recognition that the management of water resources affects the state as a whole and thus "requires a statewide focus for policy development and problem solution." In addition, the financial difficulty of several municipal utility districts has raised additional concern. The role of districts and river authorities was examined by the Water District and River Authority Study Committee. In their December 1986 final report titled Report to the 70th Texas Legislature it was concluded that "change is needed, but the changes do not require a departure from Texas' traditional approach to solving water resource problems, a tradition based on local initiative for problem solving." The report included recommendations that:

1. Appropriate regulations be developed to provide for improved water use, reuse, and reduced consumption of water.
2. Local entities continue to be responsible for planning, implementing and operating water resource projects.
3. All districts and authorities be subject to uniform rules and regulations by the state which take into consideration regional resources and uses, and that appropriate legislation be defined to clarify state authority for this purpose.
4. Regional coordinating mechanisms be established under the appropriate state agency to facilitate water resource planning and coordination of programs and projects by local entities in regions of the state where water resource needs are not being addressed.

5. The state seeks authority to impose minimum criteria for regulation of groundwater management entities where necessary.
  6. An appropriate oversight body be created by the Legislature for the purpose of continuing oversight of the water resource management process in the state.
  7. The Legislature require all districts and authorities to adopt policies which would set standards of conduct for their employees, officials, and directors, and which would require clearer and more thorough financial reporting.
- The use of special purpose districts in the provision of governmental services has been extensively studied. One such study outlined the arguments both for and against the creation of such districts. In summary these are:

#### Arguments in Favor of Special Purpose Districts

1. Fulfilling A Need. These entities are often created to fill a need that is not being met by some other unit or level of government. For example, restrictions on the power of counties in Texas to provide utility services in unincorporated areas has been offset by the ability of special purpose districts (MUDs, WCIDs, etc.) to meet such needs.
2. Local Control. Proponents argue that a special purpose district facilitates local control on an even more immediate basis than either the county or municipal government.
3. Cost-Benefit Relationship. The customers/taxpayers in a special purpose district can often see more clearly what they are receiving in return for their tax or fee payments.
4. Citizen Input. A special purpose district often offers a greater possibility for citizen participation than does a larger general purpose government.
5. Specialization. Some argue that specialization results in a more efficient delivery of service.

6. Localness of Service. Proponents contend that it is unfair for persons not residing in service districts to pay for a service they do not receive.
7. New Source of Funding. A final argument in favor of special purpose districts rests on the contention that the creation of a new district brings with it a "new" source of revenue. This may be more politically acceptable than an existing entity raising taxes or fees.

#### Arguments Against Special Purpose Districts

1. Lack of Coordination. Critics of special purpose districts contend that districts make it virtually impossible to deliver services in a coordinated fashion. Instead, it is argued fragmentation prevails resulting in expensive duplication of service and inefficient delivery systems.
2. Inefficiency. The small size of many special purpose districts can result in the inefficient use of personnel, equipment and other resources or, in some cases, may result in an inability to afford specialized equipment or personnel.
3. Obsolescence. Being highly specialized in most instances a special purpose district can become obsolete or no longer needed in its narrow area of expertise (a weak argument in the case of utility services).
4. Another Level of Government. Some argue that the most appropriate level of general purpose local government, such as a municipality, should undertake the provision of governmental services in lieu of a special district. It is argued that citizens feel bewildered by too many layers of government and, in fact, that special purpose districts do not facilitate citizen input. As such, it is recommended that there is a need to simplify government, increase accountability, and assure local control by making the appropriate level of government, county or municipality, the chief and central dispenser of governmental services.

Despite much critical analysis of the role of special purpose districts, recent studies indicate their use is on the increase. This increase has coincided with the need for substantial funding of water, sewer and road improvements, limits on abilities to raise taxes, and

legal or administrative constraints on the abilities of existing local governments to provide services.

### 3. Utility Operational Information

- Of the 468 survey respondents detailing their activities, 152 or 32 percent provided water only services, 9 or 2 percent provided sewer only services and 307 or 66 percent provided both water and sewer services.
- The number of employees and customers for each survey respondent provides the most meaningful indicator of utility size. As summarized in Exhibit V-2 (Chapter V) for both water and sewerage service providers, 281 or 76 percent of those responding to this question have 10 or less employees. Of the 370 respondents, only 12 municipalities, 3 river authorities and 1 other agency (a public utilities board) have more than 100 employees. It should be noted that operating personnel for a number of the smaller entities such as municipal utility districts were often provided by an independent service company and in such cases respondents generally indicated they had no employees. With respect to the number of water customers served, municipalities had the greatest number of entities (88 or 58%) which served greater than 1,000 customers. On a percentage of respondents basis, 30 or 30% of municipality utility districts and 60 or 32% of privately held/investor-owned utilities had greater than 1,000 customers. Fresh water supply districts and water control and improvement districts water supply corporations had the smallest customer bases with only 16%, 17%, and 18% of entities, respectively, having over 1,000 customers. Among the five regions, notable difference in the percentage of entities having greater than 1,000 customers was discernible. For all types of entities, 63 percent served 1,000 or fewer water customers and 55 percent served 1,000 percent or fewer sewer customers.
- Water and sewer plant capacities, as would be suspected, track closely the prevalence of small utilities indicated by both employee and customer counts. 205 or 53 percent of respondents had water production capacities (wells or treatment facilities) of one million gallons per day (MGD) or less. Of these, fresh water supply districts, water improvement districts and water supply cor-

porations had the greatest percentage of systems with capacities of 1 MGD or less (79%, 75% and 87%, respectively). An even greater percentage (65%) or 108 of 224 entities responding had sewage treatment plants of 1.0 MGD capacity or less. For fresh water supply districts municipal utility districts, privately held/investor-owned, water control and improvement district and water supply districts, 75 percent to 100 percent of respondents had capacities of 1 MGD or less. Entities in the Plains and East regions had the greatest percent (83% and 69%, respectively) of entities with plant capacities of 1 MGD or less.

- Sources of water for each type of entity surveyed were as follows:

	<u>Surface</u>	<u>Ground</u>
Fresh Water Supply District	47%	53%
Municipal Utility District	30%	70%
Municipality	39%	61%
Privately Held/Investor-Owned	10%	90%
River Authority	96%	4%
Water Control and Improvement District	37%	63%
Water Improvement District	67%	33%
Water Supply Corporation	42%	58%
Other	40%	60%

By region, indicated sources were:

	<u>Surface</u>	<u>Ground</u>
Far West	18%	82%
Plains	50%	50%
Central	45%	55%
East	22%	78%
South	79%	21%

#### 4. Financial Data

- The survey data collected during this study represents the first time there has been a base of information to analyze and evaluate the different arrangements to provide water and sewerage service needs. As such, it offers the opportunity to draw certain conclusions about the effectiveness of each type of entity. It also allows one to develop statistics to provide data for conclusions which, in the past, may have been based on intuition. The lack of a comprehensive statewide base

of operating and financial data for the various types of utilities is a problem which appears common to a large number of states, having been noted in two recent studies in South Carolina and Florida. Although much raw data has always been available to the state (through annual filing of audit reports, etc.) it has not been available in a manageable or comparable form.

- As shown in more detail in Chapter V (Exhibit V-16), there is a great deal of variation in the level of charges imposed by the different entities. The median annual charges for a combination of water and sewer bills and/or taxes for a residential customer using 8,000 gallons of water per month were as follows:

	<u>Median Annual Charge</u>
Fresh Water Supply District	\$536
Municipal Utility District	871
Municipality	327
Privately Held/Investor-Owned	401
River Authority	476
Water Control and Improvement District	453
Water Improvement District	486
Water Supply Corporation	348
Other	519
<b>Overall Median</b>	<b>\$453</b>

By region, the charges were as follows:

	<u>Median Annual Charge</u>
Far West	\$198
Plains	276
Central	449
East	590
South	337
<b>Overall Median</b>	<b>\$453</b>

- Two key indicators of financial strength for water and sewer utilities are (1) the ratio of debt to assets and (2) debt service coverage. The ratio of debt to assets indicate the degree to which a utility is leveraged. Debt service coverage is defined as net revenues (operating revenues plus non-operating income) less operating and maintenance expenses (net of depreciation, amortization

and interest requirements) divided by principal and interest requirements for the year. It is an indicator of the ability of a utility to meet its debt payments and to fund capital improvements/replacements. For example, a utility with a debt coverage of 2.00 and an annual debt payment of \$2,000,000 would have \$4,000,000 left after operating and maintenance expenses have been deducted from gross revenue and income. Summary information taken from Chapter V (Exhibit V-15) is presented below:

	<u>Medians</u>	
	<u>Long-Term Debt Ratio to Net Book Value of Fixed Assets</u>	<u>Debt Service Coverage</u>
Fresh Water Supply District	50%	2.11
Municipal Utility District	97%	1.31
Municipality	30%	2.88
Privately Held/Investor-Owned	66%	2.77
River Authority	87%	1.22
Water Control & Improvement District	50%	1.38
Water Improvement District	73%	3.69
Water Supply Corporation	72%	2.33
Other	81%	1.59
<b>Overall Median</b>	<b>62%</b>	<b>1.94</b>

- Operating and maintenance expense data appear to be reasonably consistent among the various types of utilities. Overall, the median allocations for all types of utilities were:

	<u>% of Total Operating and Maintenance Expense</u>
Labor	34%
Chemicals	1
Energy	12
Other	38
Not Itemized	<u>15</u>
	<u>100%</u>

Allocations by region clearly showed the increased energy costs associated with the pumping of groundwater from greater depths in the Far West region. Regional data (medians) were as follows:

Allocation of O&M Expense

	<u>Labor</u>	<u>Chemicals</u>	<u>Energy</u>	<u>Other</u>	<u>Not Itemized</u>
Far West	35%	1%	23%	33%	8%
Plains	37	2	13	28	21
Central	33	2	12	42	10
East	32	1	12	40	14
South	37	1	9	45	10

- The allocation of total expenditures (medians) among the various entities were:

% Of Annual Expenditures

<u>O&amp;M Expense</u>	<u>Debt Service</u>	<u>Capital Improve- ments</u>	<u>Transfer To Other Agency</u>	<u>Increase In Fund Balances</u>	<u>Not Itemized</u>
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By Type Of Utility

Fresh Water Supply District	35%	7%	0%	0%	0%	58%
Municipal Utility District	28	34	1	0	0	37
Municipality	54	10	3	0	0	33
Privately Held/Investor Owned	49	7	6	0	0	38
River Authority	37	21	3	0	0	39
Water Control & Improve. Dist.	61	16	2	0	0	21
Water Improvement District	91	0	0	0	0	9
Water Supply Corporation	56	10	0	0	0	34
Other	47	0	0	0	0	53

By Region

Far West	54%	5%	0%	0%	0%	41%
Plains	53	10	0	0	0	37
Central	44	12	2	0	0	42
East	47	21	2	0	0	30
South	<u>62</u>	<u>6</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>31</u>
<u>Overall Median</u>	47%	13%	1%	0%	0%	39%

Those utilities with the greatest percentage of total expenditures devoted to debt service were municipal utility districts (34%), river authorities (21%) and water control and improvement districts (16%). This is consistent with the MUDs role in serving developing areas, the river authorities' reliance on revenue debt financing and its currently increasing role in retail water and wastewater service, and the role of WCIDs in serving both developing areas as well as more sparsely populated rural service territories. In

each of those cases, one would expect to see a greater proportion of expenditures devoted to debt service than in a municipality or public utilities board where (1) services have been provided for a longer period of time, (2) development policies have required the funding of local improvements by the developer, (3) where earlier bonds have been partially or completely retired and (4) where facilities likely have received a greater percentage of grant funding.

- Key revenue and cost indicators for each of the utility types surveyed and by region are:

	<u>Water (Means)</u>		<u>Wastewater (Means)</u>	
	Revenue Per 1,000 Gallons- Delivered	O&M Expenses Per 1,000 Gallons- Delivered	Revenue Per 1,000 Gallon- Treated	O&M Expenses Per 1,000 Gallons- Treated
<u>By Type Of Utility</u>				
Fresh Water Supply District	\$2.31	\$1.61	\$1.47	\$ .69
Municipal Utility District	3.33	1.69	1.70	.59
Municipality	1.94	1.18	2.22	1.29
Privately Held/Investor Owned	2.35	1.01	2.37	1.96
River Authority	.88	.74	5.67	.96
Water Control & Improve. Dist.	2.17	1.68	1.59	1.80
Water Improvement District	1.16	1.11	1.21	.94
Water Supply Corporation	3.44	2.09	3.59	N/A
Other	1.20	.43	1.79	.93
<u>By Region</u>				
Far West	\$1.75	\$ .74	\$1.08	\$ .57
Plains	2.34	1.41	1.30	1.23
Central	3.09	1.78	2.62	1.01
East	2.24	1.25	2.42	1.07
South	2.15	1.02	1.30	1.11
<u>Overall Mean</u>	\$2.51	\$1.43	\$2.20	\$1.08

- With respect to water service, water supply corporations, water control and improvement districts, fresh water supply districts and municipal utility districts have the highest O&M expense per 1,000 gallons delivered to the system. These costs range from \$2.09 per 1,000 gallons for water supply corporations to \$1.61 per 1,000 gallons for

fresh water supply districts. On the lower end of the scale, costs per 1,000 gallons range from \$1.01 per 1,000 gallons for privately held/investor owned utilities to \$1.10 per 1,000 gallons for municipalities. River authorities and "other" types of utilities reported costs of \$.74 and \$.43 per 1,000 gallons respectively but these costs are based on a relatively small sample and include a number of wholesale providers. Thus, in our opinion, these two types should be excluded for purposes of this comparison. With respect to information by region, the Central Region reports the highest levels of revenue and O&M expenses per 1,000 gallons with the Far West region reporting the lowest level of revenues and cost at approximately one-half that of the Central Region.

## 5. Qualitative Data

- Those responding to the survey indicated that the following areas were of greatest concern (i.e., 50 percent or more indicated a major or occasional problem):

- Water and Wastewater - Delinquent Customers (75%)
- Water - Line Leaks/Water Losses (65%)
- Wastewater - Infiltration/Inflow (65%)
- Water - Financial Capability to Expand (51%)

Those areas receiving the highest percentage indicating a major problem were :

- Wastewater - Infiltration/Inflow (22%)
- Wastewater - Financial Capability (17%)
- Water - Financial Capability (16%)
- Wastewater - Plant Capacity (15%)
- Water - Fire Protection (12%)
- Water - Source of Supply (9%)

- With respect to the self-evaluation questions included on the long form, those areas receiving the greatest percentage responding needs improvement or poor were:

- Office Automation and Data Processing (16%)
- Employee Compensation (16%)
- Personnel Policies (14%)
- Training/Education (12%)

- Areas receiving the highest overall responses (excellent or good) were:
  - Communications with Governing Body (86%)
  - Communications with Customers (74%)
  - Financial and Accounting Systems (74%)
  - Long-Range Facility Planning (73%)

**B. ANALYSIS OF SERVICE DELIVERY WITHIN SPECIFIC COMMUNITY SETTINGS**

1. Selection of Community Settings

As a part of the scope of work for this study, Arthur Young was asked to examine the provision of water and sewerage services within eight specific community settings. The purpose of this analysis is to provide additional information about utility service and costs at the local level rather than solely on a regional basis. Those community settings, the selection of which was negotiated with the TWDB staff, included:

<u>Community/Area</u>	<u>Region</u>	<u>Principal Counties Included</u>
1. Longview-Tyler Area	East	Gregg, Smith
2. Houston Area	East	Harris, Montgomery, Ft. Bend, Brazoria
3. Hill Country	Central	Hays, Travis, Burnet
4. Denton County	Central	Denton
5. Valley Area	South	Hidalgo, Cameron
6. El Paso County	Far West	El Paso
7. Amarillo Area	Plains	Potter, Randall
8. Anderson County	East	Anderson

The location of each community setting is depicted in Exhibit VII-1.

2. Presentation of Data for Each Community Setting

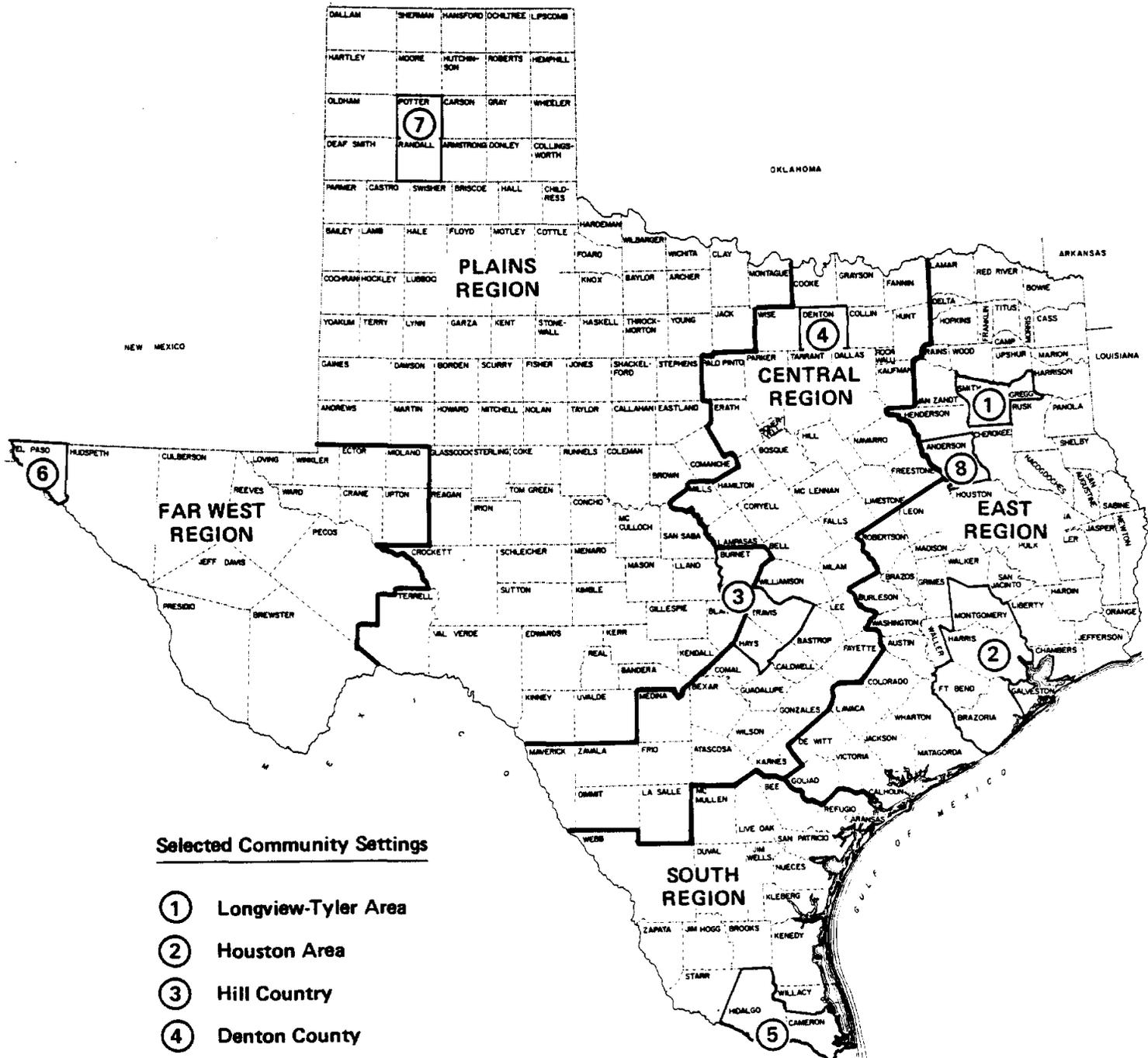
Presented below is selected information for each community setting including:

- Selected Demographic Data - presented for each community setting is the name of the county(ies), population as stated in the 29th Edition of the Texas State Directory, area in square miles, population density and percentage living in urban areas.
- Description of Community Setting and Water Resources - provides a brief description of the community setting and water resources which are available to the community.
- Current Water and Sewerage Service Providers - gives the number of each type of service provider within the eight communities. Exhibit VII-2 summarizes the composition of entities within each county and totals for the community setting. Exhibit VII-3 depicts the number of each type of utility included in the survey process.
- Summary of Significant Data - Exhibits VII-4 through VII-11 provide the following data for each of the community settings:

- Median Values

- Water Bill
- Sewer Bill
- Water and Sewer Bill
- Tax Bill
- Water, Sewer, and Tax Bill
- Combination of Water, Sewer and/or Tax Bill
- Ratio of Long-term Debt to Net Book Value
- Debt Service Coverage

LOCATION OF SELECTED  
COMMUNITY SETTINGS



Selected Community Settings

- ① Longview-Tyler Area
- ② Houston Area
- ③ Hill Country
- ④ Denton County
- ⑤ Valley Area
- ⑥ El Paso County
- ⑦ Amarillo Area
- ⑧ Anderson County

TEXAS WATER DEVELOPMENT BOARD  
COST OF SERVICE STUDY

Composition Of Utility Types By Community Setting - Total  
(Those Serving Over 150 Connections)

OWNER TYPE	Longview-Tyler			Houston Area				Hill Country				Denton		Valley			El Paso		Amarillo			Anderson	Grand Total
	Gregg	Smith	Total	Harris	Montgomery	Ft. Bend	Brazoria	Total	Hays	Travis	Burnet	Total	Denton Co.	Hidalgo	Cameron	Total	El Paso Co.	Potter	Randall	Total	Anderson Co.		
Fresh Water Supply District	1	-	1	8	1	1	2	12	1	-	-	1	1	-	-	-	-	-	-	-	1	16	
Municipal Utility District	-	1	1	388	59	68	9	524	-	19	1	20	5	1	6	7	3	-	-	-	-	560	
Municipality	6	7	13	28	10	7	13	58	3	4	4	11	15	14	15	29	2	1	1	2	3	133	
Privately Held/Investor-Owned	1	8	9	90	19	2	5	116	2	18	1	21	6	4	-	4	3	-	2	2	-	161	
River Authority	-	-	-	-	1	-	-	1	1	1	-	2	-	-	-	-	-	-	-	-	-	3	
Water Control & Improvement Dist.	-	1	-	34	3	5	4	46	2	10	-	12	-	4	6	10	2	-	-	-	-	71	
Water Improvement District	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	4	1	-	-	-	-	5	
Water Supply Corporation	4	10	14	2	8	-	-	10	8	4	1	13	6	5	4	9	1	-	1	1	13	67	
All Others	-	-	-	2	-	-	2	4	-	-	-	-	1	-	2	2	1	1	1	2	1	11	
Total	12	27	32	552	101	83	35	721	17	26	2	80	34	22	36	65	13	2	2	2	18	1,027	

TEXAS WATER DEVELOPMENT BOARD  
COST OF SERVICE STUDY

Composition Of Utility Types By Community Setting - Survey Respondents  
(Those Serving Over 150 Connections)

OWNER TYPE	<u>Longview-Tyler</u>			<u>Houston Area</u>				<u>Hill Country</u>				<u>Denton</u>	<u>Valley</u>			<u>El Paso</u>	<u>Amarillo</u>			<u>Anderson</u>	<u>Grand Total</u>
	<u>Gregg</u>	<u>Smith</u>	<u>Total</u>	<u>Harris</u>	<u>Montgomery</u>	<u>Ft. Bend</u>	<u>Brazoria</u>	<u>Total</u>	<u>Hays</u>	<u>Travis</u>	<u>Burnet</u>	<u>Total</u>	<u>Denton Co.</u>	<u>Hidalgo</u>	<u>Cameron</u>	<u>Total</u>	<u>El Paso Co.</u>	<u>Potter</u>	<u>Randall</u>	<u>Total</u>	
Fresh Water Supply District	1	-	1	3	-	-	-	3	-	-	-	-	-	-	-	-	-	1	1	-	5
Municipal Utility District	-	-	-	53	8	10	1	72	-	9	1	10	1	-	4	4	1	-	-	-	88
Municipality	1	1	2	3	2	3	4	12	1	1	-	2	1	2	3	5	-	1	-	1	23
Privately Held/ Investor-Owned	-	-	-	4	1	-	-	5	-	-	1	1	1	-	-	-	1	-	1	1	9
River Authority	-	-	-	1	-	-	-	1	1	1	-	2	-	-	-	-	-	-	-	-	3
Water Control & Improvement Dist.	-	-	-	7	-	2	1	10	-	2	-	2	-	2	2	4	-	-	-	-	16
Water Improvement District	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	1	-	-	-	3
Water Supply Corporation	2	2	4	-	-	-	-	-	-	-	-	-	-	1	3	4	-	-	-	1	9
All Others	-	-	-	4	1	-	1	6	-	-	-	-	-	1	-	1	1	-	-	-	8
<b>Total</b>	<b>4</b>	<b>3</b>	<b>7</b>	<b>75</b>	<b>12</b>	<b>15</b>	<b>7</b>	<b>109</b>	<b>2</b>	<b>13</b>	<b>2</b>	<b>17</b>	<b>2</b>	<b>6</b>	<b>14</b>	<b>20</b>	<b>4</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>164</b>

- Mean Values

- Water Revenue per 1,000 Gallons Delivered
- O&M Expense per 1,000 Gallons Delivered
- Wastewater Revenue per 1,000 Gallons Treated
- O&M Expense per 1,000 Gallons Treated

Water and sewer bills are for residential customers using 8,000 gallons per month and tax bills are based on an \$80,000 home. For each community setting, the sample size and number of observations for each data point are presented. Exhibits VII-12 through VII-20 provide a summary of the same data sorted by utility type, across all community settings.

(1) Community Setting: Longview-Tyler Area

a. Selected Demographic Data

<u>County</u>	<u>Population</u>	<u>Areas In Square Miles</u>	<u>Density (Persons/ Square Mile)</u>	<u>% Living In Urban Areas (1980)</u>
Gregg	97,316	273	356	81.2
Smith	<u>126,051</u>	<u>932</u>	135	56.8
Total	<u>223,367</u>	<u>1,205</u>		

b. Brief Description of Community Setting and Water Resources

The Longview-Tyler area, located in the East Region, is an urbanizing area characterized by the presence of several large municipal systems with older infrastructure bases. While having a relatively wet climate (44-46 inches of precipitation per year) there is a desire to move to surface water because of the uncertainty of groundwater supplies. However, the transportation of such water is often prohibitive and surface water rights have been bought up by distant metropolitan areas and industries. There is also evidence of problems with septic systems in rural areas where permeable soils do not promote adequate protection of water quality.

c. Current Water and Sewerage Service Providers

As shown in Exhibit VII-2, water and sewerage service is provided predominately by municipalities (13), privately-held or investor-owned utilities (9) and water supply corporations (14). The three remaining utilities making up the total of 39 include a fresh water supply district, a water control and improvement district and a municipal utility district.

d. Summary of Significant Data

Exhibit VII-4 summarizes significant data for the two counties. Seven utilities responded, in varying degrees, to the survey.

TEXAS WATER DEVELOPMENT BOARD  
 COST OF SERVICE SURVEY

Summary of Significant Data for  
 Selected Community Settings

**Longview-Tyler Area**

Sample Size (n= 7)

	Fresh Water Supply Districts	Municipal Utility Districts	Municipalities	Privately Owned/ Investor Held	River Authorities	Water Control and Improvement Districts	Water Improvement Districts	Water Supply Corporations	All Others
<b>MEDIAN</b>									
Water Bill	\$ 38 (1)		\$171 (2)					\$198 (3)	
Sewer Bill			\$145 (2)						
Water and Sewer Bill			\$321 (2)						
Tax Bill	\$488 (1)								
Water, Sewer, and Tax Bill									
Water and Sewer Bill plus Tax Bill, if any			\$321 (2)						
Ratio of Long-term Debt to Net Book Value			.56 (1)					.87 (2)	
Debt Service Coverage								2.36 (1)	
<b>MEAN</b>									
Water Revenue per 1000 Gallons Delivered	\$2.37 (1)		\$1.50 (2)					\$2.17 (3)	
O&M Expense per 1000 Gallons Delivered			\$ .73 (1)					\$1.53 (3)	
Wastewater Revenue per 1000 Gallons Treated			\$1.21 (2)						
O&M Expense per 1000 Gallons Treated			\$ .21 (1)						

Note: Number in parentheses ( ) is the number of observations available to calculate each statistic.

2. Community Setting: Houston Area

a. Selected Demographic Data

<u>County</u>	<u>Population</u>	<u>Areas In Square Miles</u>	<u>Density (Persons/ Square Mile)</u>	<u>In Urban Areas (1980)</u>
Harris	2,386,691	1,734	1,376	96.4
Montgomery	127,739	1,047	122	22.7
Ft. Bend	181,499	876	207	74.2
Brazoria	<u>161,825</u>	<u>1,407</u>	115	63.6
Total	<u>2,857,754</u>	<u>5,064</u>		

b. Brief Description of Community Setting and Water Resources

The Houston area, the fastest growing area in the state in recent years, has, to date, depended greatly on groundwater resources in supporting its rapid development. The issues of subsidence and water "mining" are currently forcing a movement towards greater reliance on surface water. The extensive use of MUDs, of which there are over 300 in Harris County alone, has resulted in dozens of smaller package plants which have often not been able to maintain treatment levels sufficient to enhance water quality and have contributed to the significant costs of consolidating such facilities.

c. Current Water and Sewerage Service Providers

Approximately 771 total entities shown in Exhibit VII-2 are involved in the delivery of water and/or sewerage services in the four counties comprising this setting. The dominant category by far is municipal utility districts, making up 524 or 68 percent of the total number of providers. In Harris, Montgomery, and Fort Bend counties, over half of the utilities are MUDs. Only in Brazoria County,

the least densely populated of the four counties, are municipalities the predominant service provider. In Harris and Montgomery counties, privately-held/investor-owned utilities are also a significant factor with 90 and 19 of these entities in the two counties, respectively. In addition there are 58 municipal systems, 46 WCIDs, 12 FWSDs, 10 WSCs, 4 others, and 1 river authority.

d. Summary of Significant Data

Exhibit VII-5 presents significant data reported by the 109 respondents to the survey in these four counties. The data reflects the significant role tax revenues play in meeting the rapid growth which has occurred over the last decade, particularly in municipal utility districts which comprise the majority of the number of entities in this area.

TEXAS WATER DEVELOPMENT BOARD  
COST OF SERVICE SURVEY

Summary of Significant Data for  
Selected Community Settings

**Houston Area**

Sample Size (n= 109)

**MEDIAN**

Water Bill  
Sewer Bill  
Water and Sewer Bill  
Tax Bill  
Water, Sewer, and Tax Bill  
Water and Sewer Bill plus  
Tax Bill, if any  
Ratio of Long-term Debt to  
Net Book Value  
Debt Service Coverage

	Fresh Water Supply Districts	Municipal Utility Districts	Munici- palities	Privately Owned/ Investor Held	River Authorities	Water Control and Improvement Districts	Water Improvement Districts	Water Supply Corporations	All Others
	\$264 (3)	\$116 (54)	\$138 (11)	\$264 (5)		\$ 89 (5)			\$ 82 (3)
	\$264 (1)	\$107 (51)	\$120 (10)	\$211 (4)		\$ 84 (6)			\$ 72 (3)
	\$528 (1)	\$216 (51)	\$266 (10)	\$411 (4)		\$147 (5)			\$150 (3)
	\$348 (2)	\$800 (56)				\$288 (6)			\$528 (2)
	\$864 (1)	\$1016 (47)				\$461 (4)			\$717 (2)
	\$864 (1)	\$1007 (51)	\$266 (10)	\$411 (4)		\$453 (5)			\$684 (3)
	.20 (3)	1.17 (43)	.21 (10)	.67 (5)	1.24 (1)	.54 (6)			.76 (4)
	6.47 (1)	1.15 (36)	6.07 (6)	2.39 (4)	.91 (1)	1.00 (5)			1.18 (3)
<b><u>MEAN</u></b>									
Water Revenue per 1000 Gallons Delivered	\$1.64 (1)	\$2.81 (29)	\$1.57 (10)	\$1.80 (3)	\$ .33 (1)	\$ .81 (1)			\$1.00 (3)
O&M Expense per 1000 Gallons Delivered		\$1.35 (3)	\$ .88 (6)	\$ .78 (2)	\$ .10 (1)				\$ .58 (2)
Wastewater Revenue per 1000 Gallons Treated		\$1.49 (23)	\$1.85 (10)	\$2.15 (2)		\$2.46 (2)			\$1.03 (2)
O&M Expense per 1000 Gallons Treated		\$1.08 (3)	\$1.26 (6)	\$1.03 (2)		\$3.34 (1)			\$ .18 (1)

Note: Number in parentheses ( ) is the number of observations available to calculate each statistic.

3. Community Setting: Hill Country

a. Selected Demographic Data

<u>County</u>	<u>Population</u>	<u>Areas In Square Miles</u>	<u>Density (Persons/ Square Mile)</u>	<u>% Living In Urban Areas (1980)</u>
Hays	35,425	678	52	57.7
Travis	400,676	989	405	88.2
Burnet	<u>17,803</u>	<u>994</u>	18	37.4
Total	<u>453,904</u>	<u>2,661</u>		

b. Brief Description of Community Settings and Water Resources

The Hill Country, surrounding the City of Austin, has many areas which are ripe for development. It is characterized by the presence of a low-producing aquifer with some water quality problems. The area which straddles the East and Central regions has approximately 30 to 34 inches of rainfall per year. In the Austin area, services are provided mostly by the City of Austin with MUDs being formed in developing areas. Away from the urbanized areas, water supply corporations are the dominant form of service provider. In these areas, septic tanks are depended upon for wastewater treatment.

c. Current Water and Sewerage Service Providers

As depicted in Exhibit VII-2, municipal utility districts are a substantially less significant factor in the Austin area than in Houston, with only 20 MUDs in the Austin area. This is reflective of the more restrictive stance the City has taken towards the approval of such utilities in its ETJ. Accordingly, privately-held/investor-owned entities,

which are often used as a substitute when MUDs are opposed by the municipality having jurisdiction, comprise 18 of the 21 total such entities. In Hays County, a relatively sparsely populated area, water supply corporations are the dominant form of utility with 8 such entities in that county. Completing the total, there are 11 municipalities, 2 river authorities, 12 WCIDs and 1 fresh water supply district.

d. Summary of Significant Data

Exhibit VII-6 presents significant data reported by the seventeen utilities responding to the survey. The relatively low revenue/cost data reported by the river authorities reflects their role in providing water on a wholesale basis.

TEXAS WATER DEVELOPMENT BOARD  
COST OF SERVICE SURVEY

Summary of Significant Data for  
Selected Community Settings

**Hill Country**

Sample Size (n= 17)

	Fresh Water Supply Districts	Municipal Utility Districts	Municipalities	Privately Owned/ Investor Held	River Authorities	Water Control and Improvement Districts	Water Improvement Districts	Water Supply Corporations	All Others
<b>MEDIAN</b>									
Water Bill		\$228 (7)	\$171 (1)	\$240 (1)		\$198 (1)			
Sewer Bill		\$299 (7)	\$245 (1)		\$246 (1)				
Water and Sewer Bill		\$511 (7)							
Tax Bill		\$532 (11)				\$409 (2)			
Water, Sewer, and Tax Bill		\$1134 (7)							
Water and Sewer Bill plus Tax Bill, if any		\$1134 (7)							
Ratio of Long-term Debt to Net Book Value		2.50 (8)	.86 (2)	.30 (1)	.61 (1)	1.38 (2)			
Debt Service Coverage		1.43 (7)	20.51 (2)	4.18 (1)	1.22 (1)	2.87 (2)			
<b>MEAN</b>									
Water Revenue per 1000 Gallons Delivered		\$5.08 (5)	\$3.16 (2)	\$2.29 (1)	\$ .41 (2)	\$7.12 (1)			
O&M Expense per 1000 Gallons Delivered		\$1.62 (2)	\$1.74 (2)	\$1.43 (1)	\$ .30 (2)	\$2.71 (1)			
Wastewater Revenue per 1000 Gallons Treated		\$2.67 (4)	\$1.68 (1)		\$ .73 (1)				
O&M Expense per 1000 Gallons Treated		\$3.82 (1)	\$ .91 (1)		\$ .54 (1)				

Note: Number in parentheses ( ) is the number of observations available to calculate each statistic.

4. Community Setting: Denton County

a. Selected Demographic Data

<u>County</u>	<u>Population</u>	<u>Areas In Square Miles</u>	<u>Density (Persons/ Square Mile)</u>	<u>% Living In Urban Areas (1980)</u>
Denton	136,073	911	149	77.8

b. Brief Description of Community Setting and Water Resources

Denton County, located northwest of the metropolitan Dallas area, is experiencing significant growth. Groundwater resources are being depleted and surface water will have to be relied upon primarily for future growth. Many growing areas are served by septic tanks.

c. Current Water and Sewerage Service Providers

As shown in Exhibit VII-2, utilities in Denton County are dominated by municipal systems with 15 such systems out of the total of 34 entities. There are six each of privately-held/investor-owned utilities and water supply corporations, 5 MUDs, and 1 each of fresh water supply districts and "other" purveyors.

d. Summary of Significant Data

Exhibit VII-7 depicts significant data reported by each of the three entities responding to the survey.

TEXAS WATER DEVELOPMENT BOARD  
 COST OF SERVICE SURVEY

Summary of Significant Data for  
 Selected Community Settings

**Denton County**

Sample Size (n= 3)

MEDIAN

Water Bill  
 Sewer Bill  
 Water and Sewer Bill  
 Tax Bill  
 Water, Sewer, and Tax Bill  
 Water and Sewer Bill plus  
 Tax Bill, if any  
 Ratio of Long-term Debt to  
 Net Book Value  
 Debt Service Coverage

MEAN

Water Revenue per 1000 Gallons  
 Delivered  
 O&M Expense per 1000 Gallons  
 Delivered  
 Wastewater Revenue per 1000  
 Gallons Treated  
 O&M Expense per 1000 Gallons  
 Treated

Fresh Water Supply Districts	Municipal Utility Districts	Municipalities	Privately Owned/ Investor Held	River Authorities	Water Control and Improvement Districts	Water Improvement Districts	Water Supply Corporations	All Others
	\$310 (1)							
		1.56 (1)						
		\$2.77 (1)						
		\$1.63 (1)						
		\$1.59 (1)						
		\$ .84 (1)						

Note: Number in parentheses ( ) is the number of observations available to calculate each statistic.

5. Community Setting: Valley Area

a. Selected Demographic Data

<u>County</u>	<u>Population</u>	<u>Areas In Square Miles</u>	<u>Density (Persons/ Square Mile)</u>	<u>% Living In Urban Areas (1980)</u>
Hidalgo	281,298	1,569	179	75.0
Cameron	<u>207,468</u>	<u>906</u>	229	78.9
Total	<u>488,766</u>	<u>2,475</u>		

b. Brief Description of Community Setting and Water Resources

Hidalgo and Cameron counties, forming the southern tip of the state, are in an area that can be characterized as economically depressed and having a low per capita income. The area, which has 22 to 26 inches of rainfall per year, relies primarily on surface water because of saline-water encroachment causing serious deterioration of groundwater quality. Adequate wastewater treatment and disposal is a significant issue as is the ability to fund such improvements.

c. Current Water and Sewerage Service Providers

With over 75 percent of the population living in urban areas, the dominant form of utility in these two counties is the municipal form, with 29 of the 65 total utilities being municipal systems. As shown in Exhibit VII-2, WCIDs and WSCs are the two next most numerous forms, with 10 and 9 of each, respectively. In addition, there are 7 municipal utility districts, 4 privately-held/investor-owned utilities, 4 water improvement districts, and 2 "other" purveyors.

d. Summary of Significant Data

Exhibit VII-8 presents a summary of significant data for each of the twenty entities responding to the survey.

TEXAS WATER DEVELOPMENT BOARD  
COST OF SERVICE SURVEY

Summary of Significant Data for  
Selected Community Settings

**Valley Area**

Sample Size (n= 20)

**MEDIAN**

Water Bill  
Sewer Bill  
Water and Sewer Bill  
Tax Bill  
Water, Sewer, and Tax Bill  
Water and Sewer Bill plus  
Tax Bill, if any  
Ratio of Long-term Debt to  
Net Book Value  
Debt Service Coverage

**MEAN**

Water Revenue per 1000 Gallons  
Delivered  
O&M Expense per 1000 Gallons  
Delivered  
Wastewater Revenue per 1000  
Gallons Treated  
O&M Expense per 1000 Gallons  
Treated

	Fresh Water Supply Districts	Municipal Utility Districts	Municipalities	Privately Owned/ Investor Held	River Authorities	Water Control and Improvement Districts	Water Improvement Districts	Water Supply Corporations	All Others
		\$264 (3)	\$124 (4)			\$189 (2)		\$179 (4)	
		\$132 (3)	\$105 (3)			\$ 84 (1)			
		\$396 (3)	\$258 (3)			\$243 (1)			
		\$504 (1)				\$280 (1)		\$568 (1)	
		\$1104 (1)				\$523 (1)			
		\$396 (3)	\$258 (3)			\$523 (1)			
		.65 (4)	.30 (3)			.23 (2)		.72 (4)	.81 (1)
		1.12 (3)	2.17 (3)			-2.73 (2)		8.95 (2)	
		\$2.38 (2)	\$ .86 (4)			\$ .07 (2)	\$ .08 (2)	\$ 2.01 (4)	\$ .08 (1)
		\$1.03 (3)	\$ .44 (3)			\$ .05 (1)	\$ .01 (1)	\$ 1.59 (4)	\$ .04 (1)
		\$2.50 (2)	\$1.72 (4)						
		\$1.25 (2)	\$1.33 (3)						

Note: Number in parentheses ( ) is the number of observations available to calculate each statistic.

6. Community Setting: El Paso County

a. Selected Demographic Data

<u>County</u>	<u>Population</u>	<u>Areas In Square Miles</u>	<u>Density (Persons/ Square Mile)</u>	<u>% Living In Urban Areas (1980)</u>
El Paso	467,652	1,014	461	96.1

b. Brief Description of Community Setting and Water Resources

El Paso County, with approximately 8 inches or less of rainfall per year, is the most arid county in the state. In an area that is predominantly dependent on groundwater resources for municipal uses, new means to augment this supply are being explored including the reuse of treated wastewater.

c. Current Water and Sewerage Service Providers

As shown in Exhibit VII-2, 13 total entities within El Paso County are fairly evenly distributed over the nine owner types. The dominant utility by far in number of customers is El Paso Water Utilities, which serves the City of El Paso and some of the neighboring area.

d. Summary of Significant Data

Exhibit VII-9 presents selected data for the four entities responding to the survey. As shown, only three entities completed, to varying degrees, the revenue/cost portion of the survey.

TEXAS WATER DEVELOPMENT BOARD  
 COST OF SERVICE SURVEY

Summary of Significant Data for  
 Selected Community Settings

**El Paso County**

Sample Size (n= 4)

MEDIAN

Water Bill  
 Sewer Bill  
 Water and Sewer Bill  
 Tax Bill  
 Water, Sewer, and Tax Bill  
 Water and Sewer Bill plus  
 Tax Bill, if any  
 Ratio of Long-term Debt to  
 Net Book Value  
 Debt Service Coverage

MEAN

Water Revenue per 1000 Gallons  
 Delivered  
 O&M Expense per 1000 Gallons  
 Delivered  
 Wastewater Revenue per 1000  
 Gallons Treated  
 O&M Expense per 1000 Gallons  
 Treated

	Fresh Water Supply Districts	Municipal Utility Districts	Munici- palities	Privately Owned/ Investor Held	River Authorities	Water Control and Improvement Districts	Water Improvement Districts	Water Supply Corporations	All Others
		\$300 (1)	\$ 69 (1)						
			\$ 80 (1)						
			\$150 (1)						
		\$ 80 (1)							
			\$150 (1)						
		1.23 (1)	.19 (1)						
			6.72 (1)						
		\$3.13 (1)	\$ .90 (1)						
		\$2.36 (1)	\$ .42 (1)						
			\$1.04 (1)	\$3.91 (1)					
			\$ .39 (1)	\$3.16 (1)					

Note: Number in parentheses ( ) is the number of observations  
 available to calculate each statistic.

7. Community Setting: Amarillo County

a. Selected Demographic Data

<u>County</u>	<u>Population</u>	<u>Areas In Square Miles</u>	<u>Density (Persons/Square Miles)</u>	<u>% Living In Urban Areas (1980)</u>
Potter	97,364	902	108	94.3
Randall	<u>84,776</u>	<u>917</u>	92	89.2
Total	<u>182,140</u>	<u>1,819</u>		

b. Brief Description of Community Setting and Water Resources

The Amarillo area, with little or no further developable surface water supply sources, is currently served approximately half by groundwater and half by surface water (Lake Meredith). There are also problems with the groundwater supply in a number of areas including high fluoride concentrations and saline-water encroachment.

c. Current Water and Sewerage Service Providers

Only 7 utilities (serving over 150 connections) were identified as serving these two counties. Of these, two are municipal systems (cities of Amarillo and Canyon), two are privately-held/investor-owned utilities, one is a water supply corporation, and two are "other" forms of utilities.

d. Summary of Significant Data

Exhibit VII-10 presents reported statistics for the three respondents to the survey.



8. Community Setting: Anderson County

a. Selected Demographic Data

<u>County</u>	<u>Population</u>	<u>Areas In Square Miles</u>	<u>Density (Persons/ Square Mile)</u>	<u>% Living In Urban Areas (1980)</u>
Anderson	33,507	1,077	31	41.6

b. Brief Description of Community Setting and Water Resources

Anderson County, a predominantly rural county in the East Region, experiences approximately 40 inches of rainfall in a normal year. Its reliance on groundwater is evidenced by the large number of rural water supply corporations.

c. Current Water and Sewerage Service Providers

As shown in Exhibit VII-2, the dominant type of utility in Anderson County is the water supply corporation with 13 out of the 18 total utilities being of this type. The prevalence of water supply corporations is often seen in rural, less densely populated areas served by groundwater. The remaining entities include three municipalities, one fresh water supply district, and 1 "other" entity.

d. Summary of Significant Data

Exhibit VII-11 presents reported statistics for the sole respondent to the survey, a water supply corporation.

TEXAS WATER DEVELOPMENT BOARD  
 COST OF SERVICE SURVEY

Summary of Significant Data for  
 Selected Community Settings

**Anderson County**

Sample Size (n= 1)

MEDIAN

Water Bill  
 Sewer Bill  
 Water and Sewer Bill  
 Tax Bill  
 Water, Sewer, and Tax Bill  
 Water and Sewer Bill plus  
 Tax Bill, if any  
 Ratio of Long-term Debt to  
 Net Book Value  
 Debt Service Coverage

MEAN

Water Revenue per 1000 Gallons  
 Delivered  
 O&M Expense per 1000 Gallons  
 Delivered  
 Wastewater Revenue per 1000  
 Gallons Treated  
 O&M Expense per 1000 Gallons  
 Treated

Fresh Water Supply Districts	Municipal Utility Districts	Munici- palities	Privately Owned/ Investor Held	River Authorities	Water Control and Improvement Districts	Water Improvement Districts	Water Supply Corporations	All Others
							\$258 (1)	
							\$800 (1)	
							.87 (1)	

Note: Number in parentheses ( ) is the number of observations available to calculate each statistic.

TEXAS WATER DEVELOPMENT BOARD  
COST OF SERVICE SURVEY

Summary of Significant Data for Selected  
Community Settings

**Fresh Water Supply Districts**  
Sample Size (n = 5)

<u>MEDIAN</u>		<u>Number of Observations</u>
Water Bill	\$203	4
Sewer Bill	\$264	1
Water and Sewer Bill	\$528	1
Tax Bill	\$360	3
Water, Sewer, And Tax Bill	\$864	1
Water and SewerBill plus Tax Bill, if any	\$864	1
Ratio of Long-term Debt to Net Book Value	.20	3
Debt Service Coverage Ratio	6.47	1
 <u>MEAN</u>		
Water Revenue per 1000 Gallons Delivered	\$2.01	2
O&M Expense per 1000 Gallons Delivered	NR	
Wastewater Revenue per 1000 Gallons Treated	NA	
O&M Expense per 1000 Gallons Treated	NA	

NR - Not Reported

NA - Not Applicable

TEXAS WATER DEVELOPMENT BOARD  
COST OF SERVICE SURVEY

Summary of Significant Data for Selected  
Community Settings

**Municipal Utility Districts**

Sample Size (n = 88)

		<u>Number of Observations</u>
<u>MEDIAN</u>		
Water Bill	\$120	65
Sewer Bill	\$120	61
Water and Sewer Bill	\$241	67
Tax Bill	\$760	68
Water, Sewer, And Tax Bill	\$1,083	55
Water and Sewer Bill plus Tax Bill, if any	\$1,050	57
Ratio of Long-term Debt to Net Book Value	1.08	55
Debt Service Coverage Ratio	1.21	44
 <u>MEAN</u>		
Water Revenue per 1000 Gallons Delivered	\$3.09	38
O&M Expense per 1000 Gallons Delivered	\$1.41	9
Wastewater Revenue per 1000 Gallons Treated	\$1.72	29
O&M Expense per 1000 Gallons Treated	\$1.60	6

TEXAS WATER DEVELOPMENT BOARD  
COST OF SERVICE SURVEY

Summary of Significant Data for Selected  
Community Settings

**Municipalities**  
Sample Size (n = 24)

		<u>Number of Observations</u>
<b><u>MEDIAN</u></b>		
Water Bill	\$145	20
Sewer Bill	\$120	18
Water and Sewer Bill	\$285	18
Tax Bill	NA	
Water, Sewer, And Tax Bill	NA	
Water and Sewer Bill plus Tax Bill, if any	\$285	18
Ratio of Long-term Debt to Net Book Value	.27	17
Debt Service Coverage Ratio	3.94	14
<b><u>MEAN</u></b>		
Water Revenue per 1000 Gallons Delivered	\$1.60	20
O&M Expense per 1000 Gallons Delivered	\$ .89	14
Wastewater Revenue per 1000 Gallons Treated	\$1.69	20
O&M Expense per 1000 Gallons Treated	\$1.03	14

NA - Not Applicable

TEXAS WATER DEVELOPMENT BOARD  
COST OF SERVICE SURVEY

Summary of Significant Data for Selected  
Community Settings

**Privately Owned/Investor Held**  
Sample Size (n = 9)

		<u>Number of Observations</u>
<u>MEDIAN</u>		
Water Bill	\$240	7
Sewer Bill	\$211	4
Water and Sewer Bill	\$411	4
Tax Bill	NA	
Water, Sewer, And Tax Bill	NA	
Water and Sewer Bill plus Tax Bill, if any	\$411	4
Ratio of Long-term Debt to Net Book Value	.52	6
Debt Service Coverage Ratio	2.77	5
<u>MEAN</u>		
Water Revenue per 1000 Gallons Delivered	\$1.93	4
O&M Expense per 1000 Gallons Delivered	\$ .99	3
Wastewater Revenue per 1000 Gallons Treated	\$2.73	3
O&M Expense per 1000 Gallons Treated	\$1.74	3

NA - Not Applicable

TEXAS WATER DEVELOPMENT BOARD  
COST OF SERVICE SURVEY

Summary of Significant Data for Selected  
Community Settings

**River Authorities**  
Sample Size (n = 3)

		<u>Number of Observations</u>
<u>MEDIAN</u>		
Water Bill	NA	
Sewer Bill	\$246	1
Water and Sewer Bill	NA	
Tax Bill	NA	
Water, Sewer, And Tax Bill	NA	
Water and Sewer Bill plus Tax Bill, if any	NA	
Ratio of Long-term Debt to Net Book Value	.93	2
Debt Service Coverage Ratio	1.07	2
 <u>MEAN</u>		
Water Revenue per 1000 Gallons Delivered	\$ .38	3
O&M Expense per 1000 Gallons Delivered	\$ .23	3
Wastewater Revenue per 1000 Gallons Treated	\$ .73	1
O&M Expense per 1000 Gallons Treated	\$ .54	1

NA - Not Applicable

TEXAS WATER DEVELOPMENT BOARD  
COST OF SERVICE SURVEY

Summary of Significant Data for Selected  
Community Settings

**Water Control and Improvement Districts**  
Sample Size (n = 16)

		<u>Number of Observations</u>
<u>MEDIAN</u>		
Water Bill	\$107	8
Sewer Bill	\$ 84	7
Water and Sewer Bill	\$170	6
Tax Bill	\$307	8
Water, Sewer, And Tax Bill	\$468	5
Water and Sewer Bill plus Tax Bill, if any	\$461	6
Ratio of Long-term Debt to Net Book Value	.54	10
Debt Service Coverage Ratio	1.00	9
<u>MEAN</u>		
Water Revenue per 1000 Gallons Delivered	\$2.02	4
O&M Expense per 1000 Gallons Delivered	\$1.38	2
Wastewater Revenue per 1000 Gallons Treated	\$2.46	2
O&M Expense per 1000 Gallons Treated	\$3.34	1

TEXAS WATER DEVELOPMENT BOARD  
COST OF SERVICE SURVEY

Summary of Significant Data for Selected  
Community Settings

**Water Improvement Districts**  
Sample Size (n = 3)

		<u>Number of Observations</u>
<b><u>MEDIAN</u></b>		
Water Bill	NR	
Sewer Bill	NR	
Water and Sewer Bill	NR	
Tax Bill	NR	
Water, Sewer, And Tax Bill	NR	
Water and Sewer Bill plus Tax Bill, if any	NR	
Ratio of Long-term Debt to Net Book Value	NR	
Debt Service Coverage Ratio	NR	
 <b><u>MEAN</u></b>		
Water Revenue per 1000 Gallons Delivered	\$ .08	2
O&M Expense per 1000 Gallons Delivered	\$ .01	1
Wastewater Revenue per 1000 Gallons Treated	NR	
O&M Expense per 1000 Gallons Treated	NR	

NR - Not Responding

TEXAS WATER DEVELOPMENT BOARD  
COST OF SERVICE SURVEY

Summary of Significant Data for Selected  
Community Settings

**Water Supply Corporation**  
Sample Size (n = 9)

		<u>Number of Observations</u>
<u>MEDIAN</u>		
Water Bill	\$200	8
Sewer Bill	NA	
Water and Sewer Bill	NA	
Tax Bill	\$684	2
Water, Sewer, And Tax Bill	NA	
Water and Sewer Bill plus Tax Bill, if any	NA	
Ratio of Long-term Debt to Net Book Value	.84	7
Debt Service Coverage Ratio	2.36	3
<u>MEAN</u>		
Water Revenue per 1000 Gallons Delivered	\$2.07	7
O&M Expense per 1000 Gallons Delivered	\$1.56	7
Wastewater Revenue per 1000 Gallons Treated	NA	
O&M Expense per 1000 Gallons Treated	NA	

NA - Not Applicable

TEXAS WATER DEVELOPMENT BOARD  
COST OF SERVICE SURVEY

Summary of Significant Data for Selected  
Community Settings

**All Others**  
Sample Size (n = 7)

<u>MEDIAN</u>		<u>Number of Observations</u>
Water Bill	\$ 82	3
Sewer Bill	\$ 72	3
Water and Sewer Bill	\$173	3
Tax Bill	\$528	2
Water, Sewer, And Tax Bill	\$717	2
Water and Sewer Bill plus Tax Bill, if any	\$684	3
Ratio of Long-term Debt to Net Book Value	.80	5
Debt Service Coverage Ratio	1.18	3
 <u>MEAN</u>		
Water Revenue per 1000 Gallons Delivered	\$ .77	4
O&M Expense per 1000 Gallons Delivered	\$ .40	3
Wastewater Revenue per 1000 Gallons Treated	\$1.04	2
O&M Expense per 1000 Gallons Treated	\$ .18	1

### C. SIGNIFICANT ISSUES AND PROPOSED CHANGES

This section describes significant issues resulting from the study and presents proposed changes for consideration by the state in order to deliver water and sewerage service in the most cost-effective and beneficial manner. Significant issues include:

- Issue No. 1 - The institutional arrangements and legal powers afforded the various entities responsible for water and sewerage service appear to have played a major role in keeping up with the demand for new housing and commercial development during the last decade. Some, however, question whether these entities are best suited to meet the challenges of insufficient or poor quality water supply, increasingly stringent drinking water standards, and the need to protect water quality by proper collection and treatment of wastewater.
- Issue No. 2 - Is the recent emphasis on regionalization of utility service warranted and what are its advantages and disadvantages? How can the desire to encourage regional service be balanced with the desire to continue the encouragement of development? Does the size of a utility (i.e., number of customers served) correlate with the cost of service?
- Issue No. 3 - The financial strength of a number of utilities has been impaired by the economic slowdown resulting from the oil industry crisis. Are there any steps which can be taken to improve the financial strength of utilities and should the burden of risk incurred when developing be shared differently?
- Issue No. 4 - Privately held/investor-owned utilities expressed significant concern over their ability to meet the needs of their customers given the current tax laws and the difficulty of the rate submittal and approval process. What might be done to improve the effectiveness with which these utilities serve customers?

Each of these issues is discussed below with suggested changes, where appropriate, to improve the effectiveness with which service is provided.

Issue No. 1 - The institutional arrangements and legal powers afforded the various entities responsible for water and sewerage service appear to have played a major role in keeping up with the demand for new housing and commercial development during the last decade. Some, however, question whether these entities are best suited to meet the challenges of insufficient or poor quality water supply, increasingly stringent drinking water standards, and the need to protect water quality by proper collection and treatment of wastewater.

Texas citizens have at their disposal an extremely broad range of entities to provide water and sewerage service needs. These range from the rural, non-profit water supply corporations serving only a handful of customers to the major municipalities and regional utilities which have invested hundreds of millions of dollars in infrastructure improvements to serve thousands of customers. As shown in Chapter IV, the number and percentage of active utilities by major category (serving more than 150 connections) are:

	<u>Number</u>	<u>Relative Percent</u>
Fresh Water Supply District	39	1.4%
Municipal Utility District	683	24.0
Municipality	888	31.2
Privately Held/Investor-Owned	368	12.9
River Authority	15	0.5
Water Control & Improvement District	238	8.4
Water Improvement District	18	0.56
Water Supply Corporations	536	18.9
All Others	59	2.1
Total	<u>2,844</u>	<u>100.0%</u>

Just four categories (municipal utility districts, municipalities, privately held/investor-owned, and water supply corpora-

tions) make up approximately 87 percent of the total utility systems within the state. In general, municipalities serve their customers with utility operations that are part of the city government's public works department or separate enterprise funds. In selected cases, municipal water and sewerage needs are met by an independent or semi-independent board that is distinct from the municipal government. An example of this is the City Water Board of San Antonio. It should be noted that water and sewerage service are not always provided by the same agency as, for example, in the case of San Antonio where wastewater collection and treatment is the responsibility of a separate department within the city government.

Municipal utility districts are the second most numerous type of entity and are generally formed to meet two distinct needs. The first of these needs is to provide service in a growing area where the existing municipality is unable to extend service or does not wish to extend service. In these cases, either inside or outside the extra-territorial jurisdiction (ETJ) the MUD provides for a separate stand-alone utility that can meet all of the basic water and sewerage service needs. These may include (1) fire protection, (2) water treatment, (3) water transmission, storage, and distribution, (3) wastewater collection and transportation, (4) wastewater treatment and effluent disposal and (5) supporting services such as customer accounting and billing, laboratory testing, and general construction and maintenance. In the case of smaller MUDs, operational support may be rendered on a contract basis by one of the many service companies which typically handle the needs of a number of MUDs or other small public/private utility systems. In some cases, water supply and/or wastewater treatment will be provided on a contractual basis by an adjacent municipality and the need to construct separate well water treatment systems or package wastewater treatment facilities can be avoided.

The second circumstance under which MUDs are formed is in rural areas or areas outside the ETJ of a municipality where water and/or sewerage service is desired but there is no existing entity to provide such service. Because the involvement of counties in providing utility services is restricted, MUDs or other special purpose districts (WCIDs, WSCs, etc.) provide a ready means to address the needs of a specific service area. Thus, the needs of both rural areas and developing areas outside the influence of municipalities can be met.

Privately held/investor-owned utilities are often used as an alternative to public bodies such as MUDs and WCIDs where the formation of such is discouraged by municipalities or where the developer or owner wishes to retain control of the utility operations.

Finally, water supply corporations are non-profit entities with no taxing powers which generally serve the needs of rural, less densely populated areas.

Exclusive of areas within municipal limits, there is no single political entity other than the state responsible for the planning and coordination of the use of the state's natural resources. This leaves major portions of the state where the responsibility for water resource planning and development is met by any number of combinations of existing entities. For example, a single acre of land may fall within the jurisdiction of a river authority, underground water conservation or subsidence district, and municipal utility district. In turn, the MUD may purchase its water supply from an adjoining MUD and have its wastewater treated at an adjoining municipality. While each of these entities has been developed to meet a specific need, no single local or regional entity exists to make sure that the wisest use is made of the state's natural resources. However, as problems have arisen, action has been taken to address those needs on a case-

by-case basis. For example, in the Houston area the Harris-Galveston Coastal Subsidence District was formed to address the specific problem of subsidence due to overuse of the ground water resources. More recently, legislation has been enacted that allows for the creation of regional utility systems to address the water quality problems caused by a multitude of small package wastewater treatment plants.

Given the broad range of entities available to manage the state's water resources, we see no need for any sweeping changes in how water and sewerage service is delivered. This is in contrast to, for example, the state of South Carolina where a constitutional change was made to give counties the specific authority to provide water and sewerage service. It appears that the state of Texas, through its existing utility organizations and its change of legal powers in response to demonstrated need, can better serve its citizen than would a "formula" approach to meeting water and sewerage needs that are so vastly different across the several regions.

This conclusion does not imply that all areas of the state are being efficiently served. There are clearly needs to improve the financial strength of certain utilities, to reduce the number of potential pollution sources by reducing the number of package treatment facilities and the need to move towards coordinated supply and treatment where efficient use of scarce water supply sources and the need to protect both underground and surface waters is apparent. A number of specific suggestions for change are made within the discussion of the remaining issues.

Issue No. 2 - Is the recent emphasis on regionalization of utility service warranted and what are its advantages and disadvantages? How can the desire to encourage regional service be balanced with the desire to continue the encouragement of development? Does the size of a utility (i.e., number of customers served) correlate with the cost of service?

viously easier and less expensive for the state to enforce discharge standards at a single 10 million gallon per day facility than it is at twenty 500,000 gallon per day plants.

Disadvantages associated with the regionalization of utilities include:

1. It is contrary to the current practice of local entities being responsible for the planning, construction, and operation of facilities to serve local needs. Regional planning and service provision clearly hampers the flexibility to provide service within a defined area.
2. Because regional utilities share the burden of providing capacity for expansion, rates will be higher than in a situation where, for example, MUDs and/or WSCs insulate a municipality from the need to expand facilities or expend funds to prepare comprehensive engineering and financial programs to meet future needs. To the degree that various special purpose districts have borne the great majority of the costs of developmental utility improvements, one would expect municipal rates to be lower than rates in these districts, a fact supported by the statistics incorporated in this study.
3. Comments received in our surveys and on-site interviews supported the belief that smaller utilities (i.e., MUDs, WCIDs, etc.) provide a higher level of service to their customers and are more responsive to the needs of these customers than would be a large municipality or regional utility. Also, these smaller utilities believe there is a better matching of benefits with costs than there is in the larger utilities.
4. Municipalities and/or other forms of regional utilities may not always be willing or capable of funding improvements to serve growth. Without the existence of MUDs or other special purpose districts, it is clear that many areas in the state would not have grown as rapidly. Also, even if funds are available and there is a willingness to expand service on the part of a regional utility, the framework of existing utility lines or plants may prevent areas that are miles or

even just several thousand feet away from being served as expediently as they would by a MUD. Also, other issues such as annexation and local politics often enter the analysis when municipalities or other regional utilities are considering the expansion of service.

In the final analysis, the major question is how the desire to encourage regional service can be balanced with the desire to continue the encouragement of development. Texas has made several modifications to its policies in order to promote a balance between these two issues. The first of these was a modification of the manner in which existing districts or municipalities can annex adjacent areas without increasing the costs of existing customers. This can be done by imposing a surcharge on the rates of annexed customers until the debt associated with their improvements is retired. Also, the Texas Water Code now allows the formation of regional districts to provide wastewater service within any standard metropolitan statistical area in the state.

Other means by which the balance of regional needs versus developmental needs can be achieved would be the extension of the current six-month period that municipalities have to provide service in areas where they oppose the function of districts. The extension of this time frame to, for example, one to two years, would provide a more flexible time frame for regional utilities to respond to the needs of development while still not drastically limiting the ability to develop areas in the ETJ of a municipality.

In areas where there are critical water supply or water pollution problems, the state might make provisions that within a municipality's boundaries and its ETJ the districts would be restricted from building water supply or wastewater treatment facilities (i.e., package plants) but at the same time place a burden on the municipality or regional utility to both plan for

and construct facilities to meet the needs of the region in a timely fashion.

The final point in this section was whether the size of a utility (i.e., number of customers served) correlates with the cost of service. In a study conducted for the Office of Drinking Water of the United States Environmental Protection Agency in 1982, the results clearly showed that the cost of service does decrease with the increased size of the utility. Exhibit VII-21 illustrates the study findings. These results are in agreement with our survey results described earlier in this chapter.

Issue No. 3 - The financial strength of a number of utilities has been impaired by the economic slowdown resulting from the oil industry crisis. Are there any steps which can be taken to improve the financial strength of utilities and should the burden of risk incurred when developing be shared differently?

The financial strength of a number of utilities, particularly that of municipal utility districts, has been severely weakened by the recent economic slowdown within the state of Texas. MUDs have been most severely impacted in cases where only a few homes have been built but the utility improvements constructed by the district are sufficient to serve several hundred homes. In these cases, the financial burden of servicing the district's debt and funding operating and maintenance expenses falls disproportionately on the owners of improved lots. In these cases, the economic slowdown and resulting reduction in home sales has prevented the district from reaching a breakeven point where the district's debt and operating expenses could be met by a combination of interest and sinking fund taxes, maintenance taxes, user fees or standby charges set at a reasonable level. In cases where the breakeven point has not yet been reached, it has been common practice for the developer to put up cash during the early stages to serve a portion of the debt and operating expenses.

AVERAGE WATER PRICES, BY NUMBER OF PEOPLE SERVED  
(In 1982 dollars per 1,000 gallons)

<u>Utility Type</u>	<u>1,001- 3,300</u>	<u>3,301- 10,000</u>	<u>10,001- 25,000</u>	<u>25,001- 50,000</u>	<u>50,001- 75,000</u>	<u>75,001- 100,000</u>	<u>100,001- 500,000</u>	<u>500,001- 1,000,000</u>	<u>Over 1,000,000</u>
Public Utilities									
Residential	\$1.51	\$1.23	\$0.94	\$1.08	\$1.02	\$0.84	\$0.91	\$0.66	\$0.62
Commercial/ Industrial	1.01	1.29	0.76	0.82	0.80	0.93	0.61	0.55	0.51
Private Utilities									
Residential	1.98	1.69	1.65	1.56	1.32	1.28	1.63	1.25	0.85
Commercial/ Industrial	1.35	1.26	0.97	1.03	0.83	0.98	1.07	1.07	0.56

Source: Congressional Budget Office - from Environmental Protection Agency, Office of Drinking Water, Survey of Operating and Financial Characteristics of Community Water Systems (prepared by Temple, Barker, and Sloan, Inc., October 1982).

However, as the length of period increases, the financial resources of the developer may be exhausted. Thus arises the dilemma that a number of MUDs have experienced recently. Because the MUD's bonds are general obligation debt and carry with them an unlimited taxing pledge, the tax rate will need to be set at a level sufficient to service the debt. In a number of cases, this has resulted in tax rates for water and sewer which would exceed \$3,000 to \$4,000 per year on a \$100,000 home. This is in addition to any school district and county taxes. Thus, through the issuance of tax-exempt debt, much of the risk of not reaching the breakeven point passes to the bondholders and, accordingly, to the owners of improved lots.

This situation arises only in those states where special-purpose districts are used as an aid to development. In other areas of the country where districts are not so prevalent, the local government (city or county) generally dictates the construction materials and standards that will be followed by the developers, requires the developer to construct all subdivision utilities at his own expenses and then have him deed the assets over to the local government for continued operation and maintenance. In most cases, there will be an additional requirement to either pay for in full or share in the construction of "off-site" utilities necessary to connect the area being developed with existing water and/or wastewater mains. In these cases, the ability of a developer to build his own water supply system or wastewater treatment facilities to service his development is greatly restricted. Thus, in comparison with those states where districts can construct independent stand-alone utilities, development may be less expedient. The ability to develop in areas where the use of districts is prevented or restricted is dependent upon the ability and willingness of existing entities to provide utility main and treatment capacity. Also, because the areas where water transmission or wastewater interceptors are available is limited, the land base which is suitable for devel-

opment is greatly diminished and, therefore, can be expected to be more costly. On the other hand, this dependence on an existing entity prevents "leapfrogging" development and promotes a more coordinated and efficiently constructed series of utility lines and plants.

The desire to provide some control over the development process has been recognized, both by individual municipalities as well as through the state legislature by the enactment of laws outlining a process for the creation of regional or areawide systems to provide wastewater collection and treatment (Sections 26.08 through 26.987 of the Texas Water Code). Individual municipalities have restricted the use of MUDs by opposing their formation in their ETJ or requiring that, for example, wastewater treatment facilities be installed on an interim basis until interceptor lines are constructed to connect them to the larger regional treatment facilities. At that time, the package plants would be taken off-line and the connection to the regional interceptors would be made. Opposition to MUD formation within the ETJ by a municipality carries with it an obligation. If a developer petitions the city to provide water and sewer service and such service is not made available within six months, then the MUD may be formed over the city's objections. Given the substantial size of the ETJ (five miles) for larger municipalities, it is often the case that lines will not be available in a particular area or they can not be made available within the six-month limit.

Because of the availability of tax-exempt public financing, it is apparent that some developments, if dependent on private (i.e., bank) financing or developer capital, have been undertaken that otherwise might not have been constructed. The TWC's 30 percent rule, which was adopted in 1974, requires developers to fund 30 percent of the cost of improvements which have only local benefit such as sewerage collection lines and water distribution

lines. Water plants, sewage treatment facilities, and central mains are reimbursed 100 percent. This rule was enacted to ensure the viability of the MUD's bonds, much like a bank requires a prospective homeowner to make a downpayment in order to receive mortgage financing. In order to reduce the burden that falls on homeowners when development occurs at a slower pace than anticipated, we would recommend that consideration be made to increase the percentage of local improvements from 30 percent to possibly 50 percent or 60 percent that must be funded through private financing or by the developer. In doing so, the financial exposure of persons purchasing property is limited. If a project does not reach the breakeven point in a timely fashion, this would place a greater portion of the burden on the developer or the party providing the private financing. Although this would reduce the amount of improvements financed at lower tax-exempt rates and likely raise home prices by some moderate amount, it would more appropriately place the assessment of risk with the developer and private financiers, who are presumably best able to make this assessment.

Issue No. 4 - Privately held/investor-owned utilities expressed significant concern over their ability to meet the needs of their customers given the current tax laws and the difficulty of the rate submittal and approval process. What might be done to improve the effectiveness with which these utilities serve customers?

The major concern expressed by the operators of privately held or investor-owned utilities was the ability to obtain approval of water and sewer rates at levels sufficient to fund operating and maintenance expenses plus an adequate return on the capital investment. This concern, which echoes our experience in other states (e.g., Florida) where private for-profit utilities are a major factor, is brought about by the regulatory law, administrative procedures, and costs of rate filing and testimony. Until recently, these utilities fell under the jurisdic-

tion of the Texas Public Utilities Commission and were subject to many of the rate consideration processes applicable to gas and electric and telecommunication utilities. With the transfer of the regulatory rate process to the Texas Water Commission, at least one utility manager held out hope that since "water and sewer is the TWC's business" the rate consideration process would be streamlined and be structured more for their smaller operations than for the larger utilities who typically have large, full-time staffs to handle the rate regulation process.

It appears, from our experience, that the concern over the costs and burden of the rate process for smaller, private utilities is justified. In several cases where Arthur Young has provided assistance to either private utilities or to state and local governments with regulatory powers, the costs of preparing necessary filings and direct testimony as well as rebuttal testimony have exceeded well over \$250,000 in professional fees and expenses for a utility with fewer than 10,000 customers. Combining this expense with the regulatory lag inherent in such a process, one can easily see that full cost recovery can be a major problem for private utilities.

House Bill 1459, sponsored by the Texas Water Commission, resulted in legislation which became effective in September 1987 that should address many of the concerns raised by the private utilities. The legislation simplified the rate approval process by allowing private utilities to institute and implement rate increases automatically but no more often than once every twelve months. The rates are still subject to the regulatory review process based upon the Commission's own action or upon the desire of 10 percent or more of the customers for such a review.



**APPENDICES**



**APPENDIX A**  
**Summary of Institutional Arrangements and Legal Powers for Entities Involved in Delivery of Water and/or Wastewater Services**

TEXAS WATER DEVELOPMENT BOARD

- I. Legal Authority - Texas Constitution, Art. III, Secs. 49-c, d, d-1 and d-2; Chs. 16 and 17, Texas Water Code; 31 T.A.C., Ch. 63.
- II. Municipal Water/Wastewater Powers - The board has power to acquire State ownership interests in water and wastewater facilities and to sell, transfer or lease such facilities or water or sewer services from the facilities.
- III. Method of Creation - The Texas Water Development Board was created by passage and approval by the voters of Art. III, Sec. 49-c, Texas Constitution.
- IV. Management Control
  - A. Number and Qualifications - Six board members, each from a different section of the State.
  - B. Term - Board members serve six year terms, staggered every two years.
  - C. Method of Selection - Board members are appointed by the Governor and confirmed by the Senate.
- V. Capital Financing Authority
  - A. Tax Debt - The Texas Development Board has no authority to issue ad valorem tax debt, but it may issue general obligation debt, payable from a constitutional pledge of the first monies coming into the State Treasury during the fiscal year. (See Combination Tax/Revenue debt below.)
    - 1. Limit on Amount Issued or Tax Rate - Not Applicable.
    - 2. Limit on Interest Rate - Not Applicable.
    - 3. Limit on Term - Not Applicable.
    - 4. Required Approvals - Not Applicable.

*Note: The following summary is intended to be used as a general reference for most situations described. Exceptions to these general rules exist. For specific information concerning specific institutional arrangements or powers, qualified legal counsel should be consulted.*

TEXAS WATER DEVELOPMENT BOARD

- B. Revenue Debt - The Texas Water Development Board was given authority to issue revenue debt in the 1987 regular legislative session.
1. Limit on Amount Issued - No limit on the amount of revenue debt which may be issued.
  2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
  3. Limit on Term - Limited to 50 years.
  4. Required Approvals - Must be approved by the Attorney General.
- C. Combination Tax/Revenue Debt - The Texas Water Development Board has authority to issue general obligation debt, payable from a constitutional pledge of the first monies coming into the State Treasury during the fiscal year. The Texas Water Development Board has authority to sell or lease water or wastewater facilities and charge fees, including standby fees, and to use any of the revenues to pay debt service on Texas water development bonds.
1. Limit on Amount Issued - Amount issued is limited to \$1,380,000,000 of Texas water development bonds, which are dedicated to acquisition of State interest in water, wastewater and drainage facilities.
  2. Limit on Interest Rate - Limited to 12% interest rate on Texas water development bonds by Texas Constitution, Art. III, Sec. 65.
  3. Limit on Term - Limited to 50 years for Texas water development bonds.
  4. Required Approvals - Texas water development bonds must be approved by a majority of the voters and the Attorney General.

VI. Operation and Maintenance Financing

- A. Rates - The Texas Water Development Board may sell or lease water or wastewater facilities for a price sufficient to pay operation and maintenance expenses and debt service expenses.

TEXAS WATER DEVELOPMENT BOARD

- B. Maintenance Tax - The Texas Water Development Board has no authority to levy a maintenance tax.
  - C. Standby Fees - The Texas Water Development Board has authority to impose water standby fees, but has no specific authority to impose wastewater standby fees.
  - D. Special Assessments - The Texas Water Development Board has no authority to impose special assessments.
  - E. Debt Issuance - The Texas Water Development Board has no specific authority to issue debt to pay operation and maintenance expenses.
- VII. Annexation - Not applicable. The Texas Water Development Board has no geographical boundary.
- VIII. Exclusion - Not applicable. The Texas Water Development Board has no geographical boundary.
- IX. Service Area Limits - The Texas Water Development Board has no service area limits, except for constitutional and statutory provisions limiting interbasin transfers of surface water if the water is needed to meet the 50 year requirements within the basin of origin, except on an interim basis. Although the Board currently does not provide potable water or wastewater service, if it begins to provide such service it must obtain a certificate of convenience and necessity from the Texas Water Commission only if it desires to serve an area within the certificated area of another utility.
- X. Eminent Domain - The Texas Water Development Board has no authority to use eminent domain.

COUNTY

- I. Legal Authority - Texas Constitution, Art. IX, Sec. 1; Art. 5, Sec. 18; Art. 8, Sec. 9; Title 33, Arts. 717k-2, 717n, 2351, 2352, 2352e, 2368a-1, 3264a, Tex. Rev. Civ. Stat. Ann.
- II. Municipal Water/Wastewater Powers - A county has the power to own and operate water systems, but no express authority is provided to own or operate wastewater systems.
- III. Method of Creation - A county may be created by the legislature upon a majority or 2/3 vote depending upon the type of county to be created.
- IV. Management Control
  - A. Number and Qualifications - A county is governed by a commissioners court, which is composed of a county judge and four county commissioners who must be residents of their respective precincts.
  - B. Term - The commissioners serve four year staggered terms.
  - C. Method of Selection - Commissioners are elected by the voters of the respective precincts and the county judge is elected by the voters of the county at large.
- V. Capital Financing Authority
  - A. Tax Debt - A county has authority to issue tax debt.
    - 1. Limit on Amount Issued or Tax Rate - County water projects may not require the issuance of bonds whose total par value is in excess of \$250,000. Tax bonds are payable out of the permanent improvement tax fund which limits tax rates to a maximum of \$0.80 per \$100 of assessed valuation.
    - 2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
    - 3. Limit on Term - Limited to 40 years from their date for county tax bonds for water projects.

COUNTY

4. Required Approvals - County tax bonds for water projects must be approved by a majority of the voters and the Attorney General.

B. Revenue Debt - A county has authority to issue revenue debt.

1. Limit on Amount Issued - County water projects may not require the issuance of bonds whose total par value is in excess of \$250,000.

2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.

3. Limit on Term - Limited to 40 years from their date.

4. Required Approvals - County revenue bonds for water projects must be approved by a majority of the voters and the Attorney General.

C. Combination Tax/Revenue Debt - A county has authority to issue combination tax/revenue debt.

1. Limit on Amount Issued - County water projects may not require the issuance of bonds whose total par value is in excess of \$250,000. Combination tax/revenue bonds are payable out of the permanent improvement tax fund which limits tax rates to a maximum of \$0.80 per \$100 of assessed valuation.

2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.

3. Limit on Term - Limited to 40 years from their date.

4. Required Approvals - County combination tax/revenue bonds for water projects must be approved by a majority of the voters and the Attorney General.

VI. Operation and Maintenance Financing

A. Rates - A county has authority to impose rates and charges for water service. Such rates and charges must be sufficient to operate and maintain the project which supplies the water.

COUNTY

- B. Maintenance Tax - A county has no express authority to levy a maintenance tax to maintain a water system. However, a tax may be levied for a general fund for county expenses.
  - C. Standby Fees - A county has no express authority to impose standby fees.
  - D. Special Assessments - A county has authority to impose any rates and charges for water supplied by a project as will be fully sufficient to operate and maintain the project, but has no specific authority to impose special assessments.
  - E. Debt Issuance - A county has authority to issue additional bonds to repair a project, subject to the same terms as original county bonds. In addition, a county has authority to issue certificates of indebtedness whenever the county's assessed valuation has dropped by 7% or more and insufficient funds are available for operation and maintenance expenses. Certificates of indebtedness may only be used for operation and maintenance expenses and must be payable from an ad valorem tax. The amount issued is limited to 1/2% of the county's assessed valuation and the tax rate is limited to \$0.10 per \$100 of assessed valuation. The interest rate must not exceed 5% per year. The term must not exceed 15 years. Certificates of indebtedness need not be approved by the voters but must be approved by the Attorney General.
- VII. Annexation - In limited circumstances, the boundaries of a county may be changed by act of the legislat re.
- VIII. Exclusion - In limited circumstances, the boundaries of a county may be changed by act of the legislature.
- IX. Service Area Limits - A county has authority to sell water inside and outside its boundaries. A county must obtain a certificate of convenience and necessity from the Texas Water Commission only if it desires to serve an area within the certificated area of another utility.
- X. Eminent Domain - A county has authority to use eminent domain to condemn a fee simple or an easement on public or private land.

GENERAL LAW CITY

- I. Legal Authority - Texas Constitution, Art. XI, Sec. 4; Title 28, Chs. 1-10, Tex. Rev. Civ. Stat. Ann.
- II. Municipal Water/Wastewater Powers - A general law city has the power to own and operate both water and wastewater systems within and without its boundaries.
- III. Method of Creation - An existing city, town or village with at least 600 residents or a city, town or village with one or more manufacturing establishments within the corporate limits may, by ordinance, accept the provisions of Chs. 1-10, Title 28, Tex. Rev. Civ. Stat. Ann.
- IV. Management Control
  - A. Number and Qualifications - Mayor and two aldermen from each ward, if wards exist in the city, or mayor plus five aldermen, if no wards.
  - B. Term - Mayor and aldermen serve two year terms.
  - C. Method of Selection - Aldermen are elected by the voters of the respective wards and the mayor is elected by the voters of the city at large.
- V. Capital Financing Authority
  - A. Tax Debt - A general law city has authority to issue tax debt in the form of certificates of obligation or bonds.
    1. Limit on Amount Issued or Tax Rate - No limit on the amount of tax debt which may be issued. However, the total tax rate of a general law city of 5,000 persons or less may not exceed \$1.50 per \$100 of assessed valuation, with \$1.00 of which may be allocated to debt service. The tax rate of a general law city in excess of 5,000 persons may not exceed \$2.50 per \$100 of assessed valuation, with \$1.50 of which may be allocated to debt service.
    2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
    3. Limit on Term - Limited to 40 years.

GENERAL LAW CITY

4. Required Approvals - Certificates of obligation need not be approved by the voters, but tax bonds must be approved by a majority of the voters. Both certificates of obligation and tax bonds must be approved by the Attorney General.
- B. Revenue Debt - A general law city has authority to issue certificates of obligation and bonds payable from revenues of a water or wastewater system.
1. Limit on Amount Issued - No limit on the amount of revenue debt which may be issued.
  2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
  3. Limit on Term - Limited to 40 years for both certificates of obligation and revenue bonds.
  4. Required Approvals - Certificates of obligation need not be approved by the voters, and revenue bonds issued for the purpose of constructing improvements to a water or wastewater system usually need not be approved by the voters. All revenue debt must be approved by the Attorney General.
- C. Combination Tax/Revenue Debt - A general law city has authority to issue combination tax/revenue debt in the form of certificates of obligation or bonds.
1. Limit on Amount Issued - No limit on the amount of combination tax/revenue debt which may be issued.
  2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
  3. Limit on Term - Limited to 40 years.
  4. Required Approvals - Certificates of obligation need not be approved by the voter, but combination tax/revenue bonds must be approved by a majority of the voters. Both certificates of obligation and combination tax/revenue bonds must be approved by the Attorney General.

GENERAL LAW CITY

VI. Operation and Maintenance Financing

- A. Rates - A general law city has authority to impose rates and charges for water and wastewater service. Rates are subject to appeal to the Texas Water Commission by any party to a rate proceeding before the city or by the lesser of 20,000 or 10% of the qualified voters of the city.
- B. Maintenance Tax - A general law city in excess of 5,000 persons has authority to levy a tax at a rate up to a \$2.50 per \$100 of assessed valuation; a general law city of 5,000 persons or less has authority to levy a tax at a rate up to \$1.50 per \$100 of assessed valuation. Any portion of the tax can be for expenses of the city, including water and wastewater expenses, but the tax is not specifically a maintenance tax.
- C. Standby Fees - A general law city has no specific authority to impose standby fees, but has general authority to impose rates and charges for water or wastewater service.
- D. Special Assessments - A general law city has authority to assess property for construction of water and wastewater improvements, in certain instances.
- E. Debt Issuance - A general law city has authority to issue debt to repair water and wastewater systems.

VII. Annexation - A general law city has authority to annex land upon a petition signed by the landowners or a majority of the voters in the area to be annexed, subject to a favorable election within the area to be annexed.

VIII. Exclusion - A general law city has authority to exclude land upon a petition signed by a landowner. A general law city, upon failure of the city to provide municipal services to an area within a specified time after annexation, must grant a petition filed by a majority of the landowners or voters in the area requesting to be excluded from the city.

IX. Service Area Limits - A general law city has authority to serve areas outside its boundaries by extending its utility system. A general law city must obtain a certificate of convenience and necessity from the Texas Water Commission only if it desires to serve an area within the certificated area of another utility.

GENERAL LAW CITY

X. Eminent Domain - A general law city has authority to use eminent domain to acquire land and any interest therein for its utility system.

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HOME RULE CITY

- I. Legal Authority - Texas Constitution, Art. XI, Sec. 5; Title 28, Ch. 13, Tex. Rev. Civ. Stat. Ann.
- II. Municipal Water/Wastewater Powers - A home rule city has the power to own and operate both water and wastewater systems.
- III. Method of Creation - An existing city of over 5,000 population may, by council action and voter approval, adopt a home rule charter.
- IV. Management Control
  - A. Number and Qualifications - Determined by city charter or ordinance, usually mayor and a fixed number of councilmembers.
  - B. Term - Determined by city charter or ordinance.
  - C. Method of Selection - Determined by city charter or ordinance, usually mayor is elected by the voters of the city at large and councilmembers are elected by seat by the voters of the respective districts or at large by the voters of the city.
- V. Capital Financing Authority
  - A. Tax Debt - A city has authority to issue tax debt in the form of certificates of obligation and bonds.
    - 1. Limit on Amount Issued or Tax Rate - No limit on the amount of tax debt which may be issued. The total tax rate of a city is limited to \$2.50 per \$100 of assessed valuation, \$1.50 of which may be allocated to debt service.
    - 2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
    - 3. Limit on Term - Limited to 40 years for certificates of obligation. Limit determined by city charter for tax bonds.
    - 4. Required Approvals - Certificates of obligation need not be approved by the voters, but tax bonds must be approved by a majority of the voters. Both

HOME RULE CITY

certificates of obligation and tax bonds must be approved by the Attorney General.

- B. Revenue Debt - A home rule city has authority to issue certificates of obligation and bonds payable from revenues of a water or wastewater system.
1. Limit on Amount Issued - No limit on the amount of revenue debt which may be issued.
  2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
  3. Limit on Term - Limited to 40 years for certificates of obligation. Term of revenue bonds determined by city charter.
  4. Required Approvals - Certificates of obligation need not be approved by the voters, and revenue bonds issued for the purpose of constructing improvements to a water or wastewater system need not be approved by the voters. All revenue debt must be approved by the Attorney General.
- C. Combination Tax/Revenue Debt - A home rule city has authority to issue combination tax/revenue debt.
1. Limit on Amount Issued - No limit on the amount of combination tax/revenue debt which may be issued. Total tax rate is limited to \$2.50 per \$100 of assessed valuation, \$1.50 of which may be allocated to debt service.
  2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
  3. Limit on Term - Limited to 40 years for certificates of obligation. Limit determined by city charter for combination tax/revenue bonds.
  4. Required Approvals - Certificates of obligation need not be approved by the voters, but combination tax/revenue bonds must be approved by a majority of the voters. Both certificates of obligation and combination tax/revenue bonds must be approved by the Attorney General.

HOME RULE CITY

VI. Operation and Maintenance Financing

- A. Rates - A home rule city has authority to impose rates and charges for water and wastewater service. Rates are subject to appeal to the Texas Water Commission by any party to a rate proceeding before the city or the lesser of 20,000 or 10% of the qualified voters of the city.
- B. Maintenance Tax - A home rule city has authority to levy a tax at a rate up to \$2.50 per \$100 of assessed valuation. Any portion of the tax can be for expenses of the city, including water and wastewater expenses, but the tax is not specifically a maintenance tax.
- C. Standby Fees - A home rule city has no specific authority to impose standby fees, but has general authority to impose rates and charges for water or wastewater service.
- D. Special Assessments - A home rule city has authority to assess property for construction of wastewater improvements, in certain instances.
- E. Debt Issuance - A home rule city has authority to issue revenue bonds to repair water and wastewater systems.

VII. Annexation - A home rule city has authority to annex land on its own initiative or upon a petition signed by the landowners in the area to be annexed.

VIII. Exclusion - A home rule city has authority to exclude land upon a petition signed by a landowner. A home rule city, upon failure of the city to provide municipal services to an area within a specified time after annexation, must grant a petition filed by a majority of the landowners or voters in the area requesting to be excluded from the city.

IX. Service Area Limits - A home rule city has authority to serve areas outside its boundaries by extending its utility system. A home rule city must obtain a certificate of convenience and necessity from the Texas Water Commission only if it desires to serve an area within the certificated area of another utility.

X. Eminent Domain - A home rule city has authority to use eminent domain to acquire land or any interest therein for its water and wastewater system.

RIVER AUTHORITY\*

- I. Legal Authority - Texas Constitution, Art. XVI, Sec. 59; various special laws.
- II. Municipal Water/Wastewater Powers - A river authority generally has the power to own and operate both water and wastewater systems.
- III. Method of Creation - A river authority is generally created by special act of the legislature.
- IV. Management Control
  - A. Number and Qualifications - Determined by special act.
  - B. Term - Determined by special act.
  - C. Method of Selection - Determined by special act, usually board members are appointed by the Governor and confirmed by the Senate.
- V. Capital Financing Authority
  - A. Tax Debt - A river authority generally has no authority to issue tax debt.
    - 1. Limit on Amount Issued or Tax Rate - Not Applicable.
    - 2. Limit on Interest Rate - Not Applicable.
    - 3. Limit on Term - Not Applicable.
    - 4. Required Approvals - Not Applicable.
  - B. Revenue Debt - A river authority generally has authority to issue bonds or notes payable from revenues.
    - 1. Limit on Amount Issued - Usually no limit on the amount of revenue debt which may be issued.
    - 2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.

RIVER AUTHORITY\*

3. Limit on Term - Usually limited to 40 years.
4. Required Approvals - Usually must be approved by the Attorney General.

C. Combination Tax/Revenue Debt - A river authority usually has no authority to issue combination tax/revenue debt.

1. Limit on Amount Issued - Not Applicable.
2. Limit on Interest Rate - Not Applicable.
3. Limit on Term - Not Applicable.
4. Required Approvals - Not Applicable.

VI. Operation and Maintenance Financing

A. Rates - A river authority generally has authority to impose rates for water and wastewater service. Such rates are not regulated by the Texas Water Commission unless a complaint is filed by a purchaser of water and surface water is being supplied. Wastewater rates are unregulated.

B. Maintenance Tax - A river authority usually has no authority to levy a maintenance tax.

C. Standby Fees - A river authority usually has no specific authority to adopt standby fees.

D. Special Assessments - A river authority usually has no authority to impose special assessments.

E. Debt Issuance - A river authority usually has authority to issue revenue debt to pay operation and maintenance expenses.

VII. Annexation - A river authority usually has no authority to annex and is limited to the boundaries fixed by legislation.

RIVER AUTHORITY\*

- VIII. Exclusion - A river authority usually has no authority to exclude land and is limited to the boundaries fixed by legislation.
- IX. Service Area Limits - A river authority often has specific authority to serve areas outside of its boundaries. A river authority must obtain a certificate of convenience and necessity from the Texas Water Commission only if it desires to serve an area within the certificated area of another utility.
- X. Eminent Domain - A river authority usually has authority to use eminent domain to acquire land or any interest therein inside or outside its boundaries.

\* Since each river authority is usually controlled by a statute specific to that authority, only generalizations can be made in this report. For individual river authorities, reference should be made to the specific statute governing the river authority.

PUBLIC UTILITY AGENCY

- I. Legal Authority - Art. 1110f, Tex. Rev. Civ. Stat. Ann.
- II. Municipal Water/Wastewater Powers - A public utility agency has the power to own and operate wastewater systems, but no authority for water systems.
- III. Method of Creation - A public utility agency is created by agreement of, and concurrent ordinances or resolutions adopted by, the governing bodies of two or more political subdivisions with the power to provide wastewater service.
- IV. Management Control
  - A. Number and Qualifications - Determined by the agreement of the political subdivisions creating the public utility agency.
  - B. Term - Determined by the agreement of the political subdivisions creating the public utility agency.
  - C. Method of Selection - Appointed by the governing bodies of the political subdivisions creating the public utility agency.
- V. Capital Financing Authority
  - A. Tax Debt - A public utility agency has no authority to issue tax debt.
    - 1. Limit on Amount Issued or Tax Rate - Not Applicable.
    - 2. Limit on Interest Rate - Not Applicable.
    - 3. Limit on Term - Not Applicable.
    - 4. Required Approvals - Not Applicable.
  - B. Revenue Debt - A public utility agency has authority to issue revenue debt.
    - 1. Limit on Amount Issued - No limit on the amount of revenue debt which may be issued.

PUBLIC UTILITY AGENCY

2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
  3. Limit on Term - Limited to 40 years.
  4. Required Approvals - Must be approved by the Attorney General.
- C. Combination Tax/Revenue Debt - A public utility agency has no authority to issue combination tax/revenue debt.
1. Limit on Amount Issued - Not Applicable.
  2. Limit on Interest Rate - Not Applicable.
  3. Limit on Term - Not Applicable.
  4. Required Approvals - Not Applicable.

VI. Operation and Maintenance Financing

- A. Rates - A public utility agency has authority to impose rates for wastewater service. Such rates are not regulated by the Texas Water Commission unless a complaint is filed and surface water is being supplied.
- B. Maintenance Tax - A public utility agency has no authority to levy a maintenance tax.
- C. Standby Fees - A public utility agency has no specific authority to impose standby fees, but has general authority to impose rates.
- D. Special Assessments - A public utility agency has no authority to impose special assessments.
- E. Debt Issuance - A public utility agency has authority to issue revenue debt for operation and maintenance expenses.

PUBLIC UTILITY AGENCY

- VII. Annexation - The boundaries of a public utility agency are the boundaries of the political subdivisions which compose the agency. A public utility agency can effectively annex land by adding additional political subdivisions by agreement.
- VIII. Exclusion - The boundaries of a public utility agency are the boundaries of the political subdivisions which compose the agency. A public utility agency can effectively exclude land by removing political subdivisions by agreement.
- IX. Service Area Limits - A public utility agency has no specific authority to serve outside its boundaries. A public utility agency needs to obtain a certificate of convenience and necessity from the Texas Water Commission only if it desires to serve an area within the certificated area of another public utility.
- X. Eminent Domain - A public utility agency has no authority to use eminent domain, but the political subdivisions which compose the agency have authority to use eminent domain on behalf of the public utility agency.

## REGIONAL DISTRICT

- I. Legal Authority - Texas Constitution, Art. XVI, Sec. 59; Ch. 50, subch. M, Texas Water Code.
- II. Municipal Water/Wastewater Powers - A regional district has the power to own and operate both water and wastewater systems.
- III. Method of Creation - A regional district may be created in a county with a population of at least 2.2 million or in a county bordering thereto by the Texas Water Commission after a hearing upon a petition presented by (i) the boards of two or more municipal utility districts, water control and improvement districts or fresh water supply districts; (ii) the owner or owners of at least 2,000 contiguous acres; (iii) the commissioners courts of one or more counties for a district within the county; or (iv) the governing body of any city for a district within the city or its extraterritorial jurisdiction.
- IV. Management Control
  - A. Number and Qualifications - Five directors who are residents of the State and at least 18 years old.
  - B. Term - The initial directors serve either two year, four year or six year terms. The permanent directors serve six year staggered terms.
  - C. Method of Selection - Initial directors and permanent directors are appointed by the Texas Water Commission.
- V. Capital Financing Authority
  - A. Tax Debt - A regional district has authority to issue tax debt.
    1. Limit on Amount Issued or Tax Rate - No limit on the amount of tax debt which may be issued.
    2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
    3. Limit on Term - Limited to 40 years from the date of the bonds.

REGIONAL DISTRICT

4. Required Approvals - Must be approved by a majority of the voters, the Texas Water Commission and the Attorney General.

B. Revenue Debt - A regional district has authority to issue revenue debt.

1. Limit on Amount Issued - No limit on the amount of revenue debt which may be issued as revenue notes or revenue bonds.

2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Stat. Ann., for revenue notes and bonds.

3. Limit on Term - Limited to 20 years for revenue notes. Limited to 40 years from their date for revenue bonds.

4. Required Approvals - Revenue notes need not be approved by the voters, the Texas Water Commission or the Attorney General. Revenue bonds need not be approved by the voters, but must be approved by the Texas Water Commission and the Attorney General.

C. Combination Tax/Revenue Debt - A regional district has authority to issue combination tax/revenue debt.

1. Limit on Amount Issued - No limit on the amount of combination tax/revenue debt which may be issued.

2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.

3. Limit on Term - Limited to 40 years from the date of the bonds.

4. Required Approvals - Must be approved by a majority of the voters, the Texas Water Commission and the Attorney General.

VI. Operation and Maintenance Financing

A. Rates - A regional district has authority to impose all necessary charges for district service.

REGIONAL DISTRICT

- B. Maintenance Tax - A regional district has authority to levy a maintenance tax only after an election.
  - C. Standby Fees - A regional district has authority to impose all necessary standby fees.
  - D. Special Assessments - A regional district has no specific authority to impose special assessments, but has general authority to impose all necessary charges.
  - E. Debt Issuance - A regional district has authority to issue bonds for expenses related to operation and repair.
- VII. Annexation - A regional district has authority to annex land upon a petition signed by (i) 50 or a majority in value of the landowners in a defined area; (ii) a single landowner of 2,000 or more acres of land in the area; or (iii) a majority of the governing body of a municipal utility district, water control and improvement district, fresh water supply district, county or city, followed by a hearing and board action. After an election in the enlarged district on the question of assumption of the indebtedness and taxation by the annexed area, the annexed area becomes subject to all outstanding indebtedness and voted but unissued indebtedness may be issued.
- VIII. Exclusion - A regional district has authority to exclude land before the first tax bond authorization election, by board initiative or upon a petition from a landowner in the area to be excluded, both of which must be followed by a hearing and board action.
- IX. Service Area Limits - A regional district has authority to serve areas inside or outside its boundaries. A certificate of convenience and necessity is required from the Texas Water Commission only if it desires to serve an area within the certificated area of another utility.
- X. Eminent Domain - A regional district has authority to use eminent domain to acquire a fee simple or an easement inside the district or within five miles of the district boundaries.

WATER CONTROL AND IMPROVEMENT DISTRICT

- I. Legal Authority - Texas Constitution, Art. III, Sec. 52, or Art. XVI, Sec. 59; Ch. 51, Texas Water Code.
- II. Municipal Water/Wastewater Powers - An Art. III, Sec. 52 district may not provide municipal water or wastewater service. An Art. XVI, Sec. 59 district has the power to own and operate water systems and may acquire the power to own and operate wastewater systems upon approval from the Texas Water Commission.
- III. Method of Creation - A water control and improvement district may be created by the county commissioners court for single-county districts and by the Texas Water Commission for multi-county districts, after a hearing upon a petition signed by 50 or a majority in value of the landowners in the district.
- IV. Management Control
  - A. Number and Qualifications - Five directors, who are residents of the State, own land subject to taxation in the district, are at least 21 years of age and are not disqualified.
  - B. Term - Directors serve four year staggered terms.
  - C. Method of Selection - Initial directors are appointed by the county commissioners court. Subsequent directors are elected by the voters in the district.
- V. Capital Financing Authority
  - A. Tax Debt - A water control and improvement district has authority to issue tax debt.
    - 1. Limit on Amount Issued or Tax Rate - Amount issued is limited to 1/4 of the assessed valuation of the real property in the district for an Art. III, Sec. 52 district. No limit on the amount of tax debt which may be issued by an Art. XVI, Sec. 59 district.
    - 2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
    - 3. Limit on Term - Limited to 40 years from the date of the bonds.

WATER CONTROL AND IMPROVEMENT DISTRICT

4. Required Approvals - Art. III, Sec. 52 district bonds must be approved by 2/3 of the voters, while Art. XVI, Sec. 59 district bonds must be approved by a majority of the voters. All district tax bonds must be approved by the Texas Water Commission and the Attorney General.
- B. Revenue Debt - A water control and improvement district has authority to issue revenue debt.
1. Limit on Amount Issued - No limit on the amount of revenue notes which may be issued. Amount of revenue bonds which may be issued is limited to 1/4 of the assessed valuation of the real property in the district for an Art. III, Sec. 52 district. No limit on the amount of revenue bonds which may be issued for an Art. XVI, Sec. 59 district.
  2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann., for both revenue notes and revenue bonds.
  3. Limit on Term - Limited to 20 years for revenue notes. Limited to 40 years for revenue bonds.
  4. Required Approvals - Revenue notes need not be approved by the voters, the Texas Water Commission or the Attorney General. Revenue bonds for an Art. III, Sec. 52 district must be approved by 2/3 of the voters, while those for an Art. XVI, Sec. 59 district must be approved by a majority of the voters. All district revenue bonds must be approved by the Texas Water Commission and the Attorney General.
- C. Combination Tax/Revenue Debt - A water control and improvement district has authority to issue combination tax/revenue debt.
1. Limit on Amount Issued - Amount of combination tax/revenue bonds which may be issued is limited to 1/4 of the assessed valuation of the real property in the district for an Art. III, Sec. 52 district. No limit on the amount of combination tax/revenue bonds which may be issued for an Art. XVI, Sec. 59 district.

WATER CONTROL AND IMPROVEMENT DISTRICT

2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
3. Limit on Term - Limited to 40 years from the date of the bonds.
4. Required Approvals - Art. III, Sec. 52 district bonds must be approved by 2/3 of the voters, while Art. XVI, Sec. 59 district bonds must be approved by a majority of the voters. All district bonds must be approved by the Texas Water Commission and the Attorney General.

VI. Operation and Maintenance Financing

- A. Rates - A water control and improvement district has unlimited authority to impose maintenance and operation charges for service rendered. Such charges may be based upon the quantity of water furnished.
- B. Maintenance Tax - A water control and improvement district has unlimited authority to levy a maintenance tax only after an election.
- C. Standby Fees - A water control and improvement district has authority to adopt standby fees on undeveloped property. If the ratio of assessed valuation to bonded indebtedness is at least 15 to 1, such charge must be approved by the Texas Water Commission and imposed for a period not to exceed three years.
- D. Special Assessments - A water control and improvement district has no specific authority to impose special assessments but has general authority to levy taxes on the benefits basis.
- E. Debt Issuance - A water control and improvement district has limited authority to issue debt to fund operation and maintenance expenses.

- VII. Annexation - A water control and improvement district has authority to annex land upon a petition signed by the landowners in the area to be annexed followed by board action, or upon a petition signed by a majority of the landowners in a designated area after a hearing, board action and an election ratifying the annexation and assumption of indebtedness and taxes.

WATER CONTROL AND IMPROVEMENT DISTRICT

- VIII. Exclusion - A water control and improvement district must hold a hearing and exclude certain land from the district before the initial bond authorization election. After bonds are sold, with the consent of the bondholders and after a hearing and action by the board, nonagricultural or nonirrigable land may be excluded from the district by substituting agricultural or irrigable land of equal acreage and value.
- IX. Service Area Limits - A water control and improvement district has authority to serve areas inside or outside its boundaries. A certificate of convenience and necessity is required from the Texas Water Commission only if it desires to serve an area within the certificated area of another utility.
- X. Eminent Domain - A water control and improvement district has authority to use eminent domain to acquire a fee simple or an easement on public or private land located inside or outside its boundaries.

UNDERGROUND WATER CONSERVATION DISTRICT

- I. Legal Authority - Texas Constitution, Art. XVI, Sec. 59; Ch. 52, Texas Water Code.
- II. Municipal Water/Wastewater Powers - An underground water conservation district has the power to own and operate water systems, but no authority to own or operate wastewater systems.
- III. Method of Creation - An underground water conservation district may be created, subject to confirmation election, by the Texas Water Commission upon its own motion or a petition signed by the lesser of 50 or a majority of the landowners within the district.
- IV. Management Cont. ol
  - A. Number and Qualifications - Five directors who reside or own property within the boundaries of the district and are at least 18 years of age.
  - B. Term - Directors serve four year staggered terms.
  - C. Method of Selection - Initial directors are appointed by the Texas Water Commission. Subsequent directors are elected individually by the voters in each respective precinct in the district.
- V. Capital Financing Authority
  - A. Tax Debt - An underground water conservation district has authority to issue tax debt.
    - 1. Limit on Amount Issued or Tax Rate - No limit on the amount of tax debt which may be issued. No limit on the tax rate.
    - 2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
    - 3. Limit on Term - Limited to 50 years.
    - 4. Required Approvals - Must be approved by a majority of the voters, the Texas Water Commission and the Attorney General.

UNDERGROUND WATER CONSERVATION DISTRICT

- B. Revenue Debt - An underground water conservation district has authority to issue revenue debt.
  - 1. Limit on Amount Issued - No limit on the amount of revenue debt which may be issued.
  - 2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
  - 3. Limit on Term - Limited to 50 years.
  - 4. Required Approvals - Must be approved by the Texas Water Commission and the Attorney General.
  
- C. Combination Tax/Revenue Debt - An underground water conservation district has authority to issue combination tax/revenue debt.
  - 1. Limit on Amount Issued - No limit on the amount of combination tax/revenue debt which may be issued. No limit on tax rate.
  - 2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
  - 3. Limit on Term - Limited to 50 years.
  - 4. Required Approvals - Must be approved by a majority of the voters, the Texas Water Commission and the Attorney General.

VI. Operation and Maintenance Financing

- A. Rates - An underground water district has authority to charge rates to pay operation and maintenance expenses and debt service on bonds. The rates need not be approved by the Texas Water Commission unless a complaint is filed and surface water is being supplied.
  
- B. Maintenance Tax - An underground water conservation district has authority to levy a maintenance tax at a rate up to \$0.50 per \$100 of assessed valuation.

UNDERGROUND WATER CONSERVATION DISTRICT

- C. Standby Fees - An underground water conservation district has no specific authority to impose standby fees.
  - D. Special Assessments - An underground water conservation district has no authority to impose special assessments.
  - E. Debt Issuance - An underground water conservation district has no specific authority to issue debt to pay operation and maintenance expenses.
- VII. Annexation - An underground water conservation district has authority to annex land only upon a finding by the Texas Water Commission that the area should be so annexed and upon a favorable election.
- VIII. Exclusion - An underground water conservation district has no authority to exclude land.
- IX. Service Area Limits - An underground water conservation district has no authority to serve outside its boundaries. An underground water conservation district must obtain a certificate of convenience and necessity from the Texas Water Commission only if it desires to serve an area within the certificated area of another utility.
- X. Eminent Domain - An underground water conservation district has authority to use eminent domain to condemn land or any interest therein inside its boundaries.

FRESH WATER SUPPLY DISTRICT

- I. Legal Authority - Texas Constitution, Art. XVI, Sec. 59; Ch. 53, Texas Water Code.
- II. Municipal Water/Wastewater Powers - A fresh water supply district has the power to own and operate water systems and may acquire the power to own and operate wastewater systems after an election, if other wastewater service is unavailable for the district.
- III. Method of Creation - A fresh water supply district may be created by an election ordered by the county commissioners court, after a hearing upon a petition signed by the lesser of 50 or a majority of the landowners in the district.
- IV. Management Control
  - A. Number and Qualifications - Five supervisors who are residents of the district, owners of land in the district, at least 21 years old at the time of election and are not disqualified.
  - B. Term - Initial supervisors serve until the first or second general election. Subsequent supervisors serve four year staggered terms.
  - C. Method of Selection - Initial and subsequent supervisors are elected by the voters in the district.
- V. Capital Financing Authority
  - A. Tax Debt - A fresh water supply district has authority to issue tax debt.
    - 1. Limit on Amount Issued or Tax Rate - No limit on the amount of tax debt which may be issued.
    - 2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
    - 3. Limit on Term - Limited to 40 years from the date of issuance.
    - 4. Required Approvals - Must be approved by a majority of the voters and the Attorney General.

FRESH WATER SUPPLY DISTRICT

- B. Revenue Debt - A fresh water supply district has authority to issue revenue debt.
  - 1. Limit on Amount Issued - No limit on the amount of revenue debt which may be issued.
  - 2. Limit on Interest Rate - Limited to 15% net effective interest rate for revenue notes and revenue bonds.
  - 3. Limit on Term - Limited to 40 years after issuance.
  - 4. Required Approvals - Revenue notes need not be approved by the voters or the Attorney General. Revenue bonds need not be approved by the voters, but must be approved by the Attorney General.
  
- C. Combination Tax/Revenue Debt - A fresh water supply district has authority to issue combination tax/revenue debt.
  - 1. Limit on Amount Issued - No limit on amount of combination tax/revenue debt which may be issued.
  - 2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
  - 3. Limit on Term - Limited to 40 years after issuance.
  - 4. Required Approvals - Must be approved by a majority of the voters and the Attorney General.

VI. Operation and Maintenance Financing

- A. Rates - A fresh water supply district has authority to impose rates for the sale of water to pay for operation and maintenance expenses.
  
- B. Maintenance Tax - A fresh water supply district has authority to levy a maintenance tax only after an election.

FRESH WATER SUPPLY DISTRICT

- C. Standby Fees - A fresh water supply district has no express authority to impose standby fees.
  - D. Special Assessments - A fresh water supply district has no specific authority to impose special assessments for operation and maintenance.
  - E. Debt Issuance - A fresh water supply district has no specific authority to issue debt for operation and maintenance, but has general authority to issue debt for capital improvements. Such authority may be interpreted to include authority for operation and maintenance bonds.
- VII. Annexation - A fresh water supply district has authority to annex land by board action after a hearing upon a petition signed by 50 or a majority of the landowners in the area to be annexed. The annexation is not final until after an election in the district as enlarged on the question of assumption of the indebtedness.
- VIII. Exclusion - A fresh water supply district has authority to exclude land "to the extent of at least 10 acres contiguous and adjoining the boundaries of the district" by board resolution before the district has sold bonds or levied taxes. If 10 or a majority of the voters in the district request an election on the exclusion, such election must be held before the resolution may be adopted. At any time, after a hearing and board action, the district may under certain circumstances exclude land which has become annexed into a general law city or town. If the owners of 3% of the district land protest the exclusion, an election must be held before the board may act. That portion of the outstanding indebtedness attributable to the excluded territory is determined and the excluded territory is taxed until such amount is ultimately collected.
- IX. Service Area Limits - A fresh water supply district has authority to construct and maintain improvements inside and outside its boundaries. Whether or not the district may serve areas beyond its boundaries is not addressed. A certificate of convenience and necessity is required from the Texas Water Commission only if it desires to serve an area within the certificated area of another utility.
- X. Eminent Domain - A fresh water supply district has authority to use eminent domain to acquire a fee simple or an easement across public or private land located inside or outside its boundaries.

MUNICIPAL UTILITY DISTRICT

- I. Legal Authority - Texas Constitution, Art. XVI, Sec. 59; Ch. 54, Texas Water Code.
- II. Municipal Water/Wastewater Powers - A municipal utility district has the power to own and operate both water and wastewater systems.
- III. Method of Creation - A municipal utility district may be created by the Texas Water Commission after a hearing upon a petition signed by the lesser of 50 or a majority in value of the landowners within the district.
- IV. Management Control
  - A. Number and Qualifications - Five directors who are resident citizens of the State, either own land subject to taxation in the district or are qualified voters within the district, are at least 21 years old and are not disqualified.
  - B. Term - Initial directors serve until the first or second election is held. Subsequent directors serve four year staggered terms.
  - C. Method of Selection - Initial directors are appointed by the Texas Water Commission. Subsequent directors are elected by the voters in the district.
- V. Capital Financing Authority
  - A. Tax Debt - A municipal utility district has authority to issue tax debt.
    - 1. Limit on Amount Issued or Tax Rate - No limit on the amount of tax debt which may be issued.
    - 2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
    - 3. Limit on Term - Limited to 40 years from their date.
    - 4. Required Approvals - Must be approved by a majority of the voters, the Texas Water Commission and the Attorney General.

MUNICIPAL UTILITY DISTRICT

- B. Revenue Debt - A municipal utility district has authority to issue revenue debt.
1. Limit on Amount Issued - No limit on the amount of revenue notes and revenue bonds which may be issued.
  2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann., for both revenue notes and revenue bonds.
  3. Limit on Term - Limited to 20 years for revenue notes. Limited to 40 years from their date for revenue bonds.
  4. Required Approvals - Revenue notes need not be approved by the voters, the Texas Water Commission or the Attorney General. Revenue bonds need not be approved by the voters, but must be approved by the Texas Water Commission and the Attorney General.
- C. Combination Tax/Revenue Debt - A municipal utility district has authority to issue combination tax/revenue debt.
1. Limit on Amount Issued - No limit on the amount of tax/revenue debt which may be issued.
  2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
  3. Limit on Term - Limited to 40 years from their date.
  4. Required Approvals - Must be approved by a majority of the voters, the Texas Water Commission and the Attorney General.

VI. Operation and Maintenance Financing

- A. Rates - A municipal utility district has authority to impose all necessary charges for district service. Such rates are not regulated by the Texas Water Commission unless a complaint is filed by (1) a purchaser of surface water and surface water is being supplied, (2) the lesser of 5% or 10,000 ratepayers outside of the district

MUNICIPAL UTILITY DISTRICT

regarding water or wastewater service, or (3) the lesser of 20,000 or 10% of the qualified voters in the district.

- B. Maintenance Tax - A municipal utility district has authority to levy a maintenance tax only after an election.
  - C. Standby Fees - A municipal utility district has authority to impose standby fees on undeveloped property. If the ratio of assessed valuation to bonded indebtedness is at least 15 to 1, such charge must be approved by the Texas Water Commission and imposed for a period not to exceed three years.
  - D. Special Assessments - A municipal utility district has no specific authority to impose special assessments.
  - E. Debt Issuance - A municipal utility district has authority to issue bonds for operation expenses.
- VII. Annexation - A municipal utility district has authority to annex land by board action upon a petition signed by the landowners in the area to be annexed. The board may require the annexed land to assume its pro rata share of outstanding indebtedness and taxation. Bonds which are voted but unissued may be issued after the annexation if the annexed landowners assume the bonds and authorize the district to levy a tax on the annexed property to pay the bonds. A defined area of land may be added to the district by board action, after a hearing upon a petition signed by 50 or a majority in value of the landowners in the defined area. After an election in the enlarged district on the question of assumption of the indebtedness by and taxation of the annexed area, the annexed area becomes subject to all outstanding indebtedness and voted but unissued indebtedness may be issued.
- VIII. Exclusion - A municipal utility district has authority to exclude land before the first bond authorization election, by board action, after a hearing based upon a petition signed by a landowner in the area to be excluded or board initiative.
- IX. Service Area Limits - A municipal utility district has authority to serve areas inside or outside its boundaries. A certificate of convenience and necessity is required from the Texas Water Commission only if it desires to serve an area within the certificated area of another utility.



WATER IMPROVEMENT DISTRICT

- I. Legal Authority - Texas Constitution, Art. III, Sec. 52, or Art. XVI, Sec. 59; Ch. 55, Texas Water Code.
- II. Municipal Water/Wastewater Powers - An Art. III, Sec. 52 district does not have the power to own or operate water or wastewater systems. An Art. XVI, Sec. 59 district has the power to own and operate water systems only.
- III. Method of Creation - A water improvement district may be created by an election ordered by the county commissioners court for single-county districts and by the Texas Water Commission for multi-county districts, after a hearing based upon a petition signed by the lesser of 50 or a majority in value of the landowners in the district or upon board initiative.
- IV. Management Control
  - A. Number and Qualifications - Five directors who are residents of the State, own land subject to taxation in the district and are more than 21 years old at the time of the election.
  - B. Term - Directors serve four year terms, which upon board action may be made staggered.
  - C. Method of Selection - Initial and subsequent directors are elected by the voters in the district.
- V. Capital Financing Authority
  - A. Tax Debt - A water improvement district has authority to issue tax debt.
    - 1. Limit on Amount Issued or Tax Rate - Amount is limited to 1/4 of the assessed valuation of the real property in the district for an Art. III, Sec. 52 district. No limit on the amount of tax debt which may be issued by an Art. XVI, Sec. 59 district.
    - 2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.

WATER IMPROVEMENT DISTRICT

3. Limit on Term - Limited to 40 years after issued.
  4. Required Approvals - Art. III, Sec. 52 district bonds must be approved by 2/3 of the voters and Art. XVI, Sec. 59 district bonds must be approved by a majority of the voters. All district bonds must be approved by the Texas Water Commission and must be validated by a district court with approval by the Attorney General and registration of the validation decree by the Comptroller.
- B. Revenue Debt - A water improvement district has authority to issue revenue debt.
1. Limit on Amount Issued - Amount of revenue bonds which may be issued is limited to 1/4 of the assessed valuation of the real property in the district for an Art. III, Sec. 52 district. No limit on the amount of revenue bonds which may be issued by an Art. XVI, Sec. 59 district.
  2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
  3. Limit on Term - Limited to 40 years after issued.
  4. Required Approvals - Revenue bonds need not be approved by the voters, but must be approved by the Texas Water Commission and must be validated by a district court with approval of the Attorney General and registration of the validation decree by the Comptroller.
- C. Combination Tax/Revenue Debt - A water improvement district has authority to issue combination tax/revenue debt.
1. Limit on Amount Issued - Amount of combination tax/revenue bonds which may be issued is limited to 1/4 of the assessed valuation of the real property in the district for an Art. III, Sec. 52 district. No limit on amount of combination tax/revenue debt which may be issued for an Art. XVI, Sec. 59 district.
  2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
  3. Limit on Term - Limited to 40 years after issuance.

WATER IMPROVEMENT DISTRICT

4. Required Approvals - Art. III, Sec. 52 district bonds must be approved by 2/3 of the voters, while Art. XVI, Sec. 59 district bonds must be approved by a majority of the voters. All district bonds must be approved by the Texas Water Commission and must be validated by a district court with approval by the Attorney General and registration of the validation decree by the Comptroller.

VI. Operation and Maintenance Financing

- A. Rates - A water improvement district has authority to impose charges for the use and sale of water and other services.
- B. Maintenance Tax - A water improvement district has no express authority to levy a maintenance tax.
- C. Standby Fees - A water improvement district has no express authority to impose standby fees.
- D. Special Assessments - A water improvement district has authority to impose special assessments and such assessments must be imposed for operation and maintenance expenses. 1/3 to 2/3 of all district expenses must be paid by assessment against all irrigable land on a per acre basis and the remaining expenses must be paid by other water users.
- E. Debt Issuance - A water improvement district has authority to issue debt for operation and maintenance expenses. Such debt need not be approved by the voters.

- VII. Annexation - A water improvement district has authority to annex land by board action upon a petition signed by the landowners in the area to be annexed. Upon annexation, the annexed land becomes subject to district indebtedness and operation and maintenance expenses. A defined area of land may be added by board action, after a hearing upon a petition signed by 50 or a majority of the landowners in the annexed area. Before such an annexation is final, separate elections must be held in the district and the annexed area on the question of the annexation and the assumption of indebtedness and taxation. Annexation in an Art. III, Sec. 52 district requires approval by 2/3 of the voters, while annexation in an Art. XVI, Sec. 59 district requires approval by a majority of the voters.

WATER IMPROVEMENT DISTRICT

- VIII. Exclusion - A water improvement district has authority to exclude land prior to the issuance of bonds by board action after a hearing upon a petition signed by a landowner in the area to be excluded. At any time, land may be excluded upon petition from an owner of at least ten acres of land after an election in the district on the question. The excluded land remains subject to district taxes levied to service indebtedness which is outstanding at the time of exclusion, but only to the extent of the excluded land's pro rata share of the indebtedness.
  
- IX. Service Area Limits - A water improvement district has authority to serve inside and outside its boundaries. A certificate of convenience and necessity is required from the Texas Water Commission only if it desires to serve an area within the certificated area of another utility.
  
- X. Eminent Domain - A water improvement district has authority to use eminent domain to condemn any property interests on private or public land inside or outside its boundaries.

SPECIAL UTILITY DISTRICT

- I. Legal Authority - Texas Constitution, Art. XVI, Sec. 59; Ch. 65, Texas Water Code.
- II. Municipal Water/Wastewater Powers - A special utility district has the power to own and operate both water and wastewater systems.
- III. Method of Creation - A special utility district may be created by the Texas Water Commission upon a request by the board of directors of a nonprofit water supply corporation created under Art. 1434a, Tex. Rev. Civ. Stat. Ann., prior to January 1, 1985.
- IV. Management Control
  - A. Number and Qualifications - From five to eleven directors who are at least 18 years old, residents of the State, and either own land subject to taxation in the district, are a user of the facilities of the district or are qualified voters in the district.
  - B. Term - Directors serve any term up to three years as determined by the initial board of directors.
  - C. Method of Selection - Initial directors are appointed by the Texas Water Commission. Subsequent directors are elected by the voters in the district.
- V. Capital Financing Authority
  - A. Tax Debt - A special utility district has no authority to issue tax debt.
    - 1. Limit on Amount Issued or Tax Rate - Not Applicable.
    - 2. Limit on Interest Rate - Not Applicable.
    - 3. Limit on Term - Not Applicable.
    - 4. Required Approvals - Not Applicable.

SPECIAL UTILITY DISTRICT

- B. Revenue Debt - A special utility district has authority to issue revenue debt in the form of bonds or notes.
  - 1. Limit on Amount Issued - No limit on the amount of revenue debt which may be issued by a special utility district.
  - 2. Limit on Interest Rate - Limited to 15% net effective interest rate by Art. 717k-2, Tex. Rev. Civ. Stat. Ann.
  - 3. Limit on Term - Limited to 40 years.
  - 4. Required Approvals - Must be approved by the Texas Water Commission and the Attorney General.
  
- C. Combination Tax/Revenue Debt - A special utility district has no authority to issue combination tax/revenue debt.
  - 1. Limit on Amount Issued - Not Applicable.
  - 2. Limit on Interest Rate - Not Applicable.
  - 3. Limit on Term - Not Applicable.
  - 4. Required Approvals - Not Applicable.

VI. Operation and Maintenance Financing

- A. Rates - A special utility district has authority to impose rates for water and wastewater service. Such rates are not regulated by the Texas Water Commission unless a complaint is filed by a purchaser of water and surface water is being supplied. Wastewater rates are unregulated.
  
- B. Maintenance Tax - A special utility district has no authority to levy a maintenance tax.
  
- C. Standby Fees - A special utility district has specific authority to impose standby fees.

SPECIAL UTILITY DISTRICT

- D. Special Assessments - A special utility district has no authority to impose special assessments.
- E. Debt Issuance - A special utility district has authority to issue revenue debt to pay operation and maintenance expenses.
- VII. Annexation - A special utility district has authority to annex land upon a petition signed by a majority of the landowners in the area to be annexed.
- VIII. Exclusion - A special utility district has authority to exclude land by board initiative or upon a petition signed by the landowners in the area to be excluded, under certain circumstances.
- IX. Service Area Limits - A special utility district has no authority to serve areas outside of its boundaries. A special utility district must obtain a certificate of convenience and necessity from the Texas Water Commission only if it desires to serve an area within the certificated area of another utility.
- X. Eminent Domain - A special utility district has authority to use eminent domain to acquire land or any interest therein inside or outside its boundaries.

ARTICLE 1434A NONPROFIT WATER SUPPLY CORPORATION

- I. Legal Authority - Art. 1434A, Tex. Rev. Civ. Stat. Ann.; Art. 1396, Tex. Rev. Civ. Stat. Ann.
- II. Municipal Water/Wastewater Powers - A nonprofit water supply corporation has the power to own and operate both water and wastewater systems.
- III. Method of Creation - A nonprofit water supply corporation may be created by the adoption of articles of incorporation by three or more persons.
- IV. Management Control
  - A. Number and Qualifications - Any number of directors up to 21. There are no specific qualifications.
  - B. Term - Directors serve three year staggered terms.
  - C. Method of Selection - Initial directors are specified in the articles of incorporation. Subsequent directors are elected by the shareholders/members of the corporation.
- V. Capital Financing Authority
  - A. Tax Debt - A nonprofit corporation has no authority to issue tax debt.
    - 1. Limit on Amount Issued or Tax Rate - Not Applicable.
    - 2. Limit on Interest Rate - Not Applicable.
    - 3. Limit on Term - Not Applicable.
    - 4. Required Approvals - Not Applicable.
  - B. Revenue Debt - A nonprofit water supply corporation has authority to issue revenue debt.
    - 1. Limit on Amount Issued - No limit on the amount of revenue debt which may be issued.

ARTICLE 1434A NONPROFIT WATER SUPPLY CORPORATION

2. Limit on Interest Rate - Limited by usury laws.
  3. Limit on Term - No limit on term.
  4. Required Approvals - No approvals required.
- C. Combination Tax/Revenue Debt - A nonprofit corporation has no authority to issue combination tax/revenue debt.
1. Limit on Amount Issued - Not Applicable.
  2. Limit on Interest Rate - Not Applicable.
  3. Limit on Term - Not Applicable.
  4. Required Approvals - Not Applicable.

VI. Operation and Maintenance Financing

- A. Rates - A nonprofit corporation has authority to impose rates for water and wastewater service. Such rates are not regulated by the Texas Water Commission; however, the Texas Water Commission may assume jurisdiction over the rates of a nonprofit water supply corporation upon a petition signed by the lesser of 5% or 100 of the ratepayers of such a corporation.
- B. Maintenance Tax - A nonprofit corporation has no authority to levy a maintenance tax.
- C. Standby Fees - A nonprofit corporation has no specific authority to impose standby fees.
- D. Special Assessments - A nonprofit corporation has no authority to impose special assessments.
- E. Debt Issuance - A nonprofit corporation has authority to issue revenue debt for operation and maintenance expenses.

ARTICLE 1434A NONPROFIT WATER SUPPLY CORPORATION

- VII. Annexation - Not applicable. A nonprofit corporation has no geographical boundary.
- VIII. Exclusion - Not applicable. A nonprofit corporation has no geographical boundary.
- IX. Service Area Limits - A nonprofit corporation must obtain a certificate of convenience and necessity from the Texas Water Commission for its original service area. Thereafter, it may serve other areas without getting a certificate of convenience and necessity for the additional areas unless such areas are within the certificated area of another utility.
- X. Eminent Domain - A nonprofit corporation has limited authority to use eminent domain to condemn land necessary for the construction of supply reservoirs or standpipes for water works.

FOR PROFIT CORPORATION

- I. Legal Authority - Business Corporation Act; Art. 1446c, Tex. Rev. Civ. Stat. Ann.; Ch. 13, Texas Water Code.
- II. Municipal Water/Wastewater Powers - A corporation has the power to own and operate both water and wastewater systems.
- III. Method of Creation - A corporation may be created by filing articles of incorporation with the Secretary of State who, upon such filing, will issue a certificate of incorporation.
- IV. Management Control
  - A. Number and Qualifications - One or more directors. Directors need not be residents of the State or shareholders of the corporation.
  - B. Term - In general, directors serve one year terms. When the number of directors is nine or greater, directors may be classified into two or three classes, in which case directors serve two or three year staggered terms, respectively.
  - C. Method of Selection - Initial directors are specified in the articles of incorporation. Subsequent directors are elected by the shareholders at the corporation's annual meeting.
- V. Capital Financing Authority
  - A. Tax Debt - A corporation has no authority to issue tax debt.
    - 1. Limit on Amount Issued or Tax Rate - Not Applicable.
    - 2. Limit on Interest Rate - Not Applicable.
    - 3. Limit on Term - Not Applicable.
    - 4. Required Approvals - Not Applicable.

FOR PROFIT CORPORATION

- B. Revenue Debt - A corporation has authority to issue revenue debt.
  - 1. Limit on Amount Issued - No limit on the amount of revenue debt which may be issued.
  - 2. Limit on Interest Rate - Limited by usury laws.
  - 3. Limit on Term - No limit on term.
  - 4. Required Approvals - Must be approved by Securities and Exchange Commission and Texas Securities Commission.
  
- C. Combination Tax/Revenue Debt - A corporation has no authority to issue combination tax/revenue debt.
  - 1. Limit on Amount Issued - Not Applicable.
  - 2. Limit on Interest Rate - Not Applicable.
  - 3. Limit on Term - Not Applicable.
  - 4. Required Approvals - Not Applicable.

VI. Operation and Maintenance Financing

- A. Rates - A corporation has authority to impose rates for water and wastewater service to the extent allowed by the municipality in which the corporation is located and the Texas Water Commission.
  
- B. Maintenance Tax - A corporation has no authority to levy a maintenance tax.
  
- C. Standby Fees - A corporation has authority to impose standby fees to the extent allowed by the municipality in which the corporation is located and the Texas Water Commission.

FOR PROFIT CORPORATION

- D. Special Assessments - A corporation has no authority to impose special assessments.
- E. Debt Issuance - A corporation has authority to issue revenue debt for operation and maintenance expenses.
- VII. Annexation - Not applicable. A corporation has no geographical boundary.
- VIII. Exclusion - Not applicable. A corporation has no geographical boundary.
- IX. Service Area Limits - A corporation must obtain a certificate of convenience and necessity from the Texas Water Commission for its original service area. Thereafter, it may serve other areas without getting a certificate of convenience and necessity for the additional areas unless such areas are within the certificated area of another utility.
- X. Eminent Domain - A corporation has authority to use public property and has limited authority to use eminent domain to acquire private property necessary for the construction of supply reservoirs or standpipes for waterworks.



**APPENDIX B**  
**Survey Questionnaire - Short Form**

# TEXAS WATER DEVELOPMENT BOARD

## UTILITY SURVEY

**1. BACKGROUND INFORMATION**

Utility Name \_\_\_\_\_  
 Street Address \_\_\_\_\_  
 \_\_\_\_\_  
 City, County and Zip Code \_\_\_\_\_  
 Telephone Number \_\_\_\_\_  
 Name of Individual Completing Questionnaire \_\_\_\_\_  
 Title \_\_\_\_\_

**2. YEAR UTILITY FOUNDED (Put year in box)**

**3. TYPE OF UTILITY (Put number in box)**

- |  |   |
|--|---|
| 1. Fresh Water Supply District<br>2. Municipal Utility District<br>3. Municipality<br>4. Privately Held/Investor Owned<br>5. River Authority | 6. Waste Disposal Authority<br>7. Water Control & Improvement District<br>8. Water Improvement District<br>9. Water Supply Corporation<br>10. Other |
|--|---|

**4. ACTIVITIES OF UTILITY**

**A. Water and Wastewater (Put number in box)**

1. Water only  
 2. Wastewater only  
 3. Both Water and Wastewater

**B. List any other activities, such as electricity generation or solid waste management, involving your utility:**

\_\_\_\_\_

\_\_\_\_\_

**5. EMPLOYEES \* (Estimate the number of full-time employees working for your utility. Assume that two half-time employees equal one full-time employee)**

Water		Wastewater		Total
	+		=	

**6. ANNUAL REVENUES AND OTHER INCOME\***

Operating Rate Revenues  
 Capital Recovery Charges (Connection charges, impact fees, etc.)  
 Taxes  
 Interest Income  
 Other\*\*  
 Total

Water		Wastewater		Total
\$	+	\$	=	\$
	+		=	
	+		=	
	+		=	
\$	+	\$	=	\$

\*\*Description: \_\_\_\_\_

\_\_\_\_\_

\*Annual amounts from your most recently completed fiscal year.

7. ANNUAL EXPENDITURES\*

Operating and Maintenance Expense (Excluding depreciation)

	Water	+	Wastewater	=	Total
- Labor	\$		\$		\$
- Chemicals					
- Energy					
- Other					
Subtotal - O&M Expense					
Payment of Debt Service					
Capital Improvements					
Transfer to Other Agency **					
Increase in Reserves/Fund Balances					
<b>Total</b>	\$		\$		\$
Depreciation Expense	\$		\$		\$

\*\*If applicable, please describe: \_\_\_\_\_

8. OUTSTANDING LONG-TERM DEBT (Approximate debt related to water and wastewater facilities)

Water	+	Wastewater	=	Total
\$		\$		\$

9. FIXED ASSETS\* (Please provide the Net Book Value of utility assets devoted to water and/or wastewater service from your most recent balance sheet. Net Book Value equals Book Value of assets less Accumulated Depreciation.)

Water	+	Wastewater	+	General	=	Total
						\$

10. NUMBER OF CUSTOMERS\*(Please provide total and, if possible, by customer class.)

	Residential	+	Commercial	+	Industrial	+	Agricultural	+	Wholesale	=	Total
Water											
Wastewater											

11. CHANGE IN NUMBER OF CUSTOMERS (Please indicate the change in number of customers over the last year.)

Water	<input type="text"/>	Wastewater	<input type="text"/>
-------	----------------------	------------	----------------------

12. SIZE OF SERVICE TERRITORY (Enter one)

Acres  or  Square miles

13. SYSTEM PLANT CAPACITY (Put the capacity and unit in the box below.)

Water	<input type="text"/>	Unit	_____	Wastewater	<input type="text"/>	Unit	_____
-------	----------------------	------	-------	------------	----------------------	------	-------

14. ANNUAL USAGE INFORMATION\* (Put volumes in boxes. "CCF" is 100 cubic feet or 748 gallons.)

A. Water

Circle Unit

- Annual volume of water purchased by or delivered to your distribution system  1,000 Gallons or CCF
- Annual water volume billed to customers  1,000 Gallons or CCF

B. Wastewater

- Annual volume of wastewater treated by your utility or other utilities  1,000 Gallons or CCF
- Annual wastewater volume billed to customers  1,000 Gallons or CCF

\*Annual amounts from your most recently completed fiscal year.

15. SOURCE OF WATER (Estimate percentage in boxes)

- 1. Surface water self-supplied by your utility  %
  - 2. Surface water purchased from another utility  %
  - 3. Groundwater self-supplied by your utility  %
  - 4. Groundwater purchased from another utility  %
- 100 %

16. WASTEWATER LEVEL OF TREATMENT (Put number corresponding to predominant level of treatment in box)

- 1. Primary
- 2. Secondary (i.e., 30/90, 30/30, 20/20)
- 3. Advanced Secondary (i.e., 10/15, 10/15/3)
- 4. Tertiary

17. ANNUAL WATER BILL (Put dollar amounts of "annual" bills in boxes for the two examples and circle the unit of measure used.)

- Circle Unit
- A. Residential customer with 5/8" meter using either 8,000 gallons or 10 CCF per month      \$  gallons or CCF
  - B. Commercial customer with 2" meter using either 375,000 gallons or 500 CCF per month      \$  gallons or CCF

18. ANNUAL WASTEWATER BILL (Put dollar amounts of "annual" bills in boxes for the two examples and circle the unit of measure used.)

- Circle Unit
- A. Example A from Question 17      \$  gallons or CCF
  - B. Example B from Question 17      \$  gallons or CCF

19. AD VALOREM TAX RATE (Please give your tax rate per \$100 of assessed value. Enter this rate only if tax revenues are used for water and sewer utility.)

Current	Maximum Allowed, if applicable
\$ <input type="text"/>	\$ <input type="text"/>

**We would appreciate your attaching copies of both your rate schedule and your most recent audited financial statements.**

THANK YOU VERY MUCH FOR COMPLETING THIS QUESTIONNAIRE!



**APPENDIX C**  
**Survey Questionnaire - Long Form**

# TEXAS WATER DEVELOPMENT BOARD

## UTILITY SURVEY

**1. BACKGROUND INFORMATION**

Utility Name \_\_\_\_\_  
 Street Address \_\_\_\_\_  
 \_\_\_\_\_  
 City, County and Zip Code \_\_\_\_\_  
 Telephone Number \_\_\_\_\_  
 Name of Individual Completing Questionnaire \_\_\_\_\_  
 Title \_\_\_\_\_

**2. YEAR UTILITY FOUNDED (Put year in box)**

**3. TYPE OF UTILITY (Put number in box)**

- |  |   |
|--|---|
| 1. Fresh Water Supply District<br>2. Municipal Utility District<br>3. Municipality<br>4. Privately Held/Investor Owned<br>5. River Authority | 6. Waste Disposal Authority<br>7. Water Control & Improvement District<br>8. Water Improvement District<br>9. Water Supply Corporation<br>10. Other |
|--|---|

**4. GOVERNING BODY (Put number in box)**

**A. Method of selecting governing body**

- |                |                |
|----------------|----------------|
| 1. Appointment | 3. Combination |
| 2. Election    | 4. Other       |

**B. Number of members of governing body**

**C. Length of terms (Put number of years in box)**

**D. Are these terms concurrent or staggered?**

1. Concurrent  
 2. Staggered

**5. EMPLOYEES \* (Estimate the number of full-time employees working for your utility. Assume that two half-time employees equal one full-time employee)**

Water	+	Wastewater	=	Total

**6. ACTIVITIES OF UTILITY**

**A. Water and Wastewater (Put number in box)**

1. Water only  
 2. Wastewater only  
 3. Both Water and Wastewater

**B. List any other activities, such as electricity generation or solid waste management, involving your utility:**

\_\_\_\_\_

**7. RESPONSIBILITIES (Put an "X" in ALL boxes that apply to services provided by your utility)**

- |   |   |
|---|---|
| <input type="checkbox"/> Water Source of Supply<br><input type="checkbox"/> Water Treatment<br><input type="checkbox"/> Water Pressure and Transmission Mains<br><input type="checkbox"/> Water Street Distribution Lines<br><input type="checkbox"/> Street Collector Sewers<br><input type="checkbox"/> Trunk and Outfall Sewers<br><input type="checkbox"/> Wastewater Treatment | <input type="checkbox"/> Sludge Disposal<br><input type="checkbox"/> Administration<br><input type="checkbox"/> Planning<br><input type="checkbox"/> Engineering<br><input type="checkbox"/> Finance<br><input type="checkbox"/> Regulation<br><input type="checkbox"/> Laboratory Work |
|---|---|

\*Annual amounts from your most recently completed fiscal year.

8. POTENTIALLY TROUBLESOME AREAS (Use the scale below to evaluate each area)

Scale:	1 - Major Problem	2 - Occasional Problem	3 - Not a Problem
--------	-------------------	------------------------	-------------------

WATER

- |   |   |
|---|---|
| <input type="checkbox"/> Sufficient source of supply                                    | <input type="checkbox"/> Water pressure                                   |
| <input type="checkbox"/> Financial ability to expand service area in response to growth | <input type="checkbox"/> Potential cross-connections                      |
| <input type="checkbox"/> Legal ability to expand service area in response to growth     | <input type="checkbox"/> Contaminated supplies                            |
| <input type="checkbox"/> Water color  | <input type="checkbox"/> System leaks/water loss                          |
| <input type="checkbox"/> Water taste or odor  | <input type="checkbox"/> Compliance with legal or regulatory requirements |
| <input type="checkbox"/> Ability to provide water for fire protection                   | <input type="checkbox"/> Customer service costs and rates                 |
| <input type="checkbox"/> Plant capacity   | <input type="checkbox"/> Properly certified operators                     |
|   | <input type="checkbox"/> Water line capacity                              |

WASTEWATER

- |   |   |
|---|---|
| <input type="checkbox"/> Financial ability to expand service area in response to growth | <input type="checkbox"/> Customers discharging high-strength/toxic wastes |
| <input type="checkbox"/> Legal ability to expand service area in response to growth     | <input type="checkbox"/> Infiltration and inflow                          |
| <input type="checkbox"/> Seasonal flows   | <input type="checkbox"/> Compliance with legal or regulatory requirements |
| <input type="checkbox"/> Plant capacity for growth (extension capacity)                 | <input type="checkbox"/> Customer service costs and rates                 |
| <input type="checkbox"/> Sewer line capacity  | <input type="checkbox"/> Properly certified operators                     |
|   | <input type="checkbox"/> Seasonal plant performance                       |

WATER AND WASTEWATER

- |  |  |
|--|--|
| <input type="checkbox"/> Service response time | <input type="checkbox"/> Service area contracts  |
| <input type="checkbox"/> Delinquent customers  | <input type="checkbox"/> Ability to borrow funds |
| <input type="checkbox"/> Laboratory services   |  |

9. SELF-EVALUATIONS (Use scale below to rate the following activities in your jurisdiction. Put responses in boxes)

Scale:	1 - Excellent	4 - Needs improvement
	2 - Good	5 - Poor
	3 - Average	N/A - Not applicable

- |  |  |
|--|--|
| <input type="checkbox"/> Long-range financial planning                 | <input type="checkbox"/> Employee training and continuing education                                    |
| <input type="checkbox"/> Long-range facility planning                  | <input type="checkbox"/> Preventive maintenance  |
| <input type="checkbox"/> Operating and capital budgeting               | <input type="checkbox"/> Communication with governing body<br>(City council, board of directors, etc.) |
| <input type="checkbox"/> Organization structure and job classification | <input type="checkbox"/> Communication with customers  |
| <input type="checkbox"/> Personnel policies                            | <input type="checkbox"/> Customer satisfaction   |
| <input type="checkbox"/> Employee compensation structure               | <input type="checkbox"/> Financial and accounting system   |
| <input type="checkbox"/> Work scheduling (overtime)                    | <input type="checkbox"/> Office automation and data processing   |

10. ANNUAL REVENUES AND OTHER INCOME\*

	Water		Wastewater		Total
Operating Rate Revenues	\$	+	\$	=	\$
Capital Recovery Charges (Connection charges, impact fees, etc.)		+		=	
Taxes		+		=	
Interest Income		+		=	
Other**		+		=	
<b>Total</b>	<b>\$</b>	<b>+</b>	<b>\$</b>	<b>=</b>	<b>\$</b>

\*\*Description: \_\_\_\_\_

11. ANNUAL EXPENDITURES\*

	Water		Wastewater		Total
Operating and Maintenance Expense (Excluding depreciation)	\$	+	\$	=	\$
- Labor		+		=	
- Chemicals		+		=	
- Energy		+		=	
- Other		+		=	
Subtotal - O&M Expense		+		=	
Payment of Debt Service		+		=	
Capital Improvements		+		=	
Transfer to Other Agency **		+		=	
Increase in Reserves/Fund Balances		+		=	
<b>Total</b>	<b>\$</b>	<b>+</b>	<b>\$</b>	<b>=</b>	<b>\$</b>
Depreciation Expense	\$		\$		\$

\*\*If applicable, please describe: \_\_\_\_\_

12. OUTSTANDING LONG-TERM DEBT (Approximate debt related to water and wastewater facilities)

Water		Wastewater		Total
\$	+	\$	=	\$

13. METHODS OF FINANCING MAJOR CAPITAL IMPROVEMENTS

So that we can understand the various methods by which major water and wastewater capital improvements are funded, please indicate the financing sources used by providing the approximate percentage of each used by your utility in funding capital improvements.

<b>Long-term debt:</b>		<b>Grants</b>	
- General obligation bonds	<input type="checkbox"/> %	- Federal	<input type="checkbox"/> %
- Revenue bonds	<input type="checkbox"/> %	- State	<input type="checkbox"/> %
- Contract revenue bonds	<input type="checkbox"/> %	Special assessment (acreage charges, front-footage assessment, etc.)	<input type="checkbox"/> %
Pay-as-you-go (improvements funded from annual revenues)	<input type="checkbox"/> %	Capital recovery charges/impact fees	<input type="checkbox"/> %
Taxes	<input type="checkbox"/> %	Others (describe) _____	<input type="checkbox"/> %
Short-term borrowing	<input type="checkbox"/> %		
		<b>Total</b>	<b>100</b> %

\*Annual amounts from your most recently completed fiscal year.





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**APPENDIX D**  
**Supplemental Survey Data**

## APPENDIX D

### SUPPLEMENTAL SURVEY DATA

This appendix reproduces the data summarized from both the short and long-form survey questionnaires. Pages 1 through 41 summarize financial and operating information while pages 42 through 51 present responses to the qualitative questions (i.e., identification of troublesome areas and self-evaluations). The information provides additional detail to that which is found in Chapters V, VI and VII.

#### FINANCIAL AND OPERATING INFORMATION

<u>Page(s)</u>	<u>Description</u>
1-2	Utility Responsibilities
3	Start-up Date and Number of Employees
4	Information on Governing Body
5-6	Number of Customers by Customer Class
7-10	Annual Revenues
11-18	Annual Expenditures
19	Long-Term Debt and Net Book Value
20-21	Service Territory, System Plant Capacity, and Use and Billed Volume Information
22-23	Source of Water and Level of Treatment
24	Annual Water and Sewer Bill and Ad Valorem Tax Rate
25	Connection Charges
26-31	Annual Revenues by Components
32	Components of Operation and Maintenance Expense
33	Components of Total Annual Expenditures
34	Revenues and Expenditures per 1,000 Gallons
35-36	Net Book Value and Debt Ratio Statistics
37-39	Comparison of Annual Water and Sewer Bill
40-41	Annual Percentage Change in Number of Customers

QUALITATIVE DATA

<u>Page(s)</u>	<u>Description</u>
42-47	Potentially Troublesome Areas
48-51	Utility Self-Evaluations

RESPONSIBILITIES OF UTILITIES

<<LONG FORM>>	RESPONSIBILITIES							
	WATER				SEWER			
	Source of Supply	Treatment	Transmission Mains	Distribution Lines	Street Collectors	Trunk/Outfall	Treatment	Sludge Disposal
<b>NUMBER OF RESPONSES AND PERCENT ANSWERING QUESTION</b>								
<b>BY TYPE OF UTILITY</b>								
Fresh Water Supply District	7 100%	3 43%	4 57%	5 71%	2 29%	2 29%	1 14%	1 14%
Municipal Utility District	16 62%	17 65%	20 77%	19 73%	16 62%	18 69%	19 73%	16 62%
Municipality	21 75%	21 75%	27 96%	26 93%	21 75%	19 68%	22 79%	20 71%
Privately Held/Investor Owned	4 80%	3 60%	4 80%	4 80%	1 20%	2 40%	3 60%	2 40%
River Authority	2 50%	2 50%	2 50%	0 0%	1 25%	1 25%	2 50%	1 25%
Water Control & Improvement Dist.	5 63%	6 75%	7 88%	6 75%	5 63%	5 63%	6 75%	6 75%
Water Improvement District	3 100%	0 0%	0 0%	1 33%	1 33%	0 0%	0 0%	0 0%
Water Supply Corporation	7 50%	4 29%	8 57%	6 43%	0 0%	0 0%	0 0%	1 7%
Other	2 33%	3 50%	4 67%	2 33%	1 17%	1 17%	2 33%	2 33%
<b>BY REGION</b>								
Far West	3 50%	4 67%	4 67%	4 67%	2 33%	2 33%	3 50%	2 33%
Plains	15 88%	11 65%	13 76%	12 71%	6 35%	5 29%	8 47%	8 47%
Central	15 56%	13 48%	21 78%	19 70%	13 48%	12 44%	11 41%	10 37%
East	29 74%	25 64%	30 77%	26 67%	22 56%	24 62%	27 69%	23 59%
South	5 42%	6 50%	8 67%	8 67%	5 42%	5 42%	6 50%	6 50%
<b>Overall Responses</b>	67 66%	59 58%	76 75%	69 68%	48 48%	48 48%	55 54%	49 49%

<< LONG FORM >>	RESPONSIBILITIES					
	Combination					
	Administer	Planning	Engineering	Finance	Regulation	Laboratory Work
<b>NUMBER OF RESPONSES AND PERCENT ANSWERING QUESTION</b>						
<b>BY TYPE OF UTILITY</b>						
Fresh Water Supply District	6 86%	6 86%	4 57%	6 86%	3 43%	1 14%
Municipal Utility District	17 65%	14 54%	16 62%	16 62%	10 38%	11 42%
Municipality	24 86%	22 79%	17 61%	22 79%	22 79%	17 61%
Privately Held/Investor Owned	3 60%	3 60%	2 40%	3 60%	2 40%	1 20%
River Authority	3 75%	3 75%	3 75%	3 75%	3 75%	3 75%
Water Control & Improvement Dist.	7 88%	7 88%	4 50%	6 75%	3 38%	2 25%
Water Improvement District	1 33%	1 33%	1 33%	1 33%	1 33%	0 0%
Water Supply Corporation	7 50%	7 50%	2 14%	5 36%	5 36%	2 14%
Other	5 83%	4 67%	3 50%	4 67%	2 33%	3 50%
<b>BY REGION</b>						
Far West	4 67%	4 67%	4 67%	2 33%	3 50%	2 33%
Plains	14 82%	13 76%	10 59%	13 76%	10 59%	4 24%
Central	20 74%	18 67%	13 48%	19 70%	14 52%	11 41%
East	26 67%	23 59%	18 46%	22 56%	18 46%	18 46%
South	9 75%	9 75%	7 64%	10 83%	6 50%	8 67%
<b>Overall Responses</b>	73 72%	67 66%	52 51%	66 65%	51 50%	40 40%

FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

RANGE OF RESPONSES	ORIGIN	NUMBER OF EMPLOYEES		
	Year Begun	Water	Sewer	Total
	-----	-----	-----	-----

**BY TYPE OF UTILITY**

<b>Fresh Water Supply District</b>				
- Median	1960	2	1	2
- Minimum	1907	1	1	1
- Maximum	1985	13	3	13
<b>Municipal Utility District</b>				
- Median	1975	2	2	4
- Minimum	1923	0	0	0
- Maximum	1986	315	24	60
<b>Municipality</b>				
- Median	1936	5	2	6
- Minimum	1842	0	0	1
- Maximum	1983	2,200	2,160	4,360
<b>Privately Held/Investor Owned</b>				
- Median	1965	2	2	2
- Minimum	1915	1	1	1
- Maximum	1985	42	16	58
<b>River Authority</b>				
- Median	1953	32	20	35
- Minimum	1929	6	1	6
- Maximum	1967	147	180	212
<b>Water Control &amp; Improve. Dist.</b>				
- Median	1958	3	2	4
- Minimum	1920	1	1	1
- Maximum	1985	62	15	62
<b>Water Improvement District</b>				
- Median	1929	2	2	2
- Minimum	1907	1	1	1
- Maximum	1970	3	3	6
<b>Water Supply Corporation</b>				
- Median	1967	2	0	2
- Minimum	1934	1	1	1
- Maximum	1985	26	6	26
<b>Other</b>				
- Median	1963	8	5	10
- Minimum	1908	1	1	1
- Maximum	1979	26	179	189

**BY REGION**

<b>Far West</b>				
- Median	1949	4	3	4
- Minimum	1870	1	1	1
- Maximum	1973	335	175	510
<b>Plains</b>				
- Median	1955	3	2	4
- Minimum	1842	1	1	1
- Maximum	1985	135	69	177
<b>Central</b>				
- Median	1963	4	2	5
- Minimum	1882	0	0	0
- Maximum	1986	455	644	1,099
<b>East</b>				
- Median	1969	3	3	4
- Minimum	1858	1	1	1
- Maximum	1986	2,200	2,160	4,360
<b>South</b>				
- Median	1952	5	5	4
- Minimum	1900	1	1	1
- Maximum	1985	209	194	403

**OVERALL**

- Median	1964	3	2	4
- Minimum	1842	0	0	0
- Maximum	1986	2,200	2,160	4,360

<< LONG FORM >>	GOVERNING BODY	
	Number of Members	Length of Term

<b>AVERAGE RESPONSE</b>
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<b>BY TYPE OF UTILITY</b>
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Fresh Water Supply District	5.0	2.9
Municipal Utility District	5.1	3.6
Municipality	6.3	2.3
Privately Held/Investor Owned	3.0	2.5
River Authority	16.0	6.0
Water Control & Improvement Dist.	5.0	3.5
Water Improvement District	5.7	3.3
Water Supply Corporation	7.2	3.0
Other	6.7	2.3

<b>BY REGION</b>
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Far West	5.2	2.8
Plains	5.5	2.4
Central	7.4	3.4
East	5.6	3.2
South	6.2	2.7

<b>Overall Average</b>	6.1	3.0
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	CURRENT NUMBER OF CUSTOMERS											CHANGE IN NUMBER OF CUSTOMERS	
	Water					Sewer						Water	Sewer
	Residential	Commercial	Industrial	Agriculture	Wholesale	Total	Residential	Commercial	Industrial	Agriculture	Wholesale		

**MEDIANS**

**BY TYPE OF UTILITY**

Fresh Water Supply District	369	25	3	26	2	286	400	30	5	0	0	435	11	9
Municipal Utility District	450	10	3	4	3	450	595	12	3	0	3	569	11	15
Municipality	1,223	115	6	6	4	1,374	1,100	105	5	229	15	1,321	25	20
Privately Held/Investor Owned	400	10	1	0	0	400	400	10	0	0	0	400	4	439
River Authority	2,843	28	9	8	12	39	849	4	2	0	10	24	6	72
Water Control & Improve. Dist.	300	15	2	55	2	330	281	15	0	0	2	423	2	3
Water Improvement District	822	111	0	40	0	66	1,429	215	0	0	0	1,644	22	22
Water Supply Corporation	621	9	11	34	3	615	176	13	0	0	0	191	18	-1
Other	808	74	8	47	8	178	488	94	42	0	33	239	10	10

**BY REGION**

Far West	1,057	70	75	498	831	643	917	70	22	536	334	987	-10	-11
Plains	570	34	3	50	1	586	567	49	5			766	10	18
Central	782	45	5	28	3	842	825	69	3	4	10	902	27	38
East	656	15	5	2	6	541	640	17	5		7	646	10	10
South	690	38	18	10	4	655	1,200	100	14	227	59	1,513	29	40

**OVERALL MEDIAN**

	656	33	5	10	4	626	700	48	5	229	10	838	16	16
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**MEANS**

**BY TYPE OF UTILITY**

Fresh Water Supply District	561	40	3	26	2	502	547	42	4			579	29	10
Municipal Utility District	810	24	5	22	42	973	806	33	5		4	973	53	56
Municipality	7,501	882	28	199	211	9,972	7,492	736	20	249	99	9,946	336	316
Privately Held/Investor Owned	1,350	37	1			1,369	1,468	31				1,487	131	498
River Authority	2,843	28	12	32	32	612	4,049	73	2		12	1,782	11	91
Water Control & Improve. Dist.	486	77	4	197	3	609	494	64			2	684	62	78
Water Improvement District	822	111		41		338	1,429	215				1,644	22	22
Water Supply Corporation	876	27	11	315	3	819	169	20				184	70	1
Other	1,255	84	8	47	7	738	1,199	71	42		33	2,308	33	168

**BY REGION**

Far West	12,219	1,181	75	498	831	9,766	13,214	1,082	43	536	334	14,288	164	286
Plains	2,915	352	30	60	4	2,730	3,988	329	14			4,040	42	106
Central	3,011	335	19	104	18	3,105	4,006	395	13	4	10	4,110	174	147
East	1,586	166	10	3	183	3,773	1,791	183	13		60	4,480	224	276
South	9,993	1,573	32	274	84	9,335	12,968	1,299	25	227	59	13,461	169	173

**OVERALL MEAN**

	3,513	438	21	150	103	4,243	4,511	443	17	249	55	5,550	176	211
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FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

RANGE OF RESPONSES	CURRENT NUMBER OF CUSTOMERS											CHANGE IN NUMBER OF CUSTOMERS	
	Water					Sewer					Water	Sewer	
	Residential	Commercial	Industrial	Agriculture	Wholesale	Total	Residential	Commercial	Industrial	Agriculture			Wholesale

BY TYPE OF UTILITY

Fresh Water Supply District															
- Median	369	25	3	26	2	286	400	30	5	0	0	435	11	9	
- Minimum	112	1	1	2	1	1	84	5	1	0	0	84	-10	-10	
- Maximum	1,465	128	5	50	2	1,603	1,109	115	5	0	0	1,150	117	33	
Municipal Utility District															
- Median	450	10	3	4	3	450	595	12	3	0	3	569	11	15	
- Minimum	2	1	1	1	1	1	2	1	1	0	2	1	-106	-54	
- Maximum	11,000	165	12	96	354	11,000	3,862	351	12	0	7	9,709	890	887	
Municipality															
- Median	1,223	115	6	6	4	1,374	1,100	105	5	229	15	1,321	25	20	
- Minimum	87	1	1	3	1	4	74	4	1	1	1	16	-692	-653	
- Maximum	217,671	31,717	283	948	1,589	381,077	217,671	18,576	104	536	334	372,400	20,182	19,788	
Privately Held/Investor Owned															
- Median	400	10	1	0	0	400	400	10	0	0	0	400	4	439	
- Minimum	50	2	1	0	0	50	119	1	0	0	0	120	-200	-49	
- Maximum	12,625	183	1	0	0	12,808	8,169	121	0	0	0	8,290	1,225	1,164	
River Authority															
- Median	2,843	28	9	8	12	39	849	4	2	0	10	24	6	72	
- Minimum	1,700	20	1	2	1	1	140	2	2	0	2	2	2	1	
- Maximum	3,985	35	38	87	118	4,023	11,158	280	2	0	24	11,438	25	200	
Water Control & Improve. Dist.															
- Median	300	15	2	55	2	330	281	15	0	0	2	423	2	3	
- Minimum	1	1	1	3	1	1	1	1	0	0	2	2	-80	-80	
- Maximum	1,731	458	9	674	7	1,850	1,731	300	0	0	2	1,850	1,004	1,004	
Water Improvement District															
- Median	822	111	0	40	0	66	1,429	215	0	0	0	1,644	22	22	
- Minimum	100	1	0	1	0	1	1,429	215	0	0	0	1,644	22	22	
- Maximum	1,543	220	0	82	0	1,763	1,429	215	0	0	0	1,644	22	22	
Water Supply Corporation															
- Median	621	9	11	34	3	615	176	13	0	0	0	191	18	-1	
- Minimum	110	1	4	1	2	8	110	12	0	0	0	123	-13	-5	
- Maximum	6,643	507	18	2,315	3	9,259	212	36	0	0	0	230	1,740	10	
Other															
- Median	808	74	8	47	8	178	488	94	42	0	33	239	10	10	
- Minimum	7	1	8	47	6	6	193	6	42	0	33	81	-1	2	
- Maximum	3,640	240	8	47	8	3,744	3,628	140	42	0	33	10,933	96	741	

BY REGION

Far West															
- Median	1,057	70	75	498	831	643	917	70	22	536	334	987	-10	-11	
- Minimum	110	4	23	47	354	8	110	1	2	536	334	120	-692	-653	
- Maximum	107,519	7,365	127	948	1,307	117,266	100,265	6,562	104	536	334	107,801	3,460	3,123	
Plains															
- Median	656	33	5	10	4	626	700	48	5	229	10	838	16	16	
- Minimum	20	1	1	1	1	1	140	1	1	0	0	140	-162	-23	
- Maximum	54,136	6,559	283	125	11	60,695	52,512	6,362	77	0	0	58,874	700	1,476	
Central															
- Median	782	45	5	28	3	842	825	69	3	4	10	902	27	38	
- Minimum	39	1	1	1	1	3	45	2	1	4	2	2	-30	-30	
- Maximum	118,622	14,096	117	674	118	132,756	104,177	11,903	56	4	24	116,094	4,543	1,241	
East															
- Median	656	15	5	2	6	541	640	17	5	0	7	646	10	10	
- Minimum	1	1	1	1	1	1	1	1	1	0	1	1	-99	-87	
- Maximum	22,430	2,398	74	8	1,589	381,077	21,519	2,115	68	0	313	372,400	20,182	19,788	
South															
- Median	690	38	18	10	4	655	1,200	100	14	227	59	1,513	29	40	
- Minimum	78	1	1	1	1	1	78	1	1	1	3	146	-55	-55	
- Maximum	217,671	31,717	96	2,315	492	249,545	217,671	18,576	94	453	114	236,247	2,533	2,099	

OVERALL

- Median	656	33	5	10	4	626	700	48	5	229	10	838	16	16
- Minimum	1	1	1	1	1	1	1	1	1	1	1	1	-692	-653
- Maximum	217,671	31,717	283	2,315	1,589	381,077	217,671	18,576	104	536	334	372,400	20,182	19,788

	ANNUAL REVENUES (Part 1 of 2)								
	Operating Rate Revenues			Capital Recovery Charges			Taxes		
	Water	Sewer	Total	Water	Sewer	Total	Water	Sewer	Total
<b>MEDIANS</b>									
<b>BY TYPE OF UTILITY</b>									
Fresh Water Supply District	\$251,063	\$80,814	\$193,512	\$1,240	\$750	\$1,811	\$32,153	\$15,071	\$24,347
Municipal Utility District	135,283	99,069	196,355	6,420	3,375	12,645	121,236	434,719	349,101
Municipality	350,000	143,534	421,858	7,000	4,000	9,627	47,000	20,611	53,985
Privately Held/Investor Owned	76,768	193,389	89,040	4,800	4,250	6,750	0	0	0
River Authority	5,300,840	1,714,823	1,714,823	1,671,840	657,705	58,801	791,094	0	791,094
Water Control & Improve. Dist.	182,582	57,548	159,610	8,430	450	9,000	17,043	27,105	50,097
Water Improvement District	30,000	233,011	46,252	11,099	1,453	12,552	15,261	0	15,261
Water Supply Corporation	155,599	27,810	159,540	8,113	621	9,490	0	0	0
Other	874,471	774,070	1,187,855	16,625	10,350	26,975	388,556	0	167,076
<b>BY REGION</b>									
Far West	184,114	108,873	259,230	8,000	5,942	11,885	15,000		43,743
Plains	269,036	46,305	220,463	3,500	1,500	5,020	121,236		125,699
Central	307,189	204,032	350,000	15,000	6,650	16,138	80,273	54,590	111,112
East	161,129	113,200	202,288	8,000	2,850	9,189	63,877	53,985	209,274
South	283,849	219,928	301,121	7,461	2,129	8,113	18,058	844,488	33,803
<b>OVERALL MEDIAN</b>	193,200	116,672	260,397	7,461	3,245	9,720	50,853	53,985	153,092

<b>MEANS</b>									
<b>BY TYPE OF UTILITY</b>									
Fresh Water Supply District	419,259	90,847	318,237	30,250	2,849	29,729	34,189	15,071	34,611
Municipal Utility District	245,635	138,749	347,544	23,926	24,044	34,312	313,651	364,540	521,158
Municipality	1,852,317	1,009,995	2,496,934	90,219	98,076	192,153	130,583	32,962	179,789
Privately Held/Investor Owned	574,440	310,686	427,443	332,791	3,602	6,692			
River Authority	5,730,344	4,671,487	7,099,927	41,901	657,705	349,803	401,164		401,164
Water Control & Improve. Dist.	231,244	66,302	226,541	27,121	1,180	19,405	70,597	55,854	89,894
Water Improvement District	120,639	233,011	187,581	9,270	1,453	9,996	16,390		16,390
Water Supply Corporation	186,060	27,810	202,618	16,749	621	18,928			
Other	2,041,478	5,760,203	3,522,015	64,349	131,479	118,272	558,715		380,279
<b>BY REGION</b>									
Far West	2,782,601	2,365,223	4,126,300	170,263	72,581	226,837	115,412		148,883
Plains	1,090,188	588,477	1,340,188	11,446	1,760	58,416	154,717		151,199
Central	1,554,740	1,288,002	2,087,906	102,824	223,193	232,230	145,432	129,056	342,764
East	488,551	529,562	766,522	17,174	9,741	25,350	230,368	99,134	356,483
South	1,323,630	1,064,049	1,746,620	183,111	49,930	83,030	259,118	844,488	308,331
<b>OVERALL MEAN</b>	1,097,102	880,207	1,470,615	70,523	88,140	108,099	196,643	150,019	327,291

FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

RANGE OF RESPONSES	ANNUAL REVENUES (Part 1 of 2)								
	Operating Rate Revenues			Capital Recovery Charges			Taxes		
	Water	Sewer	Total	Water	Sewer	Total	Water	Sewer	Total
<b>BY TYPE OF UTILITY</b>									
Fresh Water Supply District									
- Median	251,063	80,814	193,512	1,240	750	1,811	32,153	15,071	24,347
- Minimum	27,718	9,000	27,718	270	350	270	214	12,586	214
- Maximum	2,061,111	192,759	1,223,317	144,560	7,448	152,008	80,273	17,556	80,273
Municipal Utility District									
- Median	135,283	99,069	196,355	6,420	3,375	12,645	121,236	434,719	349,101
- Minimum	2,977	888	4,629	70	50	70	6,705	54,590	6,705
- Maximum	1,861,562	821,778	2,417,200	215,818	292,348	508,166	1,266,731	844,488	2,111,219
Municipality									
- Median	350,000	143,534	421,858	7,000	4,000	9,627	47,000	20,611	53,985
- Minimum	6,985	4,204	11,189	150	57	214	5,544	9,360	321
- Maximum	49,839,578	29,327,143	79,166,721	4,072,272	4,322,560	8,394,832	404,564	69,818	1,770,072
Privately Held/Investor Owned									
- Median	76,768	193,389	89,040	4,800	4,250	6,750	0	0	0
- Minimum	12,098	33,072	12,098	300	995	375	0	0	0
- Maximum	4,216,068	1,153,529	3,998,666	3,284,878	5,561	13,290	0	0	0
River Authority									
- Median	5,300,840	1,714,823	1,714,823	1,671,840	657,705	58,801	791,094	0	791,094
- Minimum	74,253	44,689	118,942	25,000	11,225	11,225	11,235	0	11,235
- Maximum	18,440,888	15,403,997	21,481,886	58,801	1,304,185	1,304,185	791,094	0	791,094
Water Control & Improve. Dist.									
- Median	182,582	57,548	159,610	8,430	450	9,000	17,043	27,105	50,097
- Minimum	24,182	23,617	24,182	1,625	240	1,625	6,034	18,049	5,000
- Maximum	734,698	133,902	734,698	94,657	2,850	94,657	283,267	122,409	283,267
Water Improvement District									
- Median	30,000	233,011	46,252	11,099	1,453	12,552	15,261	0	15,261
- Minimum	18,941	233,011	22,374	7,440	1,453	7,440	278	0	278
- Maximum	330,786	233,011	563,797	11,099	1,453	12,552	34,763	0	34,763
Water Supply Corporation									
- Median	155,599	27,810	159,540	8,113	621	9,490	0	0	0
- Minimum	2,301	16,656	27,553	100	621	100	0	0	0
- Maximum	658,801	38,963	658,801	164,866	621	164,866	0	0	0
Other									
- Median	874,471	774,070	1,187,855	16,625	10,350	26,975	388,556	0	167,076
- Minimum	34,799	27,324	62,123	9,824	1,100	2,677	153,092	0	10,135
- Maximum	11,178,335	21,465,348	22,013,025	166,598	382,987	382,987	1,304,657	0	1,304,657
<b>BY REGION</b>									
Far West									
- Median	184,114	108,873	259,230	8,000	5,942	11,885	15,000	0	43,743
- Minimum	38,892	24,043	38,892	345	585	345	278	0	278
- Maximum	24,823,363	14,115,540	38,938,903	1,457,807	277,677	1,735,484	402,627	0	402,627
Plains									
- Median	269,036	46,305	220,463	3,500	1,500	5,020	121,236	0	125,699
- Minimum	4,790	4,574	27,718	100	300	100	575	0	575
- Maximum	13,842,545	6,000,000	18,700,000	159,199	5,400	1,723,670	610,036	0	610,036
Central									
- Median	307,189	204,032	350,000	15,000	6,650	16,138	80,273	54,590	111,112
- Minimum	8,002	4,274	12,098	150	150	240	3,556	9,360	3,556
- Maximum	49,839,578	29,327,143	79,166,721	4,072,272	4,322,560	8,394,832	434,719	434,719	1,770,072
East									
- Median	161,129	113,200	202,288	8,000	2,850	9,189	63,877	53,985	209,274
- Minimum	2,977	888	4,629	140	50	140	214	567	214
- Maximum	11,178,335	21,465,348	22,013,025	242,235	116,762	351,386	1,204,499	680,839	1,630,196
South									
- Median	283,849	219,928	301,121	7,461	2,129	8,113	18,058	844,488	33,803
- Minimum	2,301	16,445	21,600	70	240	70	4,698	844,488	4,698
- Maximum	25,000,000	10,635,000	35,635,000	3,284,878	292,348	645,000	1,304,657	844,488	2,111,219
<b>OVERALL</b>									
- Median	193,200	116,672	260,397	7,461	3,245	9,720	50,853	53,985	153,092
- Minimum	2,301	888	4,629	70	50	70	214	567	214
- Maximum	49,839,578	29,327,143	79,166,721	4,072,272	4,322,560	8,394,832	1,304,657	844,488	2,111,219

FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

	ANNUAL REVENUES (Part 2 of 2)								
	Interest Income			Other Revenue Sources			Total Revenues		
	Water	Sewer	Total	Water	Sewer	Total	Water	Sewer	Total
MEDIANS	-----	-----	-----	-----	-----	-----	-----	-----	-----
<b>BY TYPE OF UTILITY</b>									
Fresh Water Supply District	\$21,042	\$9,018	\$24,793	\$6,675	\$56,465	\$6,675	\$251,063	\$103,624	\$223,129
Municipal Utility District	9,721	5,607	34,968	5,063	27,300	19,719	141,000	116,587	507,587
Municipality	14,417	26,151	16,836	10,556	7,387	20,914	412,316	206,202	543,260
Privately Held/Investor Owned	3,787	5,318	975	11,120	110,000	7,598	146,925	197,450	90,532
River Authority	104,640	515,381	541,762	69,123	451,574	125,371	7,879,052	3,600,290	5,871,441
Water Control & Improve. Dist.	30,892	21,978	15,000	28,343	26,043	8,515	226,808	133,902	196,287
Water Improvement District	2,196	8,128	4,935	2,490	0	980	42,732	242,592	60,965
Water Supply Corporation	5,540	677	5,540	1,300	8,710	1,270	182,600	33,097	182,600
Other	44,512	616,959	44,512	19,673	118,300	48,100	547,677	380,999	1,317,460
<b>BY REGION</b>									
Far West	8,000	32,146	5,162	19,673	5,928	19,673	274,999	263,803	274,999
Plains	12,864	4,750	9,500	4,468	144,406	9,000	279,543	60,350	320,430
Central	11,172	30,285	16,836	10,000	14,718	18,887	346,000	206,202	398,235
East	8,000	15,563	20,915	7,195	9,245	12,794	187,560	145,175	461,403
South	13,385	5,607	11,304	10,005	13,500	16,327	362,753	222,693	333,638
<b>OVERALL MEDIAN</b>	<b>10,342</b>	<b>21,978</b>	<b>16,361</b>	<b>8,006</b>	<b>13,500</b>	<b>13,028</b>	<b>262,792</b>	<b>152,800</b>	<b>387,490</b>

<b>MEANS</b>									
<b>BY TYPE OF UTILITY</b>									
Fresh Water Supply District	26,317	9,018	25,452	46,772	56,465	52,787	378,580	103,082	385,317
Municipal Utility District	53,102	43,956	78,525	383,761	289,649	263,474	461,602	260,455	907,849
Municipality	210,703	230,615	288,256	123,153	175,117	187,292	3,404,854	2,368,713	4,943,803
Privately Held/Investor Owned	52,186	5,318	8,326	45,650	110,000	63,409	805,599	332,593	871,708
River Authority	615,378	899,706	1,012,436	509,353	694,230	706,020	7,580,497	5,053,398	9,109,231
Water Control & Improve. Dist.	52,083	17,346	32,067	232,024	26,043	91,292	403,696	120,026	409,676
Water Improvement District	4,684	8,128	7,048	3,510		1,793	106,173	242,592	136,497
Water Supply Corporation	9,691	677	8,614	6,836	8,710	8,095	266,302	33,097	266,395
Other	140,903	435,670	179,118	463,612	274,954	310,227	2,203,832	5,121,204	3,351,961
<b>BY REGION</b>									
Far West	401,905	605,916	678,597	86,600	812,479	381,183	3,289,714	2,933,401	4,290,939
Plains	165,246	205,297	184,797	125,485	199,723	146,530	986,181	490,730	1,460,497
Central	182,443	424,121	282,397	394,533	419,495	401,701	1,750,910	1,746,611	2,466,782
East	40,271	66,857	66,144	30,493	36,439	80,550	2,084,478	2,200,580	2,915,748
South	87,737	62,475	93,077	135,881	18,180	144,479	1,850,958	1,291,846	2,129,777
<b>OVERALL MEAN</b>	<b>132,601</b>	<b>228,368</b>	<b>171,154</b>	<b>172,787</b>	<b>206,303</b>	<b>200,601</b>	<b>1,822,567</b>	<b>1,763,636</b>	<b>2,530,070</b>

FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

RANGE OF RESPONSES	ANNUAL REVENUES (Part 2 of 2)								
	Interest Income			Other Revenue Sources			Total Revenues		
	Water	Sewer	Total	Water	Sewer	Total	Water	Sewer	Total
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<b>BY TYPE OF UTILITY</b>									
Fresh Water Supply District									
- Median	21,042	9,018	24,793	6,675	56,465	6,675	251,063	103,624	223,129
- Minimum	111	9,018	111	168	1,232	168	28,156	12,320	28,156
- Maximum	70,550	9,018	70,550	300,558	111,697	300,558	1,259,302	192,759	1,259,302
Municipal Utility District									
- Median	9,721	5,607	34,968	5,063	27,300	19,719	141,000	116,587	507,587
- Minimum	113	500	465	780	3,943	16	8,558	313	24,057
- Maximum	270,692	180,462	451,154	4,908,129	2,033,281	4,994,497	6,269,432	2,174,160	7,223,527
Municipality									
- Median	14,417	26,151	16,836	10,556	7,387	20,914	412,316	206,202	543,260
- Minimum	179	108	287	128	68	150	29,492	4,574	23,200
- Maximum	7,816,023	5,497,624	13,313,647	1,639,637	2,874,488	4,076,347	164,528,000	138,089,000	302,612,700
Privately Held/Investor Owned									
- Median	3,787	5,318	975	11,120	110,000	7,598	146,925	197,450	90,532
- Minimum	142	179	142	1,418	110,000	1,418	12,098	34,067	12,098
- Maximum	317,656	10,457	36,374	183,260	110,000	293,260	7,879,052	1,163,986	7,879,052
River Authority									
- Median	104,640	515,381	541,762	69,123	451,574	125,371	7,879,052	3,600,290	5,871,441
- Minimum	3,543	61,260	3,543	5,159	125,371	5,159	195,635	44,689	195,635
- Maximum	3,474,000	2,506,803	3,963,000	2,267,092	1,505,746	2,718,666	20,252,461	18,362,374	26,760,026
Water Control & Improve. Dist.									
- Median	30,892	21,978	15,000	28,343	26,043	8,515	226,808	133,902	196,287
- Minimum	2,847	2,950	200	4,683	3,832	120	16,100	30,541	16,100
- Maximum	171,871	27,110	171,871	1,371,361	48,254	1,391,361	2,000,611	226,383	2,000,611
Water Improvement District									
- Median	2,196	8,128	4,935	2,490	0	980	42,732	242,592	60,965
- Minimum	785	8,128	785	400	0	400	1,453	242,592	1,453
- Maximum	8,329	8,128	16,257	8,659	0	4,000	350,014	242,592	592,606
Water Supply Corporation									
- Median	5,540	677	5,540	1,300	8,710	1,270	182,600	33,097	182,600
- Minimum	32	677	278	400	8,710	400	30,199	16,656	30,199
- Maximum	60,612	677	43,210	65,600	8,710	65,600	2,535,000	49,538	2,535,000
Other									
- Median	44,512	616,959	44,512	19,673	118,300	48,100	547,677	380,999	1,317,460
- Minimum	458	27,265	458	4,449	30,000	3,842	34,799	27,324	10,135
- Maximum	535,875	662,787	662,787	2,168,063	676,561	2,168,063	11,538,317	22,200,607	22,748,284
<b>BY REGION</b>									
Far West									
- Median	8,000	32,146	5,162	19,673	5,928	19,673	274,999	263,803	274,999
- Minimum	458	179	179	400	2,039	400	1,453	26,667	1,453
- Maximum	4,165,987	1,785,423	5,951,410	507,112	2,429,469	2,936,581	30,954,269	18,608,109	49,562,378
Plains									
- Median	12,864	4,750	9,500	4,468	144,406	9,000	279,543	60,350	320,430
- Minimum	636	500	636	168	1,845	168	27,000	4,574	27,000
- Maximum	3,474,000	724,029	3,963,000	1,639,637	594,847	2,234,484	16,648,572	6,489,000	22,975,179
Central									
- Median	11,172	30,285	16,836	10,000	14,718	18,887	346,000	206,202	398,235
- Minimum	113	500	278	128	68	163	8,558	4,274	10,135
- Maximum	7,816,023	5,497,624	13,313,647	4,908,129	2,874,488	4,994,497	62,929,732	42,021,815	104,951,547
East									
- Median	8,000	15,563	20,915	7,195	9,245	12,794	187,560	145,175	461,403
- Minimum	111	108	111	247	149	16	12,973	313	16,100
- Maximum	697,221	616,959	1,277,762	379,705	379,705	2,907,000	164,528,000	138,089,000	302,612,700
South									
- Median	13,385	5,607	11,304	10,005	13,500	16,327	362,753	222,693	333,638
- Minimum	32	1,550	200	150	1,000	150	28,591	16,445	23,200
- Maximum	1,150,000	241,866	1,245,900	2,168,063	35,500	2,168,063	26,890,000	10,889,400	37,779,000
<b>OVERALL</b>									
- Median	10,342	21,978	16,361	8,006	13,500	13,028	262,792	152,800	387,490
- Minimum	32	108	111	128	68	16	1,453	313	1,453
- Maximum	7,816,023	5,497,624	13,313,647	4,908,129	2,874,488	4,994,497	164,528,000	138,089,000	302,612,700

	ANNUAL EXPENDITURES (Part 1 of 4)								
	Operation and Maintenance Expense (Part 1 of 2)								
	O&M Expense - Labor			O&M Expense - Chemicals			O&M Expense - Energy		
	Water	Sewer	Total	Water	Sewer	Total	Water	Sewer	Total
<b>MEDIANS</b>	-----	-----	-----	-----	-----	-----	-----	-----	-----

**BY TYPE OF UTILITY**

Fresh Water Supply District	\$28,244	\$36,900	\$58,285	\$6,948	\$519	\$14,047	\$27,313	\$13,394	\$27,313
Municipal Utility District	35,136	105,242	57,991	3,380	6,628	5,710	20,000	55,895	22,744
Municipality	86,056	43,754	89,133	7,361	5,573	10,000	33,758	23,989	40,000
Privately Held/Investor Owned	28,738	20,000	35,162	1,773	1,426	2,400	17,774	14,518	20,508
River Authority	607,561	495,393	735,789	44,286	154,353	239,140	811,275	203,501	300,789
Water Control & Improve. Dist.	123,185	20,581	78,000	8,337	3,060	8,337	31,128	8,471	25,886
Water Improvement District	11,203	17,592	9,815	14,871	136	5,491	13,000	16,606	28,628
Water Supply Corporation	29,052	0	29,052	2,000	0	1,900	12,000	2,100	12,000
Other	160,123	374,577	280,000	134,023	24,341	24,341	268,319	47,118	89,659

**BY REGION**

Far West	46,808	36,000	62,104	4,997	1,559	7,000	26,963	32,794	27,984
Plains	45,325	22,360	56,388	6,948	3,221	6,948	18,668	3,500	18,213
Central	56,000	46,377	75,821	4,895	5,012	8,887	21,794	20,905	37,589
East	50,008	84,339	63,792	3,001	6,230	7,000	24,912	34,395	27,800
South	84,811	122,362	86,381	24,387	6,485	25,293	36,395	40,605	33,152

**OVERALL MEDIAN**

	51,151	46,377	63,792	4,820	5,573	8,000	21,152	28,072	25,849
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**MEANS**

**BY TYPE OF UTILITY**

Fresh Water Supply District	69,430	31,971	159,239	15,739	1,347	17,075	46,307	12,882	46,888
Municipal Utility District	93,910	130,563	126,241	13,784	23,204	40,956	33,830	68,263	48,754
Municipality	419,730	344,946	558,009	82,645	34,608	132,924	239,910	117,564	259,758
Privately Held/Investor Owned	105,280	86,118	136,377	1,955	4,067	5,138	37,409	30,884	52,899
River Authority	1,060,936	1,063,393	1,466,360	156,137	372,180	377,334	1,041,131	806,209	1,178,999
Water Control & Improve. Dist.	222,208	20,581	147,472	14,198	3,060	13,793	63,538	8,471	46,230
Water Improvement District	52,960	17,592	64,830	14,871	136	5,491	15,387	16,606	28,628
Water Supply Corporation	44,551		40,517	7,921		4,278	21,278	2,100	17,658
Other	613,469	1,687,222	591,735	163,097	261,245	158,426	319,511	743,217	400,381

**BY REGION**

Far West	462,476	444,347	747,422	134,300	219,757	704,716	723,069	318,749	795,425
Plains	255,354	137,379	205,988	27,015	10,332	25,767	157,908	62,127	97,398
Central	370,668	557,102	544,315	64,273	61,442	94,112	163,507	205,472	232,236
East	179,647	284,436	260,379	42,852	36,284	54,620	102,759	106,689	120,764
South	279,244	153,435	235,068	83,861	10,966	41,570	176,116	96,879	92,526

**OVERALL MEAN**

	\$281,756	\$354,367	\$360,279	\$55,456	\$47,041	\$90,134	\$171,154	\$145,552	\$177,935
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RANGE OF RESPONSES	ANNUAL EXPENDITURES (Part 1 of 4)								
	Operation and Maintenance Expense (Part 1 of 2)								
	O&M Expense - Labor			O&M Expense - Chemicals			O&M Expense - Energy		
	Water	Sewer	Total	Water	Sewer	Total	Water	Sewer	Total

**BY TYPE OF UTILITY**

Fresh Water Supply District									
- Median	\$28,244	\$36,900	\$58,285	\$6,948	\$519	\$14,047	\$27,313	\$13,394	\$27,313
- Minimum	2,930	5,940	2,930	360	300	300	3,221	2,952	2,952
- Maximum	228,353	53,073	1,456,505	80,798	3,221	80,798	135,787	22,300	135,787
Municipal Utility District									
- Median	35,136	105,242	57,991	3,380	6,628	5,710	20,000	55,895	22,744
- Minimum	1,500	7,374	1,500	263	520	192	151	563	151
- Maximum	523,210	445,228	914,274	65,129	177,051	748,497	149,294	282,175	404,197
Municipality									
- Median	86,056	43,754	89,133	7,361	5,573	10,000	33,758	23,989	40,000
- Minimum	225	225	450	34	36	50	600	37	895
- Maximum	11,596,101	16,388,816	27,984,917	1,631,610	1,089,227	5,442,269	7,599,055	3,481,690	9,104,475
Privately Held/Investor Owned									
- Median	28,738	20,000	35,162	1,773	1,426	2,400	17,774	14,518	20,508
- Minimum	5,000	15,782	8,000	288	608	288	3,835	6,000	3,835
- Maximum	787,074	337,608	1,124,682	4,177	19,380	23,403	254,244	121,473	375,717
River Authority									
- Median	607,561	495,393	735,789	44,286	154,353	239,140	811,275	203,501	300,789
- Minimum	18,000	20,000	128,900	5,400	13,680	13,680	25,213	4,200	29,413
- Maximum	3,632,822	3,313,272	3,920,833	470,688	1,166,333	1,388,113	2,987,510	2,820,029	3,631,304
Water Control & Improve. Dist.									
- Median	123,185	20,581	78,000	8,337	3,060	8,337	31,128	8,471	25,886
- Minimum	1,737	20,581	3,489	414	3,060	414	5,095	7,753	3,172
- Maximum	1,111,100	20,581	1,111,100	49,500	3,060	49,883	262,537	9,188	262,537
Water Improvement District									
- Median	11,203	17,592	9,815	14,871	136	5,491	13,000	16,606	28,628
- Minimum	2,400	17,592	2,400	5,355	136	5,491	5,512	16,606	13,000
- Maximum	246,000	17,592	246,000	24,387	136	5,491	27,649	16,606	44,255
Water Supply Corporation									
- Median	29,052	0	29,052	2,000	0	1,900	12,000	2,100	12,000
- Minimum	4,500	0	4,500	60	0	60	1,972	2,100	1,972
- Maximum	326,400	0	158,153	102,500	0	24,376	200,390	2,100	129,493
Other									
- Median	160,123	374,577	280,000	134,023	24,341	24,341	268,319	47,118	89,659
- Minimum	208	84,644	500	360	12,725	360	6,604	41,324	6,604
- Maximum	3,911,217	4,602,446	4,864,489	561,033	746,668	752,440	902,116	2,141,209	2,183,994

**BY REGION**

Far West									
- Median	46,808	36,000	62,104	4,997	1,559	7,000	26,963	32,794	27,984
- Minimum	2,400	12,213	2,400	340	1,000	340	600	2,100	2,700
- Maximum	5,329,163	2,548,388	7,877,551	1,172,370	1,089,227	5,442,269	7,599,055	1,505,420	9,104,475
Plains									
- Median	51,151	46,377	63,792	4,820	5,573	8,000	21,152	28,072	25,849
- Minimum	500	5,997	500	203	229	119	151	37	151
- Maximum	3,911,217	1,486,642	4,020,594	459,773	102,392	562,165	2,987,510	623,167	2,594,833
Central									
- Median	56,000	46,377	75,821	4,895	5,012	8,887	21,794	20,905	37,589
- Minimum	225	225	450	156	136	288	188	240	308
- Maximum	11,596,101	16,388,816	27,984,917	1,631,610	1,166,333	2,163,858	5,597,015	3,481,690	9,078,705
East									
- Median	50,008	84,339	63,792	3,001	6,230	7,000	24,912	34,395	27,800
- Minimum	1,142	731	1,873	60	36	60	741	154	750
- Maximum	1,710,201	4,602,446	4,864,489	571,686	746,668	752,440	2,640,274	2,141,209	2,640,274
South									
- Median	84,811	122,362	86,381	24,387	6,485	25,293	36,395	40,605	33,152
- Minimum	208	5,500	3,200	34	716	50	1,589	1,440	1,440
- Maximum	5,017,000	750,542	1,622,466	1,140,000	51,167	337,638	3,100,000	565,600	972,824

**OVERALL**

- Median	\$51,151	\$46,377	\$63,792	\$4,820	\$5,573	\$8,000	\$21,152	\$28,072	\$25,849
- Minimum	208	225	450	34	36	50	151	37	151
- Maximum	11,596,101	16,388,816	27,984,917	1,631,610	1,166,333	5,442,269	7,599,055	3,481,690	9,104,475

FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

	ANNUAL EXPENDITURES (Part 2 of 4)								
	Operation and Maintenance Expense (Part 2 of 2)						Payment of Debt Service		
	O&M Expense - Other			O&M Expense - Subtotal			Water	Sewer	Total
	Water	Sewer	Total	Water	Sewer	Total			
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**MEDIANS**

BY TYPE OF UTILITY									
Fresh Water Supply District	\$35,789	\$34,068	\$53,410	\$226,267	\$84,870	\$226,267	\$56,423	\$17,835	\$56,423
Municipal Utility District	69,179	107,856	95,936	125,496	99,762	182,658	150,799	648,886	342,444
Municipality	115,101	50,000	106,266	232,936	122,967	243,758	35,728	30,000	49,715
Privately Held/Investor Owned	22,750	18,534	30,185	99,161	60,958	160,119	19,880	38,719	33,919
River Authority	489,237	552,765	856,536	2,200,124	1,321,225	2,006,966	2,496,230	1,641,970	797,556
Water Control & Improve. Dist.	106,956	49,436	54,347	304,200	56,403	164,524	169,648	142,912	76,112
Water Improvement District	27,198	136,552	33,179	25,018	170,886	25,018	6,753	175,000	20,877
Water Supply Corporation	72,294	0	72,294	113,468	0	112,000	27,192	0	27,192
Other	155,925	5,101,567	368,689	759,247	560,172	759,582	1,065,805	431,250	658,729

**BY REGION**

Far West	46,890	22,771	62,344	109,903	91,134	122,616	96,090	3,031,263	66,266
Plains	74,160	16,387	66,831	151,991	25,156	135,388	56,423	35,728	56,423
Central	119,523	62,653	145,703	235,137	148,739	239,000	57,898	72,787	68,700
East	76,000	41,965	89,804	177,023	162,967	205,960	33,477	50,494	141,446
South	85,597	58,995	96,737	150,790	250,663	170,849	30,500	24,550	21,270
<b>OVERALL MEDIAN</b>	<b>84,506</b>	<b>52,525</b>	<b>86,286</b>	<b>169,850</b>	<b>129,639</b>	<b>195,424</b>	<b>43,000</b>	<b>44,381</b>	<b>71,455</b>

**MEANS**

BY TYPE OF UTILITY									
Fresh Water Supply District	69,255	33,147	76,467	220,505	84,870	203,788	149,430	17,835	153,260
Municipal Utility District	154,616	126,565	178,078	236,734	271,487	321,258	367,851	700,340	575,127
Municipality	436,327	263,598	512,981	1,199,976	867,641	1,675,905	718,993	481,357	758,064
Privately Held/Investor Owned	97,270	91,013	124,928	300,614	261,498	388,248	34,056	38,719	47,212
River Authority	787,302	1,178,503	1,593,647	2,986,094	3,345,824	4,140,518	4,229,696	3,067,778	5,522,832
Water Control & Improve. Dist.	77,899	40,951	90,585	349,369	56,403	240,970	102,866	108,307	110,891
Water Improvement District	34,078	136,552	76,419	54,261	170,886	88,878	8,414	175,000	20,877
Water Supply Corporation	102,010		95,038	167,630		146,609	53,421		39,094
Other	822,705	5,101,567	1,387,306	1,596,320	6,130,774	2,739,321	1,324,528	431,250	1,009,622

**BY REGION**

Far West	153,313	476,940	380,592	1,782,876	1,450,468	2,532,521	230,553	1,564,144	509,043
Plains	320,431	162,553	260,680	687,754	417,828	759,591	269,978	236,281	229,405
Central	394,184	465,170	575,511	1,021,321	1,242,628	1,416,140	630,903	1,185,748	939,453
East	240,653	313,267	309,286	596,038	778,053	684,238	829,785	167,848	660,650
South	294,815	217,916	282,494	758,507	1,142,921	1,062,200	518,502	201,133	408,463
<b>OVERALL MEAN</b>	<b>\$307,130</b>	<b>\$353,604</b>	<b>\$377,420</b>	<b>\$822,534</b>	<b>\$968,645</b>	<b>\$1,026,144</b>	<b>\$577,449</b>	<b>\$595,899</b>	<b>\$646,396</b>

FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

RANGE OF RESPONSES	ANNUAL EXPENDITURES (Part 2 of 4)								
	Operation and Maintenance Expense (Part 2 of 2)						Payment of Debt Service		
	O&M Expense - Other			O&M Expense - Subtotal			Water	Sewer	Total
	Water	Sewer	Total	Water	Sewer	Total			

BY TYPE OF UTILITY

Fresh Water Supply District									
- Median	\$35,789	\$34,068	\$53,410	\$226,267	\$84,870	\$226,267	\$56,423	\$17,835	\$56,423
- Minimum	1,200	1,800	1,200	25,367	40,100	25,367	5,832	8,442	5,832
- Maximum	193,553	62,653	239,810	486,215	129,639	486,215	467,173	27,228	467,173
Municipal Utility District									
- Median	69,179	107,856	95,936	125,496	99,762	182,658	150,799	648,886	342,444
- Minimum	2,678	9,082	5,397	13,342	9,080	18,323	5,000	20,905	5,000
- Maximum	965,129	347,949	1,090,317	1,015,520	947,530	1,743,373	2,081,492	1,937,219	4,015,426
Municipality									
- Median	115,101	50,000	106,266	232,936	122,967	243,758	35,728	30,000	49,715
- Minimum	1,942	485	1,977	7,177	555	6,940	862	1,190	2,000
- Maximum	7,324,156	7,717,030	15,041,186	25,088,686	22,636,178	47,724,864	22,591,581	14,479,473	28,446,903
Privately Held/Investor Owned									
- Median	22,750	18,534	30,185	99,161	60,958	160,119	19,880	38,719	33,919
- Minimum	540	12,000	540	8,000	41,542	8,000	7,200	20,494	7,200
- Maximum	924,685	452,037	1,376,722	1,970,026	930,498	2,900,524	92,907	56,943	149,850
River Authority									
- Median	489,237	552,765	856,536	2,200,124	1,321,225	2,006,966	2,496,230	1,641,970	797,556
- Minimum	38,129	15,000	214,612	674,443	39,200	713,643	217,303	356,018	573,321
- Maximum	2,347,184	3,726,756	4,286,264	6,206,957	11,026,390	13,226,514	15,514,156	8,631,154	15,514,156
Water Control & Improve. Dist.									
- Median	106,956	49,436	54,347	304,200	56,403	164,524	169,648	142,912	76,112
- Minimum	300	19,236	1,050	18,210	49,436	5,131	2,500	29,456	2,500
- Maximum	197,869	54,181	273,884	1,223,136	63,369	1,223,136	234,125	152,552	360,759
Water Improvement District									
- Median	27,198	136,552	33,179	25,018	170,886	25,018	6,753	175,000	20,877
- Minimum	1,264	136,552	1,264	1,463	170,886	3,664	988	175,000	6,753
- Maximum	101,500	136,552	238,052	179,647	170,886	350,533	17,500	175,000	35,000
Water Supply Corporation									
- Median	72,294	0	72,294	113,468	0	112,000	27,192	0	27,192
- Minimum	3,677	0	3,677	17,450	0	5,822	2,158	0	2,158
- Maximum	481,675	0	481,675	1,028,710	0	614,097	722,301	0	148,313
Other									
- Median	155,925	5,101,567	368,689	759,247	560,172	759,582	1,065,805	431,250	658,729
- Minimum	28,749	32,105	11,455	97,458	170,798	81,934	658,729	431,250	15,205
- Maximum	5,300,131	10,171,029	10,283,313	7,398,276	17,661,352	18,084,236	2,296,459	431,250	3,711,600

BY REGION

Far West									
- Median	46,890	22,771	62,344	109,903	91,134	122,616	96,090	3,031,263	66,266
- Minimum	1,264	10,784	1,264	36,685	13,763	3,664	5,820	97,025	5,820
- Maximum	676,654	1,855,669	2,387,848	14,632,767	6,998,704	21,631,471	1,126,511	3,031,263	4,157,774
Plains									
- Median	84,506	52,525	86,286	169,850	129,639	195,424	43,000	44,381	71,455
- Minimum	1,550	1,511	1,550	8,000	555	8,000	862	7,250	2,000
- Maximum	6,513,437	1,267,719	7,781,156	10,408,240	4,636,041	14,290,770	3,219,165	731,020	2,663,107
Central									
- Median	119,523	62,653	145,703	235,137	148,739	239,000	57,898	72,787	68,700
- Minimum	540	485	540	7,177	2,000	5,131	1,000	3,542	5,697
- Maximum	7,324,156	7,717,030	15,041,186	25,088,686	22,636,178	47,724,864	13,967,430	14,479,473	28,446,903
East									
- Median	76,000	41,965	89,804	177,023	162,967	205,960	33,477	50,494	141,446
- Minimum	1,200	600	1,200	17,450	9,350	5,822	1,976	1,190	2,158
- Maximum	5,300,131	10,171,029	10,283,313	7,398,276	17,661,352	18,084,236	22,591,581	1,550,382	24,141,963
South									
- Median	85,597	58,995	96,737	150,790	250,663	170,849	30,500	24,550	21,270
- Minimum	300	3,607	1,050	1,463	6,940	6,940	988	5,000	2,500
- Maximum	3,315,000	1,343,279	2,781,174	12,572,000	10,107,000	22,679,000	5,171,000	1,387,661	5,471,000

OVERALL

- Median	\$84,506	\$52,525	\$86,286	\$169,850	\$129,639	\$195,424	\$43,000	\$44,381	\$71,455
- Minimum	300	485	540	1,463	555	3,664	862	1,190	2,000
- Maximum	7,324,156	10,171,029	15,041,186	25,088,686	22,636,178	47,724,864	22,591,581	14,479,473	28,446,903

	ANNUAL EXPENDITURES (Part 3 of 4)								
	Capital Improvements			Transfer to Other Agency			Increase in Reserves/Fund Balances		
	Water	Sewer	Total	Water	Sewer	Total	Water	Sewer	Total
<b>MEDIANS</b>	-----	-----	-----	-----	-----	-----	-----	-----	-----
<b>BY TYPE OF UTILITY</b>									
Fresh Water Supply District	\$5,400	\$18,317	\$8,000	\$244,298	\$0	\$58,310	\$11,138	-\$10,728	\$11,138
Municipal Utility District	48,900	181,112	65,151	48,200	37,781	123,012	21,189	58,758	83,429
Municipality	49,373	40,275	56,959	115,000	81,200	121,632	20,852	26,895	40,000
Privately Held/Investor Owned	22,884	6,817	25,400	1,366	0	1,366	19,609	56,571	19,609
River Authority	64,552	766,884	1,419,000	44,078	0	48,526	89,215	44,523	77,559
Water Control & Improve. Dist.	30,910	0	14,000	92,629	0	92,629	-24,279	34,035	24,000
Water Improvement District	779	0	836	193	0	0	5,605	0	5,605
Water Supply Corporation	34,130	0	20,734	63,144	0	115,737	12,000	0	12,000
Other	712,232	227,531	227,531	1,611,763	0	258,537	1,897,465	132,885	236,298
<b>BY REGION</b>									
Far West	48,454	8,083,916	48,454	350,000		2,386,370	4,574	477,979	177,881
Plains	18,930	38,000	18,930	348,698	910,185	348,698	15,576	32,033	15,576
Central	54,667	101,827	82,686	58,310	167,448	58,310	23,720	30,782	40,251
East	41,203	40,275	51,750	121,632	52,077	123,012	16,629	16,628	33,598
South	45,888	29,215	29,463	115,000	20,000	115,000	22,583	80,772	33,257
<b>OVERALL MEDIAN</b>	40,000	49,373	48,000	100,000	74,812	118,716	17,000	30,782	33,257

<b>MEANS</b>									
<b>BY TYPE OF UTILITY</b>									
Fresh Water Supply District	92,972	18,317	37,646	244,298		58,310	3,452	-10,728	1,304
Municipal Utility District	88,002	903,176	519,975	48,200	37,781	117,025	391,141	318,936	356,041
Municipality	513,803	1,005,333	1,047,660	562,379	298,468	615,135	122,352	333,571	329,944
Privately Held/Investor Owned	53,692	39,852	58,514	1,366		1,366	132,290	56,571	146,432
River Authority	1,311,562	1,504,705	1,772,533	44,078		48,526	1,017,773	682,360	785,385
Water Control & Improve. Dist.	275,610		148,498	92,629		92,629	-26,568	34,035	55,925
Water Improvement District	779		836	193			5,605		5,605
Water Supply Corporation	58,612		40,292	98,206		115,737	30,591		21,179
Other	631,607	818,202	326,527	1,444,159		258,537	1,897,465	132,885	1,005,618
<b>BY REGION</b>									
Far West	1,803,305	4,045,367	2,752,798	912,522		1,538,667	40,910	477,979	341,993
Plains	111,823	1,004,948	321,387	494,966	910,185	617,360	192,047	112,031	219,585
Central	468,911	950,869	802,636	591,525	389,729	535,122	180,097	148,202	222,983
East	235,003	995,224	566,925	177,790	102,775	188,707	301,799	569,526	373,903
South	301,550	234,734	344,724	585,382	33,983	527,899	80,271	414,607	182,321
<b>OVERALL MEAN</b>	\$367,744	\$949,391	\$656,952	\$504,748	\$265,882	\$479,774	\$194,905	\$329,953	\$276,258

RANGE OF RESPONSES	ANNUAL EXPENDITURES (Part 3 of 4)								
	Capital Improvements			Transfer to Other Agency			Increase in Reserves/Fund Balances		
	Water	Sewer	Total	Water	Sewer	Total	Water	Sewer	Total

**BY TYPE OF UTILITY**

Fresh Water Supply District									
- Median	\$5,400	\$18,317	\$8,000	\$244,298	\$0	\$58,310	\$11,138	-\$10,728	\$11,138
- Minimum	3,150	2,600	3,150	58,310	0	58,310	-37,650	-10,728	-48,378
- Maximum	652,318	34,034	167,082	430,286	0	58,310	25,536	-10,728	25,526
Municipal Utility District									
- Median	46,900	161,112	65,151	48,200	37,781	123,012	21,189	58,758	83,429
- Minimum	600	29,215	10	48,200	750	750	1,687	6,425	-139,271
- Maximum	519,122	5,948,404	5,948,404	48,200	74,812	246,480	4,149,603	1,424,076	4,149,603
Municipality									
- Median	49,373	40,275	56,959	115,000	81,200	121,632	20,852	26,895	40,000
- Minimum	2,497	69	1,557	-8,360	2,880	140	-4,437,169	-51,840	-4,437,169
- Maximum	12,152,754	21,771,964	24,829,695	6,420,656	1,137,944	7,558,600	8,032,331	7,717,338	15,749,669
Privately Held/Investor Owned									
- Median	22,884	6,817	25,400	1,366	0	1,366	19,609	56,571	19,609
- Minimum	5,048	2,740	5,048	1,366	0	1,366	-2,273	56,571	-2,273
- Maximum	173,142	110,000	269,620	1,366	0	1,366	492,216	56,571	548,781
River Authority									
- Median	64,552	766,884	1,419,000	44,078	0	48,526	89,215	44,523	77,559
- Minimum	5,079	71,415	41,203	39,630	0	48,526	4,504	14,470	18,974
- Maximum	4,500,000	4,413,639	4,413,639	48,526	0	48,526	5,690,799	1,988,088	3,702,711
Water Control & Improve. Dist.									
- Median	30,910	0	14,000	92,629	0	92,629	-24,279	34,035	24,000
- Minimum	5,576	0	1,239	55,754	0	55,754	-213,452	34,035	-213,452
- Maximum	983,750	0	963,750	129,505	0	129,505	155,740	34,035	448,644
Water Improvement District									
- Median	779	0	836	193	0	0	5,605	0	5,605
- Minimum	722	0	836	193	0	0	5,605	0	5,605
- Maximum	836	0	836	193	0	0	5,605	0	5,605
Water Supply Corporation									
- Median	34,130	0	20,734	63,144	0	115,737	12,000	0	12,000
- Minimum	305	0	305	26,000	0	26,000	25	0	25
- Maximum	383,263	0	224,139	205,474	0	205,474	222,430	0	140,000
Other									
- Median	712,232	227,531	227,531	1,611,763	0	258,537	1,897,465	132,885	236,298
- Minimum	29,197	14,598	32,000	508,237	0	8,836	252,313	132,885	7,259
- Maximum	1,072,769	2,212,476	1,072,769	2,212,476	0	508,237	3,542,617	132,885	3,542,617

**BY REGION**

Far West									
- Median	48,454	8,083,916	48,454	350,000	0	2,386,370	4,574	477,979	177,881
- Minimum	5,261	6,817	5,261	1,197	0	1,197	1,734	477,979	1,734
- Maximum	12,152,754	8,083,916	20,236,670	2,386,370	0	3,417,100	177,881	477,979	1,541,936
Plains									
- Median	40,000	49,373	48,000	100,000	74,812	118,716	17,000	30,782	33,257
- Minimum	1,488	1,329	1,488	9,073	910,185	9,073	-1,601	5,000	-1,601
- Maximum	1,441,129	6,739,557	8,180,686	2,658,072	910,185	3,568,257	3,542,617	299,060	3,542,617
Central									
- Median	54,667	101,827	82,686	58,310	167,448	58,310	23,720	30,782	40,251
- Minimum	700	1,838	700	-8,360	2,880	140	-4,437,169	-10,728	-4,437,169
- Maximum	6,100,000	7,600,000	13,700,000	6,420,656	1,137,944	7,558,600	5,690,799	1,988,088	4,149,603
East									
- Median	41,203	40,275	51,750	121,632	52,077	123,012	16,629	16,628	33,598
- Minimum	305	69	10	8,161	10,000	3,910	-65,271	-51,840	-139,271
- Maximum	3,977,213	21,771,964	24,829,695	799,576	340,000	961,328	8,032,331	7,717,338	15,749,669
South									
- Median	45,888	29,215	29,463	115,000	20,000	115,000	22,583	80,772	33,257
- Minimum	722	980	1,239	193	750	750	1,680	16,628	1,680
- Maximum	2,755,000	1,819,552	3,211,242	2,474,000	81,200	2,555,200	429,478	1,424,076	1,424,076

**OVERALL**

- Median	\$40,000	\$49,373	\$48,000	\$100,000	\$74,812	\$118,716	\$17,000	\$30,782	\$33,257
- Minimum	305	69	10	-8,360	750	140	-4,437,169	-51,840	-4,437,169
- Maximum	12,152,754	21,771,964	24,829,695	6,420,656	1,137,944	7,558,600	8,032,331	7,717,338	15,749,669

FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

	ANNUAL EXPENDITURES (Part 4 of 4)			DEPRECIATION EXPENSE		
	Total Expenditures			Water	Sewer	Total
	Water	Sewer	Total			
MEDIANS	-----	-----	-----	-----	-----	-----

BY TYPE OF UTILITY

Fresh Water Supply District	\$258,979	\$169,498	\$234,084	\$30,146	\$30,878	\$30,146
Municipal Utility District	215,000	456,188	574,537	37,707	23,736	70,194
Municipality	344,150	170,508	487,221	72,606	56,584	95,074
Privately Held/Investor Owned	80,223	227,901	80,223	33,579	34,996	30,208
River Authority	4,772,274	4,915,643	6,005,155	337,553	1,272,692	337,553
Water Control & Improve. Dist.	282,437	203,182	197,150	20,452	0	70,459
Water Improvement District	45,736	188,386	31,771	17,126	17,127	34,253
Water Supply Corporation	158,723	2,100	157,000	25,000	0	25,000
Other	1,387,504	3,544,145	824,342	1,207,547	0	728,774

BY REGION

Far West	174,283	52,967	179,051	52,445	23,556	52,445
Plains	203,500	36,626	242,210	49,234	15,304	35,418
Central	310,000	206,202	427,466	63,494	47,062	68,965
East	236,367	228,925	431,323	33,579	69,702	67,268
South	305,713	491,925	235,740	29,984	45,575	45,206

OVERALL MEDIAN

242,210	180,173	307,465	38,207	52,912	61,200
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MEANS

BY TYPE OF UTILITY

Fresh Water Supply District	385,406	119,757	359,193	46,192	30,878	50,054
Municipal Utility District	659,587	1,257,533	1,108,680	119,137	122,518	283,373
Municipality	2,468,143	2,048,247	3,706,520	363,173	369,713	476,969
Privately Held/Investor Owned	307,763	266,219	367,358	68,227	58,395	79,897
River Authority	7,179,801	6,617,992	9,535,270	461,197	1,794,731	1,645,851
Water Control & Improve. Dist.	520,249	174,130	431,926	15,689		134,034
Water Improvement District	56,967	188,386	76,265	17,126	17,127	43,349
Water Supply Corporation	266,535	2,100	253,785	44,437		43,310
Other	2,323,614	7,451,119	3,157,497	1,207,547		728,774

BY REGION

Far West	3,025,350	3,776,522	4,279,618	880,841	798,295	959,239
Plains	1,011,455	897,830	1,198,735	185,851	181,846	295,573
Central	2,116,866	2,918,300	3,236,934	246,816	628,100	415,958
East	1,389,448	1,620,567	1,663,758	118,363	150,043	218,262
South	1,363,945	1,531,795	1,727,995	193,718	196,560	242,197

OVERALL MEAN

\$1,607,840	\$2,063,372	\$2,148,938	\$216,505	\$401,990	\$339,332
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FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

RANGE OF RESPONSES	ANNUAL EXPENDITURES (Part 4 of 4)			DEPRECIATION EXPENSE		
	Total Expenditures			Water	Sewer	Total
	Water	Sewer	Total			

BY TYPE OF UTILITY

Fresh Water Supply District						
- Median	\$258,979	\$169,498	\$234,084	\$30,146	\$30,878	\$30,146
- Minimum	4,130	9,600	4,130	17,184	30,878	17,184
- Maximum	1,375,473	180,173	1,375,473	107,625	30,878	107,625
Municipal Utility District						
- Median	215,000	456,188	574,537	37,707	23,736	70,194
- Minimum	11,504	33,760	15,200	435	4,528	435
- Maximum	5,674,294	7,885,623	9,963,830	421,739	626,134	1,927,741
Municipality						
- Median	344,150	170,508	487,221	72,606	56,584	95,074
- Minimum	6,382	555	11,000	750	550	1,300
- Maximum	72,228,289	68,489,773	140,718,062	5,308,404	6,894,825	12,203,229
Privately Held/Investor Owned						
- Median	80,223	227,901	80,223	33,579	34,996	30,208
- Minimum	9,828	39,000	9,828	5,216	3,798	3,798
- Maximum	2,462,242	987,069	3,449,311	382,955	179,105	562,004
River Authority						
- Median	4,772,274	4,915,643	6,005,155	337,553	1,272,692	337,553
- Minimum	56,129	39,200	56,129	71,000	114,369	114,369
- Maximum	25,765,571	20,366,834	25,765,571	1,310,812	4,519,172	5,283,719
Water Control & Improve. Dist.						
- Median	282,437	203,182	197,150	20,452	0	70,459
- Minimum	11,680	92,825	11,680	3,616	0	3,616
- Maximum	1,770,611	226,383	1,770,620	23,000	0	417,097
Water Improvement District						
- Median	45,736	188,386	31,771	17,126	17,127	34,253
- Minimum	4,700	188,386	3,664	17,126	17,127	34,253
- Maximum	197,147	188,386	385,533	17,126	17,127	52,445
Water Supply Corporation						
- Median	158,723	2,100	157,000	25,000	0	25,000
- Minimum	9,126	2,100	9,126	825	0	825
- Maximum	1,974,988	2,100	1,974,988	430,203	0	430,203
Other						
- Median	1,387,504	3,544,145	824,342	1,207,547	0	728,774
- Minimum	860	920,329	860	1,207,547	0	250,000
- Maximum	9,694,735	17,888,883	18,311,767	1,207,547	0	1,207,547

BY REGION

Far West						
- Median	174,283	52,967	179,051	52,445	23,556	52,445
- Minimum	6,382	28,114	3,664	3,089	3,798	3,089
- Maximum	30,298,402	18,591,862	48,890,264	4,236,264	2,367,531	6,603,795
Plains						
- Median	242,210	180,173	307,465	38,207	52,912	61,200
- Minimum	860	555	860	6,633	13,188	5,216
- Maximum	16,820,795	10,531,725	27,352,520	1,450,515	830,791	3,454,381
Central						
- Median	310,000	206,202	427,466	63,494	47,062	68,965
- Minimum	9,828	2,000	9,828	435	1,681	435
- Maximum	72,228,289	68,489,773	140,718,062	5,308,404	6,894,825	12,203,229
East						
- Median	236,367	228,925	431,323	33,579	69,702	67,268
- Minimum	4,130	3,210	4,130	750	550	825
- Maximum	36,243,106	32,650,375	68,893,481	1,207,547	960,734	1,927,741
South						
- Median	305,713	491,925	235,740	29,984	45,575	45,206
- Minimum	4,700	19,940	4,700	2,965	7,124	2,965
- Maximum	22,972,000	10,488,200	33,460,200	1,700,000	1,117,847	1,703,696

OVERALL

- Median	\$242,210	\$180,173	\$307,465	\$38,207	\$52,912	\$61,200
- Minimum	860	555	860	435	550	435
- Maximum	72,228,289	68,489,773	140,718,062	5,308,404	6,894,825	12,203,229

FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

RANGE OF RESPONSES	OUTSTANDING LONG-TERM DEBT			NET BOOK VALUES OF FIXED ASSETS			
	Water -----	Sewer -----	Total -----	Water -----	Sewer -----	General -----	Total -----
<b>BY TYPE OF UTILITY</b>							
Fresh Water Supply District							
- Median	\$515,000	\$226,645	\$500,000	\$844,873	\$321,066	\$74,818	\$1,699,565
- Minimum	5,000	101,571	5,000	17,700	29,352	968	67,000
- Maximum	9,841,000	500,000	9,841,000	10,475,415	1,000,000	200,000	10,475,415
Municipal Utility District							
- Median	1,987,500	2,232,500	3,780,000	1,036,119	1,499,051	768,160	3,624,752
- Minimum	15,000	75,000	15,000	40,614	69,738	11,897	40,614
- Maximum	17,996,000	21,609,000	58,000,000	13,495,667	17,608,403	16,635,940	29,440,542
Municipality							
- Median	337,338	282,789	466,820	1,109,587	1,052,812	786,702	2,805,605
- Minimum	5,638	2,879	1,000	19,113	14,258	445	25,000
- Maximum	359,465,806	372,643,778	732,109,584	216,273,204	293,774,254	37,070,341	510,047,458
Privately Held/Investor Owned							
- Median	180,000	427,482	300,000	258,340	709,300	14,558	380,198
- Minimum	16,769	134,311	16,769	25,000	15,484	9,684	15,484
- Maximum	591,229	833,940	1,238,818	9,570,863	8,987,630	466,312	16,283,619
River Authority							
- Median	66,000,000	20,449,190	66,000,000	36,941,483	25,344,764	528,471	17,097,175
- Minimum	2,103,438	5,271,241	4,979,000	7,124	9,222,529	394	1,537,117
- Maximum	182,308,617	103,147,858	182,308,617	146,968,415	153,389,123	6,426,629	190,330,606
Water Control & Improve. Dist.							
- Median	1,120,525	499,712	1,128,600	1,138,907	959,420	289,240	1,065,106
- Minimum	21,500	250,500	525	4,787	208,350	4,763	4,787
- Maximum	10,605,000	2,259,000	12,864,000	14,242,884	10,235,143	4,526,985	24,758,575
Water Improvement District							
- Median	177,000	195,000	274,500	273,832	368,461	271,520	273,832
- Minimum	104,000	195,000	104,000	111,859	368,461	24,406	8,659
- Maximum	250,000	195,000	445,000	458,756	368,461	518,633	851,623
Water Supply Corporation							
- Median	403,120	128,388	432,646	680,406	112,423	69,267	680,406
- Minimum	5,149	128,388	5,149	100	96,778	238	100
- Maximum	12,251,813	128,388	12,251,813	17,030,450	128,067	694,751	17,030,450
Other							
- Median	13,900,000	13,044,000	13,900,000	14,314,882	5,135,666	2,894,928	8,959,287
- Minimum	358,950	971,680	610,000	15,436	735,218	24,726	15,436
- Maximum	35,833,786	17,790,073	35,833,786	31,440,679	32,577,582	35,618,457	35,618,457
<b>BY REGION</b>							
Far West							
- Median	855,065	12,178,850	1,010,000	2,334,070	806,303	25,000	1,764,611
- Minimum	60,789	670,000	46,000	68,674	15,484	25,000	15,484
- Maximum	4,941,300	23,687,700	47,246,601	90,280,414	59,241,146	25,000	149,521,560
Plains							
- Median	466,392	444,300	943,762	872,707	1,001,638	503,740	1,752,548
- Minimum	5,000	5,989	5,000	7,124	53,747	394	15,436
- Maximum	74,172,164	12,789,257	74,172,164	84,484,951	26,751,072	2,068,766	93,011,589
Central							
- Median	776,000	505,500	892,570	974,000	1,001,638	466,312	1,500,031
- Minimum	26,683	2,879	2,879	100	28,064	24,406	100
- Maximum	359,465,806	372,643,778	732,109,584	216,273,204	293,774,254	6,426,629	510,047,458
East							
- Median	349,932	533,500	1,600,000	821,704	1,499,051	603,467	2,534,257
- Minimum	5,149	11,310	1,000	19,113	14,258	238	33,370
- Maximum	182,308,617	14,425,000	182,308,617	146,968,415	41,952,408	37,070,341	146,968,415
South							
- Median	435,650	325,350	386,000	595,201	1,515,891	3,632,101	1,003,000
- Minimum	21,500	26,364	525	97,950	116,065	11,897	8,659
- Maximum	109,000,000	6,660,332	109,000,000	85,000,000	68,000,000	16,635,940	153,000,000
<b>OVERALL</b>							
- Median	\$466,392	\$444,300	\$943,762	\$872,707	\$1,001,638	\$503,740	\$1,752,548
- Minimum	5,000	2,879	525	100	14,258	238	100
- Maximum	359,465,806	372,643,778	732,109,584	216,273,204	293,774,254	37,070,341	510,047,458

FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

	SERVICE	SYSTEM PLANT CAPACITY		USE AND BILLED VOLUME INFORMATION (1000 Gallons)			
	TERRITORY	(Gallons Per Day)		Water		Sewage	
	Square Miles	Water	Sewer	Volume Produced	Volume Billed	Volume Treated	Volume Billed
<b>MEDIANS</b>							
<b>BY TYPE OF UTILITY</b>							
Fresh Water Supply District	2.1	389,000	190,000	35,000	35,000	84,130	56,937
Municipal Utility District	0.9	1,224,000	500,000	70,675	65,000	57,824	67,058
Municipality	3.7	1,548,000	1,000,000	297,935	198,680	146,000	219,000
Privately Held/Investor Owned	2.0	500,000	600,000	131,044	56,543	91,250	154,654
River Authority	7,500.0	22,696,000	9,235,000	1,198,160	22,370,920	1,679,265	853,473
Water Control & Improve. Dist.	2.0	1,000,000	350,000	118,692	90,625	33,400	70,928
Water Improvement District	6.7	511,000		508,000	675,755	200,000	200,000
Water Supply Corporation	60.0	864,000	60,000	52,087	43,107	16,827	3,000
Other	52.0	1,700,000	1,500,000	294,760	886,000	583,203	568,630
<b>BY REGION</b>							
Far West	6.7	1,231,000	1,200,000	126,140	126,140	70,765	70,765
Plains	2.2	720,000	380,000	91,022	87,000	73,000	119,210
Central	5.5	864,000	500,000	150,000	116,000	119,516	200,000
East	1.6	1,150,000	626,000	91,626	69,432	108,400	111,931
South	4.0	1,000,000	1,000,000	268,400	396,727	241,519	438,000
<b>OVERALL MEDIAN</b>							
	2.5	982,000	600,000	111,671	94,998	109,500	119,210

<b>MEANS</b>							
<b>BY TYPE OF UTILITY</b>							
Fresh Water Supply District	19.3	1,611,836	298,000	112,051	137,907	75,303	56,937
Municipal Utility District	18.5	1,762,677	970,693	137,002	147,746	126,435	141,528
Municipality	24.3	11,604,558	8,581,981	2,965,087	2,105,749	1,940,901	2,195,801
Privately Held/Investor Owned	11.4	7,580,529	958,333	325,535	208,842	203,594	385,298
River Authority	14,180.8	371,134,000	29,637,500	35,690,252	40,302,895	7,316,921	9,420,310
Water Control & Improve. Dist.	29.9	5,693,720	1,239,500	922,068	783,314	438,764	1,120,003
Water Improvement District	24.9	386,750		427,295	2,142,785	200,000	200,000
Water Supply Corporation	148.1	774,452	60,000	108,552	91,113	16,827	3,000
Other	114.4	7,649,182	17,288,000	2,941,471	3,299,804	5,039,169	7,318,517
<b>BY REGION</b>							
Far West	37.7	20,720,705	13,758,333	3,621,010	3,082,691	2,433,015	2,376,269
Plains	789.1	4,405,029	2,399,044	799,753	895,523	591,588	98,266
Central	589.9	31,588,270	7,068,289	3,112,228	2,685,871	1,889,902	2,193,961
East	61.4	5,207,676	6,243,081	1,778,579	1,870,837	1,446,551	1,903,045
South	33.6	12,069,795	3,787,320	1,759,498	1,648,962	971,276	905,289
<b>OVERALL MEAN</b>							
	301.8	13,830,502	5,930,557	2,071,065	1,988,798	1,455,249	1,790,716

FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

RANGE OF RESPONSES	SERVICE TERRITORY	SYSTEM PLANT CAPACITY (Gallons Per Day)		USE AND BILLED VOLUME INFORMATION (1000 Gallons)			
	Square Miles	Water	Sewer	Water		Sewage	
				Volume Produced	Volume Billed	Volume Treated	Volume Billed

BY TYPE OF UTILITY

Fresh Water Supply District							
- Median	2.1	389,000	190,000	35,000	35,000	84,130	56,937
- Minimum	0.1	40,000	50,000	5,241	15,481	17,885	30,000
- Maximum	200.0	9,000,000	650,000	618,460	533,361	127,000	83,874
Municipal Utility District							
- Median	0.9	1,224,000	500,000	70,675	65,000	57,824	67,058
- Minimum	0.1	40,000	24,500	3,865	65	6,362	3,583
- Maximum	1,100.0	20,000,000	16,000,000	1,189,500	2,390,678	800,000	1,000,537
Municipality							
- Median	3.7	1,548,000	1,000,000	297,935	198,680	146,000	219,000
- Minimum	0.1	17,280	48,000	5,279	5,279	480	480
- Maximum	573.0	427,000,000	464,000,000	124,855,550	99,608,500	91,250,000	85,500,000
Privately Held/Investor Owned							
- Median	2.0	500,000	600,000	131,044	56,543	91,250	154,654
- Minimum	0.1	92,000	100,000	12,290	5,016	9,125	91,250
- Maximum	100.0	92,000,000	4,000,000	2,108,924	1,752,847	909,989	909,989
River Authority							
- Median	7,500.0	22,696,000	9,235,000	1,198,160	22,370,920	1,679,265	853,473
- Minimum	25.3	950,000	50,000	461,103	350,828	1,825	6,650
- Maximum	42,800.0	2,581,000,000	111,760,000	179,550,489	179,550,489	35,967,645	35,967,645
Water Control & Improve. Dist.							
- Median	2.0	1,000,000	350,000	118,692	90,625	33,400	70,928
- Minimum	0.3	50,000	45,000	8,348	11,880	7,277	16,680
- Maximum	372.3	58,300,000	15,000,000	7,623,188	7,423,298	4,321,475	4,321,475
Water Improvement District							
- Median	6.7	511,000	0	508,000	675,755	200,000	200,000
- Minimum	0.1	130,000	0	11,600	9,500	200,000	200,000
- Maximum	144.0	576,000	0	733,115	9,116,800	200,000	200,000
Water Supply Corporation							
- Median	60.0	864,000	60,000	52,087	43,107	16,827	3,000
- Minimum	0.1	58,000	50,000	13,014	7,380	3,000	3,000
- Maximum	1,500.0	6,500,000	70,000	1,482,047	1,213,830	30,653	3,000
Other							
- Median	52.0	1,700,000	1,500,000	294,760	886,000	583,203	568,630
- Minimum	0.1	187,000	91,000	27,883	28,046	14,096	31,808
- Maximum	500.0	36,700,000	110,000,000	21,571,293	21,571,293	28,105,000	28,105,000

BY REGION

Far West							
- Median	6.7	1,231,000	1,200,000	126,140	126,140	70,765	70,765
- Minimum	0.2	60,160	100,000	25,645	12,744	9,125	18,396
- Maximum	240.0	210,000,000	60,000,000	34,501,000	30,781,000	17,973,000	11,500,000
Plains							
- Median	2.5	720,000	600,000	111,671	94,998	109,500	119,210
- Minimum	0.1	40,000	50,000	5,241	18,777	6,650	6,650
- Maximum	37,800.0	75,000,000	25,000,000	14,335,189	22,370,920	6,322,884	238,348
Central							
- Median	5.5	864,000	500,000	150,000	116,000	119,516	200,000
- Minimum	0.1	17,280	24,500	4,235	3,583	480	480
- Maximum	42,800.0	2,581,000,000	111,760,000	179,550,489	179,550,489	35,967,645	35,967,645
East							
- Median	1.6	1,150,000	626,000	91,626	69,432	108,400	111,931
- Minimum	0.1	40,000	34,000	3,865	65	1,825	3,000
- Maximum	7,500.0	427,000,000	464,000,000	124,855,550	99,608,500	91,250,000	85,500,000
South							
- Median	4.0	1,000,000	1,000,000	268,400	396,727	241,519	438,000
- Minimum	0.3	20,000	55,000	5,279	5,279	16,191	5,279
- Maximum	500.0	175,000,000	38,000,000	32,237,000	29,706,000	9,480,000	5,548,000

OVERALL

- Median	2.5	982,000	600,000	111,671	94,998	109,500	119,210
- Minimum	0.1	17,280	24,500	3,865	65	480	480
- Maximum	42,800.0	2,581,000,000	464,000,000	179,550,489	179,550,489	91,250,000	85,500,000

	SOURCE OF WATER				SEWER
	Surface Water		Ground Water		Level
	Self	Other	Self	Other	of Treat
<b>MEDIANS</b>	-----	-----	-----	-----	-----

BY TYPE OF UTILITY					
Fresh Water Supply District	23%	0%	77%	0%	2
Municipal Utility District	0%	0%	100%	0%	3
Municipality	0%	0%	100%	0%	2
Privately Held/Investor Owned	0%	0%	100%	0%	3
River Authority	100%	0%	0%	0%	2
Water Control & Improve. Dist.	0%	0%	100%	0%	2
Water Improvement District	0%	100%	0%	0%	4
Water Supply Corporation	0%	0%	100%	0%	1
Other	15%	0%	85%	0%	3

BY REGION					
Far West	0%	0%	100%	0%	2
Plains	0%	0%	100%	0%	2
Central	0%	30%	70%	0%	2
East	0%	0%	100%	0%	3
South	0%	100%	0%	0%	2
<b>OVERALL MEDIAN</b>	0%	0%	100%	0%	2

MEANS					
BY TYPE OF UTILITY					
Fresh Water Supply District	23%	24%	53%	0%	2
Municipal Utility District	7%	23%	56%	13%	3
Municipality	16%	23%	57%	3%	2
Privately Held/Investor Owned	0%	10%	81%	9%	3
River Authority	92%	4%	4%	1%	2
Water Control & Improve. Dist.	19%	18%	55%	8%	2
Water Improvement District	13%	54%	34%	0%	4
Water Supply Corporation	4%	38%	56%	2%	1
Other	15%	25%	58%	1%	3

BY REGION					
Far West	2%	16%	75%	7%	2
Plains	26%	24%	46%	3%	2
Central	14%	31%	50%	5%	2
East	7%	15%	71%	8%	3
South	24%	55%	19%	2%	2
<b>OVERALL MEAN</b>	13%	25%	56%	6%	2

RANGE OF RESPONSES	SOURCE OF WATER				SEWER
	Surface Water		Ground Water		Level of Treat
	Self	Other	Self	Other	
-----					

**BY TYPE OF UTILITY**

<b>Fresh Water Supply District</b>					
- Median	23%	0%	77%	0%	2
- Minimum	0%	0%	0%	0%	2
- Maximum	100%	100%	100%	1%	2
<b>Municipal Utility District</b>					
- Median	0%	0%	100%	0%	3
- Minimum	0%	0%	0%	0%	1
- Maximum	100%	100%	100%	100%	4
<b>Municipality</b>					
- Median	0%	0%	100%	0%	2
- Minimum	0%	0%	0%	0%	1
- Maximum	100%	100%	100%	100%	4
<b>Privately Held/Investor Owned</b>					
- Median	0%	0%	100%	0%	3
- Minimum	0%	0%	0%	0%	2
- Maximum	3%	100%	100%	100%	3
<b>River Authority</b>					
- Median	100%	0%	0%	0%	2
- Minimum	16%	0%	0%	0%	2
- Maximum	100%	35%	43%	6%	3
<b>Water Control &amp; Improve. Dist.</b>					
- Median	0%	0%	100%	0%	2
- Minimum	0%	0%	0%	0%	1
- Maximum	100%	100%	100%	100%	3
<b>Water Improvement District</b>					
- Median	0%	100%	0%	0%	4
- Minimum	0%	0%	0%	0%	4
- Maximum	100%	100%	100%	0%	4
<b>Water Supply Corporation</b>					
- Median	0%	0%	100%	0%	1
- Minimum	0%	0%	0%	0%	1
- Maximum	91%	100%	100%	100%	1
<b>Other</b>					
- Median	15%	0%	85%	0%	3
- Minimum	0%	0%	0%	0%	2
- Maximum	100%	100%	100%	20%	3

**BY REGION**

<b>Far West</b>					
- Median	0%	0%	100%	0%	2
- Minimum	0%	0%	0%	0%	1
- Maximum	15%	100%	100%	97%	4
<b>Plains</b>					
- Median	0%	0%	100%	0%	2
- Minimum	0%	0%	0%	0%	1
- Maximum	100%	100%	100%	100%	4
<b>Central</b>					
- Median	0%	30%	70%	0%	2
- Minimum	0%	0%	0%	0%	1
- Maximum	100%	100%	100%	100%	4
<b>East</b>					
- Median	0%	0%	100%	0%	3
- Minimum	0%	0%	0%	0%	1
- Maximum	100%	100%	100%	100%	4
<b>South</b>					
- Median	0%	100%	0%	0%	2
- Minimum	0%	0%	0%	0%	1
- Maximum	100%	100%	100%	100%	4

**OVERALL**

- Median	0%	0%	100%	0%	2
- Minimum	0%	0%	0%	0%	1
- Maximum	100%	100%	100%	100%	4

FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

RANGE OF RESPONSES	ANNUAL WATER BILL		ANNUAL SEWER BILL		AD VALOREM
	Resident. 8,000 Gal/Month	Commercial 375,000 Gal/Month	Resident. 8,000 Gal/Month	Commercial 375,000 Gal/Month	TAX RATE
					Rate per \$100 Assessed Value

**BY TYPE OF UTILITY**

Fresh Water Supply District					
- Median	\$222	\$8,482	\$146	\$7,394	\$0.298
- Minimum	38	3,625	43	2,788	0.070
- Maximum	360	12,000	264	12,000	0.780
Municipal Utility District					
- Median	147	4,572	108	3,363	0.850
- Minimum	65	177	48	288	0.015
- Maximum	516	14,474	430	15,756	4.070
Municipality					
- Median	170	5,048	98	2,989	0.438
- Minimum	40	200	11	272	0.108
- Maximum	442	14,607	420	11,607	0.892
Privately Held/Investor Owned					
- Median	251	5,799	156	3,375	0.000
- Minimum	108	3,375	120	3,052	1.326
- Maximum	374	7,548	509	5,039	1.326
River Authority					
- Median	392	0	162	0	0.046
- Minimum	318	14,400	84	6,792	0.013
- Maximum	392	14,400	246	6,792	0.080
Water Control & Improve. Dist.					
- Median	144	4,346	94	2,820	0.300
- Minimum	40	417	42	417	0.115
- Maximum	396	9,450	300	6,004	1.060
Water Improvement District					
- Median	263	6,110	139	3,222	0.306
- Minimum	153	6,110	139	3,222	0.243
- Maximum	372	6,110	139	3,222	0.370
Water Supply Corporation					
- Median	348	8,854	60	3,282	1.000
- Minimum	100	170	40	3,282	0.340
- Maximum	442	19,332	181	3,282	1.250
Other					
- Median	132	3,053	96	3,812	0.130
- Minimum	78	1,974	60	1,896	0.020
- Maximum	288	9,072	231	5,232	0.750

**BY REGION**

Far West					
- Median	151	4,651	72	2,786	0.320
- Minimum	62	2,892	40	480	0.100
- Maximum	300	6,019	122	3,150	0.487
Plains					
- Median	300	4,584	72	1,102	0.320
- Minimum	72	473	42	272	0.013
- Maximum	442	14,975	420	5,400	1.410
Central					
- Median	225	6,703	138	3,802	0.440
- Minimum	40	333	36	540	0.070
- Maximum	516	14,474	430	15,756	1.250
East					
- Median	145	4,596	108	3,375	0.670
- Minimum	38	170	11	288	0.015
- Maximum	438	19,332	509	12,000	4.070
South					
- Median	164	5,880	84	2,276	0.338
- Minimum	40	200	42	328	0.115
- Maximum	396	10,704	300	7,200	0.726

**OVERALL**

- Median	\$183	\$5,082	\$108	\$3,300	\$0.550
- Minimum	38	170	11	272	0.013
- Maximum	516	19,332	509	15,756	4.070

CONNECTION FEES

<< LONG FORM >>	CONNECTION CHARGES	
	Water	Sewer

**RANGE OF RESPONSES**

**BY TYPE OF UTILITY**

Fresh Water Supply District			
- Average	499	500	
- Standard Deviation	536	0	
Municipal Utility District			
- Average	334	316	
- Standard Deviation	115	303	
Municipality			
- Average	389	429	
- Standard Deviation	431	589	
Privately Held/Investor Owned			
- Average	255	200	
- Standard Deviation	117		
River Authority			
- Average			
- Standard Deviation			
Water Control & Improvement Dist.			
- Average	377	350	
- Standard Deviation	320	132	
Water Improvement District			
- Average	155	55	
- Standard Deviation			
Water Supply Corporation			
- Average	664		
- Standard Deviation	404		
Other			
- Average	475	450	
- Standard Deviation			

**BY REGION**

Far West			
- Average	446	500	
- Standard Deviation	382		
Plains			
- Average	275	117	
- Standard Deviation	204	82	
Central			
- Average	653	645	
- Standard Deviation	528	684	
East			
- Average	329	310	
- Standard Deviation	120	208	
South			
- Average	234	169	
- Standard Deviation	170	184	

**Overall Ranges**

- Average	414	380	
- Standard Deviation	361	458	

ANNUAL REVENUE COMPONENTS

KEY RATIOS	WATER - ANNUAL REVENUES AND OTHER INCOME					
	Revenue Components					
	Operating Rates	Capital Charges	Taxes	Interest Income	Other	Not Itemized

**MEDIANS**

**BY TYPE OF UTILITY**

Fresh Water Supply District	86%	1%	0%	4%	0%	10%
Municipal Utility District	92%	0%	0%	0%	0%	8%
Municipality	92%	1%	0%	1%	0%	5%
Privately Held/Investor Owned	97%	1%	0%	0%	0%	2%
River Authority	72%	0%	0%	4%	1%	23%
Water Control & Improve. Dist.	66%	0%	1%	4%	0%	28%
Water Improvement District	66%	0%	13%	3%	2%	15%
Water Supply Corporation	89%	3%	0%	2%	0%	5%
Other	80%	0%	0%	3%	0%	17%

**BY REGION**

Far West	79%	1%	0%	2%	1%	17%
Plains	92%	1%	0%	2%	0%	5%
Central	88%	2%	0%	2%	0%	9%
East	93%	0%	0%	0%	0%	7%
South	88%	0%	0%	3%	0%	8%

**OVERALL MEDIAN**

91%	1%	0%	1%	0%	7%
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**MEANS**

**BY TYPE OF UTILITY**

Fresh Water Supply District	78%	4%	4%	6%	6%	1%
Municipal Utility District	72%	2%	8%	2%	5%	11%
Municipality	84%	4%	2%	3%	3%	5%
Privately Held/Investor Owned	84%	4%	0%	1%	4%	6%
River Authority	57%	1%	9%	6%	15%	11%
Water Control & Improve. Dist.	47%	1%	13%	6%	11%	21%
Water Improvement District	60%	1%	20%	11%	8%	0%
Water Supply Corporation	70%	4%	0%	3%	1%	21%
Other	61%	1%	17%	5%	7%	9%

**BY REGION**

Far West	66%	2%	5%	6%	7%	13%
Plains	80%	2%	3%	4%	5%	5%
Central	73%	5%	3%	4%	5%	11%
East	76%	2%	4%	2%	2%	13%
South	70%	4%	7%	4%	7%	8%

**OVERALL MEAN**

75%	3%	4%	4%	4%	10%
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ANNUAL REVENUE COMPONENTS

KEY RATIOS	WATER - ANNUAL REVENUES AND OTHER INCOME					
	Revenue Components					
	Operating Rates	Capital Charges	Taxes	Interest Income	Other	Not Itemized

**RANGE OF RESPONSES**

**BY TYPE OF UTILITY**

<b>Fresh Water Supply District</b>						
- Median	86%	1%	0%	4%	0%	10%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	25%	24%	42%	83%	0%
<b>Municipal Utility District</b>						
- Median	92%	0%	0%	0%	0%	8%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	37%	88%	28%	100%	100%
<b>Municipality</b>						
- Median	92%	1%	0%	1%	0%	5%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	70%	45%	24%	100%	100%
<b>Privately Held/Investor Owned</b>						
- Median	97%	1%	0%	0%	0%	2%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	42%	1%	5%	48%	100%
<b>River Authority</b>						
- Median	72%	0%	0%	4%	1%	23%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	99%	13%	76%	21%	96%	100%
<b>Water Control &amp; Improve. Dist.</b>						
- Median	66%	0%	1%	4%	0%	28%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	6%	53%	22%	69%	100%
<b>Water Improvement District</b>						
- Median	66%	0%	13%	3%	2%	15%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	3%	81%	54%	30%	0%
<b>Water Supply Corporation</b>						
- Median	89%	3%	0%	2%	0%	5%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	34%	2%	15%	18%	100%
<b>Other</b>						
- Median	80%	0%	0%	3%	0%	17%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	4%	79%	21%	34%	100%

**BY REGION**

<b>Far West</b>						
- Median	79%	1%	0%	2%	1%	17%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	6%	30%	54%	42%	21%
<b>Plains</b>						
- Median	92%	1%	0%	2%	0%	5%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	17%	45%	42%	100%	100%
<b>Central</b>						
- Median	88%	2%	0%	2%	0%	9%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	70%	81%	24%	100%	100%
<b>East</b>						
- Median	93%	0%	0%	0%	0%	7%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	37%	88%	28%	61%	100%
<b>South</b>						
- Median	88%	0%	0%	3%	0%	8%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	57%	52%	14%	81%	100%

**OVERALL**

- Median	91%	1%	0%	1%	0%	7%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	70%	88%	54%	100%	100%

ANNUAL REVENUE COMPONENTS

KEY RATIOS	SEWER - ANNUAL REVENUES AND OTHER INCOME					
	Revenue Components					
	Operating Rates	Capital Charges	Taxes	Interest Income	Other	Not Itemized

**MEDIANS**

**BY TYPE OF UTILITY**

Fresh Water Supply District	89%	3%	5%	0%	0%	3%
Municipal Utility District	100%	0%	0%	0%	0%	0%
Municipality	97%	1%	0%	0%	0%	2%
Privately Held/Investor Owned	99%	1%	0%	0%	0%	0%
River Authority	66%	0%	0%	5%	0%	29%
Water Control & Improve. Dist.	82%	0%	0%	0%	0%	18%
Water Improvement District	96%	1%	0%	3%	0%	0%
Water Supply Corporation	89%	1%	0%	1%	9%	0%
Other	82%	0%	0%	3%	1%	14%

**BY REGION**

Far West	99%	1%	0%	0%	0%	1%
Plains	97%	0%	0%	0%	0%	3%
Central	96%	1%	0%	0%	0%	3%
East	97%	0%	0%	0%	0%	3%
South	98%	1%	0%	0%	0%	2%

**OVERALL MEDIAN**

97%	0%	0%	0%	0%	3%
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**MEANS**

**BY TYPE OF UTILITY**

Fresh Water Supply District	80%	3%	16%	1%	0%	0%
Municipal Utility District	78%	1%	5%	1%	3%	11%
Municipality	86%	3%	1%	2%	3%	4%
Privately Held/Investor Owned	89%	1%	0%	0%	9%	0%
River Authority	56%	6%	0%	7%	15%	17%
Water Control & Improve. Dist.	66%	0%	14%	3%	0%	17%
Water Improvement District	96%	1%	0%	3%	0%	0%
Water Supply Corporation	89%	1%	0%	1%	9%	0%
Other	64%	3%	0%	6%	6%	20%

**BY REGION**

Far West	68%	1%	0%	2%	2%	27%
Plains	82%	1%	0%	1%	9%	7%
Central	83%	6%	2%	3%	4%	2%
East	80%	1%	5%	1%	2%	11%
South	81%	2%	2%	1%	1%	14%

**OVERALL MEAN**

82%	3%	3%	2%	4%	7%
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ANNUAL REVENUE COMPONENTS

KEY RATIOS	SEWER - ANNUAL REVENUES AND OTHER INCOME					
	Revenue Components					
	Operating Rates	Capital Charges	Taxes	Interest Income	Other	Not Itemized
<b>RANGE OF RESPONSES</b>						
<b>BY TYPE OF UTILITY</b>						
Fresh Water Supply District						
- Median	89%	3%	5%	0%	0%	3%
- Minimum	40%	0%	0%	0%	0%	0%
- Maximum	100%	4%	56%	5%	1%	0%
Municipal Utility District						
- Median	100%	0%	0%	0%	0%	0%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	18%	75%	17%	100%	100%
Municipality						
- Median	97%	1%	0%	0%	0%	2%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	83%	41%	24%	100%	100%
Privately Held/Investor Owned						
- Median	99%	1%	0%	0%	0%	0%
- Minimum	42%	0%	0%	0%	0%	0%
- Maximum	100%	3%	0%	1%	56%	0%
River Authority						
- Median	66%	0%	0%	5%	0%	29%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	36%	0%	15%	85%	100%
Water Control & Improve. Dist.						
- Median	82%	0%	0%	0%	0%	18%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	1%	54%	12%	2%	100%
Water Improvement District						
- Median	96%	1%	0%	3%	0%	0%
- Minimum	96%	1%	0%	3%	0%	0%
- Maximum	96%	1%	0%	3%	0%	0%
Water Supply Corporation						
- Median	89%	1%	0%	1%	9%	1%
- Minimum	79%	0%	0%	0%	0%	0%
- Maximum	100%	1%	0%	1%	18%	0%
Other						
- Median	82%	0%	0%	3%	1%	14%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	13%	0%	22%	23%	100%
<b>BY REGION</b>						
Far West						
- Median	99%	1%	0%	0%	0%	1%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	2%	0%	10%	13%	0%
Plains						
- Median	97%	0%	0%	0%	0%	3%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	7%	0%	16%	100%	100%
Central						
- Median	96%	1%	0%	0%	0%	3%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	83%	46%	24%	100%	100%
East						
- Median	97%	0%	0%	0%	0%	3%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	19%	75%	17%	56%	100%
South						
- Median	98%	1%	0%	0%	0%	2%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	13%	39%	8%	5%	100%
<b>OVERALL</b>						
- Median	97%	0%	0%	0%	0%	3%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	83%	75%	24%	100%	100%

ANNUAL REVENUE COMPONENTS

KEY RATIOS	COMBINED - ANNUAL REVENUES AND OTHER INCOME					
	Revenue Components					
	Operating Rates	Capital Charges	Taxes	Interest Income	Other	Not Itemized

RANGE OF RESPONSES

BY TYPE OF UTILITY

Fresh Water Supply District						
- Median	81%	1%	0%	2%	1%	16%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	20%	24%	42%	83%	0%
Municipal Utility District						
- Median	25%	1%	39%	4%	1%	30%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	98%	53%	86%	88%	100%	100%
Municipality						
- Median	90%	1%	0%	2%	1%	6%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	79%	40%	28%	100%	100%
Privately Held/Investor Owned						
- Median	98%	0%	0%	0%	0%	2%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	8%	0%	5%	51%	100%
River Authority						
- Median	48%	0%	0%	4%	0%	49%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	99%	36%	73%	17%	89%	100%
Water Control & Improve. Dist.						
- Median	65%	0%	15%	4%	0%	15%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	98%	6%	60%	93%	71%	100%
Water Improvement District						
- Median	25%	0%	6%	1%	0%	68%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	3%	81%	54%	28%	100%
Water Supply Corporation						
- Median	87%	1%	0%	2%	0%	10%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	34%	0%	10%	18%	100%
Other						
- Median	41%	0%	11%	4%	2%	43%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	99%	13%	100%	22%	35%	100%

BY REGION

Far West						
- Median	79%	0%	0%	2%	1%	18%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	5%	30%	54%	28%	100%
Plains						
- Median	87%	0%	0%	2%	0%	10%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	17%	48%	81%	100%	100%
Central						
- Median	83%	1%	0%	2%	0%	13%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	79%	100%	24%	100%	100%
East						
- Median	70%	1%	0%	3%	0%	26%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	28%	86%	93%	51%	100%
South						
- Median	86%	0%	0%	2%	0%	11%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	57%	86%	13%	78%	100%

OVERALL

- Median	81%	1%	0%	2%	0%	16%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	79%	100%	93%	100%	100%

REVENUE PER CUSTOMER

KEY RATIOS	REVENUE PER CUSTOMER		
	Water	Sewer	Total

RANGE OF RESPONSES

BY TYPE OF UTILITY

Fresh Water Supply District			
- Median	\$265	\$164	\$247
- Minimum	133	44	89
- Maximum	1,259,302	266	1,259,302
Municipal Utility District			
- Median	281	122	614
- Minimum	59	10	55
- Maximum	21,366	747	279,661
Municipality			
- Median	243	126	189
- Minimum	19	20	19
- Maximum	372,076	1,782	372,076
Privately Held/Investor Owned			
- Median	265	235	257
- Minimum	172	140	172
- Maximum	716,277	514	716,277
River Authority			
- Median	519,294	24,142	255,754
- Minimum	443	315	315
- Maximum	1,546,362	765,099	1,546,362
Water Control & Improve. Dist.			
- Median	454	118	309
- Minimum	159	57	145
- Maximum	22,072	537	22,072
Water Improvement District			
- Median	546	148	546
- Minimum	199	148	174
- Maximum	60,965	148	60,965
Water Supply Corporation			
- Median	304	160	304
- Minimum	155	105	155
- Maximum	771	215	771
Other			
- Median	2,157	167	1,909
- Minimum	164	102	176
- Maximum	721,145	274,082	721,145

BY REGION

Far West			
- Median	348	118	350
- Minimum	0	0	0
- Maximum	2,157	476	2,157
Plains			
- Median	249	79	212
- Minimum	59	21	59
- Maximum	1,546,362	540,750	1,546,362
Central			
- Median	318	145	304
- Minimum	82	46	102
- Maximum	699,804	765,099	743,334
East			
- Median	245	151	279
- Minimum	94	0	55
- Maximum	1,039,110	274,082	721,145
South			
- Median	295	119	221
- Minimum	19	0	19
- Maximum	1,259,302	744	1,259,302

OVERALL

- Median	275	135	272
- Minimum	19	10	19
- Maximum	1,546,362	765,099	1,546,362

COMPONENTS OF O&M EXPENSE

KEY RATIOS	OPERATION AND MAINTENANCE EXPENSE				
	(Excluding Depreciation)				
	Labor	Chemicals	Energy	Other	Not Itemized
<b>RANGE OF RESPONSES</b>					
<b>BY TYPE OF UTILITY</b>					
Fresh Water Supply District					
- Median	38%	1%	12%	45%	4%
- Minimum	17%	0%	0%	5%	0%
- Maximum	95%	18%	32%	68%	0%
Municipal Utility District					
- Median	25%	0%	10%	46%	20%
- Minimum	0%	0%	0%	0%	0%
- Maximum	68%	58%	54%	100%	100%
Municipality					
- Median	35%	3%	16%	35%	11%
- Minimum	0%	0%	0%	0%	0%
- Maximum	100%	49%	42%	80%	100%
Privately Held/Investor Owned					
- Median	44%	2%	15%	36%	3%
- Minimum	28%	0%	0%	0%	0%
- Maximum	100%	5%	43%	54%	0%
River Authority					
- Median	33%	4%	16%	32%	15%
- Minimum	0%	0%	0%	0%	0%
- Maximum	69%	11%	43%	69%	100%
Water Control & Improve. Dist.					
- Median	36%	1%	11%	32%	19%
- Minimum	0%	0%	0%	0%	0%
- Maximum	96%	20%	49%	100%	100%
Water Improvement District					
- Median	18%	0%	0%	35%	48%
- Minimum	0%	0%	0%	0%	0%
- Maximum	100%	2%	24%	71%	100%
Water Supply Corporation					
- Median	28%	1%	10%	57%	4%
- Minimum	0%	0%	0%	0%	0%
- Maximum	100%	15%	51%	85%	100%
Other					
- Median	32%	2%	12%	47%	7%
- Minimum	0%	0%	0%	21%	0%
- Maximum	64%	13%	43%	100%	0%
<b>BY REGION</b>					
Far West					
- Median	35%	1%	23%	33%	8%
- Minimum	0%	0%	0%	0%	0%
- Maximum	66%	46%	42%	70%	100%
Plains					
- Median	37%	2%	13%	28%	21%
- Minimum	0%	0%	0%	0%	0%
- Maximum	100%	49%	49%	85%	100%
Central					
- Median	33%	2%	12%	42%	10%
- Minimum	0%	0%	0%	0%	0%
- Maximum	100%	58%	51%	80%	100%
East					
- Median	32%	1%	12%	40%	14%
- Minimum	0%	0%	0%	0%	0%
- Maximum	100%	45%	54%	100%	100%
South					
- Median	37%	1%	9%	45%	10%
- Minimum	0%	0%	0%	0%	0%
- Maximum	96%	20%	39%	100%	100%
<b>OVERALL</b>					
- Median	34%	1%	12%	38%	15%
- Minimum	0%	0%	0%	0%	0%
- Maximum	100%	58%	54%	100%	100%

COMPONENTS OF ANNUAL EXPENDITURES

KEY RATIOS	ANNUAL EXPENDITURES					
	O&M Expense	Debt Service	Capital Improve-ments	Transfer To Other Agency	Increase In Fund Balances	Not Itemized
<b>RANGE OF RESPONSES</b>						
<b>BY TYPE OF UTILITY</b>						
Fresh Water Supply District						
- Median	35%	7%	0%	0%	0%	58%
- Minimum	0%	0%	0%	0%	- 6%	0%
- Maximum	100%	98%	31%	7%	4%	100%
Municipal Utility District						
- Median	28%	34%	1%	0%	0%	37%
- Minimum	0%	0%	0%	0%	- 46%	0%
- Maximum	100%	100%	100%	84%	77%	100%
Municipality						
- Median	54%	10%	3%	0%	0%	33%
- Minimum	0%	0%	0%	0%	- 4%	0%
- Maximum	100%	100%	86%	70%	71%	100%
Privately Held/Investor Owned						
- Median	49%	7%	6%	0%	0%	38%
- Minimum	0%	0%	0%	0%	- 4%	0%
- Maximum	100%	39%	62%	2%	16%	100%
River Authority						
- Median	37%	21%	3%	0%	0%	39%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	95%	60%	74%	3%	16%	100%
Water Control & Improve. Dist.						
- Median	61%	16%	2%	0%	0%	21%
- Minimum	0%	0%	0%	0%	- 12%	0%
- Maximum	95%	61%	66%	13%	62%	100%
Water Improvement District						
- Median	91%	0%	0%	0%	0%	9%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	26%	19%	0%	9%	100%
Water Supply Corporation						
- Median	56%	10%	0%	0%	0%	34%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	50%	34%	49%	53%	100%
Other						
- Median	47%	0%	0%	0%	0%	53%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	43%	24%	7%	50%	100%
<b>BY REGION</b>						
Far West						
- Median	54%	5%	0%	0%	0%	41%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	30%	41%	36%	41%	100%
Plains						
- Median	53%	10%	0%	0%	0%	37%
- Minimum	0%	0%	0%	0%	- 4%	0%
- Maximum	100%	100%	62%	56%	54%	100%
Central						
- Median	44%	12%	2%	0%	0%	42%
- Minimum	0%	0%	0%	0%	- 12%	0%
- Maximum	100%	68%	100%	70%	62%	100%
East						
- Median	47%	21%	2%	0%	0%	30%
- Minimum	0%	0%	0%	0%	- 46%	0%
- Maximum	100%	124%	86%	84%	39%	100%
South						
- Median	62%	6%	0%	0%	0%	31%
- Minimum	0%	0%	0%	0%	0%	0%
- Maximum	100%	65%	64%	32%	77%	100%
<b>OVERALL</b>						
- Median	47%	13%	1%	0%	0%	39%
- Minimum	0%	0%	0%	0%	- 46%	0%
- Maximum	100%	124%	100%	84%	77%	100%

REVENUES AND EXPENDITURES PER 1,000 GALLONS

KEY RATIOS	WATER - COMPARISONS BASED ON VOLUME				DISTRIBU- TION	SEWER - COMPARISONS BASED ON VOLUME			
	Revenue	Revenue	O&M	Expenditures		Revenue	Revenue	O&M	Expenditures
	per 1,000 Gallons...					System Losses	per 1,000 Gallons...		
Delivered	Billed	Delivered	Delivered	Treated	Billed		Treated	Treated	

**RANGE OF RESPONSES**

**BY TYPE OF UTILITY**

<b>Fresh Water Supply District</b>									
- Median	2.04	2.47	1.87	2.13	12%	1.52	2.20	0.93	0.00
- Minimum	1.02	1.24	0.16	1.16	8%	0.69	2.20	0.32	0.00
- Maximum	4.14	4.33	2.69	4.99	25%	2.20	2.20	1.54	2.14
<b>Municipal Utility District</b>									
- Median	1.86	2.36	1.65	2.81	16%	1.42	1.33	1.24	0.00
- Minimum	0.68	0.81	0.12	0.10	3%	0.08	0.17	0.67	0.00
- Maximum	19.38	25.91	3.88	17.54	55%	6.86	8.45	5.93	15.52
<b>Municipality</b>									
- Median	1.51	1.81	0.81	1.50	15%	1.16	1.37	0.73	0.67
- Minimum	0.36	0.36	0.09	0.21	1%	0.33	0.34	0.10	0.00
- Maximum	22.12	22.12	16.17	9.59	52%	42.94	44.37	2.80	17.84
<b>Privately Held/Investor Owned</b>									
- Median	2.22	2.76	1.01	1.99	18%	2.15	2.16	1.21	1.29
- Minimum	0.64	0.35	0.54	1.01	10%	1.28	1.28	0.67	1.08
- Maximum	4.71	4.75	1.43	4.11	34%	3.91	2.26	3.16	3.63
<b>River Authority</b>									
- Median	1.06	0.35	0.57	0.76	14%	1.17	1.61	0.47	0.57
- Minimum	0.03	0.03	0.03	0.06	4%	0.51	0.51	0.31	0.00
- Maximum	1.48	3.68	2.57	3.88	24%	28.43	2.14	1.42	3.58
<b>Water Control &amp; Improve. Dist.</b>									
- Median	1.49	1.51	1.38	0.38	14%	0.73	1.05	3.34	0.00
- Minimum	0.05	0.05	0.05	0.03	3%	0.31	0.83	3.34	0.00
- Maximum	7.12	8.81	3.46	13.06	41%	4.61	1.27	3.34	18.56
<b>Water Improvement District</b>									
- Median	0.09	0.89	0.86	0.95	11%	1.21	1.21	0.85	0.94
- Minimum	0.06	0.09	0.08	0.09	4%	1.21	1.21	0.85	0.94
- Maximum	2.64	2.96	2.16	2.74	18%	1.21	1.21	0.85	0.94
<b>Water Supply Corporation</b>									
- Median	3.31	3.81	1.92	2.66	15%	3.59	5.55	0.00	0.35
- Minimum	0.55	0.55	0.17	0.26	1%	1.62	5.55	0.00	0.00
- Maximum	6.66	7.37	4.29	6.78	44%	5.55	5.55	0.00	0.70
<b>Other</b>									
- Median	0.98	0.98	0.54	1.09	13%	1.66	0.86	0.62	0.32
- Minimum	0.08	0.03	0.04	0.04	5%	0.41	0.79	0.18	0.00
- Maximum	3.55	4.38	0.62	1.36	24%	3.27	3.35	0.63	3.92

**BY REGION**

<b>Far West</b>									
- Median	1.66	2.22	0.51	2.48	9%	1.17	1.48	0.35	0.34
- Minimum	0.00	0.00	0.00	0.00	0%	0.00	0.00	0.00	0.00
- Maximum	5.08	14.64	2.36	13.91	29%	3.91	2.72	3.16	3.63
<b>Plains</b>									
- Median	1.70	1.97	1.19	1.84	17%	0.98	1.07	0.42	0.10
- Minimum	0.63	0.56	0.16	0.32	1%	0.38	0.49	0.10	0.00
- Maximum	5.93	6.41	3.71	5.62	41%	4.06	2.11	1.77	15.92
<b>Central</b>									
- Median	2.71	2.59	1.32	2.29	15%	1.35	1.50	0.75	0.71
- Minimum	0.03	0.03	0.03	0.06	1%	0.33	0.34	0.23	0.00
- Maximum	19.38	25.91	16.17	17.54	51%	39.58	39.58	3.82	7.32
<b>East</b>									
- Median	1.57	1.97	1.05	1.56	17%	1.23	1.33	0.85	0.00
- Minimum	0.09	0.09	0.00	0.00	0%	0.00	0.00	0.00	0.00
- Maximum	16.37	16.37	4.07	9.59	55%	42.94	44.37	5.93	18.56
<b>South</b>									
- Median	1.67	1.78	0.81	1.55	14%	1.16	1.02	0.87	0.52
- Minimum	0.00	0.05	0.00	0.00	0%	0.00	0.00	0.00	0.00
- Maximum	22.12	22.12	2.90	6.76	51%	3.36	17.23	2.80	4.24

**OVERALL**

- Median	1.81	2.15	1.08	1.87	15%	1.23	1.35	0.75	0.00
- Minimum	0.03	0.03	0.03	0.03	1%	0.08	0.17	0.10	0.00
- Maximum	22.12	25.91	16.17	17.54	55%	42.94	44.37	5.93	18.56

## ASSETS PER CUSTOMER AND VOLUME AND DEBT RATIO STATISTICS

KEY RATIOS	NET BOOK VALUE PER CUSTOMER			NET BOOK VALUE PER 1,000 GALLONS OF		Long-Term Debt Ratio to Net Book Value	Debt Service Coverage
	Water	Sewer	Combined	Water Produced	Sewage Treated		

**MEDIANS****BY TYPE OF UTILITY**

Fresh Water Supply District	\$911	\$347	\$926	\$10	\$7	50%	2.11
Municipal Utility District	2,447	2,379	3,234	17	16	97%	1.31
Municipality	864	744	875	5	9	30%	2.88
Privately Held/Investor Owned	420	820	586	3	7	66%	2.77
River Authority	2,020,304	1,405,062	1,921,391	4	4	87%	1.22
Water Control & Improve. Dist.	1,773	2,100	1,445	4	29	50%	1.38
Water Improvement District	1,108	224	1,108	2	2	73%	3.69
Water Supply Corporation	1,091	496	1,091	11	3	72%	2.33
Other	53,085	4,937	17,491	8	31	81%	1.59

**BY REGION**

Far West	1,630	296	826	5	2	82%	3.98
Plains	990	592	990	8	6	52%	3.02
Central	1,081	783	1,135	9	8	61%	2.53
East	1,081	1,869	1,687	9	14	76%	1.41
South	926	511	975	5	6	30%	2.14

**OVERALL MEDIAN**

	1,081	1,038	1,290	8	10	62%	1.94
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**MEANS****BY TYPE OF UTILITY**

Fresh Water Supply District	909,141	791	848,637	12	17	49%	4.23
Municipal Utility District	13,839	12,535	76,944	29	29	176%	1.68
Municipality	1,269	2,159	42,350	7	47	40%	6.08
Privately Held/Investor Owned	480,952	1,928	452,721	4	18	66%	2.70
River Authority	2,327,178	2,300,708	2,229,028	7	5	144%	3.28
Water Control & Improve. Dist.	26,958	854,581	34,778	8	22	59%	1.61
Water Improvement District	3,110	224	3,155	6	2	76%	3.14
Water Supply Corporation	1,246	496	16,213	14	3	75%	4.04
Other	958,549	103,222	671,937	91	36	107%	3.53

**BY REGION**

Far West	5,193	180	50,990	9	1	50%	3.95
Plains	108,385	566,494	358,251	10	12	56%	4.18
Central	117,906	191,633	102,747	11	61	126%	4.38
East	173,877	13,159	108,530	18	37	88%	2.90
South	608,181	827	502,640	26	6	44%	7.13

**OVERALL MEAN**

	189,012	119,441	188,146	16	37	89%	4.05
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## ASSETS PER CUSTOMER AND VOLUME AND DEBT RATIO STATISTICS

KEY RATIOS	NET BOOK VALUE PER CUSTOMER			NET BOOK VALUE PER 1,000 GALLONS OF		Long-Term Debt Ratio to Net Book Value	Debt Service Coverage
	Water	Sewer	Combined	Water Produced	Sewage Treated		
<b>RANGE OF RESPONSES</b>							
<b>BY TYPE OF UTILITY</b>							
Fresh Water Supply District							
- Median	911	347	926	10	7	50%	2.11
- Minimum	131	174	222	1	3	5%	1.04
- Maximum	8,089,652	2,299	8,089,652	40	40	113%	14.04
Municipal Utility District							
- Median	2,447	2,379	3,234	17	16	97%	1.31
- Minimum	229	49	114	3	1	3%	-0.11
- Maximum	246,318	178,788	2,474,686	274	166	2988%	10.69
Municipality							
- Median	864	744	875	5	9	30%	2.88
- Minimum	2	2	5	0	0	0%	0.03
- Maximum	13,563	37,500	5,121,110	64	1,250	306%	93.51
Privately Held/Investor Owned							
- Median	420	820	586	3	7	66%	2.77
- Minimum	74	129	74	2	1	17%	0.72
- Maximum	7,680,450	7,721	7,680,450	10	55	158%	4.56
River Authority							
- Median	2,020,304	1,405,062	1,921,391	4	4	87%	1.22
- Minimum	1,771	1,495	1,495	0	3	46%	0.80
- Maximum	10,469,876	6,391,213	9,318,410	15	10	630%	15.91
Water Control & Improve. Dist.							
- Median	1,773	2,100	1,445	4	29	50%	1.38
- Minimum	6	654	6	0	2	0%	0.19
- Maximum	209,454	5,117,572	370,000	23	36	156%	7.29
Water Improvement District							
- Median	1,108	224	1,108	2	2	73%	3.69
- Minimum	260	224	173	0	2	52%	0.46
- Maximum	9,442	224	9,442	10	2	93%	6.92
Water Supply Corporation							
- Median	1,091	496	1,091	11	3	72%	2.33
- Minimum	97	421	97	0	3	15%	-0.05
- Maximum	4,753	572	750,000	45	3	159%	22.11
Other							
- Median	53,085	4,937	17,491	8	31	81%	1.59
- Minimum	11	819	11	1	1	51%	1.16
- Maximum	2,900,271	402,192	2,900,271	513	80	199%	15.55
<b>BY REGION</b>							
Far West							
- Median	1,630	296	826	5	2	82%	3.98
- Minimum	0	0	0	0	0	0%	0.00
- Maximum	53,085	550	750,000	38	4	123%	11.14
Plains							
- Median	990	592	990	8	6	52%	3.02
- Minimum	11	23	11	0	0	1%	0.80
- Maximum	4,600,238	5,117,572	9,318,410	42	64	190%	17.81
Central							
- Median	1,081	783	1,135	9	8	61%	2.53
- Minimum	6	19	6	0	0	0%	-0.11
- Maximum	3,768,421	6,391,213	5,286,961	45	1,250	2988%	39.01
East							
- Median	1,081	1,869	1,687	9	14	76%	1.41
- Minimum	2	0	5	0	0	0%	0.00
- Maximum	10,469,876	402,192	3,489,929	274	874	1123%	34.78
South							
- Median	926	511	975	5	6	30%	2.14
- Minimum	56	0	99	0	0	0%	-0.02
- Maximum	8,089,652	4,034	8,089,652	513	17	113%	93.51
<b>OVERALL</b>							
- Median	1,081	1,038	1,290	8	10	62%	1.94
- Minimum	2	2	5	0	0	0%	-0.11
- Maximum	10,469,876	6,391,213	9,318,410	513	1,250	2988%	93.51

ANNUAL WATER AND SEWER BILL COMPARISON

KEY RATIOS	ANNUAL WATER AND SEWER BILL COMPARISON			
	8,000 Gallon Per Month Water & Sewer Bill	Tax Bill On \$80,000 House	For Customer Charged Water, Sewer, and Tax	Combination of Water, Sewer and/or Taxes

**RANGE OF RESPONSES**

**BY TYPE OF UTILITY**

Fresh Water Supply District				
- Median	396	238	700	536
- Minimum	172	56	536	172
- Maximum	528	624	864	864
Municipal Utility District				
- Median	254	680	1,069	871
- Minimum	144	12	180	156
- Maximum	750	3,256	3,508	3,508
Municipality				
- Median	287	351	690	327
- Minimum	114	86	264	150
- Maximum	573	714	982	982
Privately Held/Investor Owned				
- Median	401	0	0	401
- Minimum	240	0	0	240
- Maximum	809	0	0	809
River Authority				
- Median	476	0	0	476
- Minimum	476	0	0	476
- Maximum	476	0	0	476
Water Control & Improve. Dist.				
- Median	213	240	496	453
- Minimum	93	92	293	192
- Maximum	552	848	995	995
Water Improvement District				
- Median	292	245	486	486
- Minimum	292	194	486	486
- Maximum	292	296	486	486
Water Supply Corporation				
- Median	348	0	0	348
- Minimum	199	0	0	199
- Maximum	439	0	0	439
Other				
- Median	228	104	717	519
- Minimum	142	16	684	142
- Maximum	519	600	750	750

**BY REGION**

Far West				
- Median	198	256	643	198
- Minimum	150	80	585	150
- Maximum	312	389	701	701
Plains				
- Median	275	256	759	276
- Minimum	114	10	264	174
- Maximum	573	1,128	1,083	1,083
Central				
- Median	352	351	817	449
- Minimum	161	56	486	161
- Maximum	704	1,061	1,584	1,584
East				
- Median	240	536	777	590
- Minimum	93	12	180	142
- Maximum	809	3,256	3,508	3,508
South				
- Median	267	270	754	754
- Minimum	146	92	473	160
- Maximum	600	581	1,104	1,104

**OVERALL**

- Median	275	440	771	453
- Minimum	93	10	180	142
- Maximum	809	3,256	3,508	3,508

KEY RATIOS	ANNUAL WATER BILL		ANNUAL SEWER BILL FOR 8,000 GALLONS/MONTH			
	8,000 GALLONS/MONTH		Predominant Level of Treatment			
	Surface Water	Ground Water	Primary	Secondary	Advanced Secondary	Tertiary

**MEDIANS**

**BY TYPE OF UTILITY**

Fresh Water Supply District	\$180	\$233		\$94		
Municipal Utility District	259	120	\$276	96	\$104	\$96
Municipality	199	164	93	112	170	105
Privately Held/Investor Owned	240	258		146	211	
River Authority	392			165	162	
Water Control & Improve. Dist.	186	122	44	103	84	
Water Improvement District	372	153				
Water Supply Corporation	314	258	181			
Other	264	107		140	60	

**BY REGION**

Far West	190	144	68	80	60	90
Plains	280	165	72	71	154	
Central	260	220	96	132	239	162
East	213	135	150	115	103	96
South	199	166	45	119		69

**OVERALL MEDIAN**

222	163	96	110	108	96
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**MEANS**

**BY TYPE OF UTILITY**

Fresh Water Supply District	161	237		94		
Municipal Utility District	254	159	276	122	120	107
Municipality	215	168	94	113	164	122
Privately Held/Investor Owned	240	240		146	263	
River Authority	392	318		165	162	
Water Control & Improve. Dist.	157	139	44	145	80	
Water Improvement District	372	194				
Water Supply Corporation	299	262	181			
Other	264	145		156	60	

**BY REGION**

Far West	86	123	27	46	15	23
Plains	266	191	68	105	154	
Central	265	237	86	126	216	182
East	218	158	146	119	122	82
South	182	186	30	112	0	46

**OVERALL MEAN**

239	185	108	119	135	115
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BILL VARIATIONS BY WATER SOURCE AND WASTEWATER TREATMENT TYPE

KEY RATIOS	ANNUAL WATER BILL		ANNUAL SEWER BILL FOR 8,000 GALLONS/MONTH			
	8,000 GALLONS/MONTH		Predominant Level of Treatment			
	Surface Water	Ground Water	Primary	Secondary	Advanced Secondary	Tertiary

**RANGE OF RESPONSES**

**BY TYPE OF UTILITY**

<b>Fresh Water Supply District</b>						
- Median	\$180	\$233		\$94		
- Minimum	38	130		43		
- Maximum	264	360		146		
<b>Municipal Utility District</b>						
- Median	259	120	\$276	96	\$104	\$96
- Minimum	102	65	180	48	48	82
- Maximum	378	516	372	300	426	162
<b>Municipality</b>						
- Median	199	164	93	112	170	105
- Minimum	40	62	36	48	60	51
- Maximum	442	384	204	420	300	256
<b>Privately Held/Investor Owned</b>						
- Median	240	258	0	146	211	0
- Minimum	240	108		146	120	
- Maximum	240	374		146	509	
<b>River Authority</b>						
- Median	392	0	0	165	162	0
- Minimum	392	318		84	162	
- Maximum	392	318		246	162	
<b>Water Control &amp; Improve. Dist.</b>						
- Median	186	122	44	103	84	0
- Minimum	40	45	42	84	48	
- Maximum	219	396	45	300	103	
<b>Water Improvement District</b>						
- Median	372	153	0	0	0	0
- Minimum	372	153				
- Maximum	372	235				
<b>Water Supply Corporation</b>						
- Median	314	258	181	0	0	0
- Minimum	132	153	181			
- Maximum	442	438	181			
<b>Other</b>						
- Median	264	107	0	140	60	0
- Minimum	264	78		96	60	
- Maximum	264	288		231	60	

**BY REGION**

<b>Far West</b>						
- Median	190	144	68	80	60	90
- Minimum	0	0	0	0	0	0
- Maximum	240	300	90	122	60	90
<b>Plains</b>						
- Median	280	165	72	71	154	0
- Minimum	72	76	48	48	104	
- Maximum	442	396	79	420	204	
<b>Central</b>						
- Median	260	220	96	132	239	162
- Minimum	40	93	36	54	60	128
- Maximum	442	516	132	246	332	256
<b>East</b>						
- Median	213	135	150	115	103	96
- Minimum	0	0	0	0	0	0
- Maximum	378	438	372	300	509	113
<b>South</b>						
- Median	199	166	45	119	0	69
- Minimum	0	0	0	0	0	0
- Maximum	349	396	49	300	0	87

**OVERALL**

- Median	222	163	96	110	108	96
- Minimum	38	45	36	43	48	51
- Maximum	442	516	372	420	509	256

CHANGE IN NUMBER OF CUSTOMERS

KEY RATIOS	ANNUAL PERCENT CHANGE IN CUSTOMERS	
	Water	Sewer

**MEDIANS**

**BY TYPE OF UTILITY**

Fresh Water Supply District	3%	3%
Municipal Utility District	2%	2%
Municipality	2%	2%
Privately Held/Investor Owned	1%	7%
River Authority	4%	8%
Water Control & Improve. Dist.	1%	1%
Water Improvement District	1%	1%
Water Supply Corporation	3%	-1%
Other	13%	3%

**BY REGION**

Far West	-2%	-2%
Plains	2%	1%
Central	3%	3%
East	2%	2%
South	2%	2%

**OVERALL MEDIAN**

2%      2%

**MEANS**

**BY TYPE OF UTILITY**

Fresh Water Supply District	13%	2%
Municipal Utility District	13%	14%
Municipality	8%	8%
Privately Held/Investor Owned	7%	25%
River Authority	6%	6%
Water Control & Improve. Dist.	7%	8%
Water Improvement District	0%	1%
Water Supply Corporation	5%	2%
Other	20%	20%

**BY REGION**

Far West	-1%	0%
Plains	5%	3%
Central	10%	11%
East	11%	13%
South	5%	6%

**OVERALL MEAN**

9%      10%

CHANGE IN NUMBER OF CUSTOMERS

KEY RATIOS	ANNUAL PERCENT CHANGE IN CUSTOMERS	
	Water	Sewer

RANGE OF RESPONSES

BY TYPE OF UTILITY

Fresh Water Supply District		
- Median	3%	3%
- Minimum	- 2%	- 2%
- Maximum	102%	5%
Municipal Utility District		
- Median	2%	2%
- Minimum	- 6%	- 5%
- Maximum	107%	115%
Municipality		
- Median	2%	2%
- Minimum	- 59%	- 9%
- Maximum	102%	102%
Privately Held/Investor Owned		
- Median	1%	7%
- Minimum	- 26%	- 13%
- Maximum	100%	100%
River Authority		
- Median	4%	8%
- Minimum	1%	2%
- Maximum	13%	8%
Water Control & Improve. Dist.		
- Median	1%	1%
- Minimum	- 6%	- 6%
- Maximum	99%	99%
Water Improvement District		
- Median	1%	1%
- Minimum	- 2%	1%
- Maximum	1%	1%
Water Supply Corporation		
- Median	3%	- 1%
- Minimum	- 8%	- 2%
- Maximum	98%	8%
Other		
- Median	13%	3%
- Minimum	0%	0%
- Maximum	86%	85%

BY REGION

Far West		
- Median	- 2%	- 2%
- Minimum	- 11%	- 9%
- Maximum	7%	8%
Plains		
- Median	2%	1%
- Minimum	- 26%	- 8%
- Maximum	102%	15%
Central		
- Median	3%	3%
- Minimum	- 9%	- 5%
- Maximum	102%	102%
East		
- Median	2%	2%
- Minimum	- 13%	- 13%
- Maximum	107%	115%
South		
- Median	2%	2%
- Minimum	- 59%	- 6%
- Maximum	96%	98%

OVERALL

- Median	2%	2%
- Minimum	- 59%	- 13%
- Maximum	107%	115%

QUALITATIVE RESULTS - ANALYSIS OF POTENTIALLY TROUBLESOME AREAS

<<LONG FORM>>	WATER - POTENTIALLY TROUBLESOME AREAS													
	Resources				Water Quality				System Indicators			Financial and Other		
	Source of Supply	Plant Capacity	Fire Protection	Line Capacity	Water Color	Taste /Odor	Contaminated Supply	Cross Connects	Water Pressure	Leaks /Loss	Certified Operators	Ability to Expand		Customer Rates

**RESPONSE DISTRIBUTION**

**ACTUAL RESPONSES**

Major Problem	8	7	10	2	1	2	1	2	1	7	2	14	4	7	7
Occasional Problem	23	21	12	25	15	23	4	21	40	50	8	30	11	27	17
Not A Problem	60	57	64	61	71	61	83	61	46	31	78	43	69	52	66
Total	91	85	86	88	87	86	88	84	87	88	88	87	84	86	90

**RELATIVE PERCENTAGES**

Major Problem	9%	8%	12%	2%	1%	2%	1%	2%	1%	8%	2%	16%	5%	8%	8%
Occasional Problem	25%	25%	14%	28%	17%	27%	5%	25%	46%	57%	9%	34%	13%	31%	19%
Not A Problem	66%	67%	74%	69%	82%	71%	94%	73%	53%	35%	89%	49%	82%	60%	73%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Major or Occasional Problem	34%	33%	26%	31%	18%	29%	6%	27%	47%	65%	11%	51%	18%	40%	27%
Not a Problem	66%	67%	74%	69%	82%	71%	94%	73%	53%	35%	89%	49%	82%	60%	73%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

SCALE: 1=Major Problem 2=Occasional Problem 3=Not a Problem

QUALITATIVE RESULTS - ANALYSIS OF POTENTIALLY TROUBLESOME AREAS

<< LONG FORM >>	SEWERAGE - POTENTIALLY TROUBLESOME AREAS										
	Resources		Treatment Capacity		System Indicators			Financial and Other			
	Plant Capacity	Line Capacity	Seasonal Flows	High-Strength Toxic Wastes	Infiltration /Inflow	Certified Operators	Seasonal Plant Perform	Ability to Expand		Customer Rates	Compliance Regulations
							Financial	Legal			

**RESPONSE DISTRIBUTION**

**ACTUAL RESPONSES**

Major Problem	9	5	2	0	13	2	2	10	4	4	7
Occasional Problem	18	18	28	9	31	4	19	18	11	20	21
Not A Problem	32	37	31	52	16	55	38	30	43	36	33
	--	--	--	--	--	--	--	--	--	--	--
<b>Total</b>	<b>59</b>	<b>60</b>	<b>61</b>	<b>61</b>	<b>60</b>	<b>61</b>	<b>59</b>	<b>58</b>	<b>58</b>	<b>60</b>	<b>61</b>

**RELATIVE PERCENTAGES**

Major Problem	15%	8%	3%	0%	22%	3%	3%	17%	7%	7%	11%
Occasional Problem	31%	30%	46%	15%	52%	7%	32%	31%	19%	33%	34%
Not A Problem	54%	62%	51%	85%	27%	90%	64%	52%	74%	60%	54%
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
<b>Total</b>	<b>100%</b>										
Major or Occasional Problem	46%	38%	49%	15%	73%	10%	36%	48%	26%	40%	46%
Not a Problem	54%	62%	51%	85%	27%	90%	64%	52%	74%	60%	54%
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
<b>Total</b>	<b>100%</b>										

**SCALE: 1=Major Problem 2=Occasional Problem 3=Not a Problem**

QUALITATIVE RESULTS - ANALYSIS OF POTENTIALLY TROUBLESOME AREAS

<<LONG FORM >>	COMBINED WATER AND SEWERAGE - POTENTIALLY TROUBLESOME AREAS				
	General Indicators				
	Service Response Time	Delinquent Customers	Laboratory Services	Service Area Contracts	Ability to Borrow Funds

**RESPONSE DISTRIBUTION**

**ACTUAL RESPONSES**

Major Problem	0	3	1	1	4
Occasional Problem	17	56	8	14	13
Not A Problem	60	19	67	56	57
	--	--	--	--	--
Total	77	78	76	71	74

**RELATIVE PERCENTAGES**

Major Problem	0%	4%	1%	1%	5%
Occasional Problem	22%	72%	11%	20%	18%
Not A Problem	78%	24%	88%	79%	77%
	-----	-----	-----	-----	-----
Total	100%	100%	100%	100%	100%
Major or Occasional Problem	22%	76%	12%	21%	23%
Not a Problem	78%	24%	88%	79%	77%
	-----	-----	-----	-----	-----
Total	100%	100%	100%	100%	100%

1=Major Problem 2=Occasional Problem 3=Not a Problem

QUALITATIVE RESULTS - ANALYSIS OF POTENTIALLY TROUBLESOME AREAS

<< LONG FORM >>	WATER - POTENTIALLY TROUBLESOME AREAS														
	Resources				Water Quality				System Indicators			Financial and Other			
	Source of Supply	Plant Capacity	Fire Protection	Line Capacity	Water Color	Taste /Odor	Contaminated Supply	Cross Connects	Water Pressure	Leaks /Loss	Certified Operators	Ability to Expand		Customer Rates	Compliance Regulations
											Financial	Legal			
<b>AVERAGE RESPONSE</b>															
<b>BY TYPE OF UTILITY</b>															
Fresh Water Supply District	2.5	2.5	2.3	2.5	2.8	2.8	2.8	2.8	2.2	2.2	2.8	2.2	2.3	2.8	2.7
Municipal Utility District	2.8	2.7	2.9	2.9	2.9	2.8	2.9	2.9	2.6	2.4	2.8	2.6	3.0	2.7	2.9
Municipality	2.4	2.7	2.8	2.7	2.8	2.6	3.0	2.7	2.5	2.3	2.9	2.3	2.7	2.5	2.6
Privately Held/Investor Owned	2.6	2.4	2.8	2.8	3.0	3.0	3.0	2.6	2.8	2.2	3.0	2.4	2.6	2.0	2.2
River Authority	1.7	2.0	3.0	2.7	2.5	2.0	2.7	3.0	2.5	2.3	3.0	2.5	2.7	1.7	2.0
Water Control & Improvement Dist.	2.9	2.4	1.8	2.4	2.4	2.9	3.0	2.7	2.4	2.3	2.7	2.1	2.6	2.5	2.4
Water Improvement District	2.0	2.0	3.0	2.0	3.0	3.0	3.0	3.0	2.0	2.5	3.0	3.0	3.0	2.0	3.0
Water Supply Corporation	2.6	2.5	2.1	2.4	2.9	2.8	2.9	2.2	2.6	1.9	2.9	2.3	3.0	2.6	2.8
Other	2.8	2.7	3.0	3.0	2.4	2.0	2.8	2.8	2.6	2.6	3.0	2.2	3.0	2.6	2.6
<b>BY REGION</b>															
Far West	2.2	2.6	2.2	2.4	2.2	2.6	3.0	2.8	2.4	1.8	2.4	2.2	2.6	2.4	2.0
Plains	2.5	2.7	2.9	2.8	2.9	2.7	3.0	2.6	2.6	2.1	2.9	2.4	2.6	2.9	2.7
Central	2.5	2.5	2.6	2.6	2.8	2.8	3.0	2.6	2.5	2.3	2.9	2.4	2.8	2.2	2.8
East	2.8	2.6	2.7	2.7	2.8	2.7	2.9	2.8	2.6	2.4	2.9	2.5	2.8	2.6	2.6
South	2.4	2.5	2.4	2.6	3.0	2.6	2.9	2.7	2.2	2.3	2.9	1.7	2.9	2.7	2.7
<b>Overall Average</b>															
	2.6	2.6	2.6	2.7	2.8	2.7	2.9	2.7	2.5	2.3	2.9	2.3	2.8	2.5	2.7

SCALE: 1=Major Problem 2=Occasional Problem 3=Not a Problem

QUALITATIVE RESULTS - ANALYSIS OF POTENTIALLY TROUBLESOME AREAS

<<LONG FORM>>	SEWERAGE - POTENTIALLY TROUBLESOME AREAS										
	Resources		Treatment Capacity		System Indicators			Financial and Other			
	Plant Capacity	Line Capacity	Seasonal Flows	High-Strength Toxic Wastes	Infiltration /Inflow	Certified Operators	Seasonal Plant Perform	Ability to Expand		Customer Rates	Compliance Regulations
							Financial	Legal			
<b>AVERAGE RESPONSE</b>											
<b>BY TYPE OF UTILITY</b>											
Fresh Water Supply District	2.3	3.0	2.0	2.7	1.7	3.0	2.7	2.0	2.0	2.7	2.7
Municipal Utility District	2.6	3.0	2.8	3.0	2.4	2.8	2.7	2.7	2.9	2.7	2.8
Municipality	2.2	2.2	2.3	2.7	2.0	2.9	2.5	2.2	2.6	2.5	2.3
Privately Held/Investor Owned	2.3	3.0	3.0	3.0	2.0	3.0	3.0	2.7	2.7	2.0	2.0
River Authority	3.0	2.0	3.0	3.0	2.5	3.0	3.0	2.0	3.0	2.5	2.5
Water Control & Improvement Dist.	2.2	2.5	2.2	3.0	1.5	2.8	2.3	2.2	2.5	2.5	2.2
Water Improvement District	3.0	2.0	2.0	3.0	2.0	3.0	3.0	3.0	3.0	2.0	2.0
Water Supply Corporation *											
Other	2.5	2.0	2.0	2.5	1.5	3.0	2.0	2.0	3.0	2.5	2.0
<b>BY REGION</b>											
Far West	2.0	2.7	2.7	2.7	2.0	3.0	2.3	2.7	2.3	2.7	1.7
Plains	2.1	2.4	2.3	2.9	2.0	2.9	2.6	2.3	2.6	2.9	2.8
Central	2.4	2.6	2.5	2.9	2.1	2.9	2.9	2.1	2.8	2.2	2.6
East	2.6	2.6	2.5	2.8	1.9	2.9	2.5	2.6	2.6	2.6	2.3
South	2.2	2.5	2.7	3.0	2.5	2.7	2.7	1.8	2.7	2.8	2.7
<b>Overall Average</b>											
	2.4	2.5	2.5	2.9	2.1	2.9	2.6	2.3	2.7	2.5	2.4
<b>SCALE: 1=Major Problem 2=Occasional Problem 3=Not a Problem</b>											

\* NO RESPONSES FROM WATER SUPPLY CORPORATIONS

QUALITATIVE RESULTS - ANALYSIS OF POTENTIALLY TROUBLESOME AREAS

<<LONG FORM>>	COMBINED WATER AND SEWERAGE - POTENTIALLY TROUBLESOME AREAS				
	General Indicators				
	Service Response Time	Delinquent Customers	Laboratory Services	Service Area Contracts	Ability to Borrow Funds
<b>AVERAGE RESPONSE</b>					
<b>BY TYPE OF UTILITY</b>					
Fresh Water Supply District	3.0	2.4	3.0	3.0	2.6
Municipal Utility District	2.9	2.1	2.9	2.9	2.9
Municipality	2.7	2.3	2.8	2.7	2.8
Privately Held/Investor Owned	3.0	2.0	2.8	3.0	2.3
River Authority	3.0	2.0	3.0	2.5	3.0
Water Control & Improvement Dist.	2.4	1.9	2.9	2.8	2.6
Water Improvement District	2.0	2.0	3.0	3.0	3.0
Water Supply Corporation	2.6	2.0	3.0	2.6	2.4
Other	3.0	2.8	3.0	2.5	2.5
<b>BY REGION</b>					
Far West	2.8	2.2	2.6	2.6	2.2
Plains	2.8	2.3	2.5	2.7	2.5
Central	2.8	2.2	3.0	2.8	2.9
East	2.8	2.1	3.0	2.9	2.8
South	2.7	2.3	2.9	2.6	2.6
-----					
<b>Overall Average</b>	2.8	2.2	2.9	2.8	2.7
<b>1=Major Problem 2=Occasional Problem 3=Not a Problem</b>					

QUALITATIVE ANALYSIS - UTILITY SELF-EVALUATIONS

<< LONG FORM >>	SELF-EVALUATIONS (Page 1 of 2)					
	Budget and Planning			Internal/External Relations		
	Long-Range Planning		Oper. & Capital	Communication With		Customer
	Financial	Facility	Budgeting	Governing Body	Customers	Satisfaction

**RESPONSE DISTRIBUTION**

**ACTUAL RESPONSES**

Excellent	20	16	14	36	27	15
Good	44	48	43	45	42	46
Average	17	16	30	9	20	28
Needs Improvement	5	6	2	2	4	2
Poor	3	2	1	2	0	2
	--	--	--	--	--	--
Total	89	88	90	94	93	93

**RELATIVE PERCENTAGES**

Excellent	22%	18%	16%	38%	29%	16%
Good	49%	55%	48%	48%	45%	49%
Average	19%	18%	33%	10%	22%	31%
Needs Improvement	6%	7%	2%	2%	4%	2%
Poor	4%	2%	1%	2%	0%	2%
	-----	-----	-----	-----	-----	-----
Total	100%	100%	100%	100%	100%	100%
Excellent or Good	71%	73%	64%	86%	74%	65%
Average or Below	29%	27%	36%	14%	26%	35%
	-----	-----	-----	-----	-----	-----
Total	100%	100%	100%	100%	100%	100%

**1=Excellent 2=Good 3=Average 4=Needs Improvement 5=Poor**

QUALITATIVE ANALYSIS - UTILITY SELF-EVALUATIONS

<< LONG FORM >>	SELF-EVALUATIONS (Page 2 of 2)						
	Support Systems			Personnel			
	Financial & Acct'g Systems	Office Automation & Data Processing	Preventive Maintenance	Personnel Policies	Employee Compasation	Work Scheduling	Training/ Education

**RESPONSE DISTRIBUTION**

**ACTUAL RESPONSES**

Excellent	24	14	12	15	8	11	17
Good	44	28	47	31	36	32	32
Average	20	15	26	21	22	19	21
Needs Improvement	3	11	6	7	10	2	7
Poor	1	0	1	4	2	2	2
	--	--	--	--	--	--	--
Total	92	68	92	78	78	66	79

**RELATIVE PERCENTAGES**

Excellent	26%	21%	13%	19%	10%	17%	21%
Good	48%	41%	51%	40%	46%	48%	41%
Average	22%	22%	28%	27%	28%	29%	26%
Needs Improvement	3%	16%	7%	9%	13%	3%	9%
Poor	1%	0%	1%	5%	3%	3%	3%
	-----	-----	-----	-----	-----	-----	-----
Total	100%	100%	100%	100%	100%	100%	100%
Excellent or Good	74%	62%	64%	59%	56%	65%	62%
Average or Below	26%	38%	36%	41%	44%	35%	38%
	-----	-----	-----	-----	-----	-----	-----
Total	100%	100%	100%	100%	100%	100%	100%

1=Excellent 2=Good 3=Average 4=Needs Improvement 5=Poor

QUALITATIVE ANALYSIS - UTILITY SELF-EVALUATIONS

<<LONG FORM>>	SELF-EVALUATIONS (Page 1 of 2)					
	Budget and Planning			Internal/External Relations		
	Long-Range Planning		Oper. & Capital Budgeting	Communication With		Customer Satisfaction
	Financial	Facility		Governing Body	Customers	

**AVERAGE RESPONSE**

**BY TYPE OF UTILITY**

Fresh Water Supply District	2.0	2.2	2.2	1.3	1.8	2.0
Municipal Utility District	2.1	2.0	2.3	1.8	2.0	2.3
Municipality	2.0	2.2	2.3	1.9	1.9	2.2
Privately Held/Investor Owned	2.4	2.4	2.2	2.0	1.8	2.2
River Authority	2.0	2.0	2.0	1.0	1.7	1.7
Water Control & Improvement Dist.	2.1	2.3	2.3	1.8	2.0	2.4
Water Improvement District	2.3	3.0	2.3	1.7	2.0	2.3
Water Supply Corporation	2.8	2.3	2.3	2.3	2.4	2.4
Other	1.7	2.2	2.0	1.5	2.0	2.2

**BY REGION**

Far West	2.8	3.0	3.0	1.8	2.6	2.8
Plains	2.0	2.1	2.3	1.8	2.1	2.1
Central	2.0	2.0	2.0	1.5	1.9	2.1
East	2.2	2.1	2.3	2.0	2.1	2.5
South	2.5	2.6	2.5	1.9	1.8	2.0

<b>Overall Average</b>	2.2	2.2	2.3	1.8	2.0	2.2
------------------------	-----	-----	-----	-----	-----	-----

1=Excellent 2=Good 3=Average 4=Needs Improvement 5=Poor

QUALITATIVE ANALYSIS - UTILITY SELF-EVALUATIONS

<<LONG FORM>>	SELF-EVALUATIONS (Page 2 of 2)						
	Support Systems			Personnel			
	Financial & Acct'g Systems	Office Automation & Data Processing	Preventive Maintenance	Personnel Policies	Employee Compsation	Work Scheduling	Training/ Education

**AVERAGE RESPONSE**

**BY TYPE OF UTILITY**

Fresh Water Supply District	1.5	1.3	1.8	1.7	2.2	1.7	2.0
Municipal Utility District	2.2	2.3	2.3	2.4	2.7	2.4	2.6
Municipality	2.2	2.2	2.4	2.5	2.4	2.2	2.3
Privately Held/Investor Owned	1.6	2.2	2.0	2.0	2.2	2.2	1.6
River Authority	2.0	2.7	2.0	2.0	2.0	2.3	1.7
Water Control & Improvement Dist.	1.9	2.6	2.9	2.7	2.5	2.8	2.5
Water Improvement District	2.0	3.0	2.3	2.3	3.0	2.5	2.0
Water Supply Corporation	1.9	2.9	2.3	2.8	3.0	2.3	2.4
Other	2.3	2.8	1.8	2.5	2.5	2.2	2.5

**BY REGION**

Far West	2.4	2.8	2.6	3.0	3.6	3.6	3.4
Plains	2.1	2.2	2.1	2.3	2.7	2.2	2.7
Central	2.0	2.3	2.2	2.1	2.2	2.1	1.9
East	2.1	2.4	2.5	2.7	2.5	2.1	2.4
South	1.7	2.1	2.3	2.3	2.5	2.4	1.9

**Overall Average**

2.1      2.3      2.3      2.4      2.5      2.3      2.3

1=Excellent   2=Good   3=Average   4=Needs Improvement   5=Poor



**APPENDIX E**  
**Number of Respondents and**  
**Percent Answering Question**

FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

NUMBER OF RESPONSES AND PERCENT ANSWERING QUESTION	ORIGIN	NUMBER OF EMPLOYEES		
	Year Begun	Water	Sewer	Total
	=====	=====	=====	=====
<b>BY TYPE OF UTILITY</b>				
Fresh Water Supply District	25 100%	19 76%	6 24%	20 80%
Municipal Utility District	122 98%	41 33%	27 22%	53 42%
Municipality	141 89%	143 90%	128 81%	156 98%
Privately Held/Investor Owned	21 100%	16 76%	5 24%	18 86%
River Authority	12 100%	10 83%	7 58%	11 92%
Water Control & Improve. Dist.	37 100%	18 49%	11 30%	25 68%
Water Improvement District	8 80%	7 70%	2 20%	7 70%
Water Supply Corporation	68 99%	63 91%	2 3%	62 90%
Other	21 100%	14 67%	6 29%	18 86%
<b>BY REGION</b>				
Far West	22 100%	14 64%	7 32%	19 86%
Plains	71 96%	59 80%	33 45%	64 86%
Central	120 91%	108 82%	62 47%	118 89%
East	194 97%	110 55%	68 34%	122 61%
South	48 96%	40 80%	24 48%	47 94%
<b>OVERALL RESPONSES</b>	455 95%	331 69%	194 41%	370 77%

NUMBER OF RESPONSES AND PERCENT ANSWERING QUESTION	ANNUAL REVENUES (Part 1 of 2)									
	Operating Rate Revenues			Capital Recovery Charges			Taxes			
	Water	Sewer	Total	Water	Sewer	Total	Water	Sewer	Total	
	-----	-----	-----	-----	-----	-----	-----	-----	-----	
<b>BY TYPE OF UTILITY</b>										
Fresh Water Supply District	16	4	17	9	3	10	6	2	9	
	64%	16%	68%	36%	12%	40%	24%	8%	36%	
Municipal Utility District	70	53	83	31	17	66	19	6	65	
	56%	42%	66%	25%	14%	53%	15%	5%	52%	
Municipality	127	119	145	102	77	118	12	5	21	
	80%	75%	91%	64%	48%	74%	8%	3%	13%	
Privately Held/Investor Owned	16	6	16	10	3	8	1	0	1	
	76%	29%	76%	48%	14%	38%	5%	0%	5%	
River Authority	8	5	9	2	2	4	2	0	2	
	67%	42%	75%	17%	17%	33%	17%	0%	17%	
Water Control & Improve. Dist.	13	7	24	6	3	11	8	3	22	
	35%	19%	65%	16%	8%	30%	22%	8%	59%	
Water Improvement District	6	1	5	2	1	2	4	0	4	
	60%	10%	50%	20%	10%	20%	40%	0%	40%	
Water Supply Corporation	50	2	46	44	1	37	2	1	2	
	74%	3%	68%	65%	1%	54%	3%	1%	3%	
Other	9	4	12	3	3	5	4	0	8	
	43%	19%	57%	14%	14%	24%	19%	0%	38%	
<b>BY REGION</b>										
Far West	14	8	14	9	4	8	4	0	3	
	64%	36%	64%	41%	18%	36%	18%	0%	14%	
Plains	53	28	54	35	11	37	9	0	11	
	72%	38%	73%	47%	15%	50%	12%	0%	15%	
Central	90	58	103	68	37	84	14	4	26	
	68%	44%	78%	52%	28%	64%	11%	3%	20%	
East	120	88	148	72	44	108	18	12	80	
	60%	44%	74%	36%	22%	54%	9%	6%	40%	
South	38	19	38	25	14	24	13	1	14	
	76%	38%	76%	50%	28%	48%	26%	2%	28%	
<b>OVERALL RESPONSES</b>										
	315	201	357	209	110	261	58	17	134	
	66%	42%	75%	44%	23%	55%	12%	4%	28%	

NUMBER OF RESPONSES AND PERCENT ANSWERING QUESTION	ANNUAL REVENUES (Part 2 of 2)								
	Interest Income			Other Revenue Sources			Total Revenues		
	Water	Sewer	Total	Water	Sewer	Total	Water	Sewer	Total
	-----	-----	-----	-----	-----	-----	-----	-----	-----
<b>BY TYPE OF UTILITY</b>									
Fresh Water Supply District	13	1	14	10	2	11	16	4	18
	52%	4%	56%	40%	8%	44%	64%	16%	72%
Municipal Utility District	29	9	81	21	9	62	67	53	101
	23%	7%	65%	17%	7%	50%	54%	42%	81%
Municipality	89	44	122	69	47	104	128	121	155
	56%	28%	77%	43%	30%	65%	81%	76%	97%
Privately Held/Investor Owned	7	2	7	6	1	5	17	6	18
	33%	10%	33%	29%	5%	24%	81%	29%	86%
River Authority	10	4	9	7	3	8	9	6	11
	83%	33%	75%	58%	25%	67%	75%	50%	92%
Water Control & Improve. Dist.	10	3	25	7	2	19	14	6	32
	27%	8%	68%	19%	5%	51%	38%	16%	86%
Water Improvement District	6	1	5	4	0	3	8	1	8
	60%	10%	50%	40%	0%	30%	80%	10%	80%
Water Supply Corporation	49	1	43	17	1	15	60	2	62
	72%	1%	63%	25%	1%	22%	88%	3%	91%
Other	8	3	14	6	3	12	11	5	16
	38%	14%	67%	29%	14%	57%	52%	24%	76%
<b>BY REGION</b>									
Far West	11	3	13	8	3	10	14	8	17
	50%	14%	59%	36%	14%	45%	64%	36%	77%
Plains	37	6	48	29	8	37	55	29	64
	50%	8%	65%	39%	11%	50%	74%	39%	86%
Central	72	24	88	42	21	68	102	58	124
	55%	18%	67%	32%	16%	52%	77%	44%	94%
East	68	26	137	45	29	102	121	88	169
	34%	13%	69%	23%	15%	51%	61%	44%	85%
South	33	9	34	23	7	22	38	21	47
	66%	18%	68%	46%	14%	44%	76%	42%	94%
<b>OVERALL RESPONSES</b>									
	221	68	320	147	68	239	330	204	421
	46%	14%	67%	31%	14%	50%	69%	43%	88%

NUMBER OF RESPONSES AND PERCENT ANSWERING QUESTION	ANNUAL EXPENDITURES (Part 1 of 4)								
	Operation and Maintenance Expense (Part 1 of 2)								
	O&M Expense - Labor			O&M Expense - Chemicals			O&M Expense - Energy		
	Water	Sewer	Total	Water	Sewer	Total	Water	Sewer	Total
<b>BY TYPE OF UTILITY</b>									
Fresh Water Supply District	16 64%	3 12%	16 64%	12 48%	3 12%	12 48%	12 48%	3 12%	13 52%
Municipal Utility District	36 29%	14 11%	57 46%	25 20%	15 12%	39 31%	32 26%	14 11%	62 50%
Municipality	118 74%	95 60%	147 92%	105 66%	85 53%	122 77%	106 67%	81 51%	134 84%
Privately Held/Investor Owned	15 71%	7 33%	16 76%	12 57%	7 33%	14 67%	11 52%	7 33%	13 62%
River Authority	9 75%	5 42%	7 58%	5 42%	4 33%	6 50%	8 67%	5 42%	7 58%
Water Control & Improve. Dist.	8 22%	1 3%	19 51%	7 19%	1 3%	16 43%	8 22%	2 5%	18 49%
Water Improvement District	6 60%	1 10%	5 50%	2 20%	1 10%	1 10%	3 30%	1 10%	2 20%
Water Supply Corporation	49 71%	0 0%	45 65%	31 45%	0 0%	28 41%	44 64%	1 1%	40 58%
Other	9 43%	3 14%	14 67%	6 29%	3 14%	11 52%	7 33%	3 14%	11 52%
<b>BY REGION</b>									
Far West	13 59%	6 27%	16 73%	9 41%	5 23%	11 50%	11 50%	5 23%	14 64%
Plains	51 69%	18 24%	55 74%	40 54%	16 22%	40 54%	44 59%	12 16%	49 66%
Central	85 64%	46 35%	101 77%	62 47%	43 33%	80 61%	74 56%	42 32%	87 66%
East	83 41%	45 22%	118 59%	68 34%	43 21%	94 47%	74 37%	45 22%	120 60%
South	34 68%	14 28%	36 72%	26 52%	12 24%	24 48%	28 56%	13 26%	30 60%
<b>OVERALL RESPONSES</b>	266 56%	129 27%	326 68%	205 43%	119 25%	249 52%	231 48%	117 24%	300 63%

FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

NUMBER OF RESPONSES AND PERCENT ANSWERING QUESTION	ANNUAL EXPENDITURES (Part 2 of 4)								
	Operation and Maintenance Expense (Part 2 of 2)						Payment of Debt Service		
	O&M Expense - Other			O&M Expense - Subtotal			Water	Sewer	Total
	Water	Sewer	Total	Water	Sewer	Total			
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<b>BY TYPE OF UTILITY</b>									
Fresh Water Supply District	14 56%	4 16%	14 56%	11 44%	2 8%	12 48%	11 44%	2 8%	11 44%
Municipal Utility District	26 21%	11 9%	67 54%	32 26%	15 12%	77 62%	26 21%	7 6%	71 57%
Municipality	100 63%	79 50%	125 79%	106 67%	89 56%	136 86%	83 52%	55 35%	121 76%
Privately Held/Investor Owned	12 57%	6 29%	15 71%	9 43%	5 24%	12 57%	7 33%	2 10%	9 43%
River Authority	9 75%	5 42%	7 58%	9 75%	5 42%	8 67%	7 58%	4 33%	7 58%
Water Control & Improve. Dist.	10 27%	3 8%	21 57%	9 24%	2 5%	26 70%	6 16%	3 8%	20 54%
Water Improvement District	5 50%	1 10%	4 40%	5 50%	1 10%	5 50%	3 30%	1 10%	2 20%
Water Supply Corporation	41 59%	0 0%	39 57%	42 61%	0 0%	42 61%	43 62%	0 0%	38 55%
Other	9 43%	2 10%	14 67%	8 38%	3 14%	12 57%	5 24%	1 5%	9 43%
<b>BY REGION</b>									
Far West	11 50%	4 18%	14 64%	9 41%	5 23%	14 64%	9 41%	2 9%	11 50%
Plains	42 57%	9 12%	45 61%	46 62%	17 23%	50 68%	42 57%	6 8%	43 58%
Central	71 54%	41 31%	86 65%	75 57%	45 34%	93 70%	61 46%	28 21%	84 64%
East	70 35%	46 23%	129 64%	67 33%	41 20%	133 66%	56 28%	27 13%	121 60%
South	32 64%	11 22%	32 64%	34 68%	14 28%	40 80%	23 46%	12 24%	29 58%
<b>OVERALL RESPONSES</b>									
	226 47%	111 23%	306 64%	231 48%	122 25%	330 69%	191 40%	75 16%	288 60%

NUMBER OF RESPONSES AND PERCENT ANSWERING QUESTION	ANNUAL EXPENDITURES (Part 3 of 4)								
	Capital Improvements			Transfer to Other Agency			Increase in Reserves/Fund Balances		
	Water -----	Sewer -----	Total -----	Water -----	Sewer -----	Total -----	Water -----	Sewer -----	Total -----
<b>BY TYPE OF UTILITY</b>									
Fresh Water Supply District	9 36%	2 8%	9 38%	2 8%	0 0%	1 4%	5 20%	1 4%	5 20%
Municipal Utility District	18 14%	8 6%	55 44%	1 1%	2 2%	10 8%	13 10%	5 4%	29 23%
Municipality	76 48%	56 35%	96 60%	37 23%	14 9%	51 32%	53 33%	29 18%	73 46%
Privately Held/Investor Owned	8 38%	3 14%	10 48%	1 5%	0 0%	1 5%	4 19%	1 5%	4 19%
River Authority	7 58%	4 33%	6 50%	2 17%	0 0%	1 8%	6 50%	3 25%	5 42%
Water Control & Improve. Dist.	6 16%	0 0%	15 41%	2 5%	0 0%	2 5%	4 11%	1 3%	12 32%
Water Improvement District	2 20%	0 0%	1 10%	1 10%	0 0%	0 0%	1 10%	0 0%	1 10%
Water Supply Corporation	24 35%	0 0%	23 33%	3 4%	0 0%	2 3%	29 42%	0 0%	27 39%
Other	4 19%	3 14%	8 38%	3 14%	0 0%	2 10%	2 10%	1 5%	4 19%
<b>BY REGION</b>									
Far West	7 32%	2 9%	8 36%	3 14%	0 0%	4 18%	5 23%	1 5%	8 36%
Plains	30 41%	7 9%	32 43%	9 12%	1 1%	10 14%	23 31%	3 4%	23 31%
Central	50 38%	29 22%	66 50%	20 15%	7 5%	24 18%	44 33%	18 14%	58 44%
East	45 22%	27 13%	94 47%	11 5%	5 2%	25 12%	30 15%	14 7%	55 27%
South	22 44%	11 22%	23 46%	9 18%	3 6%	7 14%	15 30%	5 10%	16 32%
<b>OVERALL RESPONSES</b>	154 32%	76 16%	223 47%	52 11%	16 3%	70 15%	117 24%	41 9%	160 33%

FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

NUMBER OF RESPONSES AND PERCENT ANSWERING QUESTION	ANNUAL EXPENDITURES (Part 4 of 4)			DEPRECIATION EXPENSE		
	Total Expenditures			Water	Sewer	Total
	Water -----	Sewer -----	Total -----			
<b>BY TYPE OF UTILITY</b>						
Fresh Water Supply District	18 64%	3 12%	20 80%	8 32%	1 4%	8 32%
Municipal Utility District	37 30%	14 11%	89 71%	11 9%	6 5%	16 13%
Municipality	113 71%	95 60%	145 91%	65 41%	44 28%	97 61%
Privately Held/Investor Owned	14 67%	6 29%	17 81%	8 38%	5 24%	12 57%
River Authority	10 83%	5 42%	11 92%	6 50%	4 33%	6 50%
Water Control & Improve. Dist.	10 27%	3 8%	25 68%	3 8%	0 0%	7 19%
Water Improvement District	6 60%	1 10%	7 70%	1 10%	1 10%	2 20%
Water Supply Corporation	50 72%	1 1%	56 81%	44 64%	0 0%	46 68%
Other	10 48%	3 14%	15 71%	1 5%	0 0%	2 10%
<b>BY REGION</b>						
Far West	11 50%	5 23%	17 77%	5 23%	3 14%	9 41%
Plains	55 74%	19 26%	62 84%	26 35%	6 8%	32 43%
Central	85 64%	48 36%	107 81%	59 45%	27 20%	71 54%
East	78 39%	44 22%	155 77%	40 20%	18 9%	61 31%
South	37 74%	15 30%	44 88%	17 34%	7 14%	23 46%
<b>OVERALL RESPONSES</b>						
	266 56%	131 27%	385 80%	147 31%	61 13%	196 41%

FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

	OUTSTANDING LONG-TERM DEBT			NET BOOK VALUES OF FIXED ASSETS			
	Water *****	Sewer *****	Total *****	Water *****	Sewer *****	General *****	Total *****
<b>NUMBER OF RESPONSES AND PERCENT ANSWERING QUESTION</b>							
<b>BY TYPE OF UTILITY</b>							
Fresh Water Supply District	13 52%	3 12%	15 60%	15 60%	4 16%	5 20%	18 64%
Municipal Utility District	32 26%	19 15%	97 78%	49 39%	33 26%	34 27%	86 69%
Municipality	91 57%	67 42%	135 85%	97 61%	73 46%	60 38%	128 81%
Privately Held/Investor Owned	10 48%	4 19%	10 48%	16 76%	6 29%	5 24%	17 81%
River Authority	7 58%	4 33%	9 75%	8 67%	4 33%	3 25%	11 92%
Water Control & Improve. Dist.	9 24%	5 14%	23 62%	12 32%	6 16%	7 19%	25 68%
Water Improvement District	2 20%	1 10%	2 20%	3 30%	1 10%	2 20%	5 50%
Water Supply Corporation	57 83%	1 1%	57 83%	50 72%	2 3%	5 7%	52 75%
Other	7 33%	3 14%	12 57%	8 38%	4 19%	6 29%	14 67%
<b>BY REGION</b>							
Far West	9 41%	2 9%	12 55%	12 55%	5 23%	1 5%	15 68%
Plains	43 58%	8 11%	53 72%	48 65%	13 18%	22 30%	57 77%
Central	77 58%	38 29%	101 77%	75 57%	40 30%	30 23%	100 76%
East	73 36%	45 22%	158 79%	94 47%	62 31%	62 31%	144 72%
South	26 52%	14 28%	36 72%	29 58%	13 26%	12 24%	38 76%
<b>OVERALL RESPONSES</b>	228 48%	107 22%	360 75%	258 54%	133 28%	127 27%	354 74%

NUMBER OF RESPONSES AND PERCENT ANSWERING QUESTION	CURRENT NUMBER OF CUSTOMERS											CHANGE IN NUMBER OF CUSTOMERS		
	Water					Sewer						Water	Sewer	
	Residential	Industrial	Wholesale	Total	Residential	Industrial	Wholesale	Total						
	Commercial	Agriculture	Commercial		Agriculture									
<b>BY TYPE OF UTILITY</b>														
Fresh Water Supply District	15 60%	9 36%	4 16%	2 8%	2 8%	18 72%	7 28%	5 20%	3 12%	0 0%	0 0%	7 28%	10 40%	5 20%
Municipal Utility District	71 57%	56 45%	4 3%	6 5%	9 7%	100 80%	60 48%	48 38%	4 3%	0 0%	3 2%	86 69%	76 61%	63 50%
Municipality	133 84%	124 78%	42 26%	8 5%	19 12%	154 97%	124 78%	113 71%	31 19%	4 3%	8 5%	145 91%	132 83%	120 75%
Privately Held/Investor Owned	19 90%	10 48%	1 5%	0 0%	0 0%	19 90%	8 38%	5 24%	0 0%	0 0%	0 0%	8 38%	16 76%	4 19%
River Authority	2 17%	2 17%	5 42%	3 25%	7 58%	10 83%	3 25%	4 33%	1 8%	0 0%	3 25%	7 58%	3 25%	3 25%
Water Control & Improve. Dist.	23 62%	16 43%	4 11%	4 11%	3 8%	29 78%	15 41%	12 32%	0 0%	0 0%	1 3%	21 57%	16 43%	12 32%
Water Improvement District	2 20%	2 20%	0 0%	4 40%	0 0%	6 60%	1 10%	1 10%	0 0%	0 0%	0 0%	1 10%	1 10%	1 10%
Water Supply Corporation	61 88%	36 52%	2 3%	8 12%	2 3%	65 94%	4 6%	3 4%	0 0%	0 0%	0 0%	4 6%	57 83%	3 4%
Other	7 33%	6 29%	1 5%	1 5%	3 14%	13 62%	4 19%	5 24%	1 5%	0 0%	1 5%	7 33%	7 33%	5 24%
<b>BY REGION</b>														
Far West	12 55%	9 41%	2 9%	2 9%	2 9%	16 73%	10 45%	9 41%	3 14%	1 5%	1 5%	10 45%	14 64%	8 36%
Plains	54 73%	41 55%	13 18%	7 9%	8 11%	65 88%	32 43%	26 35%	7 9%	0 0%	0 0%	36 49%	43 58%	24 32%
Central	104 79%	80 61%	15 11%	9 7%	16 12%	117 89%	63 48%	58 44%	11 8%	1 1%	7 5%	75 57%	97 73%	59 45%
East	128 64%	102 51%	25 12%	7 3%	11 5%	172 86%	95 47%	79 39%	13 6%	0 0%	6 3%	137 68%	132 66%	102 51%
South	35 70%	29 58%	8 16%	11 22%	8 16%	44 88%	26 52%	24 48%	6 12%	2 4%	2 4%	28 56%	32 64%	23 46%
<b>OVERALL RESPONSES</b>														
	333 70%	261 54%	63 13%	36 8%	45 9%	414 86%	226 47%	196 41%	40 8%	4 1%	16 3%	286 60%	318 66%	216 45%

FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

NUMBER OF RESPONSES AND PERCENT ANSWERING QUESTION	SERVICE TERRITORY	SYSTEM PLANT CAPACITY (Gallons Per Day)		USE AND BILLED VOLUME INFORMATION (1000 Gallons)			
	Square Miles	Water	Sewer	Water		Sewage	
				Volume Produced	Volume Billed	Volume Treated	Volume Billed
-----	-----	-----	-----	-----	-----	-----	-----
<b>BY TYPE OF UTILITY</b>							
Fresh Water Supply District	17 68%	19 76%	5 20%	15 60%	11 44%	5 20%	2 8%
Municipal Utility District	111 89%	90 72%	70 56%	85 68%	88 70%	63 50%	42 34%
Municipality	130 82%	152 96%	109 69%	114 72%	134 84%	109 69%	75 47%
Privately Held/Investor Owned	20 95%	17 81%	6 29%	12 57%	15 71%	6 29%	3 14%
River Authority	7 58%	8 67%	6 50%	7 58%	8 67%	7 58%	4 33%
Water Control & Improve. Dist.	27 73%	25 68%	20 54%	19 51%	23 62%	13 35%	4 11%
Water Improvement District	8 80%	4 40%	0 0%	5 50%	5 50%	1 10%	1 10%
Water Supply Corporation	42 61%	59 87%	2 3%	52 75%	53 77%	2 3%	1 1%
Other	16 78%	11 52%	7 33%	11 52%	11 52%	6 29%	4 19%
<b>BY REGION</b>							
Far West	17 77%	13 59%	6 27%	12 55%	14 64%	9 41%	5 23%
Plains	53 72%	64 86%	25 34%	42 57%	50 68%	24 32%	8 11%
Central	102 77%	110 83%	51 39%	85 64%	100 76%	54 41%	37 28%
East	163 81%	159 80%	118 59%	141 70%	145 72%	103 51%	72 36%
South	43 86%	39 78%	25 50%	40 80%	39 78%	22 44%	14 28%
<b>OVERALL RESPONSES</b>							
	378 79%	385 81%	225 47%	320 67%	348 73%	212 44%	136 28%

FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

NUMBER OF RESPONSES AND PERCENT ANSWERING QUESTION	SOURCE OF WATER				SEWER
	Surface Water		Ground Water		Level of Treat
	Self	Other	Self	Other	
-----					
<b>BY TYPE OF UTILITY</b>					
Fresh Water Supply District	19 76%	19 76%	19 76%	19 76%	4 16%
Municipal Utility District	108 86%	108 86%	108 86%	108 86%	78 61%
Municipality	152 96%	152 96%	152 96%	152 96%	120 75%
Privately Held/Investor Owned	21 100%	21 100%	21 100%	21 100%	8 38%
River Authority	10 83%	10 83%	10 83%	10 83%	7 58%
Water Control & Improve. Dist.	26 70%	26 70%	26 70%	26 70%	19 51%
Water Improvement District	8 80%	8 80%	8 80%	8 80%	1 10%
Water Supply Corporation	66 96%	66 96%	66 96%	66 96%	2 3%
Other	14 67%	14 67%	14 67%	14 67%	6 29%
<b>BY REGION</b>					
Far West	18 82%	18 82%	18 82%	18 82%	10 45%
Plains	67 91%	67 91%	67 91%	67 91%	31 42%
Central	117 89%	117 89%	117 89%	117 89%	57 43%
East	179 89%	179 89%	179 89%	179 89%	120 60%
South	43 86%	43 86%	43 86%	43 86%	25 50%
<b>OVERALL RESPONSES</b>					
	424 89%	424 89%	424 89%	424 89%	243 51%

FINANCIAL AND OPERATING INFORMATION INCLUDED IN BOTH SURVEYS

NUMBER OF RESPONSES AND PERCENT ANSWERING QUESTION	ANNUAL WATER BILL		ANNUAL SEWER BILL		AD VALOREM
	Resident	Commercial	Resident	Commercial	TAX RATE
	8,000 Gal/Month	375,000 Gal/Month	8,000 Gal/Month	375,000 Gal/Month	Rate per \$100 Assessed Value
<b>BY TYPE OF UTILITY</b>					
Fresh Water Supply District	13 52%	8 32%	3 12%	2 8%	8 32%
Municipal Utility District	89 71%	72 58%	77 62%	56 45%	83 66%
Municipality	129 81%	107 67%	113 71%	78 49%	46 29%
Privately Held/Investor Owned	15 71%	11 52%	5 24%	3 14%	1 5%
River Authority	2 17%	1 8%	3 25%	1 8%	2 17%
Water Control & Improve. Dist.	19 51%	14 38%	14 38%	10 27%	19 51%
Water Improvement District	3 30%	1 10%	1 10%	1 10%	2 20%
Water Supply Corporation	53 78%	26 38%	3 4%	1 1%	5 7%
Other	5 24%	4 19%	5 24%	4 19%	7 33%
<b>BY REGION</b>					
Far West	13 59%	10 45%	9 41%	3 14%	4 18%
Plains	44 59%	33 45%	21 28%	10 14%	20 27%
Central	95 72%	61 46%	57 43%	39 30%	39 30%
East	144 72%	115 58%	118 59%	90 45%	99 50%
South	32 64%	25 50%	19 38%	14 28%	11 22%
<b>OVERALL RESPONSES</b>	328 69%	244 51%	224 47%	156 33%	173 36%