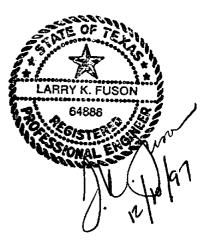
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# CANYON LAKE WATER SUPPLY CORPORATION REGIONAL WATER PLAN



December 1997



THE HOGAN CORPORATION

Engineers • Planners • Consultants
Dallas • Austin • San Antonio

# **CANYON LAKE WATER SUPPLY CORPORATION**

# **REGIONAL WATER PLAN**

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# CANYON LAKE WATER SUPPLY CORPORATION REGIONAL WATER PLAN

# 1.0 Introduction

#### 1.0 INTRODUCTION

On August 30, 1995, Canyon Lake Water Supply Corporation (CLWSC) applied to the Texas Water Development Board (TWDB) for a planning grant under the TWDB Research and Planning Fund program. The planning grant was approved by the Board in their regular meeting of October 19, 1995. CLWSC and TWDB subsequently executed a formal agreement dated January 10, 1996 for use of the planning grant funds to perform a regional water supply planning study.

To perform the engineering and planning services required for the study, CLWSC contracted with The Hogan Corporation by work order agreement dated February 27, 1996. The scope of work to be performed generally consists of four parts, which are summarized below:

# Part I - Develop Baseline Data

- Conduct Preliminary Meetings
- Review Existing Reports and Other Information
- · Assemble Existing Plats and Plans
- Develop an Overall Digital Base Map of the Planning Area
- Prepare a Summary of Existing Population in the Study Area
- Prepare a Projection of Existing Water Usage in the Study Area
- Evaluate Existing Water Production and Distribution Facilities
- Evaluate the Capacity and Quality of Existing Water Wells

# Part II - Future Water Supply Requirements

- Prepare Population Projections for Each Planning Milestone
- Develop Water Use Projections for Each Planning Milestone
- Assess Supply Options and Develop Alternate Supply Scenarios
- Analyze and Prioritize Alternatives
- Develop an Overall Phasing Approach and Implementation Plan

# Part III - Canyon Lake WSC System Master Plan

- Prepare a Layout of the Existing and Future Distribution Network
- Perform a Hydraulic Analysis of Major Distribution Lines
- Locate and Size Future Storage and Pumping Facilities
- Develop Capital Cost Projections
- Develop a Phasing Plan for Distribution Lines

# Part IV - Environmental Assessment

- Prepare a Description of the Existing Environment
- Identify and Discuss Environmental Impacts Resulting from Alternative Solutions
- Identify and Discuss Primary Short-Term and Long-Term Impacts, Secondary Impacts, and Adverse Impacts
- Provide a Description of Tradeoffs Between Short-Term Environmental Gains at the Expense of Long-Term Gains
- Provide a Description of Those Resources Irretrievably Committed or Irreversibly Constrained

The findings of this planning study presented herein are generally organized in the same manner as listed in the scope of work.

The formation of CLWSC in 1991 was for the purpose of consolidating the needs of independent water utility companies in the Canyon Lake Area and to provide legal authority to prepare and implement a regional plan for development of surface water supply and distribution facilities and wastewater collection and treatment for the northwestern portion of Comal County. In March 1994 CLWSC acquired and began operating numerous independent water supply systems in the area surrounding Canyon Lake. Given the abundant water supply in Canyon Lake and the reliability concerns with wells, CLWSC has implemented a 0.50 mgd surface water treatment plant to serve existing subdivisions on the south side of Canyon Lake. CLWSC intends to continue to develop surface water supply facilities to serve development within its service area.

# CANYON LAKE WATER SUPPLY CORPORATION REGIONAL WATER PLAN

# 2.0 Baseline Conditions

#### 2.0 BASELINE CONDITIONS

### 2.1 General

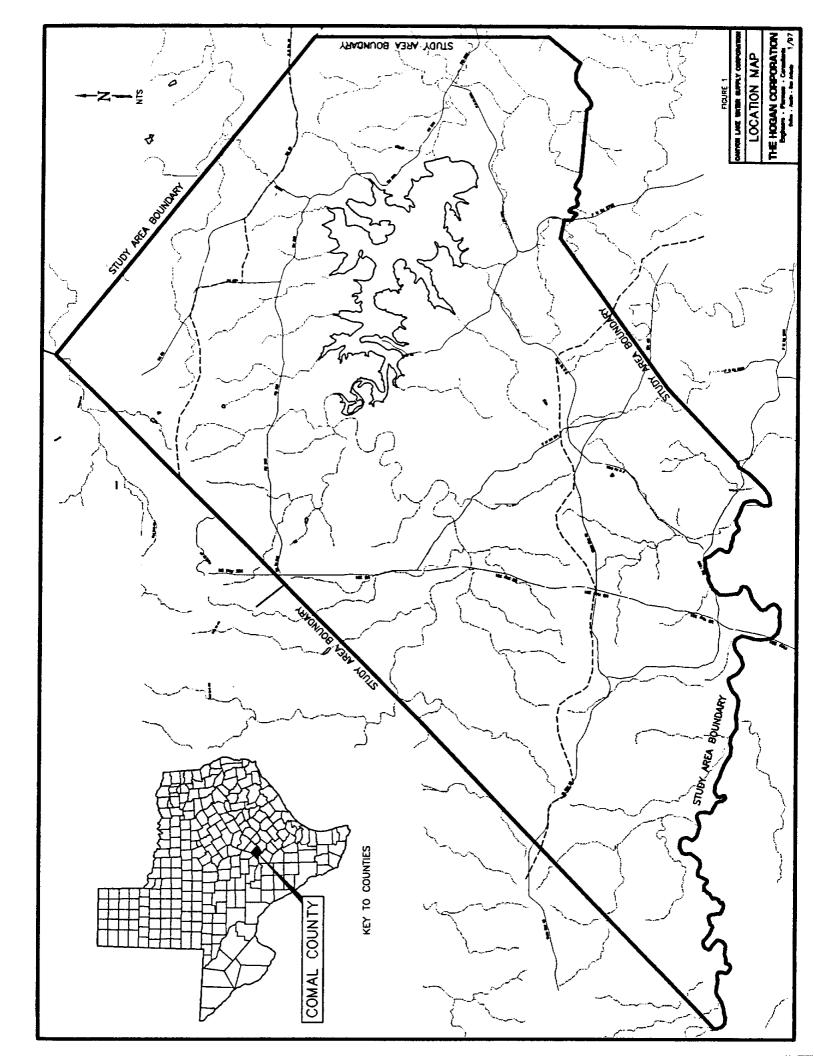
The project planning area is located wholly within Comal County, Texas and is defined as all of the northwesterly portion of the County outside of the Edwards Aquifer recharge zone. The area is bounded by Kendall County to the west, Blanco County to the northwest and Hays County to the northeast. Cibolo Creek forms the southern boundary of the planning area between Comal County and Bexar County to the south. Figure 1 presents the location and limits of the planning area in greater detail. Except for a small portion of the City of Fair Oaks in the extreme southwesterly tip of Comal County, there are no incorporated municipalities in the planning area. Canyon Lake is the dominating land feature in the area, comprising a surface area of about 8,000 acres and fed by the Guadalupe River. Most of the planning area lies within the Guadalupe River Basin. The southerly Basin divide bisects the planning area generally along the State Highway SH 46 corridor. Land areas to the south drain to Cibolo Creek and the San Antonio River. A detailed description of the physical characteristics and natural resources of the study area are provided in Section 4 - Environmental Assessment.

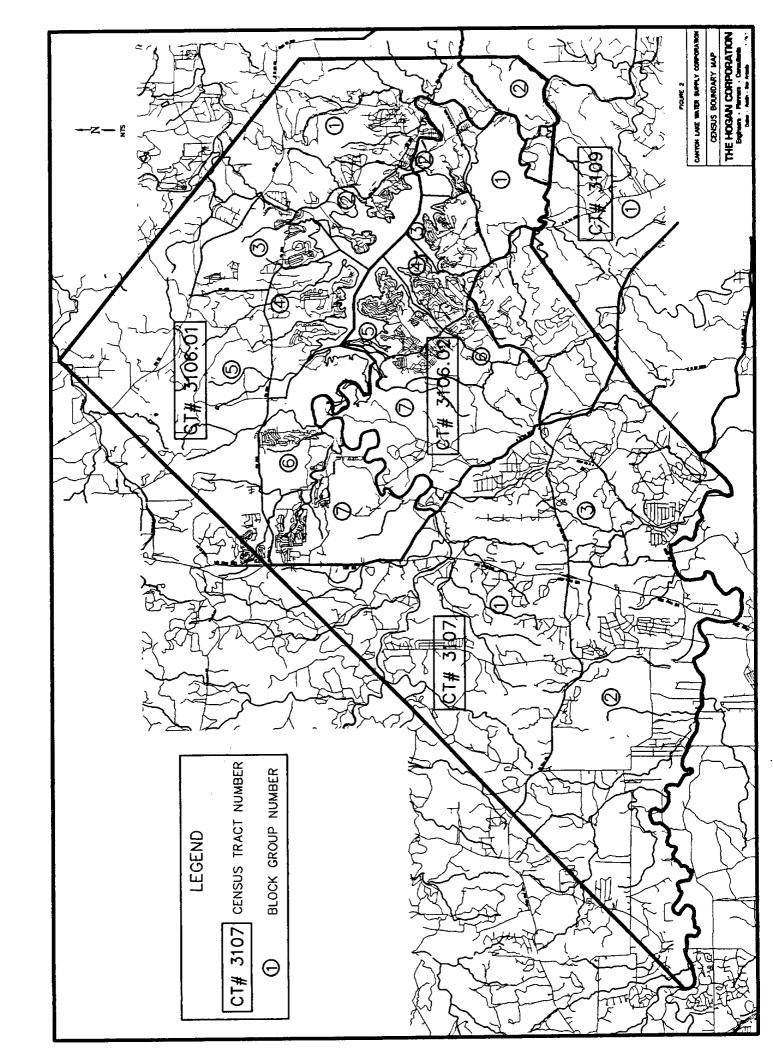
#### 2.2 Existing Population

A projection of the existing population within the study area was extrapolated from US Census data and other information. Table 1 presents Census data for 1980 and 1990 for the entire County and for selected census tracts. Census Tract and Block Group boundaries were superimposed on the project area, as shown in Figure 2, to facilitate an accurate accounting and distribution of existing population. The planning area contains all of Census Tracts #3106.02 and #3107, the majority of tract #3106.01, and a portion of tract #3109. The 1990 Census data was evaluated on a Block Group level to identify portions of the aforementioned Census tracts which are not part of the planning area. The results of this analysis are also presented in Table 1, and indicate the net, adjusted 1990 Census population for the planning area was 16,428.

Table 1
Comal County Census Data

	COII	ial County Cellsus L	zata	
AREA	TOTAL	NUMBER OF	PERSONS PER	HOUSING
	POPULATION	HOUSEHOLDS	HOUSEHOLD	UNITS
		1980 Data		
COUNTY	36,446	12,958	2.8	14,797
Census Tracts:				
C.T.# 3106				3,776
C.T.# 3107				1,194
C.T.# 3109	2,133	690		992
		1990 Data		
COUNTY	51,832	19,315	2.64	22,987
Census Tracts:				
C.T.# 3106.01	4,082		1.69	2,413
C.T.# 3106.02	6,290		1.57	4,013
Subtotal	10,372			6,426
C.T.# 3107	6,156		2.56	2,404
C.T.# 3109	3,792		2.43	1,558
Subtotal	9,948			3,962
Total	20,320			10,388





Adjusted	11990	) Data
----------	-------	--------

CENSUS	BLOCK	Net 1990
TRACT	GROUP	Population
3106.01	1	873
	2	329
	3	594
	4	467
	5	522
	6	322
	7	975
Sub	total:	4,082
3106.02	1	406
	2	492
	3	1,146
	4	781
	5	1,665
	6	1,670
	7	130
Sub	total:	6,290
3107	1	1,548
	2	2,394
	3	1,854
Sut	total:	5,796
3109	1	33
	2	227
Sut	ototal:	260

**Grand Total:** 

16,428

The net 1990 Census population for the planning area was then correlated with the TWDB "1996 Consensus Texas Water Plan, Projections of Population and Municipal Water Use for Comal County." Table 2 summarizes the TWDB data, which presents population projections at each decade for the four incorporated areas in Comal County, as well as for the unincorporated portions of the County. Average annual growth rates were extracted for each decade for the unincorporated County projections as shown in Table 2. These growth rates were used to update the net 1990 Census population to current (1996) conditions, as well as for future population projections. Applying an average annual growth rate of 5.28% to the projected, net 1990 Census population yields a theoretical current (1996) population for the planning area of approximately 22,000.

Table 2
COMAL COUNTY POPULATION PROJECTIONS

		_					
1980	1990	2000	2010	<u>2020</u>	2030	2040	<u> 2050</u>
22,375	27,091	38,126	49,873	65,003	82,894	95,424	109,848
·	1,450	2,301	3,157	4,352	5,686	6,903	8,380
26	129	210	325	484	627	891	1,187
	51	88	127	180	241	294	359
14.045	23.111	38.653	53,076	74,850	98,016	122,621	148,069
ounty Areas Growth Rate	5.11%	5.28%	3.22%	3.50%	2.73%	2.26%	1.90%
	22,375 26 14,045 county Areas	22,375 27,091 1,450 26 129 51 14,045 23,111 county Areas 5.11%	22,375 27,091 38,126 1,450 2,301 26 129 210 51 88 14,045 23,111 38,653 county Areas 5.11% 5.28%	22,375     27,091     38,126     49,873       1,450     2,301     3,157       26     129     210     325       51     88     127       14,045     23,111     38,653     53,076       county Areas     5.11%     5.28%     3.22%	22,375 27,091 38,126 49,873 65,003 1,450 2,301 3,157 4,352 26 129 210 325 484 51 88 127 180 14,045 23,111 38,653 53,076 74,850 county Areas 5.11% 5.28% 3.22% 3.50%	22,375         27,091         38,126         49,873         65,003         82,894           1,450         2,301         3,157         4,352         5,686           26         129         210         325         484         627           51         88         127         180         241           14,045         23,111         38,653         53,076         74,850         98,016           county Areas         5.11%         5.28%         3.22%         3.50%         2.73%	22,375     27,091     38,126     49,873     65,003     82,894     95,424       1,450     2,301     3,157     4,352     5,686     6,903       26     129     210     325     484     627     891       51     88     127     180     241     294       14,045     23,111     38,653     53,076     74,850     98,016     122,621       county Areas     5.11%     5.28%     3.22%     3.50%     2.73%     2.26%

Source: TWDB 1996 Consensus Texas Water Plan, Projections of Population and Municipal Water Use for Comal County.

The location and extent of existing land development was assessed throughout the planning area to aid in the geographic distribution of the existing population and to serve as an initial basis for locating future population growth in the area. Existing platted subdivisions were identified from the Comal Appraised Districts' (CAD) property map, and the boundaries of these subdivisions were plotted on the planning map (Figure 2). Other data on these subdivisions was also obtained from the CAD, including the total number of accounts (taken as lots) in each, as well as the breakdown of parcels by type of improvement (i.e. single-family residential, multi-family, commercial, etc.). The latter was used to indicate the current level of development within each subdivision. To facilitate the organization of the subdivision data and its correlation with the existing population projection, the overall project study limits was broken down into planning areas. Planning area boundaries were drawn to coincide with Census tract and block group boundaries, major thoroughfares, topographical features, and other logical divisors. These boundaries are shown on the Planning Area Map (Figure 4).

Occupancy rates were then applied to existing improved land parcels within each subdivision to arrive at the existing population in each planning area. Residential occupancy rates were based on the actual, average household occupancy values determined for each census tract in the 1990 census. To correlate this existing population distribution with the overall existing population projection, additional population was allocated to the various planning areas to account for unplatted properties and newer subdivisions not yet reflected in the CAD data. A detailed listing of all identified subdivisions within each planning area along with acreage and the projection of existing population is presented in Table A1 in the appendices, and is summarized by planning area group in Table 3.

Table 3 - Existing Development/Population Summary						
Area	Platted Lots	Total Acreage	Projected 1996 Population			
AREA A TOTAL	6,316	87,238	8,924			
AREA B TOTAL	14,794	77,000	5,107			
AREA C TOTAL	12,034	34,862	7,614			
AREA D TOTAL	147	9,129	391			
PROJECT AREA TOTAL	33,291	208,229	22,036			

#### 2.3 Existing Water Demands

A projection of existing water usage in the study area was developed by applying established consumption rates to the population assigned to each planning area. Unit water use rates were derived from the projections for unincorporated county areas in the TWDB "1996 Consensus Texas Water Plan, Projections of Population and Municipal Water Use for Comal County." Table 4 presents the TWDB projections for "Normal" and "Below Normal" precipitation with "Expected Conservation" scenarios. The per capita values were derived by dividing the total projected usage values at each milestone by the corresponding projected population. Based on the per capita consumption rate of 147 gallons per day (gpd) associated with the TWDB "Below Normal Precipitation" scenario, the total and existing water usage for the entire planning areas is projected to be 3.26 million gallons per day (mgd), or 3,650 acre feet/year.

# CANYON LAKE WATER SUPPLY CORPORATION REGIONAL WATER PLAN

# **5.0 Environmental Assessment**

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#### 1.0 INTRODUCTION

The Canyon Lake Water Supply Corporation (CLWSC) has applied to the Texas Water Development Board (TWDB) for matching funds to finance a study of possible water-supply alternatives using surface water from Canyon Lake. The study is part of a 50-year plan being developed to ensure that an adequate, reliable supply of water will be available to meet the projected demands as the Canyon Lake area undergoes significant growth. The Hogan Corporation (THC) of Dallas, Texas has prepared a Regional Water Plan for a system to collect, treat, and distribute water from Canyon Lake to over 300 subdivisions served by CLWSC. CLWSC's service area and the subidivisions it serves are depicted in Figures 1 and 3, respectively, in section 2.0 of the Regional Water Plan. TRC Mariah Associates Inc. (TRC Mariah) of Austin, Texas was contracted by THC to prepare an Environmental Assessment of the project, as required by the TWDB for all water supply projects.

This report presents the Environmental Assessment of the proposed water line installation and possible alternative routes. Included are descriptions of the natural and social settings of the area, alternatives considered during the project, potential impacts of the project, and input from the public and various regulatory agencies. The name, address, telephone number, and point of contact of the consultant by whom this EA was prepared are as follows:

TRC Mariah Associates 3939 Bee Caves Rd., Suite C-100 Austin, TX 78746 (512) 329-6080

Contact: Mr. Bradley R. Hamer

# Statement of Problem

The CLWSC supplies water for domestic use to 312 subdivisions with an estimated 1996 population of 22,367 persons. At present the Trinity Aquifer is the sole source for the water supply on which these persons depend. However, water quality sampling of supply wells in the study area resulted in exceedances of Texas Natural Resource Conservation Commission (TNRCC) drinking water criteria for one or more of seven parameters (sulfate, chloride, fluorine, nitrate, pH, iron, and manganese) in 30 of the 121 wells (25%) during the most recent sampling. Because sampling data was not available from the TWDB for all of the wells, the percentage of wells out of compliance with state standards may be even higher. Some subdivisions served by CLWSC have also experienced low water pressure during high-demand periods. The use of surface water from Canyon Lake would alleviate these problems.

#### 2.0 ENVIRONMENTAL SETTING

In accordance with TWDB guidelines for environmental assessments, this section of the report presents information on the geology, hydrology, floodplains and wetlands, climate, biology, cultural resources, economic conditions, land use, and effects of other programs on the proposed project locations.

#### 2.1 GEOLOGY

Virtually the entire Canyon Lake study area is situated upon the Glen Rose Formation. This 900-ft thick formation dates from the early Cretaceous period and is comprised of limestone, dolomite, and marl in alternating beds that form stairstep topography. The limestone is typically aphanitic (individual grains small enough to be indistinguishable) to fine-grained. The dolomite is typically fine-grained and porous. The Glen Rose is divided into two layers, with the upper (approximately 400 ft thick) layer exhibiting thinner beds, a higher proportion of dolomite, and fewer fossils.

The beds of the Guadalupe River and a few other tributary streams exhibit both the oldest and youngest geological formations within the study area in approximately equal proportions. The Guadalupe River bed upstream of Highway 281 and the bed of Rebecca Creek, which flows into the Guadalupe just above Canyon Lake, are underlain by the Hensell Sand and the Cow Creek Limestone, which date from the beginning of the Cretaceous. The Hensell Sand, which forms the banks of these waterways, is approximately 45 ft thick and is comprised of an upper layer of limestone and a lower layer of sandstone. The Cow Creek Limestone is approximately 75 ft thick and occurs in the flow channels of the river and stream beds. Between Highway 281 and Canyon Lake and downstream of Canyon Lake, the Guadalupe is underlain by fluviatile terrace deposits consisting of gravel, sand, silt, and clay.

The Rumple soils are also undulating; however, they typically have a surface layer that is dark reddish brown, very cherty, clay loam approximately 10 inches thick. The Eckrant soils are strongly sloping to steep. The typical surface layer for the Eckrant soils is a very dark gray, extremely stony clay about 10 inches thick.

The Comfort-Rumple-Eckrant soils are typically used as rangeland. The shallow to very shallow rooting zone, the very low available water capacity, stoniness, and slope are limitations on use for crop or pasture land. These soils do provide habitat for wildlife, including deer, turkey and quail. Shallowness to rock, slope, and stoniness are limitations on urban and recreational uses of these soils.

The Lewisville-Gruene-Krum map unit is made up of dominantly well-drained soils that have slopes of 0% to 5%. These soils are found on low terraces along rivers and large creeks. The Lewisville soils are nearly level to gently sloping, are moderately permeable, and have a typical surface layer that is dark grayish brown silty clay approximately seven inches thick. The Gruene soils are gently sloping and exhibit a surface layer that is very dark grayish brown clay about 13 inches thick. The Krum soils are nearly level to gently sloping and are found in old stream channels that have been filled in. The Krum soils are moderately slowly permeable and exhibit a surface layer that is typically 16 inches thick, with dark gray clay. Soils in the Lewisville-Gruene-Krum map unit are used mainly for crops and pasture, although the Gruene soils are poorly suited for this use because they are shallow to caliche. These soils provide habitat for openland wildlife, including rabbit and small birds. Limitations for urban development of these soils include clayey texture, shrink-swell potential, and low soil strength. These soils are moderately well suited for recreational uses (USDA 1984).

# 2.2.2 Hydric Soils

Hydric soils are defined as those which are saturated or inundated for a sufficient duration to develop reducing soils conditions. Hydric soils are frequently associated with wetlands and are

an important distinction in determining presence or absence of U.S. Army Corps of Engineers (ACE) jurisdictional wetlands as defined in Section 404 of the Clean Water Act. Discussions with personnel at the Natural Resources Conservation Service (NRCS) office in New Braunfels, Texas indicated that no hydric soils exist in Comal County. However, three soils have been identified by the NRCS as associated with hydric soils. These soils include the Tinn clay, the Oakalla soils, and the Orif soils. All of these soils are frequently flooded; however, none of these soils meet the hydric criteria of saturation. The Tinn clay is the most hydric-like, because it is a clay and water tends to pond on it. The other two soils are loams with high permeabilities, and thus do not tend to remain saturated. (Personal communication with Carl Englerth, NRCS, 7/22/96). The locations of these soils in relation to the study areas is presented in Appendix A.

## 2.2.3 Prime Farmlands

Prime farmlands are soils that can be used to produce crops for food, feed, forage, fiber, and oilseeds. Their land uses include croplands, pasturelands, and woodlands, but not urbanized or water areas. Soil types that comprise prime farmlands feature slopes from 0% to 5%, good permeability to water and air, few or no rocks, and a reliable, adequate source of moisture (precipitation or irrigation). Otherwise acceptable soils that exhibit flooding, high water tables, or other limitations may be classified as prime farmlands if these limitations are overcome by drainage, flood control, etc.

The only areas in which proposed water lines would be installed in prime farmland soils occur in existing ROWs. Prime farmland soil types in such areas include the Anhalt clay, the Bolar clay loam, the Denton silty clay, the Krum clay, the Lewisville silty clay, the Oakalla silty clay loam, and the Sunev clay loam.

#### 2.3 HYDROLOGICAL ELEMENTS

### 2.3.1 Surface Water

The Canyon Lake study area occurs within the Guadalupe River Basin, which drains 6,070 square miles in central Texas. The Basin has been divided into 17 segments for water quality monitoring purposes. Three of these segments occur within the Canyon Lake study area: Segment 1805, Canyon Lake itself; Segment 1806, the Guadalupe River above Canyon Lake; and Segment 1812, the Guadalupe River below Canyon Lake.

Segment 1805, Canyon Lake, extends for 25 miles from Canyon Dam to a point 1.7 miles downstream of Rebecca Creek Road, entirely within Comal County, and covers 8,230 acres. This segment has been designated for use as contact recreation, exceptional quality aquatic habitat, public water supply, and aquifer protection. Two permitted domestic outfalls totalling 0.11 million gallons per day (MGD) discharge into Canyon Lake. There are no known water quality problems associated with this segment.

Segment 1806, the Guadalupe River above Canyon Lake, extends for 103 miles from a point 1.7 miles downstream of Rebecca Creek Road in Comal County to the confluence of the North and South Forks of the Guadalupe in Kerr County. This segment has been designated for use as contact recreation, exceptional quality aquatic habitat, and public water supply. Five permitted domestic outfalls totalling 3.77 MGD discharge into this segment. Two industrial facilities are also permitted to discharge into this segment but, as of 1994, do not. Dissolved oxygen levels below the segment criterion of 6.0 mg/l have been measured in Kerr County, upstream of the study area, resulting in only partial support of the designated use of exceptional quality aquatic habitat. Concentrations of nitrogen as nitrate plus nitrite in the portion of the segment from Comfort in Kendall County to Kerrville in Kerr County, also upstream of the study area, have also occurred in excess of the segment screening level of 1.0 mg/l.

Segment 1812, the Guadalupe River below Canyon Lake, extends for 23 miles from the confluence of the Comal River to Canyon Dam, entirely within Comal County. This segment has been designated for use as contact recreation, exceptional quality aquatic habitat, public water supply, and aquifer protection. One permitted domestic outfall of 1.1 MGD discharges into this segment. Dissolved oxygen levels below the segment criterion of 6.0 mg/l have been measured at Horseshoe Falls, within the study area; as such, this segment does not support its designated use of exceptional quality aquatic habitat. Fecal coliform levels near New Braunfels, downstream of the study area, have been measured in excess of the segment criterion of 400 colonies per 100 ml, resulting in only partial support of the designated use of contact recreation. A 1992 assessment by the Guadalupe-Blanco River Authority (GBRA) also noted large concentrations of floating litter.

# 2.3.2 Groundwater

The Canyon Lake Study area is underlain by the Trinity Aquifer, which consists of a lower, a middle, and an upper unit in central Texas. In the Canyon Lake area, this aquifer occurs in the upper unit of the Glen Rose Formation, which also comprises the upper unit of the aquifer. The Trinity is considered a major aquifer of Texas. The lower and middle Trinity exhibit average coefficients of transmissivity of approximately 10,000 and 1,700 gal/day/ft, respectively; transmissivity in the upper Trinity was not available, but is presumably significantly lower, according to the Texas Department of Water Resources (TDWR). Water from the Trinity is of variable quality and ranges from fresh to slightly saline. Water samples from the aquifer typically exhibit calcium carbonate concentrations of 250 to 500 mg/l and sometimes significantly higher, classifying the water as very hard (TDWR 1983).

Users of the Trinity Aquifer, including residents of the subdivisions served by CLWSC, have encountered problems with both the quality and availability of their water supply. According to the TWDB Ground Water Data System, water from 30 of 121 supply wells (25%) exceeded at least one of seven TNRCC criteria for water quality parameters (sulfate, chloride, fluorine,

nitrate, pH, iron, and manganese) (THC 1996). Limited availability of groundwater in some portions of the study area has resulted in low water pressure at some residences during periods of peak demand.

Immediately east of the Canyon Lake study area is the outcrop of the Edwards Aquifer, which is considered to be one of the most important aquifers in Texas. The Edwards Aquifer is the sole source of drinking water for the city of San Antonio and discharges in several large springs, which are inhabited by several endangered species. The aquifer has dissolved large sections of several of the limestone formations in which it occurs, resulting in numerous subterranean caverns and honeycombs. These features, as well as fractures along the Balcones Fault, enable the Edwards aquifer to store and transmit large volumes of water. Well yields exceeding 16,000 gal/min have been reported. Water is generally fresh, exhibiting dissolved-solids concentrations of less than 500 mg/l.

#### 2.4 FLOODPLAINS

The Federal Emergency Management Agency (FEMA) has mapped floodplains for the entire study area. The floodplains are delineated on Flood Insurance Rate Maps (FIRMs) generated by FEMA. On newer FIRMs or in areas where a detailed survey floodplain elevations has been undertaken, floodplains are subdivided into various zones of differing potential flood depths or elevations. Portions of the FIRMs for the Canyon Lake area have been subdivided in this manner; however, almost all of the floodplain areas in which construction would occur as part of this project are simply labeled as Zone A, which represents 100-year floodplains for which base flood elevations have not been determined. These floodplains occur at locations where proposed linework would cross any of numerous small creeks throughout the study area.

#### 2.5 WETLANDS

Wetlands are areas that exist between terrestrial and aquatic systems. The ACE maintains authority, with the U.S. Environmental Protection Agency (EPA), to regulate the placement of fill material within wetlands that meet the definition of jurisdictional wetlands. Jurisdictional wetlands are identified by three criteria: 1) the presence of hydrophytic vegetation, 2) soil possessing hydric characteristics, and 3) wetland hydrology.

For this report, wetlands have been identified by utilizing the U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory maps which have been assembled using topographical, remote sensing, and other types of information. These maps can be used for preliminary identification of potential wetland areas. The maps use a system, subsystem, class and subclass approach to describe the wetlands. Additional modifiers include water regime, water chemistry, soil type and special modifiers. Definitions of wetland types and terminology used to describe wetlands encountered in the study areas are provided below:

<u>Palustrine</u>: Palustrine systems are defined as all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where the salinity is below 0.5 parts per thousand. The Palustrine System was developed to group the vegetated wetlands traditionally called by such names as marsh, swamp, bog, fen and prairie. It also includes the small, shallow, permanent or intermittent water bodies often called ponds.

Riverine: Riverine systems include all wetlands and deepwater habitats contained within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and (2) habitats with water containing ocean-derived salts in excess of 0.5 parts per thousand. A channel is defined as "an open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two bodies of standing water."

<u>Unconsolidated bottoms:</u> Unconsolidated bottoms refers to wetlands and deepwater habitats with at least 25% cover of particles smaller than stones and vegetative cover less than 30%. Water regimes are restricted to subtidal, permanently flooded, intermittently exposed and semipermanently flooded. These wetlands are characterized by the lack of large stable surfaces for plant and animal attachment.

Water Regimes: Permanently flooded wetlands are those for which water covers the land surface throughout the year. Vegetation is composed of obligate hydrophytes. Semipermanently flooded wetlands are those for which surface water persists throughout the growing season in most years. When surface water is absent, the water table is usually at or very near the land surface. Seasonally flooded systems are those for which surface water is present for extended periods especially early in the growing season, but is absent by the end of the season in most years. When surface water is absent, the water table is often near the land surface. Temporarily flooded systems are those for which surface water is present for brief periods during the growing season, but the water table usually lies well below the soil surface for most of the season.

<u>Diked or Impounded Wetlands</u>: Diked or impounded wetlands are defined as those which have been created or modified by a barrier or dam which purposefully or unintentionally obstructs the outflow of water.

The proposed linework and water pumping and treatment facilities are located in wetland areas only at creek and river crossings. Creeks that may be crossed include Rebecca, Potter, Sorrel, Jacobs, Mountain, Tom, Jentsch, Hanz, Miller, Cypress, and Kelly creeks and Devil's Hollow. Wetlands associated with these creeks are all classified as riverine intermittent streambed temporarily flooded. The Guadalupe River is classified as riverine lower perennial unconsolidated bottom permanently flooded. Other wetland areas near potential construction areas include a few isolated farm ponds, classified as palustrine unconsolidated bottom

permanently flooded diked/impounded, and Canyon Lake itself, classified as lacustrine limnetic unconsolidated bottom permanently flooded diked/impounded.

#### 2.6 CLIMATIC ELEMENTS

# 2.6.1 Local Climate

The average daily minimum and maximum temperatures at New Braunfels are 56.6° and 80.7° F, respectively. Precipitation averages 33.5 inches per year. Table 2.1 summarizes temperature and precipitation data for Comal County. The data in the table were gathered by the NRCS at its station at New Braunfels (USDA 1984). Winds are typically from the south and southeast during the spring and summer and from the north during the fall and spring. Prevailing winds are generally from the south and southeast during the spring and summer months and are of generally even distribution during the rest of the year. Wind speeds rarely attain or exceed the 14 to 18 knot range (Larkin and Bomar 1983).

### 2.6.2 Air Quality

The EPA has established primary and secondary National Ambient Air Quality Standards (NAAQS) for six air pollutants: ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, respirable particulate matter, and lead. Primary NAAQS are concentrations required to protect public health with an adequate safety margin. Secondary NAAQS are concentrations required to protect public welfare from any known or anticipated adverse effects. Primary and secondary NAAQS are presented in Table 2.2.

#### 2.7 BIOLOGICAL ELEMENTS

Comal County occurs within the Balconian biotic province of Texas (Blair 1950). This province is located in the center portion of the state. It is generally bounded by Interstate 35 to the east,

Table 2.1	Summary of	f Temperature	and Preci	pitation from	ı New	Braunfels,	Texas.
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Month	Avg. Daily Min. (deg. F)	Avg. Daily Max. (deg. F)	Precipitation (inches)	
January	37.8	61.9	1.77 2.36	
February	41.7	66.9		
March	48.3	74.8	1.56	
April	57.6	81.4	3.17 4.59	
May	64.2	86.7		
June	70.8	93.3	3.07	
July	72.8	96.6	1.44 2.85	
August	72.2	96.7		
September	68.1	90.8	4.22	
October	57.7	82.5	3.64	
November	47.3	71.8	2.81	
December	40.1	64.9	1.98	
Annual Average	56.6	80.7	33.46	

San Angelo to the north, the Pecos River to the west and US 90 to the south. The wildlife of the area is generally characterized by the intermixture of species of other, major provinces, specifically the Austroriparian, Tamuaulipan, Chihuahuan and Kansan. However, the vegetation of this province is quite different from that of adjoining provinces. Natural regions of this province include the Edwards Plateau and the Llano Uplift (LBJ School of Public Affairs 1978).

Comal County is found in the Edwards Plateau portion of the Balconian biotic province. The Edwards Plateau region comprises an area of West Central Texas commonly referred to as the "hill country." Elevations range from slightly less than 100 ft to over 3,000 ft. There are several river systems within this region that create a rough and well-drained landscape.

Table 2.2	National Am	ibient A	Air Quality	Standards.
5 11	<del></del>		224400	

Pollutant	Primary NAAQS	Secondary NAAQS same as primary	
Ozone	125 ppb 1-hour average (not to be exceeded on more than three days in three years)		
Carbon monoxide	35.5 ppm 1-hour average; 9.5 ppm 8-hour average (neither to be exceeded more than once per calendar year)	same as primary	
Sulfur dioxide	145 ppb 24-hour average (not to be exceeded more than once per calendar year); 35 ppb annual average	550 ppb (not to be exceeded more than once per calendar year)	
Nitrogen dioxide	54 ppb annual average	same as primary	
Respirable particulate matter	155 $\mu$ g/m³ 24-hour average (not to be exceeded on more than three days in three years); 51 $\mu$ g/m³ annual average	same as primary	
Lead	1.55 $\mu$ g/m <sup>3</sup> quarterly average	same as primary	

Due to the geology and geography of the subregion, the Edwards Plateau is further subdivided into subregions. Comal County contains elements of the Live Oak - Mesquite Savannah and the Balcones Canyonlands subregions. The Balcones Canyonlands subregion is closely correlated to ecological areas surrounding the rivers of the region, specifically the Guadalupe River in Comal County.

# 2.7.1 Vegetative Communities

The scrub forest is the most characteristic plant association of the area. Ash (Fraxinus sp.), juniper (Juniperus sp.), Texas oak (Quercus texana), and stunted live oak (Q. Virginiana) are dominant in the more dissected southern and eastern canyonlands of the region. Mesquite (Prosopsis sp.) and live oak are the dominant species in the woody vegetation in the west. The floodplains of the streams are occupied by a mesic forest of large live oaks, elms (Ulmus sp.), hackberries (Celtis laevigata), and pecans (Carya illinoinensis). Large cypress trees (Taxodium distichum) fringe the stream banks of many of the rivers of this area, including the Guadalupe.

### 2.7.2 Wildlife Communities

The vertebrate fauna of the Balconian of Texas includes at least 57 species of mammals, but no species is restricted to this province. The mammalian fauna found in this area contains a strong element of Chihuahuan species that range into the province from the west and strong elements of the Austroriparian species that range into the province from the Texan to the east. Elements from the other two provinces, the Tamaulipan and Kansan, occur sparingly in the Balconian province. A minimum of 36 species of snakes, 16 lizards, 15 anurans (frogs and toads), seven urodeles (salamanders and newts), and one land turtle are known from this biotic province.

Mammals with Chihuahuan affinities found in this area include the pallid bat (Antrozous pallidus), the ringtail (Bassariscus astutus), the hog-nosed skunk (Conepatus mesoleuens), the brush mouse (Peromyscus boylii), and the Encinal mouse (Peromyscus pectoralis). Most of these species inhabit the rugged, desiccated parts of the Balconian terrain. Mammals associated with the Austroriparian province that range widely in the Balconian province include the Virginia opossum (Didelphis virginiana), the Eastern pipistrelle [bat] (Pipistrellus subflavus), the fox squirrel (Sciurus niger), and the Eastern cottontail (Sylvilagus floridanus). Other species that occur in the eastern portion of this province include the evening bat (Nycticeius humeralis), the pocket gopher (Geomys breviceps), and the Eastern woodrat (Neotoma floridana). The stream valleys likely act as important avenues of dispersal from the Austroriparian across the Texan and to the Balconian provinces. However, some of these species have moved away from the stream valleys and into the cedar/oak scrub forests.

Species from the Tamaulipan province include the javelina (Tayassu angulatum) and the nine-banded armadillo (Dasypus novemcinctus). Two Tamaulipan species, the ocelot (Felis pardalis) and the jaguar (Panthera onca), have been extirpated in the Balconian. The few characteristically Kansan species found in the Balconian include the badger (Taxidea taxus) and the plains harvest mouse (Reithrodontomys montanus). Texan species ranging into the Balconian

province include the fulvous harvest mouse (Reithrodontomys fulvescens) and the Northern pygmy mouse (Baiomyns taylori).

Other mammalian species widely distributed in the Balconian, but not distinctly characteristic of a single other province, include the white-footed mouse (*Peromyscus leucopus*), the hispid cotton rat (*Sigmodon hispidus*), the hispid pocket mouse (*Perognathus hispidus*), Merriam's pocket mouse (*Perognathus merriami*), the Northern grasshopper mouse (*Onychomys leucogaster*), the Southern Plains woodrat (*Neotoma micropus*), and the black-tailed jackrabbit (*Lepus californicus*).

Population densities of the mammals usually remain low in the Balconian by contrast with the high densities of the same species found in the Tamaulipan province. Part of this phenomenon may be due to the transitional nature of the Balconian region in which many of the various species approach the limits of their ecological tolerance. Additional factors in the low densities may include the destruction of native vegetation over most of the region by overgrazing.

Recent surveys of fur-bearing animals resulted in recorded sightings of raccoon (*Procyon lotor*), ringtail, opossum, skunk (*Spilogale gracilis* [Western spotted skunk] and *Mephitis mephitis* [striped skunk]), gray fox (*Urocyon cinercoargenteus*), coyote (*Canis latrans*), bobcat (*Felis rufus*), and badger (one sighting) within the Edwards Plateau ecological region (Delmonte 1995). Recent surveys suggest that the Edwards Plateau ecological region contains approximately 1,726,333 white-tailed deer (*Odocoileus virginianus*), which represents almost one-half of the population in the State of Texas. In 1994, the estimated deer population of Comal County was 48,063 (Young and Richards 1995).

The Western box turtle (*Terrapene ornata*) is the only land turtle common to this area. The lizard fauna is comprised principally of Chihuahuan and widely distributed western species. These species include the Texas banded gecko (*Coleonyx brevis*), the crevice spiny lizard

(Sceloporus poinsetti poinsetti), the Texas alligator lizard (Gerrbonotus liocephalus), and the common tree lizard (Ursosaurus ornatus). Other species found in the Balconian with western affinities include the Northern earless lizard (Holbrookia maculata), the collared lizard (Crotophytus collaris), the Texas horned lizard (Phrynosoma cornutum), the four-lined skink (short-lined subspecies; Eumeces tetragrammus brevilineatus), the Great Plains skink (Eumeces obsoletus), and the Texas spotted whiptail (Cnemidophorus gularis). Two species of lizards typical of the Austroriparian province extend their range to include the Comal County area of the Balconian. These species are the racerunner (Cnemidophorus sexlineatus) and the Eastern glass lizard (Ophisaurus ventralis).

Thirty-six species of snakes are known to inhabit the Balconian province; however, they are not restricted in Texas to this province. The majority of these snakes are widely distributed western species that range over many of the Texas provinces and North America. Snake species that are known only in the Balconian and Chihuahuan provinces are the Mexican garter snake (*Thamnophis eques*) and the Northern black-tailed rattlesnake (*Crotalus molossus molossus*). Other snake species common to this area include the rough green snake (*Opheodrys aestivus*), the buttermilk racer (*Coluber constrictor anthicus*), the Texas rat snake (*Elaphe obsoleta lindheimeri*), the Texas brown snake (*Storeria dekayi victa*), the plain-bellied water snake (*Nerodia erythrogaster*), the diamondback water snake (*Nerodia rhombifera*), and the Western diamondback rattlesnake (*Crotalus atrox*).

Representative urodele fauna species include the barred tiger salamander (Ambystoma tigrinum mavortium) and the white-throated slimy salamander (Plethodon glutinosus albagula). Five urodele species are endemic neotenic forms that have developed in subterranean drainage and springs of the Edwards Plateau. These species include the Texas blind salamander (Eurycea rathbuni), the San Marcos salamander (Eurycea nana), the Texas salamander (Eurycea neotenes), the Cascade Cavern salamander (Eurycea latitans), and the Comal blind salamander (Eurycea tridentifera).

Common anurans include Couch's spadefoot (Scaphiopus couchii), Woodhouse's toad (Bufo woodhousii), the Northern leopard frog (Rana pipiens), the Eastern green toad (Bufo debilis debilis), the red-spotted toad (Bufo punctatus), and the Great Plains narrow-mouthed frog (Gastrophryne olivacea) (Blair 1950).

# Project Area Description

As previously noted, the majority of the project area is dedicated to highway and street ROWs, with some disturbed and undisturbed areas dedicated to the placement of pumping stations and water treatment plants. Species occurring in the roadside areas are generally limited to small rodents and various bird species.

The eastern and western portions of the Canyon Lake study area occur within the Central Prairie and Edwards Plateau Ornithological Regions of Texas, respectively, as indicated in Figure 2.1 (Oberholser 1974). No regional breakdown of bird species numbers is provided in this reference. Due to the large number of bird species occurring in each of these regions, a list is not included in this report.

# 2.7.3 Threatened and Endangered Species

This section includes a complete list (Table 2.3) of the threatened and endangered species, as well as species of concern, that could potentially occur within the project area. This list also includes natural communities that have been identified as a concern. There are two governmental agencies that have jurisdiction over threatened and endangered species. These agencies are the USFWS, that operates under the United States Department of the Interior. The USFWS is responsible for listing and protecting species that are federally listed as threatened and endangered. The second agency is the Texas Parks and Wildlife Department (TPWD). TPWD is responsible for listing and protecting species that are state listed as threatened and endangered.

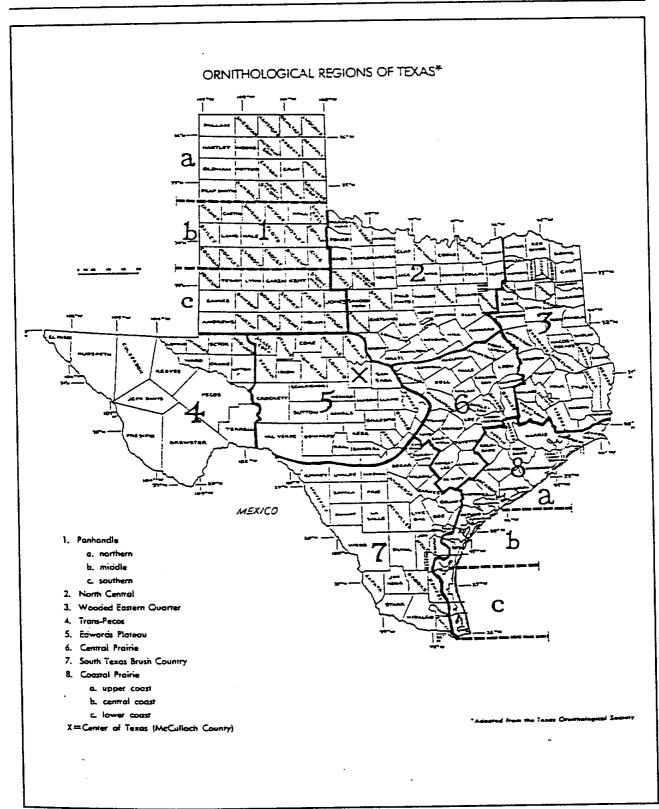


Figure 2.1 Ornithological Regions of Texas.

Table 2.3 Rare, Threatened, and Endangered Species of Potential Occurrence and Known Natural Occurrence in Comal County, Texas.

C	Scientific Name	USFWS Status	TPWD Status	State Rank	Global	TOES
Common Name	Scientific Name	3121113	Status	State Natik	Kalik	101.
Amphibians		an.	mr.	62	C2	
Cascade Caverns Salamander	Eurycea latitans	3B	T	S3	G3	_
Comal Blind Salamander	Eurycea tridentifera	C2	T	S1	G1	Т
Edwards Plateau Spring Salamanders	Eurycea sp. 7	C2		S1S3	G1G3Q	
San Marcos Salamander	Eurycea nana		T			
Reptiles						
Cagles' Map Turtle	Graptemys caglei	C1		S3	G3	
Spot-Tailed Earless Lizard	Holbrookia lacerata			\$3?	G3G4	
Timber Rattlesnake	Crotalus horridus		T	S5	G5	
Texas Horned Lizard	Phrynosoma cornutum	C2	T	S4	G5	T
Mammals						
Cave Myotis	Myotis velifer	C2		\$4	G5	
Birds						,
American Peregrine Falcon	Falco peregrinus anatum	LE	E	S2B	G3T2	E
American Swallow-tailed Kite	Elanoides forficatus		T	S2	G5	T
Arctic Peregrine Falcon	Falco peregrinus tundrius	E/SA	T	S2	G3T2	T
Bald Eagle	Haliaeetus leucocephalus		E	S3B/S3N	G4	E
Black-Capped Vireo	Verio atricapillus	E	E			T
Brown Pelican	Pelecanus occidentalis	LE	E	S3B	G4	E
Golden-Cheeked Warbler	Dendroica chrysoparia	LE	E	S2	G2	T
Interior Least Tern	Sterna antillarum athalassos	LE	E	S1B	G4T2Q	E
Peregrine Falcon	Falco peregrinus	LELT		S3	G3	
White-Faced Ibis	Plegadis chihi	C2	T	S4B	G5	T
White-Tailed Hawk	Buteo albicaudatus		T	S4B	G4	T
Whooping Crane	Grus americana	LE	E	S1	G1	E
Wood Stork	Mycteria americana		T	SHB, S3N	G4	T
Zone-tailed Hawk	Buteo albonotatus		T			T
Fish						
Fountain Darter	Etheostoma fonticola	LE	E	S1	Gl	E
Guadalupe Bass	Micropterus treculi	C2		S3	G3	
Invertebrates						
Coman Dryopid Beetle	Stygoparnus comalensis	PE		S1	G1	
Comal Springs Riffle Beetle	Heterelmis comalensis	C1		SI	G1	
Reddell's Cave Amphipod	Stygobromus reddelli	PE		S1	G1	

Table 2.3 Concluded.

Common Name	Scientific Name	USFWS Status	TPWD Status	State Rank	Global Rank	TOES
Piants	Selendro Valle			<del></del>		
Bracted Twistflower*	Streptathos bracteatus		E			E
Canyon Mock-Orange	Philadelphus ernestii	C2		S2	G2	WL
Dark Noseburn*	Tragia Nigricans					WL
Glass Mountains Coral-Root	Hexalectris Nitida	C2		<b>S</b> 3	G3	
Heller's Marbleseed*	Onusmodium helleri					WL
Hill Country Wild Mercury	Argythamnia aphoroides	C2		S2	G2	WL
Texas Gourd*	Cucurbita texana					WL
Texas Mock-Orange	Philadelphus texensis	3C		S2	G2	WL
Natural Communities	***************************************					
Ceder Elm-Sugarberry Series	Ulmus crassifolia-Celtis laevigata series			S4	G4	
Plateau Live Oak-Little Bluestem Series	Quercus fusiformis -Schizachyrium scoparium series			S3	G3	
Ashe Juniper-Oak Series	Juniperus ashei-Quercus Spp. series			S4	G4	
Bald Cypress-Sycamore Series	Taxodium distichum-Platanus occidentalis series			S3	G3	WL
Curlymesquite-Side Oats Gramma Series	Hilaria belangeri-Bouteloua curtipendula series			S3	G3	WL

<sup>\*</sup> These plant species are listed as occurring in Comal County by TOES, not TPWD.

#### Federal Status

LE - Listed Endangered

LT - Listed Threatened

E/SA - Listed Endangered on basis of Similarity of Appearance

- C1 Candidate, Category 1. USFWS has substantial information on vulnerability to support proposing to list as endangered or threatened. Data is being gathered on this species.
- C2 Candidate, Category 2. Information indicates that proposing to list species is possibly appropriate, but data on vulnerability are unknown to support immediate preparation of rules.
- 3B Former Candidate. Rejected because not a recognized taxon, i.e synonym or hybrid.
- 3C Former Candidate. Rejected because more common, widespread, or adequately protected.

#### PE - Proposed to be listed as Federally Endangered.

#### State Status

- E Endangered
- T Threatened

#### Global Rank

- G1 Critically imperiled globally, extremely rare, 5 or fewer occurrences (critically threatened throughout range)
- G2 Imperiled globally, very rare, 6 to 20 occurrences (endangered throughout range)
- G3 Very rare and local throughout range or found locally in restricted range, 21 to 100 occurrences (threatened throughout range)
- G4 Apparently secure globally
- G5 Demonstrably secure globally

G#G# - Ranked within a range as status uncertain

G#T# - "G" = species rank; "T" = rank of variety or subspecies taxa
Q - Qualifier denoting questionable taxonomic assignment.

#### State Rank

- S1 Critically imperiled in state, extremely rare, very vulnerable to extirpation, 5 or fewer occurrences
- S2 Imperiled in state, very rare, vulnerable to extirpation, 6 to 20 occurrences
- S3 Rare or uncommon in state, 21 to 100 occurrences
- S4 Apparently secure in state
- S5 Demonstrably secure in state
- SH Of historical occurrence in state. May be rediscovered
- ? Qualifier denoting uncertain rank.
- B Basic rank refers to breeding population in state
- N Basic rank refers to non-breeding population in state

#### Texas Organization for Endangered Species (TOES)

- E Endangered. In danger of extinction in all of most of the species' range in the United States, particularly in Texas.
- T- Threatened. Depleted or impacted by man so as likely to become endangered in the near future.
- WL Watch List. Potentially endangered or threatened in the United States, especially in Texas, although not necessarily in its range as a whole.

TPWD also supports a program known as the Texas Biological and Conservation Data System, which is responsible for maintaining data on selected species and provides state and global ranks to species on its "Special Species" list. A private organization, known as the Texas Organization for Endangered Species (TOES), also publishes a list that includes federal and state listed species as well as "watch-list" species. Watch-list species are those that are not currently listed as threatened or endangered, but are believed to warrant further study to determine their current status.

Table 2.3 provides the complete list of species that may occur in the project area. They are categorized by order and include the USFWS and TPWD determination, the species' state and global rank, and their TOES determination.

As indicated in Table 2.3, there are a variety of rare, threatened and endangered species in Comal County and the Central Texas region. The following is a discussion of the USFWS and TPWD's threatened and endangered species listed above, including a presentation of natural histories, when available.

## **Amphibians**

Four amphibian species of concern, all salamanders, are either known to exist or may exist within the study area. All of these species exist either in subterranean aquatic environments or are associated with spring flows and submerged vegetation. Three of these species- the Cascade Cavern salamander, the Comal blind salamander, and the San Marcos salamander- are listed as state threatened. The Edwards Plateau Spring salamander (*Eurycea* sp.) is not listed by the TPWD as being endangered or threatened, but is a Category 2 species with the USFWS.

Because this project will draw water from Canyon Lake that is in excess of current water needs for downstream users it is not likely to have an impact on these species. However, before

excavations are conducted to install facilities and water lines, efforts to identify potential habitat for these species in those areas will be conducted.

## **Reptiles**

Four reptile species of concern are either known to exist or may exist in the study area. None of these species are listed by the USFWS as threatened or endangered. Two of the species, the Timber rattlesnake (*Crotalus horridus*) and the Texas horned lizard (*Phyrnosoma cornutum*), are listed as state threatened. The Cagle's map turtle (*Graptemys caglei*) is listed as a Category 1 species by the USFWS, while the spot-tailed earless lizard (*Holbrookia lacerata*) is not listed by TPWD or the USFWS; however, it is believed to be rare.

#### **Mammals**

The cave myotis (Myotis velifer), a relative of the bat, is the only mammal species of special concern that is listed as potentially occurring in the project area. This species is listed as a Category 2 candidate by the USFWS. Although current data suggest that listing of this species is possibly appropriate, substantial data on biological vulnerability is lacking at this time.

#### Birds

There are fourteen avian species of special concern that could potentially occur in Comal County. These species are described below.

American and Arctic Peregrine Falcon: The American and Arctic Peregrine Falcon are very similar in appearance and behavior, however, the American subspecies (Falco peregrinus anatum) and the arctic subspecies (Falco peregrinus tundris) differ in range and migrational patterns. The American subspecies nests from central Alaska to central Mexico. The arctic subspecies nests from northern Alaska to Greenland. These falcons are usually found in most

climate zones, in steppes, grasslands or scrubland to forested areas, however, they prefer areas with high cliffs and avoid climate extremes, such as humid rain forests. No species presence in Comal County has been documented by Oberholser (1974). No impacts to these species are anticipated from the proposed project.

American Swallow-Tailed Kite: The American swallow-tailed kite (Elanoides forficatus) is listed as threatened by the TPWD. This bird is a medium-sized hawk with long pointed wings that formerly bred throughout the Mississippi Valley, although now is mainly found in Florida. This bird mostly winters in South America. This bird is not a secluded species as nests and foraging birds have been documented in and around human development. River bottom forests with adjacent semi-prairie land, glades with cypress swamps, and freshwater marshes that skirt large lakes are the prime habitats of this species. This species was formerly a common to uncommon nesting species over much of the eastern half of the state, including west to the Balcones Escarpment area. Several authors have suggested that lumbering and drainage are the principal culprits for the birds rapid decline in population. A recent report indicates that while some sightings of these birds has occurred in Texas, these sightings are primarily limited to the East Texas region. No species have been reported in Comal County from 1990 to 1992, the time period covered in the report (Boone 1993). No evidence of the presence of this species was observed during the field investigations.

Bald Eagle: The bald eagle (Haliaeetus leucocephalus) is listed by the TPWD Heritage Conservation Program (HCP) as a potential species in Comal County. However, a recent report that includes state-wide data on bald eagle distribution does not include any reported sightings in Comal County (Mitchell 1995). Given the lack of evidence that this species is present in the county and the residential/commercial nature of the proposed project, it is unlikely that this project will negatively impact this species.

Black-capped Vireo: The black-capped vireo (Vireo atricapillus) is a small, insectivorous bird that is known to prefer habitat consisting of scattered trees and numerous dense clumps of bushes

growing to ground level, interspersed with open areas of base ground, rock, grasses, or forbs. This type of habitat consists of juniper (Juniperus ashei), evergreen and flameleaf sumacs (Rhus spp.), shin oak (Q. sinuta var. breviloba), elbowbush, Texas kidneywood (Eysenfardita texana), and yaupon (Ilex vomitoria). Canopy height for this habitat is typically between one to six meters. The breeding season starts about March 15 and ends August 15 in Texas. A recovery plan has been approved for the black-capped vireo (USFWS 1991).

Brown Pelican: The brown pelican (*Pelicanus occidentalis*) is a large dark water bird known to inhabit sea coasts and islands of the Pacific and Atlantic coasts. It is currently listed as endangered by the USFWS and the TPWD. This bird is mainly a resident bird of subtropical and tropical seacoasts and it rarely strays from its preferred saltwater shores. Given the preferred habitat of this species, it is unlikely that this project will impact this species.

Golden-cheeked Warbler: The golden-cheeked warbler (Dendroica chrysoparia) is a small, insectivorous bird, with its habitat characterized as oak-juniper woodland. Tree species include live oak (Q. fusiformis), Texas oak (Q. Texana), juniper, cedar elm (U. crassifolia), hackberry, Texas ash (F. americana var. texensis), bald cypress (Taxodium distichum), Arizona walnut (Juglandaceae major), big-toothed maple (A. grandidentatum), Lacey oak (Q. laceyi), and sycamore (Platanus occidentalis). Canopy height for this type of habitat varies a great deal depending on species composition; however, six to eight meters is typical. The golden-cheeked warbler breeds exclusively in Texas and is present from early March to mid-August.

Interior Least Tern: The interior least tern (Sterna antillarum athalassos) is listed as endangered by the TPWD. It is found along river banks. Oberholser (1974) does not record any occurrences of the interior least tern in Comal County.

White-Faced Ibis: The white-faced ibis (*Plegadis mexicana*) is a medium-sized marsh bird with a long slender decurved bill that is found in the coastal regions of Texas. This bird is currently

listed as threatened by the TPWD. The preferred habitat of the white-faced ibis is freshwater marshes and sloughs and irrigated rice fields. Pesticide applications on rice fields are believed to have significantly impaired the reproduction abilities of this bird. No accounts of the white-faced ibis in Comal County have been recorded by Oberholser (1974). Given the preferred habitat, it is unlikely that this project will impact this species.

White-tailed Hawk: The white-tailed hawk (*Buteo albicaudatus*) is listed as a state threatened species by the TPWD. It is a tropical species that prefers coastal grasslands and grassy mesquite-live oak savannah. Its numbers have declined over the past century due to a combination of takeover of grasslands by mesquite, urbanization, pollution, a cooler climate, and a decline in the population of the snakes on which it feeds (Oberholser 1974). The fact that the proposed construction will not occur in the white-tailed hawk's preferred habitat make it unlikely that this project will cause an adverse impact to this species.

Wood Stork: The wood stork (Mycteria americana) is the only true stork native to temperate North America and is listed as threatened by the State of Texas. This bird makes its rookeries in large tracts of bald cypress (Taxodium distichum) and to a lesser extent in stands of red mangrove (Rhizophora mangle). East Texas was once included in this bird's range; however, it now apparently only nests in Florida (Oberholser 1974). While the TPWD HCP indicates that there is a possibility that these birds could be found in Comal County, it is unlikely that this project will cause an adverse impact to this species.

Zone-tailed Hawk: The zone-tailed hawk (Buteo albonotatus) is listed as a state threatened species by the TPWD. This hawk prefers deep, rocky canyons and streamsides in semiarid mesa, hill, and mountain areas. The only occurrences of this species in Comal County reported by Oberholser (1974) date from the 1800s. As such, no impacts on this species are anticipated.

#### Fish.

Two fish species of special concern are listed as potentially occurring in the study area. These species include the fountain darter (*Etheostoma fonticola*), a federal and state listed endangered species and the Guadalupe bass (*Micropterus treculi*), a federally listed Category 2 species. The fountain darter does not appear in the study area on maps of endangered species occurrences maintained by the TPWD Endangered Resources Branch in Austin. Three reports of Guadalupe bass occurrences; one in Honey Creek and one each in the Guadalupe River upstream and downstream from Canyon Lake- are depicted on TPWD's maps, suggesting that this species may occur within the study area.

#### **Plants**

The are eight threatened or endangered plant species that may occur in the Comal County area. Four species are listed by the TPWD as occurring within the study area. These species include the canyon mock-orange (*Philadelphus ernestii*), the Glass Mountains coral-root (*Hexalectris nitida*), and the Hill Country wild mercury (*Argythamnia aphoroides*), all of which are listed as Category 2 species by the USFWS. The fourth species, the Texas mock-orange (*Philadelphus texensis*), is listed as a former candidate by the USFWS that has been rejected because it is more common, widespread or adequately protected than originally believed.

Four species are not listed by the TPWD as occurring in the study area; however, they are listed by TOES as occurring in Comal County. Of these four species, one plant, the Bracted Twistflower (Streptathos bracteatus) is listed as endangered by the State of Texas. The three other plants, the dark noseburn (Tragia nigricans), the Heller's Marbleseed (Onusmodium helleri), and the Texas gourd (Cucurbita texana) are not listed by TPWD or the USFWS. All of the plant species with the exception of the Glass Mountain coral-root are on the TOES watch list, as potentially endangered or threatened in Texas, although not in their range as a whole.

#### Natural Communities

As indicated in Table 2.3, there are five natural communities known or believed to exist in Comal County and/or the study area. However, these natural communities are not listed as federally or state threatened or endangered. Given the limited size and scope of this project, it is unlikely that these natural communities will be negatively impacted due to this project.

## 2.7.4 State and National Parks, Natural Areas, Forests, Etc.

There are no state or national parks, natural areas, forests, or wildlife refuges within the study area. However, the ACE maintains several parks along the Canyon Lake shoreline, including Crane's Mill, Potter's Creek, Canyon, Jacobs Creek, Comal, North, Overlook, and Guadalupe Parks. In addition, the Guadalupe River below Canyon Dam is stocked with trout every December, creating one of the most significant recreational fisheries in Texas. Recreation activities, including scuba diving, boating, fishing, etc. associated with the ACE parks, as well as the entire study area, will be addressed in terms of potential impact due to implementation of this project.

#### 2.8 CULTURAL RESOURCES

TRC Mariah is not responsible for the Cultural Resources review for this report, in that, following standard guidelines for the EA, TPWD will perform this section.

## 2.9 ECONOMIC CONDITIONS

#### **Population**

According to the 1990 U.S. Census, the population of Comal County is 51,832. The population is comprised of 19,223 households, which include 14,795 families. The racial breakdown of

the population is 90.4% white, less than 1% each black, Asian, and American Indian, and 8.2% other races; persons of Hispanic origin, who are considered an ethnic rather than a racial group, presumably comprise a large proportion of those claiming to be of "other races." Just under 26% of the population is under 18 years of age, 58% is between the ages of 18 and 65, and 16% is over 65 (U.S. Department of Commerce [USDOC] 1990). Numerical breakdowns of the population of Comal County by race, gender, and age are presented in Table 2.4. Popopulation projections for Comal County, on which the need for this project is based, are presented in Table 2 of the Regional Water Plan.

#### <u>Income</u>

Residents of Comal County are generally more prosperous than average. As of 1990, the per capita income of residents of Comal County was \$13,400. The median household and family incomes were \$29,457 and \$33,448, respectively. As shown in Table 2.5, these figures are above those for the state of Texas. In addition, slightly under 13% of the population of Comal County lives below the poverty level, compared with slightly over 18% for the state (USDOC 1990).

Table 2.4 Breakdown of Comal County Residents by Race, Gender, and Age.

Classification		No. of Persons
Racial	White	46,840
	Black	435
	American Indian	122
	Asian	160
	Other races	4,275
Gender	Male	25,188
	Female	25,644
Age	0-17	13,409
	18-65	30,081
	65+	8,342

Table 2.5	Economic Comparison	of Comal	County	and State	of Texas.
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Category	Comal County	State of Texas
Per capita income	\$13,400	\$12,904
Median household income	\$29,457	\$27,016
Median family income	\$33,448	\$31,553
Persons below poverty level	6,576	3,000,515
Percent below poverty level	12.9%	18.1%
Children under 18 below poverty level	2,395	1,159,710

Source: USDOC 1990

#### Home Values

Home values for Comal County averaged \$89,500, according to the 1990 U.S. Census. Out of 22,987 housing units, 19,315 were occupied (USDOC 1990).

## **Employment**

Employment figures for Comal County show a significant increase (over 25%) since 1990 in the size of the civilian labor force. During this period the unemployment rate never exceeded 6%. As of October 1996, the civilian labor force was estimated at 32,651 persons by the Texas Employment Commission (TEC), with 932 persons (2.9%) unemployed. Table 2.6 provides employment estimates for the county since 1990, as determined by the Labor Market Information section of the TEC (TEC 1996).

Retail trade employs the greatest number of persons in Comal County. Other major employers include educational services, construction, durable goods manufacturing, health services, and nondurable goods manufacturing (USDOC 1990). A breakdown of employment by industry in the county is presented in Table 2.7.

Table 2.6 Employment Data for Comal County, 1990-1996.

Year	Total Civilian Labor Force	Employed	Unemployed	% Unemployed
1990	25,573	24,376	1,377	5.3%
1991	26,399	24,910	1,489	5.6%
1992	27,877	26,375	1,502	5.4%
1993	29,269	27,785	1,484	5.1%
1994	31,130	29,911	1,219	3.9%
1995	32,039	30,858	1,181	3.7%
1996 (Oct.)	32,651	31,719	932	2.9%

Source: TEC, 1996

Table 2.7 Employment by Industry in Comal County.

1 ,		
Industry	No. Persons Employed	
Agriculture, forestry, fisheries	694	
Mining	233	
Construction	1,861	
Manufacturing (nondurable goods)	1,545	
Manufacturing (durable goods)	1,761	
Transportation	916	
Communications/utilities	772	
Wholesale trade	919	
Retail trade	4,164	
Finance, insurance, real estate	1,563	
Business, repair services	1,211	
Personal services	1,189	
Health services	1,731	
Educational services	2,145	
Other professional services	1,467	
Public administration	1,028	

#### 2.10 LAND USE

By far the largest proportion (over 80%) of land in Comal County's 363,000 acres is rangeland, according to the NRCS in New Braunfels. The remainder of the county consists of cropland (6.5%), urbanized areas (6.2%), improved pastureland (2.8%), water (2.2%), and wildlife land (2.1%). Table 2.8 presents a breakdown of land use in Comal County.

Table 2.8 Land Use in Comal County.

Use	Acreage	% of Total
Rangeland	291,000	80.2%
Cropland	24,000	6.5%
Urban	23,000	6.2%
Improved Pastureland	10,000	2.8%
Water	7,900	2.2%
Wildlife Land	7,600	2.1%

#### 3.0 ALTERNATIVES TO THE PROPOSED ACTION

#### 3.1 NO-ACTION ALTERNATIVE

Under the no-action alternative, customers of CLWSC would continue to rely on the Trinity Aguifer as their sole source of potable water. As previously noted, problems with both water quality and availability have occurred in many of the supply wells in the area. These problems would continue under the no-action alternative and would likely worsen as water demands increase in response to projected rapid population growth in the Canyon Lake area. In addition, there is a possibility that the TNRCC might impose pumping restrictions on water supply aquifers in the future. When contacted by TRC Mariah, personnel at TNRCC headquarters in Austin and at the TNRCC regional office in San Antonio were unaware of any specific restrictions pertaining to the Trinity Aquifer currently under consideration. However, pumping restrictions in general, and specifically for the Edwards Aquifer, appear to be supported by certain segments of the public and the regulatory community and have been the subject of recent highly-publicized legal proceedings. As such, the possibility that pumping from the Trinity or Edwards Aquifers might be limited at some point during this project's 50-year planning period must be considered. Although possible restrictions on pumping from the Edwards Aquifer would not directly impact the study area, such potential restrictions would likely increase the demand on pumping from the Trinity Aquifer and thereby exacerbate the water supply problems already occurring in CLWSC's service area. Were such limitations on pumping from either aquifer enacted, CLWSC might be unable to meet the needs of its future customers under the no-action alternative.

#### 3.2 ALTERNATIVES FOR WATER COLLECTION AND CONVEYANCE SYSTEMS

The alternatives under consideration include three potential water main routes connecting lines following FM 2673 to those along U.S. Highway 281. North of Canyon Lake, the only water source and considered is a water treatment plant at the southern end of the Canyon Lake Shores

subdivision adjoining the old riverbed, and the only route considered follows Crane's Mill Road to the ROW on FM 306. Similarly, the only water source considered for subdivisions south of the lake is a water treatment plant located at the intersection of FM 2673 with FM 3159, in the community of Startzville, the only route considered immediately south of Canyon Lake is along FM 2673, and the only route considered in southwestern Comal County follows the ROW of U.S. Highway 281 at the intersection of State Highway 46 to that of Ammann Road to that of FM 3155. The locations of the water treatment plants were selected based on lake depth, shoreline topographical characteristics that appeared to provide suitable intake arrangements, and centralized locations with respect to conveyance system routes. The routes noted above were selected because they are in existing ROW areas and are closer to existing subdivisions and associated water main connections than any other routes would be.

## 3.2.1 Alternatives for Water Source for Subdivisions North of Canyon Lake

Two alternatives are under consideration to provide water from Canyon Lake to subdivisions along FM 306 north of the lake. Alternative Source #1 is the water treatment plant that would be constructed. This plant would be the only treatment plant constructed under this alternative. The use of Alternative Source #1 would require the extension of water lines from the northern end of FM 2673 through Crane's Mill Park, under Canyon Lake, and through the Canyon Lake Shores subdivision to FM 306. The lake crossing would entail boring lines through the subsurface beneath the bottom of the lake.

Alternative Source #2 is a second water treatment plant that would be constructed on the north side of Canyon Lake. The plant would be located across the lake from Crane's Mill Park at the same location that the subsurface lines would emerge if Alternative Source #1 were selected. Lines from the treatment plant would then be constructed through the Canyon Lake Shores subdivision as under Alternative Source #1. Although this alternative would require construction of a second water treatment plant, it would eliminate the need to install water lines in Crane's Mill Park and beneath Canyon Lake.

# 3.2.2 Alternative Routes for Conveyance Systems South of Canyon Lake

As previously noted, three potential routes are under consideration to convey water from the water treatment plant in Startzville to subdivisions in the western and southern portions of CLWSC's service area. Each of these alternative water line routes would be connected to water lines along the already-selected routes described above.

Alternative Route #1, the northernmost of the proposed alternatives, follows FM 2673 north from the water treatment plant at Startzville before turning westward to the southwest corner of the Canyon Lake Mobile Home Estates subdivision. It would then follow an easement owned by the Guadalupe Valley Telephone Company (GVTC) to its intersection with Demijohn Road. After following Demijohn Road south for a short distance, it would turn westward and continue southwest through undeveloped land and through the Fox Creek subdivision, where it would cross FM 311. From this point it would pass north of the Gutierrez Ranch and Sun Valley Village subdivisions and would join a water line following U.S. Highway 281 just south of the crossing of Highway 281 over Hanz Creek. The route would then continue south to FM 1863, with a lateral pipeline following State Highway 46 eastward from U.S. Highway 281 to serve the Smithson Valley area. This route is depicted in Figure 11a in section 3.5.2 of the Regional Water Plan.

Alternative Route #2, which is depicted in Figure 11b in section 3.5.2 of the Regional Water Plan, would follow FM 3159 southwest from its intersection with FM 2673 for a distance of approximately 2.7 miles, at which point the route would either continue to follow FM 3159 or would branch northwest through undeveloped land at the point at which FM 3159 turns south and begins a relatively steep ascent. The route through the undeveloped land would extend for approximately 0.4 miles northwest and then turn southwest for approximately one mile. It would then join an unnamed ranch road, which it would follow southwest for approximately 1.7 miles. The route would rejoin FM 3159 approximately 1,500 ft east of the intersection with FM 311. It would follow FM 3159 south to FM 1863, which it would then follow to U.S. Highway

281. A lateral pipeline would extend westward from the intersection of Texas Highway 46 to U.S. Highway 281 to serve the subdivisions in the Highway 46/Highway 281 area. The decision to branch off of and eventually rejoin FM 3159 instead of following the roadway would be based on engineering difficulties posed by the pronounced change in elevation (over 100 ft) in a short distance (approximately 0.3 miles) along FM 3159.

Alternative Route #3 would initially follow the same route as Alternative Route #1 from the water treatment plant at Startzville to the GVTC telephone easement. Instead of following the easement to Demijohn Road, however, this alternative route would only extend to Bendel Ranch Road by way of the easement. It would then follow Bendel Ranch Road to Rebecca Creek Road, which it would follow south through the intersection with FM 311 and onward to FM 3159. From FM 3159 the route would proceed southwestward to State Highway 46, which it would follow westward to U.S. Highway 281. The last segment of this route, along U.S. Highway 281 south from its intersection with State Highway 46 to FM 1863, would be identical to that of Alternative Route #1. This alternative is depicted in Figure 11c in section 3.5.2 of the Regional Water Plan.

#### 3.3 PREFERRED ALTERNATIVE ROUTE

The preferred alternative route for conveyance of water to subdivisions south and west of Canyon Lake is Alternative Route #3. This route represents the most environmentally sound alternative in that it is the only one of the three alternatives considered that does not require any clearing of undeveloped land; all water lines installed under this proposed alternative would be situated in existing roadways or easements. In addition, this alternative is also the least-cost option, as shown in Table 14 in section 3.5.2 of the Regional Water Plan.

#### 4.0 DESCRIPTION OF THE IMPACTS OF THE PROPOSED PROJECT

This chapter provides a description of the primary and secondary impacts from the proposed project to the environmental, floodplain, social, and economic resources within the study areas. Additionally, this chapter includes mitigation measures that will be utilized to lessen these impacts.

The environmental resources section includes a discussion of the hydrological resources, the biological resources (including threatened and endangered species), cultural resources, air resources, and the potential increase in noise related to the proposed project. The floodplain section discusses the impacts to floodplain resources within the study area. Social resources identified include safety provisions, recreational areas, and scenic views. The economic resources section includes property values, land use issues, public services, utilities, and workforce resources.

An environmental consequence or impact is defined as a modification in the existing environment brought about by mission and support activities. Impacts can be beneficial or adverse, can be a direct result of an action (primary) or an indirect result (secondary), and can be permanent or long-lasting (long-term) or temporary and of short duration (short-term). Impacts can vary in degree from a slightly discernable change to a total change in the environment.

#### 4.1 PRIMARY IMPACTS

## 4.1.1 Environmental Resources

## 4.1.1.1 Hydrological Resources

The installation of water lines and construction of water treatment plants would directly impact natural land forms, streams, and natural drainage patterns only as an unavoidable consequence

of trenching and other construction activities. The Guadalupe River and various streams may be impacted during the construction phase; however, none of these would be permanently altered. The construction of the second water treatment plant under the preferred alternative may result in minor changes in the shoreline of Canyon Lake itself if a small portion of the lake is filled in to provide a base for construction; however, the ACE will only allow such placement of fill material if an equal shoreline area is excavated and submerged to offset the reduction in lake area. As such, construction of the second water treatment plant would result in no net change in the surface area of Canyon Lake. The contractor will be required to restore the land form and drainage to their original preconstruction state to an extent that is feasible. Drainage may be temporarily blocked from streams or channels during the construction phase.

Area water courses would be expected to be affected by siltation and sedimentation as a result of the construction phase of this project. However, the contractors will be responsible for the prevention of erosion within the construction areas. Mitigation measures, including the use of Best Management Practices (BMPs), would be employed to prevent soil erosion and sediment runoff. TPWD identifies BMPs and other recommendations for construction of underground pipelines. Example of such BMPs include the following:

- The use of rip-rap in drainage areas to slow runoff and allow sediments to settle out;
- sodding, hydroseeding and/or use of loose hay to increase the effectiveness of re-vegetative efforts;
- scheduling line construction for suitable weather and provisions for the cessation of construction during unsuitable weather;
- salvaging and replacing topsoil if necessary; and
- only grading embankments with a slope factor of 4:1 or less.

Significant amounts of trenching and tunneling will be required to install the linework associated with this project. A certain degree of temporary siltation of area watercourses would be expected from the trenching. Mitigative measures include the BMPs previously discussed. Restricting the placement of heavy construction equipment to the areas around, and not in, streambeds will also minimize the impacts.

Pumping of water from Canyon Lake would also create turbulence that might upset the thermally stratified structure of the Lake, resulting in changes in concentrations of various water quality parameters. Thermal stratification has been documented in Canyon Lake from May to November and has been found to result in an overall improvement in water quality with respect to eight parameters (bicarbonate alkalinity, turbidity, total dissolved solids, dissolved organic solids, dissolved inorganic solids, nitrogen as nitrate, total nitrogen, and total organic phosphate) and an overall deterioration of water quality with respect to hydrogen sulfide and ammonia nitrogen (Young 1971). These changes in water quality, both beneficial and negative, might be eliminated in the vicinity of the pump stations as the thermal stratification is upset by pumping. These effects would be localized, however, and would impact only a small portion of the Lake. Furthermore, the resulting water quality in these areas would be the same as that between November and May, when no thermal stratification is present. Overall, the impacts on water quality from pumping-related changes in the thermal structure of Canyon Lake would be insignificant.

Natural drainage patterns along line routes will not be permanently altered because the water lines will exist approximately 15 to 20 ft below the surface of the subject areas. Drainage patterns in areas where above ground facilities (water treatment plants and pumping stations) are proposed would be permanently altered. Measures to mitigate these drainage problems, such as stormwater collection systems or drainage culverts, will be implemented in these areas.

It is estimated that the project, once completed, will divert between 10,000 and 18,000 acre-ft of water per year. This volume of water would no longer be available for downstream users of

the Guadalupe River. However, the GBRA, which is responsible for the allocation of surface water resources within the Guadalupe and Blanco River watersheds, has not yet allocated all of the water budget for Canyon Lake. The water obtained by CLWSC under the proposed action would come from the unallocated portion of the available supply. Thus, the proposed action would not reduce the amount of downstream flow, which has already been allocated by GBRA. There would therefore be no significant impacts on the Guadalupe River downstream from Canyon Dam.

## Permitting Requirements

As this project will disturb more than 5 acres, CLWSC will be required to comply with the U.S. Environmental Protection Agency's (EPA) National Pollutant Discharge Elimination System - General Permit for Industrial Activity. Requirements for this process include filing a Notice of Intent (NOI) with the EPA, which states the type of proposed project and construction activities associated with project. CLWSC will also be required to develop a comprehensive Stormwater Pollutant Prevention Plan (SWPPP) which details the potential for disturbance and BMPs. The SWPPP is required to be maintained on site during the construction phase of the project. When the construction phase is completed, CLWSC will also be required to file a Notice of Completion with the EPA.

Consultation with the ACE concerning a need for a Section 404/Section 10 permit will occur when this draft document is prepared and if deemed necessary after this review.

## 4.1.1.2 Biological Resources

Loss of vegetation along water lines in the ROWs is expected. These losses are expected to be temporary. The contractor will be required to restore vegetation to its pre-construction status or to the fullest extent feasible, when construction is completed. Loss or injury to trees will be alleviated by use of protective fences or wooden slats.

Impacts to the areas where above ground facilities, such as pumping stations and treatment plants, are planned include a permanent loss of all vegetation, including trees, forbs and grasses. However, this loss would be expected to only occur in the immediate area where these facilities are placed; surrounding areas would not be affected. Vegetative clearing will occur only as necessary for the authorized construction of the proposed facilities. No clearing will occur in any areas protected by federal, state or local regulations.

## Effects on Aquatic Species

The proposed project will not increase the amount of effluent discharged by the various wastewater treatment plant operations occurring throughout the county. The intake points would be submerged at depths of 25 to 30 ft; as such, bottom-feeding waterfowl would not be affected. The intake(s) would also be screened to prevent fish from entering or being pulled into the pumping mechanism. The noise levels of the pumping system would be low and would be expected to dissipate within a short distance of the pump stations. Overall, this proposed project is not expected to have a significant direct impact on the aquatic life of Canyon Lake.

## Effects on Wildlife

No significant effects on wildlife are expected as result of this project. Some clearing of vegetation would be required under each alternative source and route. The easements would be expected to support limited habitat in the form of small native shrubs and grasses. These native shrubs and grasses would be encouraged to grow on the ROW areas.

Wildlife habitat that occurs within the area identified for the above ground structures would be lost as a result of the existence of those structures. The area of the water treatment plant at the intersection of FM 2673 with FM 3159 in Startzville is surrounded by development and has been partially cleared, and as such is low-quality habitat. The location of the water treatment plant that would be constructed under the preferred alternative (adjacent to the Canyon Lake Shores

subdivision, across the lake from Crane's Mill Park) has largely been cleared of native vegetation and includes a paved road and vehicular traffic from recreational users of the lake, making it also low-quality habitat. All linework would be installed in existing ROW areas and would thus require no clearing of native vegetation. Additionally, only a small fraction of the existing resources for wildlife habitat will be impacted.

## Threatened or Endangered Species

Threatened and endangered species or their habitats are not expected to be impacted by this project. As previously noted, the locations of the proposed water treatment plants have been cleared previously and do not appear to exhibit the types of habitat preferred by the golden-cheeked warbler, the black-capped vireo, or other endangered species. The proposed line routes would be installed in existing easements and ROWs and would not require clearing of vegetation; nevertheless, proposed linework plans will be reviewed by TPWD personnel to determine if threatened or endangered plant species or species habitat are present and likely to be impacted. If such resources are identified, appropriate protective measures may need to be taken. These measures include additional survey work or re-routing the line work to avoid the immediate area, or other management measures as deemed appropriate on a case-by-case basis.

#### 4.1.1.3 Historical, Cultural, and Archeological Resources

Coordination with the State Historic Preservation Officer (SHPO) and appropriate TWDB personal will be a necessary portion of this review. This area may contain sites of significant cultural value. Mitigation measures would depend on the comments made by SHPO and TWDB.

## 4.1.1.4 Air Resources

Increase in airborne dust would be excepted to occur during construction, primarily along the existing roadway. Efforts to reduce dust, including watering of the contributing areas, would be required by OSHA construction requirements as part of the construction phase operations.

Odors would not be expected directly from the proposed line work, although some highly localized odors might result from exhaust emissions from heavy equipment during construction; such odors would be expected to dissipate quickly and are not considered a significant adverse impact. No impacts to air resources from sludge incineration will occur as a result of the proposed project as solids generated by water treatment processes will be deposited in an approved landfill.

## 4.1.1.5 Noise

The increase in noise associated with the construction phase would be expected to adversely impact the residences and wildlife of the area. The impacts would most likely be temporary and wildlife would be expected to return to the subject areas after completion of the construction phase. Measures to reduce noise to levels acceptable to humans will be required as part of the construction phase operations and would be in compliance with OSHA standards. Such efforts include the use of mufflers on construction machinery and limiting construction activities to normal daylight working hours. Blasting is not expected to be necessary to complete this proposed project, as excavation will be performed primarily with a backhoe. Increases in noise levels that would be expected as a result of the completed project will be limited to the noise associated with the water treatment plants and pumping stations. Noise-generating machinery at the water treatment plants would be housed within permanent structures, which would eliminate noise impacts. Pumping equipment at the pumping stations would be submerged. Submersible pumps generate very little noise; such noise that is generated is a quiet hum, to

which fish and other aquatic species would quickly acclimate. Overall, noise impacts are not be expected to be significant.

## 4.1.2 Floodplains

Floodplain maps are included in Appendix A of this environmental assessment. Examination of the floodplain maps indicates that installation of water lines will take place within 100-year floodplains; however, construction of the water treatment plants and other facilities will not. The line installation will occur in existing road ROWs. Because the only construction in floodplain areas would be that of subsurface water lines, not impact existing surface features. To minimize effects of erosion from trenching associated with line work, standard erosion control measures (i.e., silt fences, barricades, revegetation) will be employed during construction. Mitigation measures include preparation of and adherence to a floodplain management notice (provided in Appendix B).

## 4.1.3 Social Resources

#### 4.1.3.1 Safety Provisions

Traffic disruption would be limited to the areas under construction. Because most of the proposed linework will likely occur in the road ROWs, significant localized traffic disruption would be expected to occur. Alternative detours and associated safety provisions (including signs, lights, barricades, flagmen, etc.) will be required as part of the construction phase operations. Night work is not expected to occur for this project. Additionally, construction areas will be closed as soon as possible, and pedestrian/residential walkways will be constructed as necessary. Machinery, supplies, and open trenches will be fenced in and securely locked to prevent accidental or unauthorized access during construction activities.

## 4.1.3.2 Recreational Areas and Preserves

No significant long-term impacts on the recreational quality of Canyon Lake would result from the project. The pumping station in Comal Park would not be visible from most of the waterfront area or any of the picnic or parking areas of the park. Construction of a water treatment plant on the shoreline in the Canyon Lake Shores subdivision on the north side of the lake would result in the loss of some waterfront area that might be used for recreation; however, similar areas nearby would be unaffected. The large number of parks established by the ACE around the lake would also be more than sufficient to accommodate recreational shoreline users displaced by the plant. No boat ramps would be displaced by the proposed project. Although the immediate areas around the submerged intake points would no longer be available for scuba diving, they represent a virtually negligible proportion of the lake area still available for this use. The recreational trout fishery in the Guadalupe River downstream of Canyon Dam would be unaffected because, as previously noted, the quantity of water allocated by GBRA for downstream use would remain unchanged.

# 4.1.3.3 Scenic Views

Scenic views in the study area would be expected to be impacted as a result of the construction phase of the project. However, such impacts are expected to be temporary and measures will be made to reduce permanent impacts related to construction. Such measures include protection of trees immediately outside project areas with fences and wooden slats. As noted above, the pumping station in Comal Park would not be visible from most of the waterfront area or any of the picnic or parking areas of the park.

## 4.1.4 Economic Resources

# 4.1.4.1 Property Values

The county will purchase easements and property from property owners in the area, in accordance with the Uniform Relocation and Assistance Act of 1970. No homes or businesses are expected to be relocated as a result of this proposed project. All efforts will be made to provide for a fair and equitable market price for those property resources that will be permanently dedicated to the structural requirements of the proposed project.

Efforts will be made to avoid removing existing structures and/or placing water lines under or near them. No facilities would be expected to be abandoned for this project.

## 4.1.4.2 Land Use

Land use within the study area will not be expected to be negatively impacted by the construction phase of this proposed project. Some land use might be slightly impacted by the use of line work easements along roadway ROWs. However, permanent effects on private property will be kept to a minimum.

# 4.1.4.3 Public Services

No primary impacts to public services due to the construction phase of the proposed project were identified, other than the obvious benefit of improved water quality and availability to the subdivisions serviced by CLWSC. The use of the county landfill would not be expected to increase, but could potentially decrease, as a primary result of this project. This potential beneficial impact may result because, while there is no net change in the volume of water being provided by CLWSC, the quality of the raw water is higher, potentially resulting in a reduction in volume of solids generated by the water treatment process.

#### 4.1.4.4 Utilities

All of the study areas are currently serviced by above-ground utilities for electricity, as well as for telephone service, provided by GVTC. Construction activities are not expected to impact these utilities; however, some service disruption may occur as an accidental result of these construction activities. Any disruption in service will be immediately reported to the appropriate authorities and every effort will be made to return service in a reasonable time period.

Additional utilities include water lines that are owned and operated by CLWSC and other local water supply corporations. These water lines will be upgraded with larger systems to handle the increase in water resource required by the sewer systems. Again, every effort will be made to ensure that water service is not interrupted for any excessive (longer than 48 hours) period of time.

#### 4.1.4.5 Workforce Resources

Economic resources that would be expected to be impacted as a direct result of the construction phase of this project include an increase in the need for a specialized and non-specialized workforce and a subsequent increase in local spending during the construction phase. Indirect impacts of construction on economic resources would include a need for raw materials, construction equipment and safety related equipment.

#### 4.2 SECONDARY IMPACTS

As previously mentioned, secondary impacts are those that may occur as an indirect result of the presence of the proposed project on the environmental, social, and economic resources of the study areas. Mitigation measures to these impacts are also addressed within this section.

#### 4.2.1 Environmental Resources

#### 4.2.1.1 Hydrological Resources

Slight decreases in surface water quality would be expected with the increases in population that might result from improved water systems in the subject areas. These decreases in surface water quality would mostly be from increases in trash, lawn chemicals, and other pollutants being deposited in the surface water ways either by direct dumping, wind action or stormwater runoff. Indirect effects of increased population growth facilitated by the project include increased generation of domestic wastewater (mitigated by proper maintenance, adherence to permitting requirements, and additional construction (as necessary) at area wastewater treatment facilities) and increased runoff and other non-point source pollution (mitigated by proper erosion control measures during construction and installation and maintenance of earthen channels and ditches).

# 4.2.1.2 Biological Resources

Indirect impacts on biological resources are associated with the potential for population growth and development resulting from improvements to water systems. A greater human presence and the accompanying increases in traffic, noise, etc. might adversely impact some wildlife populations within specific areas. The proposed project would likely facilitate, but would not directly cause, significant growth in the Canyon Lake area. Adverse impacts on wildlife can be mitigated by enforcement of resource protection regulations and continued assessment and serious consideration of the consequences of development on wildlife.

## 4.2.1.3 Historical, Cultural, and Archeological Resources

The presence of the water improvements may impact the historical, cultural and archeological resources of the study area. However, mitigation measures proposed by SHPO and TWDB may lessen these impacts. General increases in the development of the study area may indirectly

result in impacts to these resources as agricultural and marginal lands are converted to residential use.

## 4.2.1.4 Air Resources

Indirect secondary impacts to air resources include decreases in air quality. These slight decreases in air quality would be expected with increases in population density and an increase in automobile traffic. These impacts are not expected to be significant.

## 4.2.1.4 Noise Levels

Indirect increases in noise levels associated with increases in the population of the subject areas may occur. These indirect increases are not expected to be significant.

## 4.2.2 Floodplains

Comal County presently participates in the National Flood Insurance Program and any associated aspect of this project would conform to these guidelines. Secondary impacts on floodplains may include an increase in the development of floodplain areas due to an improved local water supply. Measures to reduce this development will include sizing of water lines to limit development of these areas and floodplain insurance requirements for potentially developed areas.

#### 4.2.3 Social Resources

#### 4.2.3.1 Safety Provisions

The secondary impacts of the existence of the proposed project on the social resources would be linked to improvements in fire safety. Although the placement of fire hydrants along the water lines is not planned at present, the greater reliability of Canyon Lake as a water supply would eliminate the low pressure and limited availability of water periodically experienced in some of the affected subdivisions. The potential for these problems to impair firefighting ability would be greatly reduced by the proposed project.

#### 4.2.3.2 Recreational Areas and Preserves

The placement of improved sewer and water facilities at the Sabine River Authority park located in the Toledo Village study area would be expected to increase park use thus increasing potential impacts to the Toledo Bend Reservoir. Increased reliability of the local water supply could result in an increase in the housing demand within the project area, thus increasing the recreational demand on Canyon Lake, the Guadalupe River, and the numerous ACE parks surrounding the lake.

#### 4.2.3.3 Scenic Views

No secondary impacts resulting from this project are expected to occur to scenic views in the areas. Above ground improvements would be designed to blend with the natural environment.

## 4.2.4 Economic Resources

# 4.2.4.1 Property Values

In general, property within the study area and adjacent land values would be expected to increase as the land becomes more marketable due to the improved reliability of the water supply. Other secondary impacts would include an increase in the taxes paid by landowners within the study areas and further increases in property values in response to the increased demand for housing.

## 4.2.4.2 Land Use

As a result of this project, it would be expected that there would be an increase in the rate and density of the residential land use within the project areas. However, as previously mentioned, the project areas are already primarily residential.

# 4.2.4.3 Public Services

The proposed project would have the indirect effect of increases in demands for public services both in the subject areas and those areas near the subject areas due to increases in local populations. Indirect impacts on the county landfill would include an increase in the amount of solid waste generated as a result of the increase in growth in and around the study areas. These impacts, however, would not be expected to be significant.

## 4.2.4.4 Utilities

A significant increase in energy consumption would be expected as a direct result of this project in order to operate the pumping systems and water treatment plants. Additional impacts would include a need for trained personnel to operate these facilities. Increases in growth in and around the project area would be expected to create an increase in demand for certain utilities,

specifically electricity and telephone as well as additional water and wastewater connections to those immediately outside the study areas.

# 4.2.4.5 Workforce Resources

An increase in the need for trained workers to oversee operations at the proposed water treatment plants, as well as an increase in the number of maintenance personnel, has been identified as an impact to workforce resources due to the proposed project. However, this increase in personnel will not have a significant impact on workforce resources within the entire county.

# 5.0 BENEFICIARIES AND NON-BENEFICIARIES

This chapter provides a discussion of the beneficiaries and the non-beneficiaries that result in the implementation of the proposed project. This section also includes a summary of the general public's acceptability of the proposed project.

## 5.1 BENEFICIARIES

Beneficiaries are people or groups of people that would be expected to benefit from the implementation of the proposed project. Identified beneficiaries include those residents within the subdivisions served by CLWSC. Additionally, all the residents of Comal County would be expected to benefit from an increase in general revenues associated with increases in property values.

## 5.2 NON-BENEFICIARIES

Non-beneficiaries are people or groups of people who would not be expected to benefit or may be adversely impacted by implementation of the proposed project. Identified non-beneficiaries include those residents living outside of the project boundaries who might not be served by the proposed system but may be assessed higher property values due to the existence of the project. Additionally, those residences that exist in close proximity to the proposed water treatment areas may be negatively affected with reduced aesthetic value. Other non-beneficiaries would include those people within the study areas that do not want the proposed improvements, but are required to accept the impacts of the improvements.

## 5.3 PUBLIC ACCEPTABILITY

To date, there has not been any public opposition to the environmental impacts of this project; public concerns have primarily involved economic issues. This draft environmental assessment

# Environmental Assessment for Canyon Lake Water Supply Corp. Water Plan (Draft)

will be available for general review and a public comment period will occur. Comments obtained from this review period will be addressed in the final document.

# 6.0 ADVERSE IMPACTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSAL BE IMPLEMENTED

Most of the direct impacts which cannot be avoided, should the proposal be implemented, would be associated with the construction of the above ground facilities. These impacts include both primary impacts, associated with the construction phase of the project and the secondary impacts, associated with the presence of the project on the environment. Indirect impacts would be associated with the increase in the growth of the project areas as a result of the project.

The temporary impacts of implementing the proposed project, including destruction of vegetation and an increase in erosion, siltation and sedimentation in ditches and channels, are discussed in detail in Chapter 4.0. However, as previously mentioned, the contractor would be required to restore the impacted areas to the pre-construction status or to the fullest extent possible. The long term impacts associated with the proposed project include loss of tree habitat along some segments of the water line routes and in areas of the above ground facilities.

Indirect impacts are discussed in Section 4.2 of this report and are linked to an increase in the growth of the affected areas. These impacts include a decrease in the immediate air quality, a loss of agricultural land to residential and commercial uses, and increased demand for county services.

## 7.0 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The main objective of this project is to provide a reliable source of potable water to Comal County residents served by CLWSC. An additional goal is to provide for continued and planned growth for the project area communities. Achieving these goals will a require loss of certain types of habitat and, in the future, possible conversion of agricultural uses of land (ranch land) to residential and/or commercial uses.

The tradeoff between the existing water supply system and the proposed plan will result in a benefit for the current and future residents and the community in general. The current water supply system in this area is prone to exceedances of drinking water quality criteria for sulfate, chloride, fluoride, nitrate, iron, and manganese, as well as low water pressure during times of peak demand. These problems pose risks to public health and safety in the form of intake of excess quantities of the noted constituents and the potential for lack of sufficient water for firefighting.

The proposed project will benefit the current and future residents of the subject areas as they will no longer have to contend with the inconvenience of an unreliable water supply. Additionally, communities in the project area will benefit by the lower public health risks associated with the elimination of periodic exceedances of TNRCC drinking water standards, continuous availability of sufficient water pressure for firefighting, and increased income from higher property valuations.

# 8.0 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES TO THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

#### 8.1 CURTAILMENT OF FUTURE LAND AND WATER USES

The range of future land uses would be narrowed due to the expected increases in growth as a result of these changes. Agricultural land (including ranch land) would be expected to slowly yield to residential and/or commercial uses as the property values in and around these subject areas increase.

The range of future uses for water resources would be expected to be only slightly limited by the impact of increased development in and around the subject areas. This impact could be in the form of increased erosion due to higher and faster streamflow during storm events. This increase in streamflow would occur as a result of increases in non-permeable areas associated with the increased development (i.e., roads, houses, etc).

#### 8.2 IRRETRIEVABLE AND SIGNIFICANT COMMITMENTS OF RESOURCES

The irreversible environmental damage occurring as a result of this project will be minimized by proper construction guidelines and management of the water line easements. The risks associated with the construction activities will be minimized by following strict safety plans. The existence of this project will be a benefit to the residents and the community in general and will outweigh the risks associated with the minimal environmental damage and possibilities of construction accidents.

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APPENDIX A

Maps

### APPENDIX B

**Agency Correspondence** 

### Environmental Assessment for Canyon Lake Water Supply Corp. Water Plan (Draft)

APPENDIX C

**Survey Results** 

### Environmental Assessment for Canyon Lake Water Supply Corp. Water Plan (Draft)

### APPENDIX D

Floodplain Management Notice

### FLOODPLAIN MANAGEMENT NOTICE

## CANYON LAKE WATER SUPPLY CORPORATION REGIONAL WATER PLAN

## **Appendix A-Tabular Data**

					- Marie 1997						MAX	Projected
				Single Family	Multi- Family	Commercial	rcial	Other	Vacant	a	SUBDIV.	1996
Area No.	Subdivision Name	Lots	Acreage		1						POP.	Population
		* occup	* OCCUPANCY RATE	2.56	မှ	-		+	2.6	10		
A110	Honey Creek Ranches Subdivision	9	166	7							ιΩ	S
A110	Oak Springs Subdivision	8	152	<u>+</u>						ß	84	98
A110	Unplatted Acreage		11650 55	55							336	141
A110	New Development										10000	133
SURTOTALS		26	11968	71	•		0		0	w	389	315
A120	Rartels Acres	-	9	•						-	S	ო
A120	Knihbe Subdivision	-	17.1								က	က
4120	Comal Panch Subdivision	-		· 10;							13	13
2.50	Collial Nation Colorado		5533	33							199	2
A120	Orphatted Acreage		, 7700	2							1000	133
ATZO	New Development	•	1433	\$	•		•		-	•	220	236
SUBICIALS		7	7017	3 3	•		•		•	- ç		797
A130	Cypress Springs on the Guadalupe	498	2401	\$						25.	124	<u></u>
A130	Guadalupe River Estates (Riverwood Estates)	156	467	8						<b>8</b>	88	1/4
A130	Rivermont	723	621	ଛ					5	965	1741	79
A130	Spring Branch Estates 1	93	135	8						₽	202	97
A130	Unplatted Acreade		774 20	20							121	51
A130	New Development										10000	133
SIATOTALS		1470	4398	220	0		0		7	1224	3695	565
A140	Ahern Creek Ranches	12	753	S							13	13
A140	Benke Cake	-	2	_							က	ო
4140	Diamond D. Subdivision		27	•							ო	က
4 4	Dillard Subdivision		; <del>4</del>								S	ĸ
4 4	Circles Consistent	7 7	2 2 8	1 1						G	92	4
2 5	This and Details	7 6	7 4 4	<u> </u>						α	9	45
A140	Fiying "K" Kancin	<b>₹</b> `	Ŗ °	• •						י כ	3 \$	} "
A140	Lange Ranch Subdivision	4	mo <u>(</u>	- '						2	2 9	ນ ຢູ
A140	Little Creek	4	<del>.</del> 5	4						;	2 ;	2 ;
A140	Oakland Estates		62	82						₹	310	210
A140	Singer Ranch	-	4				_			:	- ;	<b>-</b> :
A140	Spring Branch Acres	9	115	43						4	220	110
A140	The Woods at Spring Branch	<b>₹</b>	2							17	101	20
A140	Unplatted Acreage		3999 27	27							165	69
A140	New Development										10000	133
SUBTOTALS	-	314	5736	223	0	_	-		•	118	963	902
A150	Creekwood Ranches	22		2						164	289	179
A150	Gutierrez Ranch	_	3							-	က	0
A150	Ridoeview Oaks East	36	53	19						16	89	49
A150	Ridoeview Oaks West	5	249	75			7			23	249	194
A150	Sun Vallev Village	113	405	83			7			27	282	214
A150	Whispering Hills	552	921	73						<b>45</b>	1322	187
¥15	Lindathed Acreage			40							243	102
8 5	New Development			2							10000	133
ATOTOTO		4060	9638	360	<	_	4		c	684	2777	1,058
SUBTOTALS		2		2	,		٢		•		: i	1

Area No.	Subdivision Name	Lots	Acreage	Single Family	Mutti- Family	Commercial	Other	Vacant	MAN SUBD POP	Project 198 Popult	p 5
AREA TOTAL		2872	37859	914	0	9	2	2032	2 8044		2,880
A210	Crouse Subdivision	-	O	2						5	2
A210	Dresden Wood 1	31	3	17				•	15 8	81	4
A210	North Barcroft Estates	13	33	S							13
A210	Sage Oaks	57	261	2				e	35 141		3
A210	Silver Hills	239	365	88				12			228
A210	Unplatted Acreage		7160 3	36					219		35
A210	New Development	,		ļ	•		•	!	-		11
SUBTOTALS		341	7888	170	0	•	0	180	2		<b>7</b> 8
A220	Brand Ranch	္က (	464 464	÷ '				- 1	5.	38	8 9
AZZ0	Indian Creek Ridge	₹ 7	<b>4</b> 5	~ *				-		, c	<u> </u>
A220	Jamisen Kanch I	- 85	<u> </u>	- 67		0		Œ	69 346		174
A220	Persimmon Hill Sub	3 %	277	7		ı		, 4			5
A220	Shepherds Ranch	118	577	. <del>.</del>				(0)			æ
A220	Wehe Estates	6	131	ო						13	80
A220	Unplatted Acreage			32					196		82
A220	New Development			•					-		111
SUBTOTALS		348	6961	169	•	2	0	229	•		<b>6</b> 21
A230	Bulverde Estates 1	361	822	135	_		-	23			333
A230	Bulverde Hills 3	8	586	21				(O)			<u>स</u> ्
A230	Buiverde Oaks 1	64	72	15				CN.	•		۳ ا
A230	Bulverde Ranchettes	76	153	2			•	_	=	g •	ი •
A230	Cox Subdivision	7	8	•			<del></del>			- <u>ı</u>	- 8
A230	Elm Valley	92.	556	გ ,		•		ч	41 195 E	ប្រ	26 u
A230	Hogan 281 Subdivision	4 -	ર્સ ફ	<b>-</b> (		7			,	0 "	ט ע
A230	Licata Kanch Leadaran Subdivision	<b>寸</b> ←	3 4	7 -					- ว	o m	) m
A230	Luingreil Subdivision Paimer Heidhts	- <b>ເ</b> ດ	4	- KO					4	, K	. 5
A230	Spring Oak Estates	317	343	127		2		45	_		327
A230	The Highlands	4	120	-				(F)	108	82	28
A230	Travel Mart Subdivision	-	-			_				-	<b>-</b>
A230	Unplatted Acreage		3849	31					188		62 ;
A230	New Development								-		
SUBTOTALS		1030	6672	417	•	_	2	536	~1	<b>-</b> -	1,192
A240	Ammann Oaks Sub	8	323	96 9				IN .			3 ;
A240	Hidden Oaks	4	345	37				4		2 -	ያ '
A240	Klar Ranch	-	9	_						m	ro 1
A240	Saur Subdivision	7	9	-					7	oo j	ლ ļ
A240	Unplatted Acreage		2808	30					183		× :
A240	New Development	160	24.45	8	<b>-</b>	-	G	٠	66 548		- 688
200000		<u> </u>	?	?	•	,	1	ı			, ,

Area No.	Subdivision Name	5		Single Family	Multi- Family	Correctal	Other	Vacant	MAX SUBDIV.	Projected 1996 Population
A250	Bulverde Gardens	R	38 5						13	13
A250	Bulverde Ranches	8	<del>1</del> 5	2			-	00	75	83
A250	Canyon View Acres	237	471	155		S		4	512	405
A250	Lindsey Acres	-	20 1						ო	ဗ
A250	Unplatted Acreage		3595 22						134	82
A250	New Development								10000	111
SUBTOTALS		292	4278	204	•	40	-	52	737	640
A260	Cibolo One Subdivision	φ	16 1						က	က
A260	Cibolo Two Subdivision	-	7.1						60	ო
A260	Unplatted Acreage		1682 8						84	20
A260	New Development								10000	111
SUBTOTALS		7	1705	5	0	0	0	0	2	137
AREA TOTAL		2178	34019	1068	_	5	n	1063	8269	3,426
A310	Charles Cantu Subdivision	2	130	-					ო	ю
A310	Herbert M Gruen	-	34.						m	က
A310	John Hall Subdivision	-	36 1						က	ဗ
A310	Stoney Cliff	-	4	-					က	ო
A310	Stoney Ridge	36	215	17				19	91	4
A310	Unplatted Acreage		4619 23	-					4	69
A310	New Development								10000	333
SUBTOTALS		7	5038	\$	•	•	0	19	243	448
A320	Beam Subdivision	9	52	9				5	78	15
A320	Beck Ranch	8	089	23				54	166	29
A320	Cross Roads Estates Phase 1	15	89			-	-	13	35	2
A320	Forrest Wilson Subdivision	-	28 1						က	က
A320	Kappelman Subdivision	Ξ	52 1						က	ო
A320	McGuffin Subdivision	7	22					Ψ-	m	0
A320	Misty Hills	4	267	27				18	8	22
A320	Oak Village North	830	382	510			က	263	1966	1,309
A320	Skyridge Subdivision	74	8	13				20	181	83
A320	Smokey Mountain Ranch	16	84	ဖ				O)	88	15
A320	Stoney Creek	109	982	84				8	273	123
A320	Twin Creek Subdivision	1	228	. 37				1	122	95
A320	Wilson Subdivision	17	4	-					က	ო
A320	Unplatted Acreage		6512 48						292	123
A320	New Development								10000	333
SUBTOTALS		1225	10322	715	0	-	4	482	3212	2,170
AREA TOTAL		1266	15360	769	0	<b>~</b>	₹	501	3455	2,618
AREA A TOTAL	TAL	6316	87238	2741	1	19	6	3596	17477	8,924
		OCCUPA	OCCUPANCY RATE	1.69	40	-	-	2.5		

Dick Horn Ranch   Continued of the State   C	Martin Rational Cross Rational Control Contr	2	Supplied in the supplied in th		Single	ile Multi- Ily Family	Commercial		Octue Octue	Vacant	SUBDIV.	Projected 1996
Perch Antimication   22	OTALS         With Explanation         27         68         2           Heritage Outs         Conflict Carporn         25         68         2           Conflict Carporn         32         3823         16         0         0         0         0           Conflict Carporn         62         38         14         37         1         1         68         189           Carporn Dam Stale 1         25         39         14         37         1         6         1         100           Camyon Dam Stale 1         25         39         14         37         1         6         1         1           Camyon Dam Stale 1         26         39         14         37         1         6         1         1           Camyon Dam Stale 1         30         4         4         4         4         4         1 <td>Alea NO.</td> <td>Duck Low Dansk</td> <td>100</td> <td>ACIECUJE  </td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td>7</td> <td>- Company</td>	Alea NO.	Duck Low Dansk	100	ACIECUJE	-					7	- Company
Unpatied Acresing Contact	Deep Acree Englace States	<b>-</b>	Buck Hom Kanch	2 8	<u>~</u> 6	<b>v</b> (					י כ	
OTALS         Confidence of carryon         Case of carryo	OTALS         Vigoration of Control Co	<b>-</b>	Hentage Caks	7	2079 44	7					υĄ	υē
OTALS         Cardillac Caryon         22         3083         16         0         0           Cardillac Caryon Creek Estates         23         34         4         37         1         1           Canyon Creek Estates         25         9         4         7         34         6           Canyon Valley Estates         1         26         9         4         7         7           Canyon Valley Estates         50         24         7         34         6         7           Cougar Rigides         50         21         6         7         34         6         7           Devils Backborne Heights         524         327         13         2         1           Engles Peak Ranch Heights         254         327         13         2         1           Fraild's Subdivision         11         1 <td>OTAID         Confiled Carpoint         22         3082         16         0         0         0         6         51           Candina Carpoint         Candina Carpoint         22         34         43         1         1         6         6         178           Campon Cheek Esistles         22         34         44         43         44         1         1         13         45           Campon Cheek Esistles         24         32         24         44         41         103         45         17         13         45         173         45         17         13         46         17         13         46         17         13         47         13         47         13         47         14         10         47         13         47         14         10         47         14         10         47         14         10         10         44         11         103         10         44         11         103         10         44         11         103         10         10         44         11         103         10         44         11         103         10         44         11         103         1</td> <td><b>,</b></td> <td>Oripialied Acreage New Development</td> <td></td> <td>71 0167</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>3 5</td> <td><u> </u></td>	OTAID         Confiled Carpoint         22         3082         16         0         0         0         6         51           Candina Carpoint         Candina Carpoint         22         34         43         1         1         6         6         178           Campon Cheek Esistles         22         34         44         43         44         1         1         13         45           Campon Cheek Esistles         24         32         24         44         41         103         45         17         13         45         173         45         17         13         46         17         13         46         17         13         47         13         47         13         47         14         10         47         13         47         14         10         47         14         10         47         14         10         10         44         11         103         10         44         11         103         10         44         11         103         10         10         44         11         103         10         44         11         103         10         44         11         103         1	<b>,</b>	Oripialied Acreage New Development		71 0167						3 5	<u> </u>
Cadillac Carryon  Cadillac Carryon  Carryon Davi Hilster  Carryon	Cardiale Carpora         88         14         37         1         48         189           Caryor Dan Hillste         22         38         14         37         1         48         189           Caryor Dan Hillste         24         3         6         4         7         11         15         37           Caryor Dan Hillste         25         4         6         7         1         1         48         18           Caryor Dan Hillste         36         1         34         6         7         1         1         15<	BTOTALS		32	3083	55	0	0	0	0	5.	4
Canyon Creek Estates 82 38 14  Canyon Creek Estates 14 9 6  Canyon Creek Estates 17 34 6  Canyon Order Estates 17 34 6  Canyon Creek Estates 14 9 4 7  Clear Warfer Estates 2 49 42 11 13  Devis Backone Heights 25 24 1 1 13  Ermend Valler States 3 24 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Caryon Coneder Estletes         62         38         14         6         179	0	Cadillac Canvon	8	4	37		· <del></del>	·	84	189	69
Canyon Dam Hillste         14         9         6           Canyon Dam Hillste         14         9         6           Canyon Dam Hillste         7         34         7           Canyon Nation Estates         49         4         7           Canyon Nation Estates         59         24         1           Cougar Ristes Estates         57         12         19         2           Deep Acree Estates         77         12         19         2           Deep Acree Estates         340         674         25         1           Frailet Subdivision         12         20         1         1           Frailet Subdivision         12         17         1         1           Glen Roy         61         25         26         1         1           Horseshoe Falles         94         77         8         1         1           Horseshoe Falles         94         77         8         1         1           North Ridge Estates         94         77         8         1         1           River's Estates         94         9         99         13         1           River's Estates         <	Caryon Valley Estates 1         14         9         6         7         10         35           Caryon Valley Estates 1         26         9         6         7         11         149           Caryon Valley Estates 1         449         42         24         1         1         149           Couplan Valley Estates 2         73         42         24         1         41         1689           Couplan Valley Estates 2         73         42         13         2         48         14           Devils Backlone Heights 2 back franch         340         577         13         1         41         18	. 0	Canyon Creek Estates	82	88	4				62	179	24
Caryon Dam Sub 1         26         9         4         7           Caryon Valley Estates 1         7         34         6         7           Coart Waley Estates 2         73         420         24         1           Cougat Waley Estates 2         73         422         19         2           Devis Backtone Heights         73         422         19         2           Devis Backtone Heights         294         327         13         1           Frailex Speak Ranch         30         674         25         1           Frailex Speak Ranch         12         17         1         1           Frailex Subdivision         30         674         25         1           Hilcreaf Estates         97         146         17         1           Harricopa Ranch         97         146         17         1           North Lake Estates         94         9         69         1           North Ridge Estates         94         9         69         1           North Ridge Estates         94         9         69         1           North Ridge Estates         95         10         1           North Ridge E	Caryon Dan Sub 1         2         4         4         7         13         46           Caryon Valley Estates 1         7         34         42         24         1         1         110         160           Clear Water Estates 2         53         22         6         7         1         110         160           Deep Acres Estates 2         13         2         13         2         43         142         10           Deep Acres Estates 2         13         2         13         2         43         142         10           Engliss Peak Ranch 204         24         25         13         2         44         10	2	Canyon Dam Hillsite	4	O	9				10	33	10
Carton Valley Estates 1	Caract Vider Estates         49         24         6         1         113         168           Couger Nider Estates         59         21         64         1         411         108           Couger Nider Estates         73         12         13         2         43         142           Deep Asset Ranch         156         121         13         2         43         142           Deep Asset Ranch         156         121         13         2         43         142           Deep Asset Ranch         156         121         13         2         42         6           Eagles Park Ranch         15         12         13         1         2         43         142           Galm Roy         12         14         1         1         1         1         2         143         142         142         142         142         142         143         142         143         142         143         142         143         142         144         17         14         141         144         17         144         17         14         144         17         14         144         144         144         144	9	Canyon Dam Sub 1	56	o	4		7		13	46	14
Clear Water Estates         449         432         24         1           Cougar Ridge         59         21         6         2           Deep Acres Estates         73         42         19         2           Deep Acres Estates         73         42         19         2           Enterald Valley Subdivision         340         674         25         1           Failor Subdivision         340         674         25         1           Failor Subdivision         340         674         25         1           Hillcrest Estates         97         146         17         1           Horseshormer Fall Subdivision         90         59         26         1           Morth Lake Estates         94         77         8         1           North Restates         94         77         8         1           Riverside Estates         94         77         8         1           Ri	Clear Water Estites         549         412         24         41         1068           Couldar Rickie         59         42         19         2         41         1068           Deep Acres Estates 2         15         12         13         2         43         142           Deep Acres Estates 2         15         12         13         2         43         142           Financk Subdivision         294         57         13         1         223         354           Financk Subdivision         30         12         20         1         1         22         4           Financk Subdivision         30         12         20         1         1         22         4           Financk Subdivision         30         12         20         1         1         22         4           Horesched Falles         94         77         8         1         1         35         142           North Lake Estates         94         77         8         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1	۶.	Canyon Valley Estates 1	7	¥	9				-	13	10
Cougar Ridge         59         21         6           Cougar Ridge         59         21         6           Deep Acree Estates         73         13         2           Devils Backborne Hights         224         377         13         2           Enterated Valley Subclivision         340         674         25         1         1           Frailck Subclivision         12         20         1         1         1         1           Hillcrest Estates         97         146         17         1         2         1         1	Coding Riskles         59         21         6         20         4         30           Coding Riskles         156         127         13         13         142         13         22         43         134         142           Eagles Peackbone Heights         156         127         13         13         1         1         1         1         1         1         20         1         20         1         20         1         20         1         20         1         20 <td>. Q</td> <td>Clear Water Estates</td> <td>44</td> <td>432</td> <td>24</td> <td></td> <td>τ-</td> <td></td> <td>411</td> <td>1069</td> <td>42</td>	. Q	Clear Water Estates	44	432	24		τ-		411	1069	42
Deep Acree Estates 2	Deep Acres Estates         173         42         18         2         43         142           Eagles Peak Ranch Estates         254         327         13         2         43         34           Fraikch Subdivision         12         254         327         13         2         47         685           Fraikch Subdivision         12         20         1         1         685         1         685         24         444	Q	Cougar Ridge	26	21	9				∞	93	0
Emeral Valley Subdivision	December   Page   Pag	Q	Deep Acres Estates 2	73	42	19		7		43	142	8
Eggles Peak Ranch         294         327         13           Emerald Valley Subdivision         340         674         25         1           Frailch Subdivision         12         20         1         1           Geln Roy         12         20         17         1           Horseshoe Falls Subdivision         97         165         81         1           Horseshoe Falls Subdivision         90         59         26         1           Horseshoe Falls Subdivision         90         59         26         1           Marcopa Ranch         94         77         8         1           North Ridge Estates         94         77         8         1           Riverside Estates         94         77         8         1           North Ridge Estates         94         77         8         1           Riverside Estates         94         77         8         1           Riverside Estates         66         713         17         6           Spring Mountain         10         66         713         17         1           New Development         20         466         24         1         1	Experience of pages a peak Rancht         294         327         13         225         602           Fraitick Subdivision         10         674         25         1         247         665           Fraitick Subdivision         12         20         1         7         665         24           Hillcreat Estates         97         146         17         6         1         7         6         24           Hillcreat Estates         94         77         6         81         1         75         24           Hillcreat Estates         94         77         6         81         1         75         24           North Lake Estates         94         77         6         9         24         44 <td>0</td> <td>Devils Backbone Heights</td> <td>156</td> <td>121</td> <td>13</td> <td></td> <td></td> <td></td> <td>133</td> <td>354</td> <td>8</td>	0	Devils Backbone Heights	156	121	13				133	354	8
Emerald Valley Subdivision   340 674 25 1   1   1   1   1   1   1   1   1   1	Frace of Valley Subdivision         340         674         25         1         65           Graft No. Subdivision         1         1         1         1         1         6         2           Graft No. Subdivision         12         20         1         1         75         217           Hillerset Subdivision         90         59         26         1         32         24           Holl Robe Estates         94         77         8         1         32         125           North Robe Estates         94         77         8         7         8         1         32         125           North Robe Estates         94         77         8         7         8         173         17         1         32         173         17         1         1         32         173         17         1         1         32         173         17         1         1         120         178         142         18         142         1         1         120         178         142         1         1         120         178         14         1         1         1         1         1         1         1	0	Eagles Peak Ranch	294	327	13				232	602	22
Frailck Subdivision	Failets blocklyistion         1         1         1         1         1         2         24         24         444         27         34         34         444         34         34         444         444         34 <td>0</td> <td>Emerald Valley Subdivision</td> <td>340</td> <td>674</td> <td>52</td> <td>-</td> <td></td> <td></td> <td>247</td> <td>992</td> <td>47</td>	0	Emerald Valley Subdivision	340	674	52	-			247	992	47
Glen Roy	Hillingest Estates	0	Fralick Subdivision	•	1 1						7	2
Hillcreat Estates Hillcreat Estates Horseshoe Fails Subdivision Maricopa Ranch North Lake Estates North Lake Estates North Lake Estates North Ridge Estates Spring Mountain Unplatted Acreage North Ranch Spring Mountain North Ranch Nort	Hillcreat Estates         97         146         17         1         75         217           North Lake Estates         94         77         8         1         32         125           North Lake Estates         94         77         8         1         32         171           North Lake Estates         94         77         8         26         1         32         171           North Ridge Estates         66         61         28         6         20         78           Pfell Estates         66         61         28         7         8         142           River's Edge         7         13         17         1         4         1           Spring Mountain         66         713         17         1         4         1         4           New Development         2108         664         454         2         19         0         164         496           New Development         7         67         2         19         0         164         496         10         100           Pleasant View Estates         29         9         15         4         10         22         13<	_	Glen Roy	12	20	-				6	<b>5</b>	2
Horseshoe Falls Subdivision   105 81   Horseshoe Falls Subdivision   105 81   Horseshoe Falls Subdivision   90 59 26   1	Horseshoe Falls Subdivision         105         81         1         32         484           North Lake Estates         94         79         69         73         125           North Ridge Estates         94         120         69         73         171           North Ridge Estates         66         61         28         78         173           Riverside Estates         66         61         28         78         173           Riverside Estates         66         713         17         17         14         44           Riverside Estates         66         61         17         18         18         10         164         10         164         10         164         10         10         10         10         10         10         10         10 <td< td=""><td>_</td><td>Hillcrest Estates</td><td>26</td><td>146</td><td>17</td><td></td><td>-</td><td></td><td>75</td><td>217</td><td>ଛ</td></td<>	_	Hillcrest Estates	26	146	17		-		75	217	ଛ
Maricopa Ranch         90         59         26         1           North Lake Estates         94         77         8         1           North Lake Estates         94         9         69         6           Pfell Estates         6         6         61         28         6           River's Edge         66         61         28         6         6           River's Edge         66         61         28         6         6         713         17           Shiver's Edge         66         713         17         7         18         18         18         18         18         18         18         18         18         18         18         18         18         18         18	Maricope Ranch         90         59         26         1         32         125           North Lake Estates         94         77         8         171         6         32         171           North Ridge Estates         94         77         13         6         20         78           Pfeil Estates         66         61         28         78         142           Riverside Estates         66         713         17         17         17           Riverside Estates         66         713         17         17         17           Riverside Estates         66         713         17         17         17         17           Spring Mountain         20         78         64         2         19         645         150         100           Unplated Acreage         66         147         2         19         645         24         100         100           Repirazo Del Diablo         56         466         24         1         1         2         16         15         1         1         1         1         1         1         1         1         1         1         1         1	_	Horseshoe Falls Subdivision		501	<del>8</del>				139	484 484	137
North Lake Estates         94         77         8           North Ridge Estates         94         77         8           Prelit Estates         66         61         28           River's Edge         66         61         28           Riverside Estates         66         713         17           Spring Mountain         66         713         17           Unplatted Acreage         713         47         2         19           New Development         2108         6664         464         2         19         0           Espinazo Del Diablo         56         466         24         1         1         1           Meyers Mountain         7         87         2         4         4         4         4         4           Meyers Mountain         7         87         2         4         <	North Lake Estates         94         77         8         65         171           North Ridge Estates         94         77         8         171           Poil Estates         6         6         28         137           Poil Estates         6         6         1         28         142           River's Edge         6         6         1         28         142           River's Edge         6         713         17         1         4           Sprinker States         66         713         17         1         4           Sprinker Mountain         1         1         1         2         150           New Development         2108         6664         464         2         19         0         1645         496           New Development         383         456         24         1         1         286         964           Espinazo Dei Diablo         56         466         24         1         1         2         1645         1645           Bespirazo Dei Diablo         56         466         24         2         1         1         1         1         1         1 <td< td=""><td>_</td><td>Maricopa Ranch</td><td><b>6</b></td><td>20</td><td>56</td><td></td><td>-</td><td></td><td>32</td><td>125</td><td><del>5</del></td></td<>	_	Maricopa Ranch	<b>6</b>	20	56		-		32	125	<del>5</del>
North Ridge Estates         94         9         69           Pfeil Estates         6         120         13         6           Riverside Estates         66         713         17         6           Riverside Estates         66         713         17         6           Spring Mountain         66         713         17         19         0           New Development         2108         6664         464         2         19         0           New Development         383         456         147         1         1           Repirazo Del Diablo         56         466         24         1         1           Meyers Mountain         7         87         2         4         4           Meyers Mountain         9         6         5         4         4           Meyers Mountain         9         6         5         4         4           Promis River Properties         29         9         15         4         4           The Summit         Unplatted Acreage         894         8287         253         0         6         6         6         9         172         2         24	North Ridge Estates         94         9         69         69         8         137           River's Edge         River's Edge         120         13         6         20         78           River's Edge         River's Edge         6         6         6         13         6         20         78           River's Edge         River's Edge         66         713         17         17         4         14         4           New Development         333         456         464         2         19         0         1645         4967           New Development         333         456         24         1         2         14         2         14         1000           New Development         56         466         24         2         14         2         14         2         16         96         96         15         16         96         96         16         96         96         16         13         13         1004         1004         1004         1004         1004         1004         1004         1004         1004         1004         1004         1004         1004         1004         1004         1004<	_	North Lake Estates	8	11	8				83	171	14
Preil Estates   120   13   6   6   6   1   28   10   11   1   1   1   1   1   1   1	Pfelit Existles         120         13         6         20         78           Riverside Estates         6         6         1         1         1         4         1         4         1         4         1         4         1         4         1         4         1         4         4         1         4         4         1         4         1         4         1         4         1         4         1         4         1         4         1         4         1         4         1         4         1         4         4         100	_	North Ridge Estates	8	o	8				œ	137	117
River's Edge         66         61         28           Riverside Estates         1         1           Spring Mountain         66         713         17           Unplatted Acreage         3631 25         147         2         19         0           New Development         2108         6664         454         2         19         0           Sepinazo Del Diablo         56         466         24         1         1         1           Byers Mountain         7         87         2         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         2         1	River's Edge	_	Pfeil Estates		120	13		9		8	78	18
Spring Mountain   66   713   17   17   17   17   17   17   1	Riverside Estates	_	River's Edge	8	61	<b>78</b>				8	142	47
Spring Mountain         66         713         17           Unplatted Acreage         3631 25         17           New Development         2108         6664         464         2         19         0           CoTALS         Eden Ranch         383         456         147         1         0           Eden Ranch         383         456         147         1         0           Reparant View Estates         56         466         24         4           Reparant View Estates         29         9         15         4           Scenic River Properties         29         9         15         4           In Summit         410         766         29         4         4           New Development         894         8287         253         0         5         0           New Development         894         8287         253         2         4         1         2           Arroyo Bravo         7         2         4         1         2         4         1           Arroyo Bravo         7         2         4         1         2         4         1           Arroyo Bravo <th< td=""><td>Spring Mountain         66         713         17         52         159           Unplatted Acreage         3631 25         17         52         159           New Development         2108         6664         464         2         19         0         1645         4967           COTALS         Espinazo Del Diablo         5         466         24         1         286         964           Espinazo Del Diablo         5         466         24         1         286         964           Meyers Mountain         7         87         2         4         1         286         96           Respirazo Del Diablo         5         46         5         4         10         54         16           Meyers Mountain         7         87         6         5         4         10         54         16         54         16         54         16         54         16         54         16         54         16         54         1004         1004         124         124         124         124         124         124         124         124         124         124         124         124         124         124         12</td><td>_</td><td>Riverside Estates</td><td></td><td>-</td><td>-</td><td></td><td></td><td></td><td>-</td><td>4</td><td>7</td></th<>	Spring Mountain         66         713         17         52         159           Unplatted Acreage         3631 25         17         52         159           New Development         2108         6664         464         2         19         0         1645         4967           COTALS         Espinazo Del Diablo         5         466         24         1         286         964           Espinazo Del Diablo         5         466         24         1         286         964           Meyers Mountain         7         87         2         4         1         286         96           Respirazo Del Diablo         5         46         5         4         10         54         16           Meyers Mountain         7         87         6         5         4         10         54         16         54         16         54         16         54         16         54         16         54         16         54         1004         1004         124         124         124         124         124         124         124         124         124         124         124         124         124         124         12	_	Riverside Estates		-	-				-	4	7
OTALS         Unplatted Acreage         3631 25           New Development         2108         6664         464         2         19         0           COTALS         Eden Ranch         383         456         147         1         2         4         4         2         4         <	OTALS         Unplatted Acreage         3631 25         100           OTALS         New Development         2108         6664         464         2         19         0         1645         4967           COTALS         Eden Ranch Espinazo Del Diablo         56         466         24         1         2286         964           Espinazo Del Diablo         56         466         24         1         22         96           Reyers Mountain         7         87         2         2         6         5         13           Pleasant View Estates         9         6         5         9         15         4         10         54           Scenic River Properties         29         15         4         10         54         10         54           Scenic River Properties         29         15         4         10         54         1004           New Development         894         8287         263         6         707         2271           ATOTAL         Arroyo Bravo         7         2         4         1         6         15           Bold Creek         7         2         4         1         7 <th< td=""><td></td><td>Spring Mountain</td><td>8</td><td>713</td><td>17</td><td></td><td></td><td></td><td>25</td><td>159</td><td>ଅ</td></th<>		Spring Mountain	8	713	17				25	159	ଅ
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COTALS         Eden Ranch         2108         6664         464         2         19         0           Espinazo Del Diablo         56         466         24         1<	OTALS         Eden Ranch         2108         6664         454         2         19         0         1645         4967           Espinazo Del Diablo         383         456         147         1         286         964           Espinazo Del Diablo         7         87         2         9         6         5         96         16         16         16         16         16         16         16         17         100         100         100         124         100	_	New Development								1000	19
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Meyers Mountain         7         87         2           Pleasant View Estates         9         6         5           Scenic River Properties         29         9         15         4           Scenic River Properties         29         9         15         4           The Summit         410         766         29         4           Unplatted Acreage         6497 31         6497 31         6497 31           New Development         894         8287         263         0         5         0           ATOTAL         3034         18034         722         2         24         0         2           Arroyo Bravo         7         27         25         4         1         2	Meyers Mountain         7         87         2         16           Pleasant View Estates         9         6         5         4         10         54           Scenic River Properties         29         9         15         4         10         54           The Summit         410         766         29         1004         382         1004           Unplatted Acreage         New Development         894         8287         263         0         5         0         707         2271           ATOTALS         Arroyo Bravo         7         2         24         0         2352         7289           Arroyo Bravo         7         2         4         1         2         6         15           Bold Creek         27         25         4         1         2         6         15		Espinazo Del Diablo	29	466	24				22	ક્ષ	4
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Family   Commercial   Other   Vacant   SubDiv.   1996     1	Canyon Lake Canyon Lake Canyon Lake Canyon Park I Crystal Height Deer Run Hill Country R Jonas Subdivi Marty's Mount Mt. Lookout Quail Crossin Simon Tracts Sunnyside Te Sunset Terrac The Heights Valhalla-Simo Windjammer I Canyon Lake Unplatted Acr New Develoip A TOTAL Charles Moorr Hancock Can Han Can Han Big Walnut S Can Can Han Gan Han Gan Han Han Han Han Han Han Han Han Han H				222	M.K.				<b>₹</b>	Projected	
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Carryon Lake School Relation   1	A TOTAL	Subdivision Name	Lors	Acreage						ב	Population	<u>.</u>
Campon Park Esistes         60         41         13         43         120           Campon Park Esistes         60         41         13         43         120           Campon Park Esistes         153         168         8         13         14         15         16         17	A TOTAL	Point Resort	_	₹ '			_				- (	- 1
Company Research         64         43         13         443         123           Company Research         18         6         8         13         443         123           Jones Subdivient         18         6         7         9         7         7           Mark Lockurian         98         48         7         9         19         9           Mark Lockurian         98         48         7         1         1         1         1           Mark Lockurian         10         4         7         27         14         1         28         18           Sinon Tracts         20         14         2         14         1         28         85           Sinon Tracts         20         14         2         1 <td>A TOTAL</td> <td>Yacht Club</td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0</td> <td>0</td>	A TOTAL	Yacht Club		-							0	0
Orystal Heights         153         108         8         130         339           Der Run Housesther Resert         8         6         7         9	A TOTAL	: Estates	8	<b>₽</b>	13				4		23	2
High canning   Fig.	A TOTAL	nts	153	108	დ				13		339	4
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State   Caracter   C	TOTAL TOTAL	Ţ	3 1	ŕ	•					•	· -	, (
Sumy black   Sum	TOTAL L	<u>.</u>	- ₹	7 2	- ;		•		·	- a		4 K
Sunset learnee         26         14         2         5         14         2         5           The Heights         2         11         1         1         7         70           The Heights         2         11         1         4         2         17         70           Variability Simular Resort         16         5         11         1         4         4         1         4         4         1         4         4         1         4         4         1         4         4         1         4         4         4         4         4         4         4         4         4         4         4         4         4         4         1         18         0         7         6         136         137         140         137         140         137         140 </td <td>TOTAL</td> <td>r0</td> <td><del>-</del> -</td> <td>3 :</td> <td><u>+</u> (</td> <td></td> <td>- 1</td> <td></td> <td>•</td> <td>0 1</td> <td></td> <td>3 (</td>	TOTAL	r0	<del>-</del> -	3 :	<u>+</u> (		- 1		•	0 1		3 (
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The Heights	TOTAL L	ice Ice	႘	ឧ	5				•			27
Valuaties Simon-Riner Subdivision         11         5         1           Valuaties Simon-Riner Resort         62         392         392         13           Valuatiener Resort         627         103         93         444         1367           Unplated Acreage         1137         4494         184         1         16         56           Acayon Lake Acreage         1137         4494         184         1         18         0         766         2266           Acayon Lake Acreage         175         42         1         1         3         56         226         157           Harnocck Canyon         4         43 7         4	TOTAL TOTAL		2	=======================================	-					<b>-</b>	4	7
Windjammer Resort         16         5         93         13           Updisted Acreage         Canyor Lake Acreage         627         103         93         100           LOTOAL         New Development         1137         4494         184         1         18         0         766         2266           LOTOAL         Hancock Careage         4         43         4         4         4         7         6         2266         1000           LOTOAL         Hills         176         312         42         1         4         7         6         2266         142         1         18         0         766         2266         142         1         <	TOTAL TOTAL	on-Riner Subdivision		-								7
Canyon Lake Acress         627         103         93         484         1367           Unplatted Acresge         Juppatted Acresge         100         69         100         100           LTOTAL         New Development         443         14         1         18         0         76         2266           Lakeside Development         56         50         14         1         3         50         157           Hancock Codk Hills         16         35         19         3         2         16         226         142         16         226         142         16         226         142         16         226         142         17         18         20         157         147         1415         1415         1415         1415         141         1         3         226         142         226         142         226         142         226         142         226         142         226         142         226         142         226         142         226         142         226         142         226         142         226         142         226         142         226         142         226         142         226	TOTAL TOTAL	Resort	16	ru.						S.		0
Unique Lance Acrees	TOTAL (TOTAL	Acres	572	, E	8				*	•		157
Unplated Acreage         3592 7/7         4494         184         184         1 18         0         766         2266           Charles Moore Subdivision         4         43 7         484         184         1         18         0         766         2266           Charles Moore Subdivision         76         50         14         1         3         50         157           Hancock Canyon         76         50         14         1         3         50         157           Hancock Canyon         76         51         42         2         52         147           Hancock Canyon         76         17         18         3         50         157           Harsode Despired         59         67         3         7         6         20           Royal Summit         50         14         1         3         50         147           Royal Summit         50         14         1         3         50         147           The Point at Ranch cell Isgo         51         14         1         1         441         1416           Linde Lagos (U.R.)         7         17         23         1         410	TOTAL (TOTAL	- Acres	770	2 6					¥			3 8
Charles Moore Subdivision         1137         4494         184         184         184         184         185         1000           Charles Moore Subdivision         76         50         14         1         3         50         157           Hancock Carryon         76         512         42         1         3         50         157           Hancock Carryon         76         176         312         42         1         3         50         157           Hancock Carryon         76         176         312         42         1         3         50         157           Lakeside Development         25         69         3         7         42         1         44         415         50         145         50         142         50         142         50         140         175         50         140         175         50         140         175         50         140         175         50         140         175         50         140         175         50         140         177         51         51         51         52         142         178         178         178         178         178         178	TOTAL TOTAL	reage		3965	<u> </u>					•		3 !
Charles Moore Subdivision 4 4 3 1 184 184 18 0 766 2265  Charles Moore Subdivision 4 4 3 1	TOTAL	pment										ò
Charles Moore Subdivision         4         43 1         1         3         50         157           Hancock Canyon         76         50         14         1         3         50         157           Hancock Canyon         176         512         42         7         88         291           Lakeside Development         25         19         3         7         6         20           Royal Summit         25         171         18         1         41         1415           Royal Summit         25         17         18         1         41         1415           Scenic Terrace         651         209         184         1         41         1415           Tamarack Shores         651         209         184         1         41         1415           The Point at Rancho del lago         70         117         23         1         410         1077           Rancho Del Lago         170         17         23         1         410         1077           Rancho Del Lago         17         12         1         410         1077           New Development         181         87         1         16	TOTAL		1137	4494	184	-	<del>2</del>					393
Harrock Cark Hils	(TOTAL	re Cubdinision	•	2							c	·
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Hancock Oak Hills	\TOTAL	nyon	9 ;	3	4 :	-	n		.,		/61	מ מ
Lakeside Development	) TOTAL	k Hills	176	312	42						153	_
Royal Summit         25         19         3         6         20           Scenic Seriors         551         209         184         1         1         441         1415           Tamarack Shores         651         209         184         1         1         441         1415           Tamarack Shores         651         209         184         1         1         441         1415           Linda Ledges (U.R.)         70         117         23         1         410         1077           Rancho Del Lago         519         516         30         1         410         1077           New Development         1915         5324         30         1         6         1         410         1077           New Development         1915         5346         36         1         6         1         1600         177           New Development         1915         5346         36         1         6         1         1658         4804           LOYAL         23         1         6         1         165         441         175         165         175         165         175         16600         1763	) TOTAL	velopment	20	8	7				4,		142	7
Scenic Terrace         335         171         18         316         820           Tamarack Shores         Tamarack Shores         651         209         184         1         441         1415           The Point at Rancho del lago         70         117         23         356         662           Linda Ledges (U.R.)         70         17         23         1         410         1077           Rancho Del Lago         19         516         30         1         410         1077           Unplatted Acreage         New Development         1         6         1         410         1077           New Development         1915         534         36         1         6         1         410         1077           New Development         1915         534         36         1         6         1         480         12         1         480         1	\TOTAL	ゼ	82	19	ო							Ϋ́
Tamarack Shores         651         209         184         1         441         1415           The Point at Rancho del lago         315         13         256         662           Linda Ledges (U.R.)         70         117         23         136         136           Rancho del lago         519         516         30         1         410         1077           Rancho Del Lago         3524 20         1         410         1077         1077           New Development         1915         5346         356         1         6         1         1000           New Development         1915         5346         356         1         6         1         1000           New Development         1915         5346         356         1         6         1         168         4804           New Development         115         37         17         165         41         165         41         1600         17         165         41         165         41         165         41         165         41         165         41         165         42         16         45         16         45         16         45         16	, TOTAL	Ce	335	171	8				9			ଚ୍ଚ
The Point at Rancho del lago  The Point at Rancho del lago  Linda Ledges (U.R.)  Rancho Del Lago Unplatted Acreage  New Development  New Development  TOTAL  Big Walnut Springs (UR)  Canyon Lake Shores  Cany	1 TOTAL	nores	651	209	184		-		4			313
Linda Ledges (U.R.)         70         117         23         39         136           Rancho Del Lago         519         516         30         1         410         1077           Unplatted Acreage         3524         20         82         82           New Development         1915         6346         36         1         16         1000           ATOTAL         1915         6346         36         1         16         4804           ATOTAL         1915         6346         36         1         1658         4804           ATOTAL         11         11         11         11         11         11         11         11         11         11         11         11         11         11         13         14	\ TOTAL	Rancho del lago		315	13				22			2
Rancho Del Lago         519         516         30         1         410         1077           Unplatted Acreage         3524 20         3524 20         1000           New Development         1915         5346         356         1         1658         4804           TOTAL         Big Wainut Springs (UR)         16         12 1         5         1         1658         4804           Canyon Lake Estates         214         87         17         15         364           Canyon Lake Shores (UR)         171         115         35         1         600         1763           Canyon Lake Shores (UR)         18         7         3         1         600         1763           Canyon Lake Shores (UR)         18         7         3         16         45           Glenmare         19         140         12         38         115           Hilltop Mobile Home Subdivision         10 1         10 1         10 1         174           Kings Point         73         10         63         174           10         17         10         10         10         10	( TOTAL	s (U.R.)	02	117	83				.,			ဓ္ဌ
Unplatted Acreage         3524 20         82           New Development         1915         5345         356         1         6         1         1600           A TOTAL         1915         5345         356         1         6         1         1600           A STANOM Lake Estates         214         87         17         17         145         35         441           Canyon Lake Shores         797         486         155         1         600         1763           Canyon Lake Shores (UR)         18         7         3         16         45           Canyon Lake Shores (UR)         18         7         3         16         45           Genrmare         19         140         12         16         45           Glenrmare         10 1         10 1         2         174           Kings Point         73         82         10         63         174	( TOTAL	Lago	519	516	႙				4			22
New Development New Development A TOTAL         1915         6346         356         1         6         1         1688         4804           A TOTAL         Big Walnut Springs (UR)         16         12 1         2         2         4804         2         441         2         2         441         2         2         441         2         441         2         2         441         2         441         2         3         3         3         441         2         441         2         3         441         2         3         441         2         3         441         3         3         441         3         3         441         45         3         441         45         3         441         45 </td <td>I TOTAL</td> <td>reade</td> <td></td> <td>3524</td> <td>02</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>发</td>	I TOTAL	reade		3524	02							发
NTOTAL         1915         6346         356         1         1658         4804           Loanyon Lake Estates         214         87         17         12         441           Canyon Lake Estates         171         115         35         1         600         1763           Canyon Lake Shores (UR)         18         7         3         16         45           Canyon Lake Shores (UR)         18         7         3         16         45           Genyon Lake Shores (UR)         18         7         3         16         45           Glenmare         19         140         12         10         2           Hillstop Mobile Home Subdivision         73         82         10         63         174	\ TOTAL	- Care								7		57
Big Walnut Springs (UR) 16 12 1 2 2 2 2 2 2 3 2 2 3 2 3 2 3 2 3 2			40.4	*****		•	•		107			9
Big Walnut Springs (UR)     16     12 1       Canyon Lake Estates     214     87     17       Canyon Lake Shores (UR)     797     486     155     1     600     1763       Canyon Lake Shores (UR)     18     7     3     16     45       Canyon Lake Shores (UR)     18     7     3     16     45       Genyon Lake Shores (UR)     19     140     12     38     115       Hilltop Mobile Home Subdivision     10 1     2       Kings Point     73     82     10     63     174			1915	9345	399	-	o			•		800
Canyon Lake Estates     214     87     17       Canyon Lake Island     171     115     35     1     600     1763       Canyon Lake Shores (UR)     18     7     3     16     45       Canyon Lake Shores (UR)     18     7     3     16     45       Canyon Lake Shores (UR)     18     7     3     16     45       Glenmare     19     140     12     38     115       Hillitop Mobile Home Subdivision     73     82     10     63     174		Springs (UR)	16	7								N
Canyon Lake Island Canyon Lake Shores (UR) Canyon Lake Shores (UR) Clenmare Hilltop Mobile Home Subdivision Kings Point  Canyon Lake Shores (UR) 12 364 122 364 176 176 176 176 177 177 177 177 177 177		Fetatos	214	87	17				1			8
Canyon Lake Shores  Canyon Lake Shores (UR)  Canyon Lake Shores (UR)  Canyon Lake Shores (UR)  Canyon Lake Shores (UR)  18 7 3 8 115  Canyon Lake Shores (UR)  19 140 12  Canyon Lake Shores (UR)  10 1 38 115  Canyon Lake Shores (UR)  10 1 5 63 174		Stand	171	11.5	. K				÷			5
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Canyon Lake Shores (UR) 18 7 3 16 45 Glenmare 19 140 12 38 115 Hilltop Mobile Home Subdivision 73 82 10 63 174		Sonores	8	004	Ž.		_		<b>5</b>			3 '
Glenmare         19         140         12         38         115           Hilltop Mobile Home Subdivision         10 #         2         2           Kings Point         73         82         10         63         174		Shores (UR)	18	7	ო						<del>2</del>	S)
Hilltop Mobile Home Subdivision         10 1         2           Kings Point         73 82 10         63 174			19	<del>1</del>	12				.,		115	8
Kings Point 73 82 10 63 174		e Home Subdivision		9	-						2	7
			57	82	5				_		174	17

Control Nation   Cotto   Cot					Single	Multi-					¥	Projected
vertex         14         26         11         16         339         16         339         16         339         16         15         16         339         16         16         339         16         16         339         16         16         16         16         16         16         16         16         16         16         16         17         16         16         17         17         17         17         17         17         17         17         17         17         17         16         16         16         16         16         17         17         18		Subdivision Name	Lots	Acreage			mercial	Other	Vaca	Ĭ	SUBDIV. POP.	1996 Population
s 34 115 116 117	7	akewood Hills	140	26	11					116		19
se iii ii i		azy Diamond Ranchettes	24	342	18					뚕	115	8
se file 64 520 7 7 77 77 77 77 77 77 77 77 77 77 77 7	ц.	otters Creek Park Acres	5	22			ო			4	13	Ø
SS 66 1 1 14 17 1900  SS 1 250 7 7 7 7 19 17 1900  SS 250 7 7 7 19 17 1900  Ubdivision 1676 4431 149 0 0 1 1 883 2446  Ubdivision 17 92 9 1 1 1 1000  SS 250 349 10 1 1 1 1 1000  SS 250 349 10 1 1 1 1000  SS 250 349 10 1 1 1 1 1000  SS 250 349 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	_	anglewood Shores	369	119	2					293	<u>\$</u>	108
s 676 27 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	_	he Cedars	28	98	-					18	47	2
## 14509 22   1000   1014   28   1174   28   28   28   28   28   28   28   2		ranquility Park	37	250	7					27	79	12
s 617 114 28 117 28 117 28 117 28 117 28 117 28 117 28 117 28 118	_	Inplatted Acreage	÷	4309 2	2						87	37
s 61 114 28 28 17 29 117 29 117 29 117 29 117 29 117 29 117 29 29 117 29 29 117 29 29 230 230 230 230 230 230 230 230 230 230	Z	ew Develolpment									1000	22
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447         277         83         1         636         688           3810 f6         22         1         636         1626         636         688           ubdivision         16         64         2         2         4         100           17         443         1         0         1         883         2496         1000           28         749         1         2         499         1286	U	Sanyon Oaks Estates	9	114	28					28	117	47
G688         230         22         1         628         1628 </td <td>_</td> <td>Jeer River</td> <td>347</td> <td>277</td> <td>8</td> <td></td> <td></td> <td></td> <td></td> <td>219</td> <td>889</td> <td>140</td>	_	Jeer River	347	277	8					219	889	140
ubdivision         1076         4431         149         0         0         1         883         2466           ubdivision         16         64         2         3         1         43         1000           502         349         10         1         883         2486         1284           502         349         10         1         499         1284         188	_	ake of the Hills	899	230	8				_	636	1628	8
ubdivision         16         4431         149         0         1         883         2496           ubdivision         16         44         12         2         496         13           29         79         3         1         499         1264           17         92         3         1         9         32           17         92         9         1         9         32           160         1         1         1         1         166           17         16         3         1         1         1         1           18         100         1         0         1         1         1         1           18         16         3         1	_	Jnplatted Acreage		3810 1							83	27
ubdivision         1076         4431         149         0         1         883         2496           29         79         349         10         2         4         13           502         349         10         3         25         68           502         349         10         1         25         68           17         92         1         1         9         35           17         92         3         1         1         1         1           16         1236         7         0         1         0         637         160           16         1236         7         0         1         0         637         160           18         100         9         1         0         1         0         637         160           18         100         9         1         0         1         1         1         48         150           1         7         4         7         4         7         1         1         1         1         1         1         1         1         1         1         1         1	_	Vew Development									1000	19
updivision         16         64         2         4         13           502         349         10         499         1264           502         349         10         499         1264           1 601         49         1         9         39           1 1601         40         1         0         637         1872           1 1601         40         1         0         637         1872           1 1602         40         1         0         637         1872           2 20         40         1         0         637         1872           2 3         40         1         0         637         1872           2 49         2         4         1         1         1           2 49         23         2         2         2         2           2 49         23         2         2         2         2           3 59         23         23         2         2         2           446         166         3         4         4         4           446         166         4         4         4         4			1076	4431	149	0	0		_	883	2496	27.1
502         79         3         68         68         68         68         68         68         725         68         725	_	Fischer Thirty Two Subdivision	16	2	7					4	13	က
502         349         10         499         1264           17         92         9         1         9         32           1601         46         11601         49         126         166           564         12385         71         0         1         0         537         167           160         3         7         0         1         0         537         167           160         9         20         1         0         17         48         35         160         9         35         160         9         35         160         9         35         160         9         35         160         9         35         160         9         35         160         9         35         160         9         35         160         9         35         160         9         35         160         9         35         160         100 <td< td=""><td>_</td><td>Lakewood Estates</td><td>82</td><td>62</td><td>က</td><td></td><td></td><td></td><td></td><td>52</td><td>88</td><td>ທ</td></td<>	_	Lakewood Estates	82	62	က					52	88	ທ
The control of the co	_	Rocky Creek Ranch	502	349	9					499	1264	17
17   92   9   1   9   38     1160146	_	Valley Ranch		200 1							2	2
11601 46   11601 46	_	Whispering Oaks	17	92			-			O	33	16
1000   1000	_	Jnplatted Acreage		11601 4	9						186	78
Freek 12386 71 0 1 0 637 1672  21 76 3 3 17 48  18 100 9 9 17 48  82 662 40 9 7 160  9 20 1 1 8 22  2 9 20 1 1 8 22  2 12 12 14 1461 650 170  1000	_	New Development									1000	19
The control of the co			564	12385	7	•	-		_	537	1572	140
18     100     9     8     35       82     662     40     8     37     160       9     20     1     8     22       14     756     4     249     23     596       405     10593     119     0     0     295     1000       406     10593     119     0     0     295     1030       2045     27409     339     0     1     1715     5098       1     1461     650     170     1     1197     3281       1     1461     650     170     1     149       2     11     14     14     14     1000       3     3     3     1     49       2     11     14     14     14     1000       3     49     7     20     1000       49     7     20     1000     1000     1000	_	Estates At Carpers Creek	21	92	m					17	₽	S
82 662 40 37 160  9 20 1 8 22  2 9 20 1 8 22  14 756 4 756 4 756  8721 39 23 7 1000  406 10693 119 0 0 0 296 1030  2045 27409 339 0 1 1 1 1716 5098  1461 650 170 1 1 197 3281  2 12 17 1 4 149 650 170  1 1 14 1000  1000	-	ischer Ranches	18	5	O					ω	35	15
5     9     20     1       2     9     4       14     756     4       259     249     23       8721 39     1000       406     10693     119     0     0     295     1030       2046     27409     339     0     1     1716     5098       1461     650     170     1     1197     3281       100     2923 25     170     1     1000	ш.	orest View North	82	995	<del>\$</del>					37	160	88
2 9 4 756 4 757 77 78 78 78 78 78 78 78 78 78 78 78 78	_	Ioneysuckle Rose	0	20	-					ω	23	2
259 249 23 596 157 157 157 157 157 157 157 157 157 157	~	Aeister Heirs Estates	2	თ						7	ιΩ	0
259 249 23 596 157 157 157 157 157 157 157 157 157 157	Œ	tanch Louise	4	756	4						7	7
405 10693 119 0 0 0 295 1000  406 10693 119 0 0 0 295 1030  2045 27409 339 0 1 1 1715 5098  2 12 1 2 1 5 1 5 18  461 650 170 1 1197 3281  5 25 11 14 14  59 49 7 7 5023 25 1000	(C)	stallion Springs	259	249	æ					223	296	g g
405     10693     119     0     0     0     295     1000       2045     27409     339     0     1     1     1715     5098       2     12     1     1     1715     5098       3     3     3     1     187     3281       1461     650     170     1     1197     3281       25     11     14     14     49       9     49     7     2     17       5923     25     1000	ر	Inplatted Acreage			03						157	99
406     10693     119     0     0     296     1030       2045     27409     339     0     1     1     1716     6098       2     12     1     1     1716     6098       3     3     3     5     18       4461     650     170     1     1197     3281       n     25     11     14     49       9     49     7     2     17       5923     25     1000	~	lew Development									1000	19
2 12 1 2 7 5 18 650 170 1 1197 3281 1000 1 1 1000 1			405	10593	119	0	0	_	_	295	1030	221
2 12 1 5 7 5 18 8 30 3 3 18 197 3281 1461 650 170 1 1197 3281 10 49 9 7 5923 25 100			2045	27409	339	0	<del></del>		_	17.15	2098	632
8 30 3 5 18 1461 650 170 1 1197 3281 n 25 11 14 10 49 9 49 7 5923 25 100	-	Almy Addition	2	12	-					8	7	7
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division 25 11 14 19 49 49 7 17 17 18 19 10 49 17 17 18 19 17 17 17 17 17 17 17 17 17 17 17 17 17	_	Cypress Cove	1461	920	170		-			1197	3281	288
9 49 7 2 5923 25 .	_	Hideaway Subdivision	52	11	4					5	49	24
5923 25	_	Rebecca Crossing	O	49	7					7	17	12
	_	Juplatted Acreage		5923 2	-50						9	42
		New Development		!							1000	57

Projected 1996 Population	430	2	-	10	149	0	277	60	2	0	7	0	7	243	7	0	137	88	8	22	1,006	5,107		7	49	39	=	72	<u>‡</u>	47	100	25	621	23	0	55	269	0	7
MAX SUBDIV. POP.	472	7	-	₹	1169	13	1949	ထ	7	15	2	က	7	491	7	10	2870	451	\$	1000	7169	34494		2	69	104	41	215	549	310	238	1000	1528	164	53	165	1491	5	15
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die Other	0				2		ო										-				<b>o</b>	11	₩						•				-						
Commercial	-		-														9	-	•		00	61	-			-	S		13				19				2		-
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Single Family	220	-		9	85		162		τ-				-	<u>4</u>			7.	용			661	2728	1.57		31	24	4	4	83	8	**		283	4		35	170		4
Acresse	6676	မှ	-	162	245	<b>3</b>	264	307 5	o	ጽ	12 1	-	6	162	17.1		451	731	6511 33		8967	77000	OCCUPANCY RATE	5 1	9	498	80	88	26	23	4582 64		6276	ន	18	8	172	•	m
, s	1505	-	-	21	591	<b>α</b> Ο		874	Ψ-	ø		-	-	267		42	1176	189			3179	14794	* OCCUPA		4	ß	23	102	260	147			628	26	21	92	699	4	· κο
Subdivision Name		Acorn Acres	Charlie's 306	Cherry Creek Subdivision	Comal Hills Subdivision	Coyote Ridge	Cypress Lake Gardens	Cypress Lake Gardens Big Sky Ranchettes	Fernandez Subdivision	Finkel Subdivision	Forest Lake Estates	Harley Acres	Henke Subdivision	Indian Hills Estates	Lake Gardens	Rebecca Creek Estates	Rebecca Creek Park Subdivision	The Springs at Rebecca Creek	Unplatted Acreage	New Development		TAL		Austin B. Sheridan Properties	Christensen Scenic River	J D J Ranch	Sattler Business Lots	Sattler Estates Subdivision	Sattler Village Subdivision	The Little Ponderosa	Unplatted Acreage	New Development		Arrowhead Village	Bradcliff on the River	Canyon Corner	Canyon Lake Village	John B. Browns Peak	Kuntry Korner Estates
Area No.	AREA TOTAL	B700	B700	B700	B700	B700	B700	B700	B700	B700	B700	B700	B700	B700	B700	B700	B700	B700	B700	B700	AREA TOTAL	AREA B TOTAL		C100	200	C100	0100	C100	C100	C100	C100	C100	AREA TOTAL	C200	C200	C200	C200	0200	C200

1996	ropulation	တ္တ (	7	0	20	თ	7	ß	S	23	22	299	8	552	2	ıφ	7	2	7	24	0	7	0	7	Ω	2	270	79	69	83	22	1,184	230	14	2	ı vc		· c		2 *		211	
SUBDIV.		106	4	108	160	23	7	170	52	126	1000	2621	105	1574	4	8	2	27	23	121	ო	7	81	55	12	2	778	184	209	55	1000	3383	2600	27	2	4	: -	- (~	· 5	<b>?</b> ?	33 ¦	379	i
Vacant		16	- ;	<b>₹</b>	36	ß		84	80			77.6	8	409	ur.	S	ı	20	23	39	-	7	7	19	ဗ		203	42	28			898	828	2	ı	m	)	•	- •		ְׁ ת	29	
O <del>ther</del>												•		τ-																		-									•	-	
Commercial		-			7			80				<del>*</del>		-		•								-								က	7				-	-					
Multi- Family Co		<b>,</b>										-																				0	-										
Single Family	8	<b>8</b> •	-		<del>4</del>	ဖ		27	က	•		376	13	320	_	m	-	4	_	15		-		4	က		172	ß	4			713	330	O		4			a	7 0		<u>-</u>	
	Welcaye .	5 5	<u> </u>	8		<del>1</del> 3	22 1	313	7	2130 34		2806	78	145	19		က	3	14	9	7	7	თ	84	16	12 1	272	69	<b>4</b>	2440 40		3276	402	5	4 1	7			- y	8 2	7 1	87	
	3	۲ '	νį	4/	79	16	2	87	5			1229	84	706	9	1	-	37	52	99	-	က	7	, 25	15	-	487	66	80			1536	1195	4	12	22	-	-	- ¢		- ;	33	
Selection (Selection (		Lake View Heights	Miles Farker Estates	Netherniii Place	River Point Estates	River Valley Estates	Sattler Ridge Estates	Skyline Acres	Valley View	Unplatted Acreage	New Develoipment		Blue Water Estates	Canyon Lake Village West	Cedar Breaks Subdivision	Deep Well Subdivision	Double E Subdivision	Five Oaks	Hidden Valley Estates	Highland Terrace	Island View Office Addition	Los Tres Amigos Estates	Moorview Subdivision	Mountain Oaks	Shamrock Hills	Shepherd Hill	The Oaks	Tripple Peak Ranch Estates	Village Shores	Unplatted Acreage	New Development		Canyon Lake Forest	Oak Hideaway Estates	Shadwale Subdivision	St. Andrews by the Woodlands	Stanley Square	Startz Subdivision	Curburet Danch	Tille Torrace Cubalishins	HIS LEFTACE SUDDIVISION	Waterfront Park	
A Page	- Nea 140.	CZ00	250	2200	C200	C200	C200	C200	C200	C200	C200	AREA TOTAL	C300	0300	0300	C300	C300	C300	C300	C300	C300	0300	C300	C300	C300	C300	C300	C300	C300	C300	C300	AREA TOTAL	C400	C400	C400	C400	C400	C400	240		3 :	C400	

Area No.	Subdivision Name	Lots	Acreage	Single Family	Multi- Family	Commercial	Other	Vacant	MAX SUBDIV. POP.	Projected 1996 Population
0 5 0 5 0 5	Unplatted Acreage		1753 34	*					126	<b>3</b> 83
AREA TOTAL	Total Development	1873	2800	583	•	60	7	1192		286
C200	Astro Hills	310	101	146		-		160	630	230
C200	Canyon Lake Hills	1555	429	626		2	-	1550	4861	986
C200	Canyon Lake Hills 1	720	224 5							∞
C200	Canyon Springs Resort	<u>1</u>	383	300		4	4	825	74	489
C200	Cranes Mill Landing	2	ĸ					63	_	0
C200	Erin Glen	27	<del>-</del>	4				9		22
C200	Paradise Point	39	12	ထ				23		13
C500	Westhaven	251	122	113				118		171
C200	Unplatted Acreage		2308 44	4					165	69
C200	New Development									22
AREA TOTAL		4013	3645	1256	0	11	S	2745	8953	2,061
0090	Canyon Lake MH Estates	535	177	339		S		17.1	980	537
0090	Canyon Lake MH Estates North	<del>2</del>	20	91		2		77		145
0090	Deer Meadows	311	208	47				259		74
0090	Lakeview Park	382	88	202				<u>+</u>	229	317
C600	Linnea S. Peg Lots		5 1							7
0090	Rolling Hills	580	272	287		4		727		455
009 0	Scenic Heights 1	296	215	29		თ		208	•	114
C600	Tom Creek Acres	2	141	32		က		સ	131	S
0090	Tom Creek Hills	7	61 1						7	7
0090	Unplatted Acreage		3005 51	-					9	<b>&amp;</b> !
0090	New Development									22
AREA TOTAL		2640	4242	1118	•	23	0	1423	5446	1,836
C700	Abbott-Barnett Subdivision	7	55	-					2	2
C700	Ancient Oaks	4	15					2	ιo	0
C700	Bremer Ranch	ល	156 1			•			2	2
C700	Denham Estates	-	10 1							2
C700	Fox Hill	33	168	ß				O	ଚ	∞
C700	Monier Ranch	8	403	16				5		52
C700	Park Ranch		192 1						2	2
C700	Smith Ranch	16	123	8				4		<del>ნ</del> :
C700	Wiesner Ranch	6	178					o		14
C700	Unplatted Acreage		11517 1	155					578	243
C200	New Development							,	-	2/
AREA TOTAL		118	12817	197	•	•	•	<b>4</b>	731	368
AREA C TOTAL	TAL	12034	34862	4526	8	84	6	7407	26646	7,614

Table A1 - Existing Land Use and Population Distribution

Canyon Lake Water Supply Corporation Regional Water Plan

**CCCUPANCY RATE 2.43	Area No. Subdivision Name	Lots	Acreage	Single Family	Multi- Family	Commercial	Other	Vacant	SUBDIV. POP.	1996 Population
and is Rest Ranch     1     44     1       d Estates     72     310     26     1       3 Ranch     1     100     1     1       3 Ranch     72     370     33     1     1       and Indian Reservation     72     370     33     1     1       and Estates     1     57     1     1       indited Acreage     8248 75     1     2     4       Development     447     0430     437     0     2     4	•	· occupar	VCY RATE	2.43	6	-	-	2.5		
d Estates         72         310         26         1           3 Ranch         1         100         1         1           3 Ranch         72         370         33         1         1           set Estates         1         57         1         1         1           iatted Acreage         8248         75         1         2         4         7           Development         447         0430         437         0         3         4         7	Buzzard's Rest Ranch	-	4	-					2	7
3 Ranch 1 100 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Inland Estates	22	310			-		46	179	4
ed Indian Reservation         72         370         33         1         1           ar Estates         1         57         1         1         57         1	L D 3 Ranch	-	9	-					2	7
## Estates	Naked Indian Reservation	72	370			-		1 25	145	82
atted Acreage  B248 75  Development  A47 0430 437 0 2 4	Oliver Estates	<del>-</del>	57	-					2	2
Development 27 0.77 0.420 4.27 0.27 0.27 0.27 0.27 0.27 0.27 0.27 0	Unplatted Acreage		8248	75					434	182
4 7 0 70 1	New Development									25
- 7 0 101 0710 141	AREA D TOTAL	147	9129	137	0	7	-	71	764	391
	STUDY AREA TOTAL	33291	208229	10132	7	166	30	0 22723	79381	22.036

Canyon Lake Water Supply Corporation Regional Water Plan

		Projected			Population Projections	ojections		
Area No.	Subdivision Name	1996 Population	2000 5.28%	2010 3.22%	2020 3.50%	2030	2.26%	2050 1.90%
A110	Honey Creek Ranches Subdivision	S.	4	4	4	4	4	4
A110	Oak Springs Subdivision	36	38	38	38	38	38	38
A110	Unplatted Acreage	141	173	238	269	269	269	. 569
A110	New Development	133	182	328	728	1,266	1,868	2,579
SUBTOTALS	-	315	397	608	1,039	1,577	2,179	2,890
A120	Bartels Acres	ဗ	4	4	4	4	4	4
A120	Knibbe Subdivision	9	2	2	2	2	2	7
A120	Comal Ranch Subdivision	13	5	9	10	10	10	5
A120	Unplatted Acreage	84	103	141	159	159	159	159
A120	New Development	133	182	328	728	1,266	1,868	2,579
SUBTOTALS	-	236	301	485	903	1,441	2,043	2,754
A130	Cypress Springs on the Guadalupe	164	201	276	389	209	636	768
A130	Guadalupe River Estates (Riverwood Estates)	174	214	294	307	307	307	307
A130	Rivermont	79	46	133	188	246	308	372
A130	Spring Branch Estates 1	97	119	163	164	164	164	164
A130	Unplatted Acreage	51	63	98	26	26	26	26
A130	New Development	133	182	328	728	1,266	1,868	2,579
SUBTOTALS		565	876	1,280	1,873	2,589	3,380	4,287
A140	Ahern Creek Ranches	13	10	10	10	10	10	10
A140	Benke Oaks	က	2	2	2	7	2	2
A140	Diamond D Subdivision	က	2	2	2	7	2	7
A140	Dillard Subdivision	S	4	4	4	4	4	4
A140	Elm Ridge Estates	41	45	45	45	45	45	45
A140	Flying "R" Ranch	46	53	53	53	53	53	53
A140	Lange Ranch Subdivision	က	4	2	7	ω	Φ	ထ
A140	Little Creek	10	∞	80	<b>&amp;</b>	∞	8	<b>∞</b>
A140	Oakland Estates	210	248	248	248	248	248	248
A140	Singer Ranch	-	-	_	-	-	τ-	-
A140	Spring Branch Acres	110	135	176	176	176	176	176
A140	The Woods at Spring Branch	59	72	81	81	81	8	81
A140	Unplatted Acreage	69	85	117	132	132	132	132
A140	New Development	133	182	328	728	1,266	1,868	2,579
SUBTOTALS		706	851	1,080	1,497	2,036	2,638	3,349
A150	Creekwood Ranches	179	220	302	426	471	471	471
A150	Gutierrez Ranch	0	0	0	0	0	0	0

		Projected			Population Projections	ojections		
		8001	900	2010	2020	2030	2040	2050
\(\frac{2}{2}\)	Stratic	Population	5.28%	3.22%	3.50%	2.73%	2.26%	_
A150	Ridgeview Oaks East	49		71	71	71	71	7.1
A150	Ridgeview Daks West	194	199	199	199	199	199	199
A150	Sin Valley Village	214	226	226	226	226	226	226
A150	Whispering Hills	187	230	316	446	584	730	881
A150	Unplatfed Acreade	102	125	172	194	194	194	194
A150	New Development	133	182	328	728	1,266	1,868	2,579
SIBTOTALS		1.058	1.242	1,614	2,290	3,011	3,759	4,621
AREA TOTAL		2,880	3,667	5,067	7,602	10,654	13,999	17,901
A210	Crouse Subdivision	ĸ	4	4	4	4	4	4
A210	Dresden Wood 1	44	54	65	65	65	65	65
A210	North Barcroff Estates	13	91	22	28	28	28	28
A210	Sade Oaks	54	99	91	113	113	113	113
A210	Silver Hills	228	280	384	424	424	424	424
A210	Unplatted Acreade	92	113	155	175	175	175	175
A210	New Development	111	151	274	209	1,055	1,557	2,149
SHRTOTALS		547	684	995	1,416	1,864	2,366	2,958
A220	Brand Ranch	28	34	42	42	42	42	42
A220	Indian Creek Ridge	18	22	30	4	40	40	40
A220	Jahnsen Ranch 1	ო	2	2	2	2	2	7
A220	Oak Cliff Acres	174	214	277	277	277	277	277
A220	Persimmon Hill Sub	61	75	103	131	131	131	131
A220	Shepherds Ranch	98	44	9	82	111	139	168
A220	Wehe Estates	∞	10	10	10	10	10	10
A220	Unplatted Acreade	82	101	139	157	157	157	157
A220	New Development	111	151	274	209	1,055	1,557	2,149
SUBTOTALS	-	521	653	937	1,351	1,825	2,355	2,976
A230	Bulverde Estates 1	353	434	596	736	736	736	736
A230	Bulverde Hills 3	131	161	177	177	177	177	177
A230	Bulverde Oaks 1	38	47	65	88	89	83	80
A230	Bulverde Ranchettes	3	ဖ	∞	=	14	18	22
A230	Cox Subdivision	<b>~</b> -	<b>~</b>	-	-	-	-	-
A230	Elm Vallev	92	113	155	156	156	156	156
A230	Hodan 281 Subdivision	2	4	4	4	4	4	4
A230	Licata Ranch	3	ဖ	∞	10	10	5	10
A230	Lundgren Subdivision	က	2	2	8	2	2	2

Canyon Lake Water Supply Corporation Regional Water Plan

		Projected			Population Projections	ections		
			5	2010	2020	2030	2040	2050
	September Appendix	Population	5.28%	3.22%		2.73%	- 4	1.90%
Anno.	Dolmor Lights	13	16	18	18	18	18	8
A230		327	402	552	568	568	568	268
A230	Spling Car Estates The Linklands	28	8	47	99	98	98	86
A230	Her mignistration	· -	-	_	τ-	,	Ψ-	Ψ-
A230	I ravel mail outdivision	- 62	26	133	150	150	150	150
A230	Unplatted Acreage	11.	151	274	209	1,055	1,557	2,149
AZ3U	New Developinent	1 192	1.475	2.041	2,596	3,067	3,573	4,169
SUBTOTALS	4:0	1001	122	122	122	122	122	122
A240	Ammann Oaks out	9 5	117	161	162	162	162	162
A240	Hidgen Cars	) e	2	2	2	2	2	2
A240	Klar Kanch	o e	ı <del>4</del>	S	9	ဖ	9	9
A240		77	. G	130	146	146	146	146
A240	Unplaned Acreage	111	151	274	607	1,055	1,557	2,149
A240	New Development	- 080	491	694	1.045	1,493	1,995	2,587
SUBTOTALS		200	5	Ę	10	10	10	10
A250	Bulverde Gardens	ב מ	2 6	9	9	9	09	09
A250	Bulverde Kanches	3 5	410	410	410	410	410	410
A250	Canyon view Acres	400			2	2	2	2
A250	Lindsey Acres	9	1 6	i ጸ	107	107	107	107
A250	Unplatted Acreage	S +	151	27.4	209	1.055	1,557	2,149
A250	New Development	- 0	202	85.4	1.196	1.644	2,146	2,738
SUBTOTALS		9 9 0	3	3			2	
A260	Cibolo One Subdivision	m (	7 0	<b>V</b> C	4 (	10	10	0
A260	Cibolo Two Subdivision	(	7 10	۷ ۲	7 00	4 g	ı e	38
A260	Unplatted Acreage	20	cz i	40.1	0 0	900	4 557	2 149
A260	New Development	<del>-</del>	151	2/4	) o	, 033 1, 033		2,19
SIATOTALS		137	180	312	649	/80'L	BBC'	4,131
AREA TOTAL		3,426	4,185	5,830	8,253	10,990	14,034	8L9'/L
7240	Charles Cantu Subdivision	က	2	2	2	2	8	2
250		67	2	7	7	2	2	2
A310		) e7	2	2	7	2	7	5
A310		i en	2	2	2	7	2	7
A310	Stoney Cilli	94	. P.C	73	73	73	73	73
A310	Stoney Klage	F 4	3 2	9	112	112	112	112
A310	Unplatted Acreage	60 G	7	3 5	1001	2 165	4 670	6.447
A310	New Development	333	404	170	1,00,0	0,000		6.640
SUBTOTALS		448	288	1,00,1	<b>4</b> 10. <b>7</b>	9000	200,4	

Table A2 - Population Projections

		Projected			Population Projections	ojections		
		1996	2000	2010	2020	2030	2040	2050
Area No.	Subdivision Name	Population	5.28%	3.22%	3.50%	2.73%	2.26%	1.90%
A320	Beam Subdivision	15	18	22	22	22	22	22
A320	Beck Ranch	59	72	66	133	133	133	133
A320	Cross Roads Estates Phase 1	2	2	က	4	S	9	7
A320	Forrest Wilson Subdivision	ო	7	7	2	7	2	2
A320	Kappelman Subdivision	က	2	2	2	7	2	7
A320	McGuffin Subdivision	0	0	0	0	0	0	0
A320	Misty Hills	54	99	79	79	79	79	79
A320	Oak Village North	1,309	1,573	1,573	1,573	1,573	1,573	1,573
A320	Skyridge Subdivision	33	4	99	62	103	129	145
A320	Smokey Mountain Ranch	15	18	25	30	30	30	30
A320	Stoney Creek	123	151	207	218	218	218	218
A320	Twin Creek Subdivision	95	86	86	86	86	86	86
A320	Wilson Subdivision	က	7	7	8	2	2	2
A320	Unplatted Acreade	123	151	207	234	234	234	234
A320	New Development	333	454	821	1,821	3,165	4,670	6,447
SIRTOTALS		2.170	2,650	3,196	4,297	5,666	7,198	8,992
AREA TOTAL		2,618	3,238	4,197	6,311	9,024	12,061	15,632
1	ļ	7000	000	760 27	227 466	30 669	70 07	54 152
AREA A 101AL	IAL	9,324	080'11	+60,61	22,100	200	10,01	701,10
B110	Buck Horn Ranch	က	2	2	2	7	8	2
B110	Heritage Oaks	က	7	2	2	2	2	2
B110	Unplatted Acreade	19	23	32	36	36	36	36
B110	New Development	19	26	47	104	181	267	368
SUBTOTALS		4	53	83	144	221	307	408
B120	Cadillac Canyon	69	85	117	151	151	151	151
B120	Canyon Creek Estates	24	59	40	56	73	91	110
B120	Canyon Dam Hillsite	10	12	16	23	28	28	28
B120	Canvon Dam Sub 1	14	17	23	32	37	37	37
B120	Canyon Valley Estates 1	5	10	10	10	10	10	10
B120	Clear Water Estates	42	52	71	100	131	164	198
B120	Congar Ridge	10	12	16	23	24	24	24
B120	Deep Acres Estates 2	34	42	58	82	107	114	114
B120	Devils Backbone Heights	22	27	37	52	99	85	103
B120	Eagles Peak Ranch	22	27	37	25	89	82	103

		Projected			Population Projection	rojections		
		1996	2000	2010	2020	2030	2040	2050
Area No.	Subdivision Name	Population	5.28%	3.22%	3.50%	2.73%	2.26%	1.90%
B120	Emerald Valley Subdivision	47	58	80	113	148	185	223
B120	Fralick Subdivision	2	7	7	7	2	7	2
B120	Glen Roy	2	7	က	4	ഹ	တ	7
B120	Hillcrest Estates	30	37	51	72	94	118	142
B120	Horseshoe Falls Subdivision	137	168	231	326	387	387	387
B120	Maricopa Ranch	45	55	9/	100	100	100	100
B120	North Lake Estates	14	17	23	32	42	53	64
B120	North Ridge Estates	117	110	110	110	110	110	110
B120	Pfeil Estates	28	34	47	62	62	62	62
B120	River's Edge	47	58	80	113	114	114	114
B120	Riverside Estates	2	7	က	က	ო	က	ო
B120	Spring Mountain	29	36	49	69	06	113	127
B120	Unplatted Acreage	42	52	71	80	80	80	80
B120	New Development	19	56	47	104	181	267	368
SUBTOTALS	-	818	970	1,298	1,771	2,115	2,389	2,667
B130	Eden Ranch	249	306	420	592	771	771	771
B130	Espinazo Del Diablo	41	20	69	77	77	7.7	7.7
B130	Meyers Mountain	က	4	S	7	6	7	13
B130	Pleasant View Estates	80	10	10	10	10	10	10
B130	Scenic River Properties	29	36	43	43	43	43	43
B130	The Summitt	49	09	82	116	152	190	229
B130	Unplatted Acreage	52	64	88	66	66	66	66
B130	New Development	19	26	47	104	181	267	368
SUBTOTALS	-	450	556	764	1,048	1,342	1,468	1,610
AREA TOTAL		1,312	1,579	2,145	2,963	3,678	4,164	4,685
B200	Arrovo Bravo	0	0	0	0	0	0	0
B200	Bold Creek	4	17	23	32	42	49	49
B200	Canyon Lake Point Resort	-	_	_	τ-	-	•	τ-
B200	Canyon Lake Yacht Club	0	0	0	0	0	0	0
B200	Canyon Park Estates	22	27	37	52	89	85	103
B200	Crystal Heights	14	17	23	32	42	53	64
B200	Deer Run	2	2	2	2	7	7	7
B200	Hill Country Resort	6	7	7	7	7	7	~ (
B200	Jonas Subdivision	2	5	7	7	7	2	7
B200	Marty's Mountain	12	15	15	15	15	15	5

Canyon Lake Water Supply Corporation Regional Water Plan

		Projected			Population Projections	Projections			
		1996	, 2000 , 2000	2010	2020	2030	2040		2050
Area No.	Subdivision Name	Population	5.20% 6		ı			9	1
9500 8500	Mr. Lookout	0 0	2	· (C)	က		က	က	ო
B200	Cimon Tracks	25	31	43	61	7	92	9/	9/
9200	Simoveide Terrace	° ∞	9	41	20	26	တ	33	4
D200	Cullifyside Ferrace	27	33	45	56	56	ထ	26	26
0000	The Delate	2	2	ю	က		n	ო	ო
B200	The neights Valkalla-Simon-Riper Subdivision	2 1	8	2	2		2	7	2
0200	Windiamor Resort	0	0	0	0		0	0	0
0000	Canyon Lake Acres	157	193	265	374	490	0	613	740
0000	Callyol Land Acted to	28	36	49	55	55	2	55	52
0300	New Development	57	78	141	312	543		801	1,105
AREA TOTAL		393	481	681	1,035	1,439		1,862	2,329
		c	r	c	0		0	2	7
B300	Charles Moore Subdivision	۷ (	3 05	1 4	92	66	ı o	124	126
B300	Hancock Canyon	20.	9 6	7	•	000		233	233
B300	Hancock Oak Hills	- 5	9 4 4	5. 5.			39	49	29
B300	Lakeside Development	71	<u>.</u>	-, α	5 =		14	9	16
B300	Royal Summit	ဂ ဗို	<b>1</b> C	, t		· 0	94	118	142
B300	Scenic Terrace	0, 6	70	ָה הַנ	•	770		1 132	1 132
B300	Tamarack Shores	313	380	929		6		1 .	103
B300	The Point at Rancho del lago	22	27	) S		8 5	8 9	3 5	8 5
B300	Linda Ledges (U.R.)	ලිස <sup>(</sup>	48	9 8			<b>2</b> C	6 6	245
B300	Rancho Del Lago	52	<b>5</b>	80 (	_	ָב <sup>ַ</sup> ע	707	3 8	99
B300	Unplatted Acreage	X !	42	22		00	2 0	8 5	105
B300	New Development	25	8/	14.		7			0000
AREA TOTAL		699	830	1,174	76/,1	2,393		6,930	0000
0070	Big Walnut Springs (UB)	2	2	7			2	2	2
0400	Canyon Lake Estates	29	36	49	9		06	113	136
100	Control Lake Jelend	29	72	66	140		183	229	276
0400	Canyon Lake Shores	263	323	443			8	1,023	1,235
0400	Canyon Lake Shores (LIR)	5	9	w	1		14	92	22
200	Glomate	20	25	34			63	73	92
0400	Ciellingie Lillon Mobile Home Subdivision	۲ ،	2	2	2		2	7	2
8400	Cinco Doint	17	21	52			54	68	82
B400		- 2	23	33			69	74	88
B400	Lakewood milis	2	3	i					

THC #201-10.11

pop proj.xls

Table A2 - Population Projections

		Projected			Population Projections	ojections		
		1996	2000	2010	2020	2030	2040	2050
Area No.	Subdivision Name	Population	5.28%	3.22%	3.50%	2.73%	2.26%	1.90%
B600	Clear Creek Addition	5	9	8	11	14	14	14
B600	Cypress Cove	288	354	486	989	868	1,123	1,356
B600	Hideaway Subdivision	24	29	39	39	39	36	36
B600	Rebecca Crossing	12	14	14	14	14	14	14
B600	Unplatted Acreage	42	52	71	80	80	80	80
B600	New Development	25	78	141	312	543	801	1,105
AREA TOTAL	-	430	535	762	1,146	1,593	2,077	2,614
B700	Acorn Acres	2	2	2	2	2	7	2
B700	Charlie's 306	~	_	_	•	-	τ-	-
B700	Cherry Creek Subdivision	10	12	16	23	30	36	36
B700	Comal Hills Subdivision	149	183	251	354	463	629	669
B700	Coyote Ridge	0	0	0	0	0	0	0
B700	Cypress Lake Gardens	277	340	467	629	863	1,079	1,302
B700	Cypress Lake Gardens Big Sky Ranchettes	æ	9	9	9	9	9	9
B700	Fernandez Subdivision	2	7	2	7	7	7	2
B700	Finkel Subdivision	0	0	0	0	0	0	0
B700	Forest Lake Estates	8	2	2	2	2	7	2
8700	Harley Acres	0	0	0	0	0	0	0
B700	Henke Subdivision	2	2	7	2	2	2	2
B700	Indian Hills Estates	243	299	393	393	393	393	393
B700	Lake Gardens	2	2	2	2	2	2	2
B700	Rebecca Creek Estates	0	0	0	0	0	0	0
B700	Rebecca Creek Park Subdivision	137	168	231	326	427	534	645
B700	The Springs at Rebecca Creek	28	71	26	137	179	224	270
B700	Unplatted Acreage	26	69	92	107	107	107	107
B700	New Development	22	78	141	312	543	801	1,105
AREA TOTAL		1,006	1,237	1,708	2,328	3,022	3,770	4,574
AREA B TOTAL	TAL	5,107	6,268	8,738	12,478	16,437	20,253	24,107
C100	Austin B. Sheridan Properties	2	2	2	7	7	8	7
C100	Christensen Scenic River	49	55	55	22	52	52	22
C100	JDJRanch	39	48	99	83	83	83	83
C100	Sattler Business Lots	Ξ	4	19	27	33	33	33

THC #201-10.11

7/7/97 pop proj.xls

Table A2 - Population Projections

		Projected			Population Projections	ojections		
		1998	2000	2010	2020	2030	2040	2050
Area No.	Subdivision Name	Population	5.28%	3.22%	3.50%	2.73%	2.26%	1.90%
C.100	Sattler Estates Subdivision	72	88	121	171	172	172	172
35	Sattler Village Subdivision	144	177	243	343	439	439	439
8 5	The Little Ponderosa	47	28	80	113	148	185	223
250	Tholatted Acreade	100	123	169	190	190	190	190
3 2	New Development	22	78	141	312	543	801	1,105
AREA TOTAL		521	643	896	1,296	1,665	1,960	2,302
0023	Arrowhead Village	23	27	37	52	89	85	103
C200	Bradcliff on the River	0	0	0	0	0	0	0
C200	Canvon Corner	55	89	93	131	132	132	132
020	Canyon Lake Village	269	330	453	639	837	1,047	1,193
020	John B Browns Peak	0	0	0	0	0	0	0
0700	Kuntry Korner Estates	7	6	12	12	12	12	12
C200	Lake View Heights	99	81	85	85	82	82	82
C200	Miles Parker Estates	7	7	က	က	ო	က	က
0000	Netherhill Place	0	0	0	0	0	0	0
0200	River Point Estates	70	98	118	128	128	128	128
C200	River Valley Estates	<b>o</b>	1	15	18	18	18	48
0200	Sattler Ridge Estates	7	2	2	2	2	2	7
0200	Skyline Acres	20	61	84	118	136	136	136
0000	Valley View	S	9	∞	=======================================	14	18	20
200	Unplatted Acreade	53	65	88	101	101	101	101
0200	New Development	57	78	141	312	543	801	1,105
AREA TOTAL		299	826	1,140	1,612	2,079	2,568	3,038
0083	Rine Water Estates	20	25	34	48	63	79	84
0000	Canyon Lake Village West	552	678	931	1,259	1,259	1,259	1,259
2300	Codar Breaks Subdivision	2	2	က	4	2	9	7
230	Deen Well Subdivision	9	7	1	<u>†</u>	14	14	14
300	Double E Subdivision	2	2	7	2	2	7	7
230	Five Oaks	22	27	37	52	58	58	58
0300	Hidden Vallev Estates	7	2	က	4	2	မ	7
0300	Highland Terrace	24	29	40	99	73	91	26
0300	Island View Office Addition	0	0	0	0	0	0	0
C300	Los Tres Amigos Estates	2	2	က	4	လ	မ	9
C300	Moorview Subdivision	0	0	0	0	0	0	0

Subdivision Name Mountain Oaks Shamrock Hills Shepherd Hill The Oaks Tripple Peak Ranch Estates Village Shores	1996	2000	2010	2020	2030	2040	2050
ntain Oaks nrock Hills herd Hill Oaks le Peak Ranch Estates ge Shores	Population	5.28%	3.22%	3,50%	2.73%	2.26%	1.90%
nrock Hills herd Hill Daks le Peak Ranch Estates ge Shores	7	1	12	17	22	28	34
herd Hill Daks le Peak Ranch Estates 3e Shores	ιΩ	φ	80	10	10	10	10
Daks de Peak Ranch Estates ge Shores	2	2	7	2	2	2	2
le Peak Ranch Estates Shores	270	332	456	622	622	622	622
ge Shores	79	97	133	147	147	147	147
	69	85	117	165	167	167	167
Unblatted Acreade	63	77	106	120	120	120	120
New Development	25	78	141	312	543	801	1,105
-	1,184	1,460	2,038	2,838	3,117	3,418	3,741
Canyon Lake Forest	530	651	894	1,261	1,651	2,064	2,080
Oak Hideaway Estates	14	17	22	22	22	22	22
Shadyvale Subdivision	7	2	2	2	2	2	2
St. Andrews by the Woodlands	9	7	10	11	17	17	7
Stanley Square	_	-	-	Ψ-	-	Ψ-	-
Startz Subdivision	0	0	0	0	0	0	0
Sunburst Ranch	13	16	22	31	32	32	32
Tills Terrace Subdivision	77	14	19	26	<b>5</b> 6	<b>5</b> 9	26
Waterfront Park	211	259	303	303	303	303	303
dlands	88	109	150	212	278	348	420
atted Acreage	53	92	89	101	101	101	101
Develoipment	25	78	141	312	543	801	1,105
	186	1,219	1,653	2,282	2,970	3,711	4,103
Hills	230	283	389	504	504	504	504
on Lake Hills	986	1,211	1,663	2,346	3,071	3,840	3,889
on Lake Hills 1	80	ဖ	9	9	ဖ	9	ဖ
on Springs Resort	489	601	825	1,164	1,524	1,906	2,042
es Mill Landing	0	0	0	0	0	0	0
Glen	22	27	30	30	30	30	30
dise Point	13	16	22	31	41	51	26
thaven	177	217	298	378	378	378	378
atted Acreage	69	85	117	132	132	132	132
Development	25	78	141	312	543	801	1,105
	2,051	2,524	3,491	4,903	6,229	7,648	8,142
	Woodlands Woodlands Unplatted Acreage New Develoipment Astro Hills Canyon Lake Hills 1 Canyon Springs Resort Cranes Mill Landing Erin Glen Paradise Point Westhaven Unplatted Acreage	esort	89 11 53 57 1,2 887 1,2 986 1,2 99 0 0 13 13 177 2 69 69 69 69 69 69 69 69 69 69 69 69 69 6	89 109 16 53 65 65 57 78 1,219 1,61 80 1,211 1,66 81 80 601 81 90 0 0 13 16 13 177 217 21 69 85 11 2,051 2,524 3,44	99 150 150 150 150 150 150 150 150 150 150	9 109 150 212 25 65 89 101 312 87 78 141 312 887 1,219 1,653 2,282 2,986 1,211 1,663 2,346 3,0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	89 109 150 212 278 3 53 65 89 101 101 101 101 312 543 8 987 1,219 1,653 2,282 2,970 3,77 3,8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6

Table A2 - Population Projections

		Projected			Population Projections	ojections		
		1996	2000	2010	2020	2030	2040	2050
Area No.	Subdivision Name	Population	5.28%	3.22%	3.50%	2.73%	2.26%	1.90%
C600	Canvon Lake MH Estates	537	099	784	784	784	784	784
0090	Canyon Lake MH Estates North	145	178	244	270	270	270	270
C600	Deer Meadows	74	91	125	176	230	288	348
0090	Lakeview Park	317	389	534	542	542	542	542
0090	Linnea S. Ped Lots	2	2	2	7	7	2	2
0090	Rolling Hills	455	559	797	818	818	818	818
0090	Scenic Heights 1	114	140	192	271	355	444	536
C600	Tom Creek Acres	53	65	89	105	105	105	105
0090	Tom Creek Hills	2	2	2	2	2	2	2
C600	Unplatted Acreage	80	86	135	152	152	152	152
0090	New Development	25	78	141	312	543	801	1,105
AREA TOTAL	-	1,836	2,262	3,015	3,434	3,803	4,208	4,664
C700	Abbott-Barnett Subdivision	2	2	2	2	2	2	7
C700	Ancient Oaks	0	0	0	0	0	0	0
C700	Bremer Ranch	2	2	2	7	2	2	7
C700	Denham Estates	2	2	2	2	7	2	2
C700	Fox Till	80	10	4	20	24	24	24
C700	Monier Ranch	25	31	40	40	40	40	40
C700	Park Ranch	2	2	7	2	2	2	2
C700	Smith Ranch	13	16	18	18	18	18	18
C700	Wiesner Ranch	4	17	23	30	30	30	30
C700	Unplatted Acreade	243	299	410	462	462	462	462
C700	New Development	57	78	141	312	543	801	1,105
AREA TOTAL		368	459	654	890	1,125	1,383	1,687
AREA C TOTAL	TAL	7,614	9,393	12,887	17,255	20,988	24,896	27,677
9		c	c	0	0	0	8	8
0110	Buzzarus nest namen	1 8	1 02	108	143	143	143	143
0110	Inland Estates	5 0	20	2	2 2	2	. 7	7
2 2 2	Nova Indian Decembrion	. S	101	116	116	116	116	116
5 5 5	Oliver Estates	,	2	2	2	7	2	2
5 5	Uniatted Acreade	182	224	308	347	347	347	347
5 5	New Development	57	78	141	312	543	801	1,105
2								

Table A2 - 11

		Projected			Population Projections	rojections		
, , , , , , , , , , , , , , , , , , ,	and a second	1996 Population	2000	2010 3.22%	2020 3,50%	2030	2040 2.26%	2050
AREA D TOTAL		391	488	629	924	1,155	1,413	1,717
	STUDY AREA TOTAL	22,036	27,239	37,398	52,823	69,248	86,656	104,653
NORTH SIDE		5,343	6,569	9,223	13,381	17,878	22,296	26,861
SOUTH SIDE		10,649	13,247	18,148	24,878	31,356	38,265	44,541
SOUTHWEST SIDE		6,044	7,423	10,027	14,564	20,014	26,095	33,251
	•	22,036	27,239	37,398	52,823	69,248	86,656	104,653

Canyon Lake Water Supply Corporation Regional Water Plan

				Water U	Water Use Projections (galiday)	(gal/day)		
		1996	2000	_	2020 2020	2030	2040	2050
Area No.	Subdivision Name	147	183	170	161	158	961	CCL
A110	Honey Creek Ranches Subdivision	735	732	089	644	632	624	620
A110	Oak Springs Subdivision	5,292	6,954	6,460	6,118	6,004	5,928	5,890
A110	Unplatted Acreage	20,727	31,659	40,460	43,309	42,502	41,964	41,695
A110	New Development	19,551	33,306	55,760	117,208	200,028	291,408	399,745
SUBTOTALS		46,305	72,651	103,360	167,279	249,166	339,924	447,950
A120	Bartels Acres	441	732	680	644	632	624	620
A120	Knibbe Subdivision	441	366	340	322	316	312	310
A120	Comal Ranch Subdivision	1,911	1,830	1,700	1,610	1,580	1,560	1,550
A120	Unplatted Acreage	12,348	18,849	23,970	25,599	25,122	24,804	24,645
A120	New Development	19,551	33,306	55,760	117,208	200,028	291,408	399,745
SUBTOTALS	-	34,692	55,083	82,450	145,383	227,678	318,708	426,870
A130	Cypress Springs on the Guadalupe	24,108	36,783	46,920	62'629	80,422	99,216	119,040
A130	Guadalupe River Estates (Riverwood Estates)	25,578	39,162	49,980	49,427	48,506	47,892	47,585
A130	Rivermont	11,613	17,751	22,610	30,268	38,868	48,048	27,660
A130	Spring Branch Estates 1	14,259	21,777	27,710	26,404	25,912	25,584	25,420
A130	Unplatted Acreage	7,497	11,529	14,620	15,617	15,326	15,132	15,035
A130	New Development	19,551	33,306	55,760	117,208	200,028	291,408	399,745
SUBTOTALS		102,606	160,308	217,600	301,553	409,062	527,280	664,485
A140	Ahern Creek Ranches	1,911	1,830	1,700	1,610	1,580	1,560	1,550
A140	Benke Oaks	441	366	340	322	316	312	310
A140	Diamond D Subdivision	441	366	340	322	316	312	310
A140	Dillard Subdivision	735	732	089	644	632	624	620
A140	Elm Ridge Estates	6,027	8,235	7,650	7,245	7,110	7,020	6,975
A140	Flying "R" Ranch	6,762	669'6	9,010	8,533	8,374	8,268	8,215
A140	Lange Ranch Subdivision	441	732	850	1,127	1,264	1,248	1,240
A140	Little Creek	1,470	1,464	1,360	1,288	1,264	1,248	1,240
A140	Oakland Estates	30,870	45,384	42,160	39,928	39,184	38,688	38,440
A140	Singer Ranch	147	183	170	161	158	156	155
A140	Spring Branch Acres	16,170	24,705	29,920	28,336	27,808	27,456	27,280
A140	The Woods at Spring Branch	8,673	13,176	13,770	13,041	12,798	12,636	12,555
A140	Unplatted Acreage	10,143	15,555	19,890	21,252	20,856	20,592	20,460
A140	New Development	19,551	33,306	55,760	117,208	200,028	291,408	399,745
SUBTOTALS	•	103,782	155,733	183,600	241,017	321,688	411,528	519,095
A150	Creekwood Ranches	26,313	40,260	51,340	68,586	74,418	73,476	73,005
A150	Gutierrez Ranch	0	0	0	0	0	0	0
A150	Ridgeview Oaks East	7,203	10,980	12,070	11,431	11,218	11,076	11,005
A150	Ridgeview Oaks West	28,518	36,417	33,830	32,039	31,442	31,044	30,845
A150	Sun Valley Village	31,458	41,358	38,420	36,386	35,708	35,256	35,030

Canyon Lake Water Supply Corporation Regional Water Plan

		950,	2000	Water Year/F	Water Use Projections (gal/day) Year/Per Capita Consumption 2020	(gal/day) sumption 2030	2040	2050
Area No.	Subdivision Name	147	183	170	161	158	156	155
A150	Whispering Hills	27,489	42,090	53,720	71,806	92,272	113,880	136,555
A150	Unplatted Acreage	14,994	22,875	29,240	31,234	30,652	30,264	30,070
A150	New Development	19,551	33,306	55,760	117,208	200,028	291,408	399,745
SUBTOTALS		155,526	227,286	274,380	368,690	475,738	586,404	716,255
AREA TOTAL		442,911	671,061	861,390	1,223,922	1,683,332	2,183,844	2,774,655
A210	Crouse Subdivision	735	732	089	644	632	624	620
A210	Dresden Wood 1	6,468	9,882	11,050	10,465	10,270	10,140	10,075
A210	North Barcroft Estates	1,911	2,928	3,740	4,508	4,424	4,368	4,340
A210	Sage Oaks	7,938	12,078	15,470	18,193	17,854	17,628	17,515
A210	Silver Hills	33,516	51,240	65,280	68,264	66,992	66,144	65,720
A210	Unplatted Acreage	13,524	20,679	26,350	28,175	27,650	27,300	27,125
A210	New Development	16,317	27,633	46,580	97,727	166,690	242,892	333,095
SUBTOTALS		80,409	125,172	169,150	227,976	294,512	369,096	458,490
A220	Brand Ranch	4,116	6,222	7,140	6,762	969'9	6,552	6,510
A220	Indian Creek Ridge	2,646	4,026	5,100	6,440	6,320	6,240	6,200
A220	Jahnsen Ranch 1	441	366	340	322	316	312	310
A220	Oak Cliff Acres	25,578	39,162	47,090	44,597	43,766	43,212	42,935
A220	Persimmon Hill Sub	8,967	13,725	17,510	21,091	20,698	20,436	20,305
A220	Shepherds Ranch	5,292	8,052	10,200	13,685	17,538	21,684	26,040
A220	Wehe Estates	1,176	1,830	1,700	1,610	1,580	1,560	1,550
A220	Unplatted Acreage	12,054	18,483	23,630	25,277	24,806	24,492	24,335
A220	New Development	16,317	27,633	46,580	97,727	166,690	242,892	333,095
SUBTOTALS		76,587	119,499	159,290	217,511	288,350	367,380	461,280
A230	Bulverde Estates 1	51,891	79,422	101,320	118,496	116,288	114,816	114,080
A230	Bulverde Hills 3	19,257	29,463	30,090	28,497	27,966	27,612	27,435
A230	Bulverde Oaks 1	5,586	8,601	11,050	14,329	14,062	13,884	13,795
A230	Bulverde Ranchettes	735	1,098	1,360	1,771	2,212	2,808	3,410
A230	Cox Subdivision	147	183	170	161	158	156	155
A230	Elm Valley	13,524	20,679	26,350	25,116	24,648	24,336	24,180
A230	Hogan 281 Subdivision	735	732	089	644	632	624	620
A230	Licata Ranch	735	1,098	1,360	1,610	1,580	1,560	1,550
A230	Lundgren Subdivision	441	366	340	322	316	312	310
A230	Palmer Heights	1,911	2,928	3,060	2,898	2,844	2,808	2,790
A230	Spring Oak Estates	48,069	73,566	93,840	91,448	89,744	88,608	88,040
A230	The Highlands	4,116	6,222	066'2	10,626	13,588	13,416	13,330
A230	Travel Mart Subdivision	147	183	170	161	158	156	155
A230	Unplatted Acreage	11,613	17,751	22,610	24,150	23,700	23,400	23,250
A230	New Development	16,317	27,633	46,580	97,727	166,690	242,892	333,095

				Water	Water Use Projections (gal/day)	(gal/day)		
		1996	2000	764777 2010	Yearrer Capita Consumption 2020 2030	1mpuon 2030	2040	2050
Area No	Subdivision Name	147	183	170	161	158	156	155
SUBTOTALS		175,224	269,925	346,970	417,956	484,586	557,388	646,195
A240	Ammann Oaks Sub	14,700	22,326	20,740	19,642	19,276	19,032	18,910
A240	Hidden Oaks	13,965	21,411	27,370	26,082	25,596	25,272	25,110
A240	Klar Ranch	441	366	340	322	316	312	310
A240	Saur Subdivision	441	732	850	996	948	936	930
A240	Unplatted Acreage	11,319	17,385	22,100	23,506	23,068	22,776	22,630
A240	New Development	16,317	27,633	46,580	97,727	166,690	242,892	333,095
SUBTOTALS	-	57,183	89,853	117,980	168,245	235,894	311,220	400,985
A250	Buiverde Gardens	1,911	1,830	1,700	1,610	1,580	1,560	1,550
A250	Bulverde Ranches	8,085	10,980	10,200	099'6	9,480	6,360	9,300
A250	Canyon View Acres	59,094	75,030	69,700	66,010	64,780	63,960	63,550
A250	Lindsey Acres	441	366	340	322	316	312	310
A250	Unplatted Acreage	8,232	12,627	16,150	17,227	16,906	16,692	16,585
A250	New Development	16,317	27,633	46,580	97,727	166,690	242,892	333,095
SUBTOTALS		94,080	128,466	144,670	192,556	259,752	334,776	424,390
A260	Cibolo One Subdivision	441	366	340	322	316	312	310
A260	Cibolo Two Subdivision	441	366	340	322	316	312	310
A260	Unplatted Acreage	2,940	4,575	5,780	6,118	6,004	5,928	5,890
A260	New Development	16,317	27,633	46,580	97,727	166,690	242,892	333,095
SUBTOTALS	•	20,139	32,940	53,040	104,489	173,326	249,444	339,605
AREA TOTAL		503,622	765,855	991,100	1,328,733	1,736,420	2,189,304	2,730,945
A310	Charles Cantu Subdivision	441	366	340	322	316	312	310
A310	Herbert M Gruen	441	366	340	322	316	312	310
A310	John Hall Subdivision	441	366	340	322	316	312	310
A310	Stoney Cliff	441	366	340	322	316	312	310
A310	Stoney Ridge	6,468	9,882	12,410	11,753	11,534	11,388	11,315
A310	Unplatted Acreage	8,673	13,176	16,830	18,032	17,696	17,472	17,360
A310	New Development	48,951	83,082	139,570	293,181	500,070	728,520	999,285
SUBTOTALS		65,856	107,604	170,170	324,254	530,564	758,628	1,029,200
A320	Beam Subdivision	2,205	3,294	3,740	3,542	3,476	3,432	3,410
A320	Beck Ranch	8,673	13,176	16,830	21,413	21,014	20,748	20,615
A320	Cross Roads Estates Phase 1	294	366	510	644	790	936	1,085
A320	Forrest Wilson Subdivision	441	366	340	322	316	312	310
A320	Kappelman Subdivision	441	366	340	322	316	312	310
A320	McGuffin Subdivision	0	0	0	0	0	0	0
A320	Misty Hills	7,938	12,078	13,430	12,719	12,482	12,324	12,245
A320	Oak Village North	192,423	287,859	267,410	253,253	248,534	245,388	243,815
A320	Skyridge Subdivision	4,851	7,503	9,520	12,719	16,274	20,124	22,475

Canyon Lake Water Supply Corporation Regional Water Plan

				Water	Water Use Projections (gal/day)	s (gal/day) sumption		
		1996	2000		2020	2030	2040	2050
Area No.	Subdivision Name	147	183	170	161	158	156	155 A 850
A320	Smokey Mountain Ranch	2,205	3,294	05,4	4,030	4,740	000,4	33,790
A320	Stoney Creek	180,81	27,633	081,65	020,030	† † † † † † † † † † † † † † † † † † †	24,000	10,100
A320	Twin Creek Subdivision	13,965	17,934	16,660	15,778	15,484	15,266	13,180
A320	Wilson Subdivision	441	366	340	322	316	212	310
A320	Unplatted Acreage	18,081	27,633	35,190	37,674	36,972	36,504	36,270
A320	New Development	48,951	83,082	139,570	293,181	200,070	728,520	999,285
SUBTOTALS		318,990	484,950	543,320	691,817	895,228	1,122,888	1,393,760
AREA TOTAL		384,846	592,554	713,490	1,016,071	1,425,792	1,881,516	2,422,960
AREA A TOTAL	TAL	1,331,379	2,029,470	2,565,980	3,568,726	4,845,544	6,254,664	7,928,560
B110	Buck Horn Rench	441	366	340	322	316	312	310
2 5		441	366	340	322	316	312	310
5 5	Linniago Cans	2.793	4.209	5,440	5,796	5,688	5,616	5,580
5 5	New Development	2,793	4,758	7,990	16,744	28,598	41,652	57,040
SUBTOTALS		6,468	669'6	14,110	23,184	34,918	47,892	63,240
B120	Cadillac Canyon	10,143	15,555	19,890	24,311	23,858	23,556	23,405
B120	Canyon Creek Estates	3,528	5,307	6,800	9,016	11,534	14,196	17,050
B120	Canyon Dam Hillsite	1,470	2,196	2,720	3,703	4,424	4,368	4,340
B120	Canyon Dam Sub 1	2,058	3,111	3,910	5,152	5,846	5,772	5,735
B120	Canyon Valley Estates 1	1,470	1,830	1,700	1,610	1,580	1,560	1,550
B120	Clear Water Estates	6,174	9,516	12,070	16,100	20,698	25,584	30,690
B120	Cougar Ridge	1,470	2,196	2,720	3,703	3,792	3,744	07/5
B120	Deep Acres Estates 2	4,998	7,686	9,860	13,202	16,906	17,784	17,6/0
B120	Devils Backbone Heights	3,234	4,941	6,290	8,372	10,744	13,260	15,965
B120	Eagles Peak Ranch	3,234	4,941	6,290	8,3/2	10,744 23 384	13,200 28,860	34.565
B120	Emeraid Valley Subdivision	9080	900	340	322	23,03	312	310
B120	Franck Subdivision	700	996	1 1	77C	262	926	1 085
120	Gien Koy	187	300	0.50	11 502	14 852	18 408	22,010
B120	Hillorest Estates	4,400	777.00	0,0,0	52,11	61 146	60.372	59 985
B120	Horseshoe Fails Subdivision	20,139	1000	42,67	76,100	000 44	15,600	15,500
B120	Maricopa Ranch	0,00	10,000	12,920	10,100	900,51	890'5	000'6'
B120	North Lake Estates	9CN'7	11.5	0,8,0	20,10	7,000	47 460	17,050
B120	North Ridge Estates	17,199	20,130	007,81	017,11	17,300	17,100	0.00
<b>B120</b>	Pfeil Estates	4,116	6,222	7,990	9,982	96/6	7/0'6	9,010
B120	River's Edge	606'9	10,614	13,600	18,193	18,012	17,784	0/9//1
B120	Riverside Estates	294	366	510	483	4/4	400	400
B120	Spring Mountain	4,263	6,588	8,330	11,109	14,220	979'/1	C00'61

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Canyon Lake Water Supply Corporation Regional Water Plan

				Water I	Water Use Projections (gal/day)	gal/day) motion		
		966	2000		2020	2030	2040	2050
Area No.	Subdivision Name	147	183	170	161	158	156	155
B120	Unplatted Acreage	6,174	9,516	12,070	12,880	12,640	12,480	12,400
B120	New Development	2,793	4,758	7,990	16,744	28,598	41,652	57,040
SUBTOTALS	-	120,246	177,510	220,660	285,131	334,170	372,684	413,385
B130	Eden Ranch	36,603	55,998	71,400	95,312	121,818	120,276	119,505
B130	Espinazo Del Diablo	6,027	9,150	11,730	12,397	12,166	12,012	11,935
B130	Meyers Mountain	441	732	820	1,127	1,422	1,716	2,015
B130	Pleasant View Estates	1,176	1,830	1,700	1,610	1,580	1,560	1,550
B130	Scenic River Properties	4,263	6,588	7,310	6,923	6,794	6,708	6,665
B130	The Summitt	7,203	10,980	13,940	18,676	24,016	29,640	35,495
B130	Unplatted Acreage	7,644	11,712	14,960	15,939	15,642	15,444	15,345
B130	New Development	2,793	4,758	2,990	16,744	28,598	41,652	57,040
SUBTOTALS	-	66,150	101,748	129,880	168,728	212,036	229,008	249,550
AREA TOTAL		192,864	288,957	364,650	477,043	581,124	649,584	726,175
B200	Arrovo Bravo	0	0	0	0	0	0	0
8200	Bold Creek	2,058	3,111	3,910	5,152	969'9	7,644	7,595
B200	Canvon Lake Point Resort	147	183	170	161	158	156	155
B200	Canyon Lake Yacht Club	0	0	0	0	0	0	0
B200	Canyon Park Estates	3,234	4,941	6,290	8,372	10,744	13,260	15,965
B200	Crystal Heights	2,058	3,111	3,910	5,152	969'9	8,268	9,920
B200	Deer Run	294	366	340	322	316	312	310
B200	Hill Country Resort	1,323	1,281	1,190	1,127	1,106	1,092	1,085
B200	Jonas Subdivision	294	366	340	322	316	312	310
B200	Marty's Mountain	1,764	2,745	2,550	2,415	2,370	2,340	2,325
B200	Mt. Lookout	1,176	1,098	1,020	996	948	936	930
B200	Quail Crossing	294	366	510	483	474	468	465
B200	Simon Tracts	3,675	5,673	7,310	9,821	12,008	11,856	11,780
B200	Sunnyside Terrace	1,176	1,830	2,380	3,220	4,108	5,148	6,200
B200	Sunset Terrace	3,969	6,039	7,650	9,016	8,848	8,736	8,680
B200	The Heights	294	366	510	483	474	468	465
B200	Valhalla-Simon-Riner Subdivision	294	366	340	322	316	312	310
B200	Windjammer Resort	0	0	0	0	0	0	0
B200	Canyon Lake Acres	23,079	35,319	45,050	60,214	77,420	92,628	114,700
B200	Unplatted Acreage	4,263	6,588	8,330	8,855	8,690	8,580	8,525
B200	New Development	8,379	14,274	23,970	50,232	85,794	124,956	171,275
AREA TOTAL	-	57,771	88,023	115,770	166,635	227,362	290,472	360,995
ВЗОО	Charles Moore Subdivision	294	366	340	322	316	312	310
0000		707 7	7 137	0 180	12 236	15 642	19.344	19 530
6300	Hancock Canyon	r r	-	,,	. L. L.	1		1

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Canyon Lake Water Supply Corporation Regional Water Plan

		1996	2000	2010 Tear	rearrer capita consumption 2020 2030	2030	2040	2050
Area No.	Subdivision Name	147	283	170	161	158	156	155
B300	Hancock Oak Hills	10,437	15,921	20,230	27,048	34,760	36,348	36,115
R300	Lakeside Development	1,764	2,745	3,570	4,830	6,162	7,644	9,145
B300	Royal Summit	735	1,098	1,360	1,771	2,212	2,496	2,480
B300	Scenic Terrace	4,410	6,771	8,670	11,592	14,852	18,408	22,010
B300	Tamarack Shores	46,011	70,455	89,930	120,106	154,366	176,592	175,460
B300	The Point at Rancho del lado	3,234	4,941	6,290	8,372	10,744	13,260	15,965
200	Linds Ledder (LLR)	5,733	8.784	11,220	14,973	17,222	17,004	16,895
8300	Rancho Del Lado	7,644	11,712	14,960	19,964	25,596	31,668	37,975
B300	Unclatted Acreade	4 998	7,686	9,860	10,626	10,428	10,296	10,230
B300	New Development	8,379	14,274	23,970	50,232	85,794	124,956	171,275
AREA TOTAL		98,343	151,890	199,580	282,072	378,094	458,328	517,390
B400	Big Walnut Springs (UR)	294	366	340	322	316	312	310
B400	Canvon Lake Estates	4,263	6,588	8,330	11,109	14,220	17,628	21,080
R400	Canvon Lake Island	8,673	13,176	16,830	22,540	28,914	35,724	42,780
8400	Canyon Lake Shores	38,661	59,109	75,310	100,625	129,244	159,588	191,425
B400	Canvon Lake Shores (UR)	735	1,098	1,360	1,771	2,212	2,808	3,410
B400	Glenmare	2,940	4,575	5,780	7,728	9,954	12,324	14,260
B400	Hillton Mobile Home Subdivision	294	366	340	322	316	312	310
8400	Kings Point	2,499	3,843	4,930	6,601	8,532	10,608	12,710
B400	Lakewood Hills	2,793	4,209	5,440	7,245	9,322	11,544	13,795
B400	Lazy Diamond Ranchettes	4,410	6,771	8,670	11,592	14,536	14,352	14,260
B400	Potters Creek Park Acres	441	732	820	1,127	1,422	1,560	1,550
B400	Tanglewood Shores	15,876	24,339	31,110	41,538	53,404	65,988	79,205
B400	The Cedars	294	366	510	644	790	936	1,085
B400	Tranquility Park	1,764	2,745	3,570	4,830	6,162	7,644	9,145
B400	Unplatted Acreage	5,439	8,235	10,540	11,270	11,060	10,920	10,850
B400	New Development	8,379	14,274	23,970	50,232	85,794	124,956	171,275
AREA TOTAL		97,755	150,792	197,880	279,496	376,198	477,204	587,450
B510	Canvon Oaks Estates	606'9	10,614	13,600	15,134	14,852	14,664	14,570
B510	Deer River	20,580	31,476	40,120	53,613	68,888	85,020	85,250
B510	lake of the Hills	5,586	8,601	11,050	14,812	18,960	23,400	28,055
R510	Unplatted Acreade	3,969	6,039	7,650	8,050	7,900	7,800	7,750
R510	New Development	2,793	4,758	7,990	16,744	28,598	41,652	57,040
SUBTOTALS		39,837	61,488	80,410	108,353	139,198	172,536	192,665
B520	Fischer Thirty Two Subdivision	441	732	820	1,127	1,422	1,560	1,550
B520	Lakewood Estates	735	1,098	1,360	1,771	2,212	2,808	3,410
B520	Rocky Creek Ranch	2,499	3,843	4,930	6,601	8,532	10,608	12,710

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Canyon Lake Water Supply Corporation Regional Water Plan

				Water U Year/P	Water Use Projections (gal/day) Year/Per Capita Consumption	(gal/day) Imption		
		1996	2000	2010	2020	2030	2040	2050
Area No.	Subdivision Name	747	183 366	340	322	316	312	310
B520	Valley Karon Microgina Oaks	2 352	3.660	4.590	4,991	4,898	4,836	4,805
B520	Vindpointy Canal	11,466	17.568	22,440	23,989	23,542	23,244	23,095
9320 9530	New Development	2.793	4.758	7,990	16,744	28,598	41,652	57,040
SHRTOTALS		20,580	32,025	42,500	55,545	69,520	85,020	102,920
B530	Estates At Camers Creek	735	1,098	1,360	1,771	2,212	2,808	3,410
B530	Fischer Ranches	2.205	3,294	4,250	4,508	4,424	4,368	4,340
B530	Forest View North	966.6	15,372	19,550	20,608	20,224	19,968	19,840
B530	Hopeverickie Rose	294	366	510	644	790	936	1,085
B530	Meister Heirs Estates	0	0	0	0	0	0	0
B530	Ranch I ouise	1.029	1,098	1,020	996	948	936	930
B530	Stallion Springs	5,733	8,784	11,220	14,973	19,276	23,868	28,675
B530	Unplatted Acreade	9,702	14,823	18,870	20,286	19,908	19,656	19,530
B530	New Development	2,793	4,758	2,990	16,744	28,598	41,652	57,040
SIBTOTALS		32,487	49,593	64,770	80,500	96,380	114,192	134,850
AREA TOTAL		92,904	143,106	187,680	244,398	305,098	371,748	430,435
		700	396	610	644	790	936	930
Re00	Almy Addition	467	9 6	2 6	,	2 243	2 184	2 170
B600	Clear Creek Addition	735	1,098	096,1	1//'1	212,2	775 4 8 8	210,10
B600	Cypress Cove	42,336	64,782	82,620	110,446	141,884	1/5,188	210,100
B600	Hideaway Subdivision	3,528	5,307	6,630	6,279	6,162	6,084	6,043
B600	Rebecca Crossing	1,764	2,562	2,380	2,254	2,212	2,184	0/1,2
B600	Unplatted Acreage	6,174	9,516	12,070	12,880	12,640	12,480	12,400
B600	New Development	8,379	14,274	23,970	50,232	85,794	124,956	171,275
AREA TOTAL		63,210	97,905	129,540	184,506	251,694	324,012	405,170
B700	Acom Acres	294	366	340	322	316	312	310
B700	Charlie's 306	147	183	170	161	158	156	155
R700	Chery Creek Subdivision	1,470	2,196	2,720	3,703	4,740	5,616	5,580
B700	Comal Hills Subdivision	21,903	33,489	42,670	56,994	73,154	90,324	108,345
B700	Covote Ridge		0	0	0	0	0	0
B700	Cypress   ake Gardens	40.719	62.220	79,390	106,099	136,354	168,324	201,810
8700	Cyproca Lake Gardens Big Sky Ranchettes	1.176	1,098	1,020	996	948	936	930
8700	Fernandez Subdivision	294	366	340	322	316	312	310
B700	Finkel Subdivision	0	0	0	0	0	0	0
8700	Forest ake Estates	294	366	340	322	316	312	310
8700	Harley Acres	0	0	0	0	0	0	0
B700	Henke Subdivision	294	366	340	322	316	312	310
9700	Indian Hile Estates	35.721	54.717	66,810	63,273	62,094	61,308	60,915
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Canyon Lake Water Supply Corporation Regional Water Plan

		966)	2000	Watel Year 2010	Water Use Projections (gal/day) Year/Per Capita Consumption 2020 161	s (gal/day) sumption 2030 158	2040 156	2050 155
B700	Lake Gardens	294	366	340	322	316	312	310
B700	Rebecca Creek Estates	0	0	0	0	0	0	0
B700	Rebecca Creek Park Subdivision	20,139	30,744	39,270	52,486	67,466	83,304	99,975
B700	The Springs at Rebecca Creek	8,526	12,993	16,490	22,057	28,282	34,944	41,850
B700	Unplatted Acreage	8,232	12,627	16,150	17,227	16,906	16,692	16,585
B700	New Development	8,379	14,274	23,970	50,232	85,794	124,956	171,275
AREA TOTAL		147,882	226,371	290,360	374,808	477,476	588,120	708,970
AREA B TOTAL	TAL	750,729	1,147,044	1,485,460	2,008,958	2,597,046	3,159,468	3,736,585
C100	Austin B. Sheridan Properties	294	366	340	322	316	312	310
C100	Christensen Scenic River	7,203	10,065	6,350	8,855	8,690	8,580	8,525
C100	JDJRanch	5,733	8,784	11,220	13,363	13,114	12,948	12,865
C100	Sattler Business Lots	1,617	2,562	3,230	4,347	5,214	5,148	5,115
C100	Sattler Estates Subdivision	10,584	16,104	20,570	27,531	27,176	26,832	26,660
C100	Sattler Village Subdivision	21,168	32,391	41,310	55,223	69,362	68,484	68,045
C100	The Little Ponderosa	606'9	10,614	13,600	18,193	23,384	28,860	34,565
C100	Unplatted Acreage	14,700	22,509	28,730	30,590	30,020	29,640	29,450
C100	New Development	8,379	14,274	23,970	50,232	85,794	124,956	171,275
AREA TOTAL		76,587	117,669	152,320	208,656	263,070	305,760	356,810
C200	Arrowhead Village	3,234	4,941	6,290	8,372	10,744	13,260	15,965
C200	Bradcliff on the River	0	0	0	0	0	0	0
C200	Canyon Corner	8,085	12,444	15,810	21,091	20,856	20,592	20,460
C200	Canyon Lake Village	39,543	066'09	77,010	102,879	132,246	163,332	184,915
C200	John B. Browns Peak	0	0	0	0	0	0	0
C200	Kuntry Korner Estates	1,029	1,647	2,040	1,932	1,896	1,872	1,860
C200	Lake View Heights	9,702	14,823	14,450	13,685	13,430	13,260	13,175
C200	Miles Parker Estates	294	366	510	483	474	468	465
C200	Netherhill Place	0	0	0	0	0	0	0
C200	River Point Estates	10,290	15,738	20,060	20,608	20,224	19,968	19,840
C200	River Valley Estates	1,323	2,013	2,550	2,898	2,844	2,808	2,790
C200	Sattler Ridge Estates	294	366	340	322	316	312	310
C200	Skyline Acres	7,350	11,163	14,280	18,998	21,488	21,216	21,080
C200	Valley View	735	1,098	1,360	1,771	2,212	2,808	3,100
C200	Unplatted Acreage	7,791	11,895	15,130	16,261	15,958	15,756	15,655
C200	New Develolpment	8,379	14,274	23,970	50,232	85,794	124,956	171,275

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Canyon Lake Water Supply Corporation Regional Water Plan

200	Subdivision Name	1996	2000	Water U Year/P 2010 170	Water Use Projections (gal/day) Year/Per Capita Consumption 2020 2030	gal/day) mption 2030 158	2040 156	2050 155
AREA TOTAL		98,049	151,158	193,800	259,532	328,482	400,608	470,890
0300	Blue Water Estates	2.940	4,575	5,780	7,728	9,954	12,324	13,020
230	Canyon I ake Village West	81,144	124,074	158,270	202,699	198,922	196,404	195,145
0300	Cedar Breaks Subdivision	294	366	510	644	790	936	1,085
0300	Deep Well Subdivision	882	1,281	1,700	2,254	2,212	2,184	2,170
0300	Double E Subdivision	294	366	340	322	316	312	310
C300	Five Oaks	3,234	4,941	6,290	8,372	9,164	9,048	8,990
0300	Hidden Vallev Estates	294	366	510	644	200	936	1,085
C300	Highland Terrace	3,528	5,307	6,800	9,016	11,534	14,196	15,035
2300	Island View Office Addition	0	0	0	0	0	0	0
0300	Los Tres Amigos Estates	294	366	510	644	790	936	930
0300	Moorview Subdivision	0	0	0	<b>o</b>	0	0	0
C300	Mountain Oaks	1,029	1,647	2,040	2,737	3,476	4,368	5,270
C300	Shamrock Hills	735	1,098	1,360	1,610	1,580	1,560	1,550
C300	Shepherd Hill	294	366	340	322	316	312	310
C300	The Oaks	39,690	60,756	77,520	100,142	98,276	97,032	96,410
C300	Tripple Peak Ranch Estates	11,613	17,751	22,610	23,667	23,226	22,932	22,785
C300	Village Shores	10,143	15,555	19,890	26,565	26,386	26,052	25,885
C300	Unplatted Acreage	9,261	14,091	18,020	19,320	18,960	18,720	18,600
C300	New Development	8,379	14,274	23,970	50,232	85,794	124,956	171,275
AREA TOTAL	•	174,048	267,180	346,460	456,918	492,486	533,208	579,855
C400	Canvon Lake Forest	77,910	119,133	151,980	203,021	260,858	321,984	322,400
C400	Oak Hideaway Estates	2,058	3,111	3,740	3,542	3,476	3,432	3,410
C400	Shadwale Subdivision	294	366	340	322	316	312	310
C400	St. Andrews by the Woodlands	882	1,281	1,700	1,771	1,738	1,716	1,705
C400	Stanley Square	147	183	170	161	158	156	155
C400	Startz Subdivision	0	0	0	0	0	0	0
C400	Sunburst Ranch	1,911	2,928	3,740	4,991	5,056	4,992	4,960
C400	Tills Terrace Subdivision	1,617	2,562	3,230	4,186	4,108	4,056	4,030
C400	Waterfront Park	31,017	47,397	51,510	48,783	47,874	47,268	46,965
C400	Woodlands	13,083	19,947	25,500	34,132	43,924	54,288	65,100
C400	Unplatted Acreage	7,791	11,895	15,130	16,261	15,958	15,756	15,655
C400	New Development	8,379	14,274	23,970	50,232	85,794	124,956	171,275
AREA TOTAL		145,089	223,077	281,010	367,402	469,260	578,916	635,965
0.500	Astro Hills	33.810	51.789	66,130	81,144	79,632	78,624	78,120
C500	Canyon Lake Hills	144,942	221,613	282,710	377,706	485,218	599,040	602,795
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Canyon Lake Water Supply Corporation Regional Water Plan

				Water	Water Use Projections (gal/day)	(gal/day)		
		1996	5000	2010	2020	2030 158	2040 146	2050
Area No.	Subdivision Name	147	1 098	1.020	996	948	936	930
2500	Caryon Springs Resort	71.883	109,983	140,250	187,404	240,792	297,336	316,510
C500	Cranes Mill anding	0	0	0		0	0	0
C500	Erin Glen	3,234	4,941	5,100	4,830	4,740	4,680	4,650
C500	Paradise Point	1,911	2,928	3,740	4,991	6,478	7,956	8,680
C500	Westhaven	26,019	39,711	20,660	60,858	59,724	58,968	58,590
0500	Included Acreade	10,143	15,555	19,890	21,252	20,856	20,592	20,460
C500	New Development	8,379	14,274	23,970	50,232	85,794	124,956	171,275
AREA TOTAL		301,497	461,892	593,470	789,383	984,182	1,193,088	1,262,010
Cen	Canyon   ake MH Estates	78.939	120.780	133,280	126,224	123,872	122,304	121,520
000	Canyon Lake MH Estates North	21,315	32,574	41,480	43,470	42,660	42,120	41,850
200	Deer Meadows	10.878	16,653	21,250	28,336	36,340	44,928	53,940
000	Takesiew Park	46,599	71,187	90,780	87,262	85,636	84,552	84,010
0000	Linnea S. Ped Lots	294	366	340	322	316	312	310
0090	Rolling Hills	66,885	102,297	130,390	131,698	129,244	127,608	126,790
0000	Scenic Heights 1	16,758	25,620	32,640	43,631	26,090	69,264	83,080
080	Tom Creek Acres	7,791	11,895	15,130	16,905	16,590	16,380	16,275
C600	Tom Creek Hills	294	366	340	322	316	312	310
C600	Unplatted Acreade	11,760	17,934	22,950	24,472	24,016	23,712	23,560
C600	New Development	8,379	14,274	23,970	50,232	85,794	124,956	171,275
AREA TOTAL		269,892	413,946	512,550	552,874	600,874	656,448	722,920
		700	396	OVE	322	316	312	310
C/00	Abbott-barnett Subdivision	167	3	5	0	0	0	0
338	Ficial Cars	294	366	340	322	316	312	310
328	Denham Fetates	294	366	340	322	316	312	310
0200		1,176	1,830	2,380	3,220	3,792	3,744	3,720
0700	Monier Ranch	3,675	5,673	6,800	6,440	6,320	6,240	6,200
0200	Park Banch	294	366	340	322	316	312	310
2200	Smith Ranch	1.911	2,928	3,060	2,898	2,844	2,808	2,790
0200	Wiesner Ranch	2,058	3,111	3,910	4,830	4,740	4,680	4,650
C200	Unplatted Acreade	35,721	54,717	69,700	74,382	72,996	72,072	71,610
C700	New Development	8,379	14,274	23,970	50,232	85,794	124,956	171,275
AREA TOTAL		54,096	83,997	111,180	143,290	177,750	215,748	261,485
ADEA C TOTAL	TAI	1,119,258	1.718.919	2.190.790	2.778.055	3,316,104	3,883,776	4,289,935
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Area No.	Subdivision Name	1996	2000	Water Year/I 2010	Water Use Projections (gal/day) Year/Per Capita Consumption 2020 2030	s (gal/day) sumption 2030 158	2040 156	2050
D110	Buzzard's Rest Ranch	294	366	340	322	316	312	310
D110	Inland Estates	9,408	14,457	18,360	23,023	22.594	22.308	22,165
D110	L.D.3 Ranch	294	366	340	322	316	312	310
0110	Naked Indian Reservation	12,054	18,483	19,720	18,676	18,328	18.096	17,980
D110	Oliver Estates	294	366	340	322	316	312	310
D110	Unplatted Acreage	26,754	40,992	52,360	55,867	54,826	54,132	53,785
D110	New Development	8,379	14,274	23,970	50,232	85,794	124,956	171,275
AREA D TOTAL	OTAL	57,477	89,304	115,430	148,764	182,490	220,428	266,135
	STUDY AREA TOTAI	3,258,843	4,984,737	6,357,660	8,504,503	10,941,184	13,518,336	16,221,215
NORTH SIDE	p.i	785,421	1,202,127	1,567,910	2,154,341	2,824,724	3,478,176	4,163,455
SOUTH SIDE	1	1,584,954	2,424,201	3,085,160	4,005,358	4,954,248	5,969,340	6,903,855
SOUTHWEST SIDE	T SIDE	888,468	1,358,409	1,704,590	2,344,804	3,162,212	4,070,820	5,153,905
		3,258,843	4,984,737	6,357,660	8,504,503	10,941,184	13,518,336	16,221,215

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		Current		2	Net Supply Requirements (gal/day)  Maximum Day Flowrate, Based on 2.3 x Average Day	Net Supply Requirements (gal/day)	gal/day) 3 x Average Da		
		Well W	1896	2002	2010	2020	2030	2040	2050
Area No.	Subdivision Name	Capacity	202.770	4 400 000	4 000 0000	2 666 070	2 744 740	A 987 110	R 226 901
AREA TOTAL		076'001	900,418	800'60 <del>1'</del>	C86,046,1	6.000.1 C	;	0	0
270	Society Control of the Control of th	c	1 691	1 684	1 564	1.481	1.454	1.435	1.426
A210	Dreeden Wood 1	0	14.876	22,729	25,415	24,070	23,621	23,322	23,173
4210	North Barcroff Estates	0	4,395	6,734	8,602	10,368	10,175	10,046	9,982
A210	Sade Oaks	0	18,257	27,779	35,581	41,844	41,064	40,544	40,285
A210	Siver Hills		77,087	117,852	150,144	157,007	154,082	152,131	151,156
A210	Unplatted Acreage	0	31,105	47,562	60,605	64,803	63,595	62,790	62,388
A210	New Development	0	37,529	63,556	107,134	224,772	383,387	558,652	766,119
SUBTOTALS		•	184,941	287,896	389,045	624,345	677,378	848,921	1,054,627
A220	Brand Ranch	0	9,467	14,311	16,422	15,553	15,263	15,070	14,973
A220	Indian Creek Ridge	0	980'9	9,260	11,730	14,812	14,536	14,352	14,260
A220	Jahnsen Ranch 1	0	1,014	842	782	741	727	718	713
A220	Oak Cliff Acres	0	58,829	90,073	108,307	102,573	100,662	99,388	98,751
A220	Persimmon Hill Sub	0	20,624	31,568	40,273	48,509	47,605	47,003	46,702
A220	Shepherds Ranch	0	12,172	18,520	23,460	31,476	40,337	49,873	26,892
A220	Wehe Estates	0	2,705	4,209	3,910	3,703	3,634	3,588	3,565
A220	Unplatted Acreage	0	27,724	42,511	54,349	58,137	57,054	56,332	55,971
A220	New Development	0	37,529	63,556	107,134	224,772	383,387	558,652	766,119
SUBTOTALS		0	176,150	274,848	366,367	500,275	663,205	844,974	1,060,944
A230	Bulverde Estates 1	103,680	15,669	78,991	129,356	168,861	163,782	160,397	158,704
A230	Bulverde Hills 3	0	44,291	67,765	69,207	65,543	64,322	63,508	63,101
A230	Buiverde Oaks 1	0	12,848	19,782	25,415	32,957	32,343	31,933	31,729
A230	Buiverde Ranchettes	0	1,691	2,525	3,128	4,073	5,088	6,458	7,843
A230	Cox Subdivision	0	338	421	391	370	363	320	357
A230	Elm Valley	0	31,105	47,562	60,605	27,767	26,690	55,973	55,614
A230	Hogan 281 Subdivision	0	1,691	1,684	1,564	1,481	1,454	1,435	1,426
A230	Licata Ranch	0	1,691	2,525	3,128	3,703	3,634	3,588	3,565
A230	Lundgren Subdivision	0	1,014	842	782	741	727	718	517
A230	Palmer Heights	0	4,395	6,734	7,038	6,665	6,54	6,458	6,417
A230	Spring Oak Estates	0	110,559	169,202	215,832	210,330	206,411	203,798	202,492
A230	The Highlands	0	9,467	14,311	18,377	24,440	31,252	30,857	30,659
A230	Travel Mart Subdivision	0	338	421	391	370	363	328	35/
A230	Unplatted Acreage	0	26,710	40,827	52,003	55,545	54,510	53,820	53,4/5
A230	New Development	0	37,529	63,556	107,134	224,772	383,387	558,652	766,119
SUBTOTALS		103,680	299,335	617,148	694,351	857,619	1,010,868	1,178,312	1,382,569
A240	Ammann Oaks Sub	0	33,810	51,350	47,702	45,177	44,335	43,774	43,493
A240	Hidden Oaks	0	32,120	49,245	62,951	59,989	58,871	58,126	57,753
A240	Klar Ranch	0	1,014	842	782	741	727	718	713
A240	Saur Subdivision	0	1,014	1,684	1,955	2,222	2,180	2,153	2,139
A240	Unplatted Acreage	0	26,034	39,986	50,830	54,064 4	53,056	52,385	52,049
A240	New Development	0	37,529	63,556	107,134	224,772	383,387	558,652	766,119
SUBTOTALS	-	0	131,521	206,662	271,354	386,964	642,556	715,806	922,266
* 2001									

<sup>• 50%</sup> of current capacity for non-CLWSC wells 75% of current capacity for CLWSC wells THC #201-10.11

Subficient Name   Subficient					Ž	Net Supply Requirements (gal/day) Maximum Dav Flowrate. Based on 2.3 x Average Dav	Net Supply Requirements (gal/day) n Day Flowrate, Based on 2.3 x Aver	s (gal/day) i 2.3 x Average	Dav	
District Concess	Area No.	Subdivision Name	Well	8		2010	2020	2030		2050
December Remarks   December Re	SS	Bulverde Gardens	0	4,395	4,209	3,910	3,703	3,634	3,588	3,565
Charles Acres	50	Bulverde Ranches	0	18,596	25,254	23,460	22,218	21,804	21,528	21,390
Unidate Armenge	50	Canyon View Acres	0	135,916	172,569	160,310	151,823	148,994	147,108	146,165
OrMALS         Ormalise         0         15.334         20.02         71/45         20.02         38.98         39.92           OrMALS         Ormalise         0         31.534         20.47         31.44         44.287         58.94         78.98         77	20	Lindsey Acres	0	1,014	842	782	741	727	718	713
OTALS         New Development         0         23,529         0,536         0,734         424,775         583,387         588,682         3           OTALS         Choic one Subdivision         0         1,014         942         772         714         772         718         773         718         773         718         773         718         773         718         773         718         773         718         773         718         773         718         773         718         773         718         773         718         773         774         773         774         773         774         773         774         773         774         773         774         774         773         774         774         774         774         774         774         774         774         774         774         774         77	20	Unplatted Acreage	0	18,934	29,042	37,145	39,622	38,884	38,392	38,146
OTALS         Choice One Subdivision         0         216,344         284,72         372,41         472,879         587,400         778	30	New Development	0	37,529	63,556	107,134	224,772	383,387	558,652	766,119
Cibil Drive Subdivision         0         1.014         842         782         741         772         718           Cibil Drive Subdivision         0         1.014         842         782         741         772         718           VOYALS Integrated Acreege         0         6782         10529         1071,34         24,477         13,809         653,862         7           LYOTAL         New Development         0         6782         1071,34         24,477         389,860         673,317         8,63           LYOTAL         Herbert M Gluna         0         1,014         842         782         741         772         718           Herbert M Gluna         0         1,014         842         782         741         772         718           LYOTAL         Herbert M Gluna         0         1,014         842         782         741         772         718           LYOTAL         Herbert M Gluna         0         1,014         842         782         741         772         718           LYOTAL         1         1         842         782         741         722         718           Store Store Store Store States Phase 1         1 <th< td=""><td>BTOTALS</td><td></td><td></td><td>216,384</td><td>295,472</td><td>332,741</td><td>442,879</td><td>697,430</td><td>769,985</td><td>976,097</td></th<>	BTOTALS			216,384	295,472	332,741	442,879	697,430	769,985	976,097
Crobin Subdivision         0         1014         842         743         773         778         771         778         771         778         771         778         771         778         771         778         771         778         778         770         771         778         771         772         772         772         772         772         772         772         772         772         772         772         772         772         772         772	90	Cibolo One Subdivision	0	1,014	842	782	741	727	718	713
OTALS         TOTALS         13.694         13.694         13.684 </td <td>09.</td> <td>Cibolo Two Subdivision</td> <td>0</td> <td>1,014</td> <td>842</td> <td>782</td> <td>741</td> <td>727</td> <td>718</td> <td>713</td>	09.	Cibolo Two Subdivision	0	1,014	842	782	741	727	718	713
OFALLS         New Development         0         37,528         63,556         107,134         2.477         33,337         556,652         1           LTOTAL         How Development         0         47,329         T,572         10,134         2.40,226         3,399,088         4,331,719         5,56,737         718         718         771         718         771         718         771         778 <th< td=""><td>99</td><td>Unplatted Acreage</td><td>0</td><td>6,762</td><td>10,523</td><td>13,294</td><td>14,071</td><td>13,809</td><td>13,634</td><td>13,547</td></th<>	99	Unplatted Acreage	0	6,762	10,523	13,294	14,071	13,809	13,634	13,547
Charles Cantu Subdivision   1014   842   772   741   727   718	99	New Development	0	37,529	63,556	107,134	224,772	383,387	558,652	766,119
Charles Carlu Subdivision   1,014   842   772   741   727   718   719	BTOTALS		•	46,320	76,762	121,992	240,325	398,650	673,721	781,092
Charles Cantul Subdivision         1 014 base of a control subdivision         1 014 base of a control subdivision         782 base of a control subdivision         771 base of a control subdivision         772 base of a control subdivision         773 base of a control subdivision <td>REA TOTAL</td> <td></td> <td>103,680</td> <td>1,054,651</td> <td>1,657,787</td> <td>2,175,850</td> <td>2,952,406</td> <td>3,890,086</td> <td>4,931,719</td> <td>6,177,494</td>	REA TOTAL		103,680	1,054,651	1,657,787	2,175,850	2,952,406	3,890,086	4,931,719	6,177,494
Herbert M Gruen	5	Charles Cantu Subdivision	0	1,014	842	782	741	727	718	713
John Hall Subdivision         1014         642         782         741         777         718           Stoney Cliff         Stoney Cliff         1,014         642         782         741         777         718           Stoney Cliff         Stoney Cliff         0         1,014         842         27,032         26,528         26,192           Unplated Acreage         0         14,876         20,325         38,709         44,774         1,50,161         1,55,556         26,172           OTALS         Beam Subdivision         0         111,689         221,011         67,316         1,50,161         1,50,556         27,324         7,894         27,720           OTALS         Beam Subdivision         0         1,014         842         7,817         1,617         7,744         2,730           Beak Roach Flase Phase 1         0         1,014         842         7,82         48,250         7,744         2,730           Cross Roads Estates Phase 1         0         1,014         842         7,82         48,250         7,720           Cross Roads Estates Phase 1         0         1,014         842         741         7,72         7,74           Roap Road Road Estates Phase 1 <t< td=""><td>10</td><td>Herbert M Gruen</td><td>0</td><td>1,014</td><td>842</td><td>782</td><td>741</td><td>727</td><td>718</td><td>713</td></t<>	10	Herbert M Gruen	0	1,014	842	782	741	727	718	713
Storey Citif  New Development  OrALS  Storey Citif  Storey Ridge  COTALS  Storey Citif  Storey Citi	10	John Hall Subdivision	0	1,014	842	782	741	727	718	713
Stoney Ridge         14876         2.7729         2.8543         27,022         2.6528         25,192           Unplatted Acreage         0         19,948         32,705         38,709         41,474         40,168         27,103         40,168         22,103         41,168         22,103         41,168         22,103         41,168         41,168         4	10	Stoney Cliff	0	1,014	842	782	741	727	718	713
OTALS         Beam Subdivision         0         19948         30,305         33,708         41,474         40,701         40,186         22,559         41,478         41,774         40,716         40,186         22,559         21,011         67,514         1,575,596         23,101         74,784         1,575,596         23,101         74,784         1,575,596         27,784         1,744,44         2,720         27,784         1,744,44         2,720         27,784         1,744,44         2,720         27,784         1,744,44         2,720         27,784         1,744,44         2,720         27,784         1,744,44         2,720         27,784         1,744,44         2,720         2,844         2,720         2,844         2,720         2,844         2,720         2,844         2,720         2,844         2,720         2,844         2,720         2,844         2,720         2,844         2,720         2,844         2,720         2,844         2,84	0	Stoney Ridge	0	14,876	22,729	28,543	27,032	26,528	26,192	26,025
v Development         0         112,587         191,089         321,011         674,316         1,150,161         1,675,596         2.2           m Subdivision         0         161,489         247,489         391,391         745,784         1,150,161         1,675,596         2.2           am Subdivision         0         161,489         30,305         38,709         49,250         48,332         47,724         4.7         2.153         47,748         4.2         7.84         1.20,484         2.153         47,784         2.153         47,784         2.153         47,784         2.153         47,784         2.153         47,784         4.7         7.84         7.84         7.84         7.84         7.84         7.84         7.84         7.84         7.78         7.84         7.78	10	Unplatted Acreage	0	19,948	30,305	38,709	41,474	40,701	40,186	39,928
mm Subdivision         161,489         247,489         391,391         745,784         1,745,784         1,744,844         2,3 7,894         2,7 7,895         7,894         2,7 7,895         7,894         2,7 7,79         7,894         2,7 7,70         7,894         2,7 7,70         7,894         3,7 7,70         7,894         4,7 7,70         7,894         4,7 7,70         7,894         4,7 7,70         7,894         4,7 7,70         7,894         4,7 7,70         7,894         4,7 7,70         7,894         4,7 7,70         7,894         4,7 7,70         7,894         4,7 7,70         7,894         4,7 7,70         7,10	5	New Development	0	112,587	191,089	321,011	674,316	1,150,161	1,675,596	2,298,356
Im Subdivision         5,072         7,576         8,602         8,147         7,995         7,894           ix Ranch         0         5,072         7,576         8,602         8,147         7,995         7,894           ix Ranch         0         676         842         1,173         1,481         1,772         7,153           set Nulison Subdivision         0         1,014         842         782         741         727         718           Outlin Subdivision         0         1,014         842         782         741         727         718           Outlin Subdivision         0         1,014         842         782         741         727         718           3uffin Subdivision         0         18,257         27,779         30,889         29,254         37,430         46,285           key Mountain Ranch         0         11,157         17,277         21,896         29,254         37,430         46,285           key Mountain Ranch         0         5,072         7,576         9,775         11,109         10,764         36,289         35,611         22,11           n Creek Subdivision         0         1,014         842         782         36,2	BTOTALS		0	151,469	247,489	391,391	745,784	1,220,297	1,744,844	2,367,160
K Ranch         0         19,948         30,305         38,709         49,250         48,332         47,720           sex Roade States Phase 1         0         676         842         1,173         1,481         1,817         2,153           rest Wilson Subdivision         0         1,014         842         782         741         727         718           Sufflin Subdivision         0         1,014         842         782         741         727         718           Sufflin Subdivision         0         1,014         842         782         741         727         718           Juli Subdivision         0         1,014         842         7779         30,889         29,254         37,430         46,285           A Villiage Noth         0         1,1157         17,287         21,896         29,254         37,430         46,285           A Villiage Noth         0         1,1157         1,727         21,489         36,289         10,764         10,764           A Villiage Noth         0         1,1157         1,727         21,489         29,284         25,112         2           A Villiage Noth         0         1,156         1,124         83,318	8	Beam Subdivision	0	5,072	7,576	8,602	8,147	7,995	7,894	7,843
se Roads Estates Phase 1         0         676         842         1,173         1,481         1,817         2,153           rest Vision Subdivision         0         1,014         842         782         741         727         718           pyelman Subdivision         0         1,014         842         782         741         727         718           pyelman Subdivision         0         0         0         0         0         0         0         0           by Hills         0         18,257         27,779         30,889         29,254         28,709         28,348         259,112         25           ty Hills         305,280         137,293         356,796         309,763         277,202         266,348         259,112         25           dokey Mountain Ranch         0         11,157         17,257         21,896         29,254         37,430         46,285         5           dokey Mountain Ranch         0         41,586         63,556         80,375         11,199         10,902         10,764         1           nex Creek         0         1,014         842         782         741         727         718           nex Subdivision	8	Beck Ranch	0	19,948	30,305	38,709	49,250	48,332	47,720	47,415
rest Wilson Subdivision         0         1,014         842         782         741         727         718           periman Subdivision         0         1,014         842         782         741         727         718           2uffin Subdivision         0         0         0         0         0         0         0         0           2uffin Subdivision         0         18,257         27,779         30,889         29,254         28,793         28,348         259,112         255,284           ty Hils         305,280         137,233         356,796         30,889         29,254         28,790         46,285         51,           key Mountain Ranch         0         11,157         17,257         21,896         29,254         37,430         46,285         51,12         255,12           key Mountain Ranch         0         41,586         63,556         80,377         90,725         79,21         78,21         77,21           ney Greek         0         1,014         842         782         741         727         718         37,613         35,613         35,613         35,613         35,613         35,613         35,613         35,613         35,613         35,613 </td <td>ୡ</td> <td>Cross Roads Estates Phase 1</td> <td>0</td> <td>9/9</td> <td>842</td> <td>1,173</td> <td>1,481</td> <td>1,817</td> <td>2,153</td> <td>2,496</td>	ୡ	Cross Roads Estates Phase 1	0	9/9	842	1,173	1,481	1,817	2,153	2,496
opelman Subdivision         0         1,014         842         782         741         727         718           Juffin Subdivision         0 <t< td=""><td>2</td><td>Forrest Wilson Subdivision</td><td>0</td><td>1,014</td><td>842</td><td>782</td><td>741</td><td>727</td><td>718</td><td>713</td></t<>	2	Forrest Wilson Subdivision	0	1,014	842	782	741	727	718	713
Suffin Subdivision         0	ଯ	Kappelman Subdivision	0	1,014	842	782	741	727	718	713
ty Hills  O 18,257 27,779 30,889 29,254 28,709 28,345  Village North 305,280 137,293 356,796 309,763 277,202 266,348 259,112 2  Indige Subdivision	8	McGuffin Subdivision	0	0	0	0	0	0	0	0
v Village North         305,280         137,283         356,796         309,763         277,202         266,348         259,112         2           ridge Subdivision         0         11,157         17,257         21,896         29,254         37,430         46,285         25,485         25,485         25,485         25,485         25,485         25,254         37,430         46,285         25,285         37,75         11,109         10,902         10,764         46,285         10,764         46,285         10,764         46,285         10,764         46,285         10,764         10,767         11,767         11,767	20	Misty Hills	0	18,257	27,779	30,889	29,254	28,709	28,345	28,164
ridge Subdivision 0 11,157 17,257 21,896 29,254 37,430 46,285 okey Mountain Ranch 0 5,072 7,576 9,775 11,109 10,902 10,764 ney Creek	8	Oak Village North	305,280	137,293	356,796	309,763	277,202	266,348	259,112	255,495
okey Mountain Ranch 0 5,072 7,576 9,775 11,109 10,902 10,764 ney Creek	8	Skyridge Subdivision	0	11,157	17,257	21,896	29,254	37,430	46,285	51,693
ney Creek new	ଛ	Smokey Mountain Ranch	0	5,072	7,576	9,775	11,109	10,902	10,764	10,695
n Creek Subdivision  0 32,120 41,248 38,318 36,289 35,613 35,162  son Subdivision  0 1,014 842 782 741 727 718  10 41,586 63,556 80,937 86,650 85,036 83,959  0 112,587 191,089 321,011 674,316 1,150,161 1,675,596 2,2  10 112,587 191,089 321,011 674,316 1,150,161 1,675,596 2,2  10 112,587 191,089 321,011 674,316 1,150,161 1,675,596 2,2  10 112,587 191,089 1,785,794 2,277,362 2,9  10 112,587 191,089 1,785,794 2,277,362 2,9  10 112,587 1,087,594 1,335,747 2,031,683 2,974,042 4,022,207 5,2  10 1,087,594 1,335,747 2,031,683 10,578,867 13,821,256 17,67	ଯ	Stoney Creek	0	41,586	63,556	80,937	80,725	79,221	78,218	711,717
son Subdivision 0 1,014 842 782 741 727 718 718 719	2	Twin Creek Subdivision	0	32,120	41,248	38,318	36,289	35,613	35,162	34,937
v Development 0 41,586 63,556 80,937 86,650 85,036 83,959 87,959 927 86,650 85,036 83,959 9259 921,011 674,316 1,150,161 1,675,596 926,2277,362 924,356 1,285,899 1,753,744 2,277,362 925,280 679,866 1,067,594 1,335,747 2,031,683 2,974,042 4,022,207 926,980 2,549,022 4,123,388 5,332,480 7,640,068 10,578,867 13,821,256 17,688	2	Wilson Subdivision	0	1,014	842	782	741	727	718	713
v Development 0 112,587 191,089 321,011 674,316 1,150,161 1,675,596 306,280 428,397 810,105 944,366 1,286,899 1,753,744 2,277,362 305,280 679,866 1,067,594 1,335,747 2,031,683 2,974,042 4,022,207 569,880 2,549,022 4,123,388 5,332,480 7,640,068 10,578,867 13,821,256 17,6	8	Unplatted Acreage	0	41,586	63,556	80,937	86,650	85,036	83,959	83,421
305,280 428,397 810,105 944,356 1,285,899 1,753,744 2,277,362 305,280 679,866 1,057,594 1,335,747 2,031,683 2,974,042 4,022,207 569,880 2,549,022 4,123,388 5,332,480 7,640,068 10,578,867 13,821,256 17,0	2	New Development	0	112,587	191,089	321,011	674,316	1,150,161	1,675,596	2,298,356
305,280	BTOTALS		305,280	428,397	810,105	944,356	1,285,899	1,753,744	2,277,362	2,900,368
569,880 2,549,022 4,123,388 5,332,480 7,640,068 10,578,867 13,821,256	EA TOTAL		305,280	679,866	1,067,594	1,335,747	2,031,683	2,974,042	4,022,207	5,267,528
	REA A TO	TAL	569,880	2,549,022	4,123,388	5,332,480	7,640,068	10,578,867	13,821,256	17,671,923
			•						•	

 50% of current capacity for non-CLWSC wells 75% of current capacity for CLWSC wells THC #201-10.11

December   Subdivision Name   Subdivision Name   Subdivision Name   Capaci   Capac			Current			Net Supply R	Net Supply Requirements (gal/day)	al/day) Lx Average Day		
Maricage Elates   Capacity   1,014   642   722   744   777   718			<b>X</b>	1996		2010	2020	2030	2040	2050
Purchage Outcome   Purchage   P	Area No.	Subdivision Name	Capacity	7 50 7	CVB	782	741	727	718	713
Heinglage Outset	110	Buck Horn Ranch	<b>.</b>	* io'.	3 6	70,6	744	7.07	718	713
Unpaired Armange   0 6,424 10,437 15,317 13,311 10,000.   Unpaired Armange   0 6,424 10,437 15,317 13,311 10,000.   Unpaired Armange   0 6,424 10,437 15,317 13,317 15,000.   Unpaired Armange   0 6,424 10,437 15,317 13,317 15,000.   Unpaired Carryon Car	110	Heritage Oaks	0	4.0,	247	70/	7 7	77. 07	42.047	12834
CYALAS         New Development         0         6,424         10,943         18,377         38,511         38,711         10,103         20,703         20,703         20,703         36,717         36,7	110	Unplatted Acreage	0	6,424	189'6	715,21	20,51	700'61	12,91	15.4
OTALS         Company         0         14,876         25,238         23,455         55,375         86,371         110,182         23,581         110,182         23,581         110,182         23,581 <td>110</td> <td>New Development</td> <td>0</td> <td>6,424</td> <td>10,943</td> <td>18,377</td> <td>38,511</td> <td>65,775</td> <td>008/58</td> <td>131,182</td>	110	New Development	0	6,424	10,943	18,377	38,511	65,775	008/58	131,182
Confine Carryon  Confin	SILIDATOTAL S		0	14,876	22,308	32,453	53,323	80,311	110,152	145,452
Carryon Creek Estates         0         8,114         1,226         15,540         20,777         7,6578         32,651 <th< td=""><td>20101010</td><td></td><td>0</td><td>23,329</td><td>35,777</td><td>45,747</td><td>55,915</td><td>54,873</td><td>54,179</td><td>53,832</td></th<>	20101010		0	23,329	35,777	45,747	55,915	54,873	54,179	53,832
Carryon Devan National Carryon Devan States 2 (2000 3,381 4,288 11,889 11,889 13,448 13,278 13,484 11,871 12,257 13,289 14,947 13,258 18,184 13,278 13,289 13,448 13,278 13,244 13,288 13,244 13,248	220	Cacillat Carly City Carly Carl		8.114	12,206	15,640	20,737	26,528	32,651	39,215
Camyon Darm Numera Caylon Camyon Native Existes 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 2	Callydi Cicer Letakes		3381	5051	6,256	8,517	10,175	10,046	9,982
Camyon Valley Estates 1  Camyon Valley Estates 1  Camyon Valley Estates 1  Camyon Valley Estates 2  Camyon Valley Estates 2  Camyon Valley Estates 3  Camyon Valley Estates 4  Camyon Valley Estates 4  Camyon Valley Estates 6  Camyon Valley Estates 6  Camyon Valley Estates 6  Camyon Valley Estates 7  Camyon Valley Estates 6  Camyon Valley Estates 7  Camyon Valley Valley Estates 7  Camyon Valley	31.20	Canyon Dam Hillsite	· c	4 733	7 155	8,993	11,850	13,446	13,276	13,191
Campor Native Fatters   Camp	3120	Canyon Dam Sub 1	•	3,384	4 209	3 910	3,703	3,634	3,588	3,565
Colony Richge   Colony Richg	3120	Canyon Valley Estates 1	72,000	5	207.		0	0	0	0
Cooper Motor         Cooper Motor<	3120	Clear Water Estates	95,25	2000	ָ מַלָּי	8.25.8	8.517	8 722	8.611	8,556
Deep Area States   Compared Backbroune Heights   Compared Backbroune   Compare	3120	Cougar Ridge	•	100,0	17,670	0,£30	30.05	38 884	40.903	40,641
December Fields   70,000	3120	Deep Acres Estates 2	0	C84, I	0/0'/	7,00	3	}		
Eagles Peak Ranch         0         7,438         11,384         14,575         14,259         24,711         30,450           Frailex Subdivision         0         676         842         772         741         772         718           Frailex Subdivision         0         676         842         782         741         772         718           Horsehoe Falles         142,560         10,143         15,573         19,941         26,662         34,160         42,338           Horsehoe Falles         142,560         10,143         15,215         29,716         30,00         0         0           North Lake Esiates         142,560         20,00         20,00         20,00         0	3120	Devils Backbone Heights	70,200	0	0	<b>)</b>	0 (	7	0 00	26 720
Emerald Valley Subdivision	120	Eagles Peak Ranch	0	7,438	11,364	14,467	19,256	L1/47	94,00	30,720
Fisilet Subdivision	22	Emerald Valley Subdivision	0	15,891	24,412	31,280	41,844 44	53,783	86,378	000,87
Hillinest Estates	25	Fralick Subdivision	0	9/9	842	782	741	727	718	517
Hillcrest Estates	200	Clen Pov	0	9/9	842	1,173	1,481	1,817	2,153	2,496
Horsestone Fallis Subdivision   142,560   0   0   0   0   0   0   0   0   0	0170	Cital NO	0	10.143	15,573	19,941	26,662	34,160	42,338	50,623
Maintenance	2 2 2	Companies Colle Cubdivision	142 560	0	•	0	0	0	0	0
North Ridge Estates	97.50	TOTO CONTRACTOR OF THE PROPERTY OF THE PROPERT		15 215	23.150	29.716	37,030	36,340	35,880	35,650
North Lake Estates         North Lake Estates         46,299         43,010         40,733         39,974         39,488           Pieli Estates         0         9,467         14,311         18,377         22,959         22,551         22,466           River's Edge         0         15,881         24,12         31,280         41,414         41,428         40,903           River's Edge         0         676         842         1,173         1,111         1,090         1,076           River's Edge         0         676         842         1,173         1,111         1,090         1,076           Riverside Estates         0         676         842         1,173         1,111         1,090         1,076           Ryting Mountain         0         14,200         21,887         28,513         65,775         95,800         1           New Development         681,480         203,874         291,165         36,976         466,376         59,800         1           Fein Ranch         Espinazo Del Diablo         64,187         128,796         466,948         540,376         609,80           Espinazo Del Diablo         11,880         0         1,642         25,921         25,921	0218	Marcopa Kancii	36 720	0	0		0	0	0	0
Note Title Estates   O   5,457   14,311   18,377   22,959   22,531   22,246     Prief Estates   O   15,891   24,412   31,280   1,678   41,428   41,428   40,933     River's Edge	02.12	NOTE LAKE ESTATES		39.558	46 299	43.010	40,733	39,974	39,468	39,215
Prieff Estates   Prie	8120	North Kidge Estates		0 467	14311	18.377	22,959	22,531	22,246	22,103
Cytes's Edge         River's Edge         1,076         4,076         1,076         1,076         4,054         1,076         4,054         1,076         4,054         1,076         4,054         1,076         4,054         1,076         4,054         1,076         4,054         1,076         4,054         1,076         4,054         1,076         4,054         1,014         1,080         1,076         40,544         40,544         1,014         1,084         22,651         32,706         40,544         28,746         40,544         28,776         29,624         28,072         28,074         28,704         28,706         40,544         40,544         10,943         11,714         1,084         40,544         40,544         10,943         11,714         1,084         40,544         10,943         11,714         27,653         28,000         11,076         28,000         11,076         28,000         11,076         28,01         11,076         28,000         11,076         28,000         11,076         28,000         11,076         28,000         11,076         28,000         11,076         28,000         28,000         11,076         28,000         28,000         11,076         28,000         28,000         28,000         28,000         28	B120	Pfeii Estates	<b>.</b>	9, 40, 40,	24.412	31.280	41 844	41.428	40,903	40,641
COTALS         Reverside Estates         0         9.805         15,159         25,551         32,706         40,544           Spring Mountain         0         14,200         21,887         27,761         29,624         29,072         28,704           Upplatted Acreage         0         14,200         21,887         27,761         29,624         29,072         28,704           New Development         0         6,424         10,943         18,377         38,511         65,737         59,000           Febriazzo Del Diablo         6,81,480         20,3187         29,716         26,979         219,218         20,0181         27,628         27,628           Espirazzo Del Diablo         1,014         1,684         1,955         2,592         3,271         3,947         3,548         27,628         25,622         2,592         3,271         3,947         3,548         27,628	8120	River's Edge	<b>5</b> 6	37.9	21,12 CA8	1 173	111	1.090	1,076	1,070
Spring Mountain         Of 9,000         19,100         19,135         29,175         29,187         29,175         29,187         29,187         29,187         20,181         27,628	B120	Riverside Estates	9 (	0/0	7 6 7	2,-0	25,551	30,706	40.544	45,276
OTALS         Control of the contr	B120	Spring Mountain	0	CD8'5	761,61	19,139	20,53	20,720	28 704	28 520
681,480         6,424         10,943         10,377         365,976         466,948         50,175         50,517         50,517         50,517         50,517         50,517         50,517         50,517         50,517         50,517         50,517         50,517         50,517         50,517         50,518         50,518         50,518         50,518         50,518         50,518         50,528         50,518         50,528         27,62	B120	Unplatted Acreage	0	14,200	/99'17	10/17	29,024	27,0,22	, 8 6 8 8	131 192
681,480         203,874         297,166         365,976         400,546         340,476         340,473 <t< td=""><td>B120</td><td>New Development</td><td>0</td><td>6,424</td><td>10,943</td><td>7,5,01</td><td>- 10,00</td><td>27.00</td><td>000,00</td><td>687 K98</td></t<>	B120	New Development	0	6,424	10,943	7,5,01	- 10,00	27.00	000,00	687 K98
84,187     128,785     164,220     219,710     200,101     27,628       13,862     21,045     26,979     28,513     27,982     27,628       1,014     1,684     1,955     2,592     3,271     3,947       2,705     4,209     3,910     3,703     3,634     3,588       2,705     4,209     3,910     3,703     3,634     3,588       9,805     15,152     16,813     15,626     15,428       0     0     0     0     0       43,200     0     0     0     0       0     0     0     0     0       0     0     0     0     0       0     0     0     0     0       162,000     117,997     18,377     38,511     65,775     95,800     1       843,480     336,748     601,292     630,683     828,731     1,017,167     1,143,137     1,2       18,000     0     0     0     0     0     0       18,000     0     0     0     0     0       4,733     7,155     8,993     11,850     15,263     17,581	SUBTOTALS		681,480	203,874	297,155	9/6'695	966,946	200,010	776 635	274 862
13,862   21,045   26,513   21,502   21,025     1,014   1,684   1,955   2,592   3,271   3,947     2,705   4,209   3,910   3,703   3,634   3,588     2,705   4,209   3,910   3,703   3,634   3,588     3,805   15,152   16,813   15,626   15,428     0	B130	Eden Ranch		84,187	128,795	164,220	219,210	27,101	27,000	27.451
1,014 1,684 1,955 2,592 3,211 3,588 2,705 4,209 3,910 3,703 3,634 3,588 3,588 3,500 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	B130	Espinazo Del Diablo		13,862	21,045	6/6'07	20,07	206,12 206,12	20,72	4 635
2,705 4,209 5,910 5,703 5,504 5,505 5,504 5,505	B130	Meyers Mountain		1,014	1,684	0,60 0,00 0,00	26C,2	177.0	3 588	, v
9,805 15,152 16,813 15,923 15,020 15,429 118,800 0 0 0 0 0 0 43,200 0 0 0 0 0 0 0 6,424 10,943 18,377 38,511 65,775 95,800 1 162,000 117,997 181,829 232,254 308,469 423,026 4 843,480 336,748 501,292 630,683 828,731 1,017,167 1,143,137 1,2 18,000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	B130	Pleasant View Estates		2,705	4,209	3,910	20,70	ל לכל מילי מילי	4, 4,	15,330
118,800 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	B130	Scenic River Properties		9,805	15,152	16,813	15,923	979'61	0,420	000,01
43,200 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	B130	The Summit	118,800	0	0	0	0	<b>-</b>	<b>-</b> (	
0 6,424 10,943 18,377 38,511 65,775 95,800 1 162,000 117,997 181,829 232,254 308,460 396,469 423,026 4 123,026 4 123,026 4 123,480 336,748 601,292 630,683 828,731 1,017,167 1,143,137 1,2 1,2 1,2 1,3 7,155 8,993 11,850 15,263 17,581	R130	Unplatted Acreade	43,200	0	0	0	0	0	0 0	
162,000 117,997 181,829 232,254 308,460 396,469 423,026 4 843,480 336,748 601,292 630,683 828,731 1,017,167 1,143,137 1,2 18,000 0 0 0 0 0 0 0 0 18,000 4,733 7,155 8,993 11,850 15,263 17,581	130	New Development	0	6,424	10,943	18,377	38,511	65,7/5	95,800	131,192
843,480 336,748 601,292 630,683 828,731 1,017,167 1,143,137 1,2 1,1 1,000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	CIDTOTALC		162.000	117,997	181,829	232,254	308,460	396,469	423,025	457,033
18,000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AREA TOTAL		843,480	336,748	501,292	630,683	828,731	1,017,157	1,143,137	1,285,183
4,733 7,155 8,993 11,850 15,263 17,581	•		200	c	c	0	0	0	0	0
1, 500, 1	B200	Апоуо Вгачо	30.0	, ,	7 466	, po a	11.850	15 263	17,581	17,469
	B200	Bold Creek		? ř	3-1-	20010		1	•	

<sup>\* 50%</sup> of current capacity for non-CLWSC wells 75% of current capacity for CLWSC wells THC #201-10.11

		Current		A N	Net Supply Requirements (gal/day) Maximum Day Flowrate, Based on 2.3 x Average Day	Net Supply Requirements (gal/day) um Day Flowrate, Based on 2.3 x Ave	al/day) x Average Day		
		Well	960	2000	2010	2020	2030	2040	2020
R200	Canvon Lake Point Resort		338	421	391	370	363	359	357
B200	Canyon Lake Yacht Club		0	0	0	0	0	0	0
B200	Canyon Park Estates		7,438	11,364	14,467	19,256	24,711	30,498	36,720
B200	Crystal Heights	81,000	0	0	0	0 ;	0 !	0 ;	0 0
B200	Deer Run		9/9	845	782	741	727	78	<u> </u>
8200	Hill Country Resort	115,200	0	0	0	0 ;	<b>O</b> [	0 0	o c
B200	Jonas Subdivision		9/9	842	782	741	727	718	73.5
B200	Marty's Mountain		4,057	6,314	5,865	5,555	5,451	5,382	0,000 0,000 0,000
B200	Mt. Lookout		2,705	2,525	2,346	2,222	2,180	2,153	2,139
B200	Quail Crossing		9/9	842	1,173	1,11	1,090	1,076	1,070
B200	Simon Tracts		8,453	13,048	16,813	22,588	27,618	27,269	27,094
B200	Sunnyside Terrace		2,705	4,209	5,474	7,406	9,448	11,840	14,260
B200	Sunset Terrace	39,600	0	0	0	0	0	0	0
B200	The Heights		929	845	1,173	1,111	1,090	1,076	1,070
B200	Valhalla-Simon-Riner Subdivision		929	842	782	741	727	718	713
B200	Windiammer Resort		0	0	0	0	0	0	0
B200	Canyon Lake Acres		53,082	81,234	103,615	138,492	178,066	219,944	263,810
B200	Unplatted Acreage	105,120	0	0	0	0	0	0	0
8200	New Development	•	19,272	32,830	55,131	115,534	197,326	287,399	393,933
AREA TOTAL	-	358,920	106,163	163,309	217,787	327,716	464,789	606,731	765,406
6		c	676	CPA	782	741	7.07	718	713
8300	Charles Moore Subdivision	24 200	8	5		1 143	8 977	17 491	17.919
B300	Hancock Canyon	90,7	0	22.22	32 120	47.810	65.548	000 69	58 665
8300	Hancock Cak Hills	3,		6.244	25,125 B 211	11 109	14 173	17.581	21.034
8300	Lakeside Development	•	33	ָבְיבְיבְיבְ ה'ה' כ	2,420	4.073	280	5,741	707.5
8300	Royal Summit	0 00	80'r	c7c'7	3,120	) (	9	, c	5
B300	Scenic Terrace	90,000		7, 004	05 920	155 204	234 082	285 202	282 586
B300	Tamarack Shores	120,960	0	41,087	6/8/c8	155,264	234,002	702,002	965,202
B300	The Point at Rancho del lago	108,000	0	0	0 6	0 (, )	0 00	9	20 05
B300	Linda Ledges (U.R.)	0	13,186	20,203	25,806	84,438	39,611	39,109	30,038 87,343
B300	Rancho Del Lago	0	17,581	26,938	84,408	45,917	58,871	72,630	2 5 6 8
8300	Unplatted Acreage	0	11,495	17,678	22,678	24,440	23,984	23,661	670'67
B300	New Development	0	19,272	32,830	55,131	115,534	197,326	886'/97	395,955
AREA TOTAL		351,360	58,292	137,804	213,021	324,955	451,059	531,559	546,362
B400	Big Walnut Springs (UR)	0	9/9	845	782	741	727	718	713
400	Capton Lake Retates	C	9 805	15 152	19.159	25.551	32,706	40,544	48,484
949	Carryon Lake Lebod	81.00			0	0	0	1,165	17,394
9	Carigori Lane istalia	189,000		· c	· C	42.438	108.261	178,052	251,278
8 6	Cariyor Lake Chorse (110)	00,501	1.69.1	2 525	3 128	4.073	5.088	6.458	7,843
2 6	Cariyul Land Olivies (ON)	c	6 767	10.523	13 294	17.774	22.894	28.345	32,798
200	Ciellingie Liipan Mahija Loma Cubdivision		576	842	782	741	727	718	713
8400 8400	Kings Point	0	5,748	8,839	11,339	15,182	19,624	24,398	29,233
• 50% of curren	* 50% of current capacity for non-CLWSC wells								
75% of currer	75% of current capacity for CLWSC wells								76/1/7
IHC #201-10.11	_		Tab	Table A4 - 5					pop proj.xls
			3	>					

		Current		2	Net Supply F	Net Supply Requirements (gal/day)	Net Supply Requirements (gal/day) Mayimum Day Flowrate Based on 2.3 x Average Day		
		Well	<b>1</b> 886	200	2010	2020	2030	2040	2050
Area No.	Subdivision Name	Capacity	VCV B	0.681	12512	16.664	21 441	26.551	31 729
9400	Lakewood Fills	<b>o</b> c	10 143	15.573	19.941	26,662	33,433	33.010	32,798
940	Dettors Crost Dark Acres	<b>,</b>	1 014	1 684	1 955	2.592	3,271	3,588	3,565
25	Tandawad Shores	37 800	0	18,180	33,753	57.737	85,029	113,972	144,372
840	The Cedars	0	9/9	842	1,173	1,481	1,817	2,153	2,496
8400	Transmility Park	0	4.057	6.314	8,211	11,109	14,173	17,581	21,034
840	Unitated Acreade		12,510	18,941	24,242	25,921	25,438	25,116	24,955
B400	New Development	0	19,272	32,830	55,131	115,534	197,326	287,399	393,933
AREA TOTAL		307,800	79,454	142,766	205,402	364,199	671,953	789,769	1,043,336
B510	Canyon Oaks Estates	0	15.891	24.412	31,280	34,808	34,160	33,727	33,511
8510	Deer River	91,800	0	0	476	31,510	66,642	103,746	104,275
B510	Lake of the Hills	28,080	0	0	0	5,988	15,528	25,740	36,447
B510	Unplatted Acreage	0	9,129	13,890	17,595	18,515	18,170	17,940	17,825
B510	New Development	0	6,424	10,943	18,377	38,511	65,775	95,800	131,192
SUBTOTALS		119,880	31,443	49,246	67,728	129,332	200,275	276,953	323,250
8520	Fischer Thirty Two Subdivision	0	1,014	1,684	1,955	2,592	3,271	3,588	3,565
B520	Lakewood Estates	0	1,691	2,525	3,128	4,073	5,088	6,458	7,843
B520	Rocky Creek Ranch	0	5,748	8,839	11,339	15,182	19,624	24,398	29,233
B520	Valley Ranch	0	929	842	782	741	727	718	713
B520	Whispering Oaks	0	5,410	8,418	10,557	11,479	11,265	11,123	11,052
B520	Unplatted Acreage	0	26,372	40,406	51,612	55,175	54,147	53,461	53,119
B520	New Development	0	6,424	10,943	18,377	38,511	65,775	95,800	131,192
SUBTOTALS	•	•	47,334	73,658	97,750	127,754	159,896	195,546	236,716
B530	Estates At Carpers Creek	0	1,691	2,525	3,128	4,073	5,088	6,458	7,843
B530	Fischer Ranches	0	5,072	7,576	9,775	10,368	10,175	10,046	286,6
B530	Forest View North	0	22,991	35,356	44,965	47,398	46,515	45,926	45,632
B530	Honeysuckle Rose	0	9/9	842	1,173	1,481	1,817	2,153	2,496
B530	Meister Heirs Estates	0	0	0	0	0	0	0	0
B530	Ranch Louise	0	2,367	2,525	2,346	2,222	2,180	2,153	2,139
B530	Stallion Springs	14,400	0	5,803	11,406	20,038	29,935	40,496	51,553
B530	Unplatted Acreage	0	22,315	34,093	43,401	46,658	45,788	45,209	44,919
B530	New Development	0	6,424	10,943	18,377	38,511	65,775	95,800	131,192
SUBTOTALS	-	14,400	61,534	99,664	134,571	170,750	207,274	248,242	295,755
AREA TOTAL		134,280	140,312	222,567	300,049	427,835	567,445	720,740	866,721
BGOO	Aimy Addition	0	9/9	842	1,173	1,481	1,817	2,153	2,139
B600	Clear Creek Addition	0	1.691	2,525	3,128	4,073	5,088	5,023	4,991
860	Cypress Cove	201,600		0	0	52,426	124,733	201,332	281,814
B600	Hideaway Subdivision	0	8,114	12,206	15,249	14,442	14,173	13,993	13,904
8600	Repecca Crossing	0	4,057	5,893	5,474	5,184	5,088	5,023	4,991
8600	Unplatted Acreage	0	14,200	21,887	27,761	29,624	29,072	28,704	28,520
B600	New Development	0	19,272	32,830	55,131	115,534	197,326	287,399	393,933
* 50% of current	* 50% of current capacity for non-CLWSC wells								
75% of curren	75% of current capacity for CLWSC wells								i I
THC #201-10.11	_								18///
			Tabl	Table A4 - 6					pop proj.xls

2040 2050  543,628 730,29  12,917 12,83  12,917 12,83  12,917 12,83  2,153 2,13  718 71  718 71  718 71  718 71  718 71  718 71  718 71  718 71  19,62  29,739 393,92  11,840 61,3  11,840 11,7  61,714 61,3  66,378 66,378  66,378 66,378  66,378 66,378  703,248 820,6  703,248 820,6  703,248 820,6  703,248 820,6			Current		2	Net Supply Requirements (gal/day) Maximum Day Flowrate. Based on 2.3 x Average Day	Net Supply Requirements (gal/day)	(gal/day) 2.3 x Average Da	y	
Acons Acres   Comparison Native State   Comparison Native State   Comparison Native State   Comparison Native State   Comparison State   Comparison Native			Well	1986		2010	2020	2030		2050
Acometication         676         642         782         741         777         718         77           Chairle's 30e Chairle's Trick of Chairle's 30e Ch	Area No.	Subdivision Name	201 600	48.010	76,183	107,916	222,764	377,296	543,628	730,291
Control files Subdivision	AREA TOTAL							1	2,	713
Changes of Charges and Charges	3700	Acorn Acres	0	929	842	782	741	17/	0 10	357
Commod Hiles Subdivision         25,540         5,581         5,581         6,288         8,571         10,287         1,2471	200	Charlie's 306	0	338	421	391	370	28	7	7
Control Hills Subcitation	366	Chom: Creek Rubdisteion	0	3,381	5,051	6,256	8,517	10,902	12,917	12,83
Compare Name   Comp	9,00	Citally clear duburision		23,737	50,385	71,501	104,446	141,614	181,105	222,555
Options National Confidences         Option (1986)         Component (1986)         Componen	97.00					0	0	0	0	0
Optiones Lake Cardiness         Optioness Lake Cardiness         Optiones Lake Cardiness         Optiones Lake Cardines         Optiones Lake Cardines         Optioness Lake Cardiness         Optioness Lake Cardiness Cardiness         Optioness Lake Cardiness Cardiness         Optioness Cardiness Cardiness         Optioness Cardiness Cardiness	8700	Coyote Riage	•	03 654	143 106	182.597	244.028	313,614	387,145	464,163
Copysee Laber Subdivision	B700	Cypress Lake Gardens		1000	25.75	2346	2 222	2,180	2,153	2,139
Friends Subdivision Franks Subdivision Friends	B700	Cypress Lake Gardens Big Sky Ranchettes	<b>&gt;</b> (	<b>4,7</b> 05	2,042 CA.0	787	741	727	718	71.
Finds Subdivision	B700	Fernandez Subdivision	0	9/9	\$	70/	7	į <sup>c</sup>		0
Hotely Acres   Frees Lates   0   676   842   722   711   727   718   7	B700	Finkel Subdivision	0	0	<b>O</b> (	0 6	77.	7.77	718	71
Heriter Subdivision 0 676 842 772 741 771 711 711 111 111 111 111 111 111	B700	Forest Lake Estates	0	9/9	842	787	4,	3,	2	
Herie Subdivision   O   0   0   0   0   0   0   0   0   0	8700	Harley Acres	0	0	0	0	0 ;	)   	9 6	7.
Indian Hills Estates	202	Henke Subdivision	0	9/9	842	782	741	727	817	
Lake Garden	300	Tolling Output	0	82,158	125,849	153,663	145,528	142,816	141,008	01,041 51
Reduced Creek Estates   Compact	8700 9700			929	842	782	741	727	718	7
The Sheeca Creek Park Subdivision   131,040   19,610   29,684   37,145   39,622   39,894   39,7145   39,622   39,894   39,7145   39,622   39,894   39,7145   39,622   39,994   39,7145   39,622   39,994   39,7145   39,622   39,994   39,7145   39,622   39,994   39,7145   39,622   39,994   39,7145   39,622   39,994   39,7145   39,994   39,7145   39,7145   39,724	8/00	Lake Galueils		C	0	0	0	0	0	
New Development	8700	Repecca Creek Estates			C	0	0	24,132	60,559	06 <sup>'</sup> 86
Unplated Acreage   16,534   25/042   37/145   38,522   38,834   39,332   38,834   39,332   38,834   39,332	8700	Repecca Creek Park Subdivision		10.610	20 884	37,927	50,731	65,049	80,371	96,25
Unplatted Acreage	B700	The Springs at Rebecca Creek	> 0	19,010		37 145	39 622	38,884	38,392	38,14
Austin B. Sheridan Properties	8700	Unplatted Acreage	<b>•</b>	450,00	23,042	54, 15 10, 10 10 10 10 10 10 10 10 10 10 10 10 10 1	115,524	197 326	287 399	393,93
TOTAL	B700	New Development	5	7/7/61	32,830	100,000	144 704	940 848	1 194 996	1.472.95
Austin B. Sheridan Properties	AREA TOTAL		167,680	267,169	423,302	108,000	19,41	210,010		
Austin B. Sheridan Properties 0 676 842 782 741 727 718 19,974 19,734 19,975 Christensen Scenic River 0 16,567 22,150 22,1505 20,367 19,987 19,734 19,973 11,992 21,10	AREA B TC	TAL	2,355,120	1,036,147	1,667,223	2,225,725	3,210,900	4,390,214	5,530,560	6,699,24
Austin B. Sheridan Properlies 0 676 24,34 21,505 20,367 19,734 19					•	Î	ř	707	718	7.
Christersen Scenic River 0 16,567 22,150 21,505 20,367 19,987 19,744 13,145 20,203 20,367 19,987 19,744 13,145 20,203 20,367 30,162 29,780 29, 37 19 5,883 77,314 63,321 62,505 61,714 61,145 24,412 37,039 47,311 63,321 62,505 61,714 61,145 24,412 11,840 11,1492 11,840 11,1492 11,840 11,1492 11,840 11,1492 11,840 11,1492 11,840 11,1492 11,840 11,1492 11,840 11,1492 11,840 11,1492 11,840 11,1492 11,840 11,1492 11,840 11,1492 11,840 11,1492 11,840 11,1492 11,840 11,1492 11,840 11,1492 11,840 11,1492 1	5	Austin B. Sheridan Properties	0	9/9	842	79/	₹ '	171	2 6	
0         13,186         20,203         25,806         30,735         30,162         23,780         23,800         23,780         11,840         11,902         11,840         11,1840	3 8	Christonean Creation River	0	16,567	23,150	21,505	20,367	19,987	19,734	19,60 19,60
0     3,719     5,893     7,429     9,998     11,992     11,840     11,       0     24,343     37,039     47,311     63,321     62,505     61,714     61,714       0     48,686     74,499     95,013     127,013     159,533     157,513     156,       0     15,891     24,412     31,280     41,844     53,783     66,378     79,       0     19,272     32,830     55,131     115,534     197,326     287,339     393,       0     19,272     32,830     55,131     115,534     197,326     287,339     393,       0     19,272     32,830     360,336     479,909     606,061     703,248     820,       0     0     0     0     0     0     0     0     0       0     18,596     28,621     36,363     48,509     47,969     47,969     47,362       0     0     0     0     0     0     0     0       0     0     0     0     0     0     0       0     0     0     0     0     0     0       0     0     0     0     0     0     0       0     0 <td< td=""><td>38</td><td></td><td>c</td><td>13.186</td><td></td><td>25,806</td><td>30,735</td><td>30,162</td><td>29,780</td><td>85, E</td></td<>	38		c	13.186		25,806	30,735	30,162	29,780	85, E
43,200     24,343     37,039     47,311     63,321     62,505     61,714 <td>3 3</td> <td></td> <td>· C</td> <td>3 719</td> <td></td> <td>7,429</td> <td>866'6</td> <td>11,992</td> <td>±,8</td> <td>7,11</td>	3 3		· C	3 719		7,429	866'6	11,992	±,8	7,11
48,686     74,499     95,013     127,013     159,533     157,513     156,       0     15,891     24,412     31,280     41,844     53,783     66,378     79,       0     33,810     51,771     66,079     70,357     69,046     68,172     67,       0     19,272     32,830     55,131     115,534     197,326     287,399     393,       0     19,272     32,830     360,336     479,909     606,061     703,248     820,       0     0     0     0     0     0     0     0     0     0       0     0     0     0     0     0     0     0     0     0       162,000     0     0     0     0     0     0     0     0     0       0     0     0     0     0     0     0     0     0     0       0     0     0     0     0     0     0     0     0       0     0     0     0     0     0     0     0     0       0     0     0     0     0     0     0     0     0       0     0     0     0     0     0 <td>3</td> <td>Sagger Business Lots</td> <td></td> <td>24 343</td> <td></td> <td>47,311</td> <td>63,321</td> <td>62,505</td> <td>61,714</td> <td>61,3</td>	3	Sagger Business Lots		24 343		47,311	63,321	62,505	61,714	61,3
43,200         0         15,891         24,412         31,280         41,844         53,783         66,378         79, 70,357         69,046         68,172         67,37         69,046         68,172         67,37         69,046         68,172         67,39         393, 393, 393, 393, 393, 393, 393, 393,	2100	Sattler Estates Subdivision	•	48 686		95.013	127.013	159,533	157,513	156,50
0     13,831     54,771     66,079     70,357     69,046     68,172     67,326       0     19,272     32,830     55,314     115,534     197,326     287,399     393, 393, 393, 393, 393, 393, 393, 393,	01 02 03 03 03 03 03 03 03 03 03 03 03 03 03	Sattler Village Subdivision	> 0	50,4		34 280	41 844	53,783	66,378	79,79
0     33,810     31,711     60,013     115,534     197,326     287,399     393,348       0     176,160     270,639     360,336     479,909     606,061     703,248     820,348       0     176,160     270,639     360,336     479,909     606,061     703,248     820,348       0     0     0     0     0     0     0     0       0     0     0     0     0     0     0       0     18,596     28,621     36,363     48,509     47,969     47,362     47       162,000     0     0     0     0     0     0     0       0     0     0     0     0     0     0       0     0     0     0     0     0       0     0     0     0     0     0       0     0     0     0     0     0       0     0     0     0     0     0       0     0     0     0     0     0       0     0     0     0     0     0       0     0     0     0     0     0       0     0     0     0     0	C100	The Little Ponderosa	<b>o</b> '	190,01		02,10	70.357	69 046	68.172	7.79
43,200     0 <td< td=""><td>C180</td><td>Unplatted Acreage</td><td>0</td><td>018,55</td><td></td><td>6,0,00</td><td>10,001</td><td>107,336</td><td>287 399</td><td>393.9</td></td<>	C180	Unplatted Acreage	0	018,55		6,0,00	10,001	107,336	287 399	393.9
43,200 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0,00	New Development	0	19,272		151,00	+cc'c17	137,721	970, 107	820.8
43,200 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AREA TOTAL		0	176,150	270,639	350,336	479,909	605,061	/03,248	950,0
43,200 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0				C	C	•	c	c	0	
0 18,596 28,621 36,363 48,509 47,969 47,362 47, 47,362 47,362 47,362 162,000 0 15,123 74,622 142,166 213,664 263 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	C200	Arrowhead Village	43,200	<b>O</b> (			•		0	
0 18,596 28,621 30,363 40,303 41,303	C200	Bradcliff on the River	0	0		0 00	46 500	47 069	795 74	47.0
162,000 0 0 13,123 (4,022 12,132 13,133 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	C200	Canyon Corner	0	18,596		30,303	74 623	142 166	213 664	263,30
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	C200	Canyon Lake Village	162,000	0 (	0	67.61	4,042	001,3t		
0 2,367 3,788 4,692 4,444 4,501 4,500	C200	John B. Browns Peak	0	0		ָם יוֹי	•	100	906 1	4.2
	C200	Kuntry Korner Estates	0	2,367		4,692	4,444	108,4	90°,	Y.
	75% of curre	nt capacity for CLWSC wells								7
	THC #201-10.	=		1	:					מטמ

Lake Very Heights         Partial Tests         1986         2000         2010         2000         2010         2000         2010 <th< th=""><th></th><th></th><th>Current</th><th></th><th>2</th><th>Net Supply I</th><th>Net Supply Requirements (gal/day)</th><th>al/day) x Average Day</th><th></th><th></th></th<>			Current		2	Net Supply I	Net Supply Requirements (gal/day)	al/day) x Average Day		
Mailer Plance Eatlines			\$	980		2010	2020	2030	2040	2050
List Wiley Heights	Area No.	Subdivision Name	Capacity					000 00	20,400	30 303
Meline batter         Miles parter Ediates         0         676         842         1/17         1/11         1/10         1/10           New Frey Ediates         0         2,987         36,197         46,138         47,386         46,515         45,226	200	Lake View Heights	0	22,315	34,093	33,235	31,476	800'AS	054,00	25,5
New Properties	200	Miles Parker Estates	0	9/9	845	1,173	1,11	060,	ع\0,r	0 0 -
New Power Estates	200	Notherhill Diace	0	0	0	0	0	0	0	0
New Development   2,855   2,657   2,824   4,850   5,855   6,541   6,458   4,825   4,	300	Divor Doint Detates	0	23.667	36,197	46,138	47,398	46,515	45,926	45,632
Studie Valee Estates   0	200	Diver Yolks Estates	C	3,043	4,630	5,865	6,665	6,541	6,458	6,417
Styline Acres   Styline Styline Acres   Styline Styline Acres   Styline Styline Styline Acres   Styline Styline Styline Acres   Styline Styl	002	Clyel Valley Estates	· c	929	842	782	741	727	718	713
Valley View	200	Sattler Kloge Estates		16 905	25 675	32.844	43,695	49,422	48,797	48,484
Vising	2200	Skyline Acres		6,50	2,0,0	3 128	4 073	5.088	6,458	7,130
TOTAL         Unplicated Activation         17,519         27,530         56,117         115,534         197,226         287,739         38           TOTAL         Blue Water Estates         0,715         27,535         56,117         115,534         197,774         22,884         197,774         22,884         187,774         22,884         187,774         22,884         187,774         22,884         187,774         22,884         187,774         22,884         187,774         22,884         187,774         22,884         187,774         21,834         187         21,334         187         21,334         187         21,334         187         21,334         187         21,334         187         21,334         187         21,334         187         21,334         187         21,334         187         21,334         187         21,334         187         21,334         187         21,334         187         21,334         187         21,334         187         21,334         21,334         21,334         21,334         21,334         21,334         21,334         21,334         21,334         21,334         21,334         21,334         21,334         21,334         21,334         21,334         21,334         21,334         21	200	Valley View	<b>-</b>	- 10°	2,020	27.75	00P ZE	36 703	36 239	36,007
Total	3200	Unplatted Acreage	0	17,919	57,358	80 T	204,70	407,336	287,300	303 033
The Part	200	New Development	0	19,272	32,830	E (8	115,554	197,320	100 000	904,238
Blue Water Estates	REA TOTAL	_	205,200	127,126	197,402	269,273	415,668	/R/'290	7.48,900	070'400
Blue Water Estates			•	0	70.00	7000	17.774	22 R94	28.345	29.946
Cardar Base Subdivision         Cardar Base Subdivision         O 58/07 10/15/14         1/1/21	300	Blue Water Estates	0	79/9	10,523	\$ 7° 0	* 1 1'11	100,77	46.73	142 834
Cediar Breaks Subdivision         0         676         942         1/173         1/481         1/817         2/153           Doubbe E Subdivision         0         676         944         778         744         5/184         5/183           Doubbe E Subdivision         0         676         944         778         773         778           Holdow Vell Subdivision         0         7,48         1,484         1,481         1,817         2,153           Hidden Veles Estates         0         7,48         1,484         1,481         1,817         2,153           Hidden Valve Estates         0         6,76         942         1,173         1,481         1,817         2,153           Los Tres Amigos Estates         0         6,76         942         1,173         1,481         1,817         2,153           Nonview Subdivision         0         6,76         942         1,173         1,481         1,817         2,153           Nonview Subdivision         0 <td>000</td> <td>Canyon Lake Village West</td> <td>306,000</td> <td>0</td> <td>0</td> <td>58,021</td> <td>160,208</td> <td>152,161</td> <td>145,73</td> <td>42,034</td>	000	Canyon Lake Village West	306,000	0	0	58,021	160,208	152,161	145,73	42,034
Deep Viel Studinstand	900	Codar Breake Subdivision	0	929	842	1,173	1,481	1,817	2,153	2,430
Deep William   Deep	900	Code Dicens Cubalisms	c	2 029	2.946	3.910	5,184	2,088	5,023	4,991
Fundamentary	300	Deep Well Subdivision		676	842	782	741	727	718	713
Highen Valley Estates	3300	Double E Subdivision	•	7 438	11 364	14 467	19 256	21.077	20,810	20,677
Hidden Valley Estates Hidden Valley Ciffic Addition  Los Tree Amigos Estates  Mountain Oaks Shamrook Hils Shaphord Hill 1226,360 13,783 14,873 14,811 18,17 1,163 1,163 1,163 1,163 1,173 1,148 1,173 1,134 1,10,220 1,130 1,137 1,134 1,10,220 1,130 1,137 1,148 1,148 1,148 1,173 1,148 1,173 1,148 1,173 1,148 1,173 1,148 1,173 1,148 1,173 1,148 1,173 1,148 1,173 1,148 1,173 1,148 1,173 1,148 1,173 1,148 1,173	300	Five Oaks	•	3 6	5,0	1 173	1 481	1.817	2.153	2,496
Highland Terrace   Highland States   Highland States   Highland States   Highland States   Highland Hill   Highland H	300	Hidden Valley Estates	<b>•</b>	0/0	70000	0.40	727.00	26.528	32,651	34,581
Stand Vlew Office Addition	300	Highland Terrace	9	8,114	12,200	of c	20,00			
Los Tres Amigos Estates 0 6/6 642 1,173 1,911 1,011 1,	300	Island View Office Addition	0	<b>-</b>	9	ָּרָ ק	7 70 7	1 817	2.153	2 139
Moorview Subdivision         0	2300	Los Tres Amigos Estates	0	9/9	<b>24</b> 2	S/1.	<u>ş</u> (	5	<u>;</u>	î
Mountain Oaks         Mountain Oaks         0         2,387         3,788         4,582         7,233         7,533         7,533         7,533         7,533         7,533         7,533         7,733         3,588         7,18         7,18         7,17         7,18	2300	Moorview Subdivision	0	0	0	O 00	כ נ	9 e	10.046	12 121
Shammock Hills         0         1,691         2,525         3,128         3,103         3,03	2300	Mountain Oaks	0	2,367	3,788	4,692	0,230	1,880 1,884 1,884	282.6	3,565
Shepherd Hill         782         782         782         782         782         782         782         782         782         782         782         783         <	0300	Shamrock Hills	0	1,691	2,525	3,128	50/'s	1 to	9,70	713
The Oaks         126,360         0         13,379         51,336         103,967         39,673         95,41           Tripple Peak Ranch Estates         43,200         0 <t< td=""><td>0300</td><td>Shepherd Hill</td><td>0</td><td>9/9</td><td>842</td><td>782</td><td>14/</td><td>171</td><td>01/0</td><td>ביי של</td></t<>	0300	Shepherd Hill	0	9/9	842	782	14/	171	01/0	ביי של
Tripple Peak Ranch Estates  43,200  0  0  0  0  0  0  0  0  0  0  0  0	0300	The Oaks	126,360	0	13,379	51,936	103,967	679'66	90,00 4 10,0	20,00
Village Shores         216,000         0	885	Tripple Peak Ranch Estates	43.200	0	0	8,803	11,234	10,220	9,544	607'A
Unplated Acreage         0         21,300         32,409         41,446         44,436         43,608         43,056         30,556         30,550         30,550         30,550         30,550         30,550         30,550         30,550         30,550         30,550         30,550         30,550         30,500         30,500         30,500         30,500         30,500         30,500         4,733         7,155         8,602         8,147         7,995         7,894         7,895         7,894         7,895         7,894         8,997         3,947         3,947         3,947         3,947         3,947         3,947         8,802         11,479         11,482         9,428         9,428         9,428	360	Village Shores	216,000	0	0	0	0	0	0	0
Only planted Act adgle         Completed Act adgle         55,131         115,534         197,326         287,399         3           New Development Sevices         691,660         72,363         126,180         276,651         614,252         696,470         690,899         7           Camyon Lake Forest         237,600         0         36,406         111,954         229,348         362,373         602,963         7           Oak Hideaway Estates         0         4,733         7,155         8,602         8,147         7,995         7,894         7           Shadyvale Subdivision         0         676         842         782         741         727         718           Stanley Square         0         2,029         2,946         3,910         4,073         3,997         3,947           Startz Subdivision         0         0         0         0         0         0         0           Startz Subdivision         0         4,395         6,734         8,602         11,479         11,482           Sunburst Ranch         0         4,395         6,734         8,602         11,479         11,482           Waterfront Park         0         3,719         5,893         7,429<	960		0	21.300	32,409	41,446	44,436	43,608	43,056	42,780
New Development         691,660         72,353         126,180         276,651         614,252         696,470         690,899         7           Canyon Lake Forest         237,600         0         36,406         111,954         229,348         362,373         502,963         5           Oak Hideaway Estates         0         4,733         7,155         8,602         8,147         7,995         7,894         8,802         8,802         11,482         3,947         8,802         8,602         11,482         11,482         11,482         11,482         11,482         11,482         11,482         11,482         11,482         11,482         11,482         11,482         11,482         11,482         11,482         11,482         11,516         11,516	200	Unparted Acreage		19.272	32,830	55,131	115,534	197,326	287,399	393,933
Canyon Lake Forest         237,600         0         36,406         111,954         229,348         362,373         502,963         5           Oak Hideaway Estates         0         4,733         7,155         8,602         8,147         7,995         7,894           Shadyvale Subdivision         0         676         842         782         741         7,27         7,18           St. Andrews by the Woodlands         0         2,029         2,946         3,910         4,073         3,997         3,947           Stanley Square         0         2,029         2,946         3,910         4,073         3,997         3,947           Stanley Square         0         0         0         0         0         0         0           Startz Subdivision         0         4,395         6,734         8,602         11,479         11,629         11,482           Vills Terrace Subdivision         0         3,719         5,893         7,429         9,628         9,448         9,329           Waterfront Park         162,000         0         0         0         0         0         0         0           0         0         0         0         0         0	AREA TOTAL	-	691,560	72,353	126,180	276,551	514,252	596,470	680'89	798,571
Canyon Lake Forest         237,000         4,733         7,155         8,602         8,147         7,995         7,894           Oak Hideaway Estates         0         4,733         7,155         8,602         8,147         7,995         7,894           Shadyvale Subdivision         0         676         842         782         741         727         718           Standyvale Subdivision         0         2,029         2,946         3,910         4,073         3,997         3,947           Stanley Square         0			100	•	904 96	111 054	229 348	362 373	502.963	503,920
Oak Hideaway Estates         Oak Hidea	0400	Canyon Lake Forest	000'/S7	0 0	25,4	100	0.447	7 005	7 894	7.84
Shadyvale Subdivision         676         842         741         727         3,947           St. Andrews by the Woodlands         0         2,029         2,946         3,910         4,073         3,997         3,947           Stanley Square         0         338         421         391         370         363         359           Stanley Square         0<	C400	Oak Hideaway Estates	0	8,7,4 SS	cc1,/	200,0	74.0	707	718	713
St. Andrews by the Woodlands  Stanley Square Stanley Square Stanley Square Startz Subdivision Startz Subdivision Sunburst Ranch Sunburst Ranc	C400	Shadyvale Subdivision	0	9/9	842	70/	7 (	7000	27.0	2002
Stanley Square     0     338     421     391     3/0     503     503       Startz Subdivision     0     0     0     0     0     0     0       Sunburst Ranch     0     4,395     6,734     8,602     11,479     11,629     11,482       Sunburst Ranch     0     3,719     5,893     7,429     9,628     9,448     9,329       Tills Terrace Subdivision     0     11,813     21,273     15,001     12,910     11,516       Waterfront Park     0     0     0     0     0     0     0       Woodlands     0     0     0     0     0     0     0	C400	St. Andrews by the Woodlands	0	2,029	2,946	3,910	4,073	/88°C	0,947	320,0
Startz Subdivision     0     0     0     0     0       Sunburst Ranch     0     4,395     6,734     8,602     11,479     11,629     11,482       Sunburst Ranch     0     3,719     5,893     7,429     9,628     9,448     9,329       Tills Terrace Subdivision     0     11,813     21,273     15,001     12,910     11,516       Waterfront Park     0     0     0     0     0     0	0.400	Stanley Square	0	338	421	391	3/0	200	8 9	3 5
Sunburst Ranch Sunburst Ranch Sunburst Ranch Tills Terrace Subdivision Verterfront Park Voodlands  0 4,395 6,734 8,602 11,479 11,629 11,482 0 3,719 5,893 7,429 9,628 9,448 9,329 0 11,813 21,273 15,001 12,910 11,516 0 0 0 0	040	Startz Subdivision	0	0	0	0	0	0	o (	9 9 9
Tills Terrace Subdivision 0 3,719 5,893 7,429 9,628 9,448 9,329 Tills Terrace Subdivision 97,200 0 11,813 21,273 15,001 12,910 11,516 Woodlands 162,000 0 0 0 0 0	8 5	Suppliet Ranch	0	4,395	6,734	8,602	11,479	11,629	11,482	11,408
Waterfront Park 97,200 0 11,813 21,273 15,001 12,910 11,516 1,500 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 5	Tile Terrace Subdivision	0	3,719	5,893	7,429	9,628	9,448	9,329	9,269
Woodlands 162,000 0 0	3 6	Metafort Dark	97,200		11,813	21,273	15,001	12,910	11,516	10,820
Springs Spring	969	Waterliotic Fair	462,000		0	•	0	0	0	0
	C400		104,000	)	,					

<sup>\* 50%</sup> of current capacity for non-CLWSC wells 75% of current capacity for CLWSC wells THC #201-10.11

Capacity	A TOTAL  Canyon Lake Deer Meadov Lakeview Pai Linnea S. Pe Rolling Hills Scenic Heigh Tom Creek P Tom	Current			Net Supply	Net Supply Requirements (galiday)	(galiday) 2 3 y Averade D	<b>*</b>	
Tright   Architect   Archite	A TOTAL  Abbott-Barre Canyon Lake Canyon Lake Canyon Sprir Cranes Mill I Erin Glen Paradise Poi Westhaven Unplatted Ac New Develoi Paradise Poi Westhaven Unplatted Ac Tom Creek Pa Linnea S. Pe Rolling Hills Scenic Heigh Tom Creek Pa Tom Creek Pa Tom Creek Pa Linnea S. Pe Rolling Hills Scenic Heigh Tom Creek Pa Rolling Hills Scenic Heigh Fox Hill Monier Ranch Smith Ranch Wesner Ranch Wesner Ranch New Develoi ATOTAL A		96		2010	2020	2030		2050
New Development   New Develo	A TOTAL A TOTAL A TOTAL A TOTAL A C TOT				34,799	37,400	36,703	36,239	36,007
Actor Hills	A TOTAL A TOTAL A TOTAL A TOTAL A C TOT				55,131	115,534	197,326	287,399	393,933
Astro Hills  Campon Lake Hills  151,000  Campon Strigg Resort  Campon Lake Hills  151,000  Campon Strigg Resort  152,400  Campon Lake Hills  152,400  132,723  Campon Lake Hill Estative  152,400  132,723  132,803  132,7	A TOTAL A TOTAL A C TOT Of current of	496,8		_	252,873	431,721	643,473	871,844	978,190
Carryon Lake Hills (157,20) (182,187) (389,510 (489)033 717,524 (964,801) (1226,592 (126,592) (27,592)	A TOTAL A TOTAL A TOTAL S.A. C. TOT Of current of	0022			0	0	0	0	0
Carryon Lake Hills   104,400   0   0   0   0   0   0   0   0   0	A TOTAL A TOTAL A TOTAL S.A. C. TOT Of current to	151.2			499.033	717,524	964,801	1,226,592	1,235,229
Carryon Singles Reard   224,000   0   0   107,029   229,827   44,848   11,729   11,109   10,942   10,744   11,729   11,109   11,729   11,109   11,729   11,109   11,729   11,109   11,729   11,109   11,729   11,109   11,729   11,109   11,729   11,109   11	A TOTAL A TOTAL A TOTAL S.A. C. TOT Of current to	100.			0			0	0
15,840	C500 Cranes Mill Landing C500 Erin Glen C500 Paradise Point C500 Westhaven C500 Westhaven C500 Unplatted Acreage C600 Canyon Lake MH Estates North C600 Canyon Lake MH Estates North C600 Canyon Lake MH Estates North C600 Canyon Lake MH Estates C600 Canyon Lake Mills C600 Canyon Lake Mills C600 Canyon Creek Hills C600 Canyon Lake Mills C700 Abbott-Barnett Subdivision C700 Ancient Oaks C700 Ancient Cake C700 Monier Ranch C700 Monier Ranch C700 Wiesner Ranch C700 New Develolpment AREA TOTAL AREA TOTAL  S60% of current capacity for non-CLWSC wells	3240			0	107.029	229,822	359,873	403,973
11, 1364 11,	C500 Erin Glen C500 Paradise Point C500 Westhaven C500 Unplatted Acreage C500 Unplatted Acreage C500 Unplatted Acreage C500 Canyon Lake MH Estates North C600 Canyon Lake MH Estates North C600 Canyon Lake MH Estates North C600 Canyon Lake MH Estates C600	5,120 8,71			0	0	0		
1,479   14,899   15,289   15,289   1,479   1,4899   15,289   1,980,283   1,479   1,4899   1,980,283	C500 C500 C500 C500 C500 C500 C500 C500	)			11,730	11,109	10,902	10.764	10,695
216,000         0 </td <td>C500 Westhaven C500 Westhaven C500 Unplatted Acreage C500 Unplatted Acreage C600 Canyon Lake MH Estates C600 Canyon Lake MH Estates North C600 Canyon Lake MH Estates North C600 Canyon Lake MH Estates C600 Canyon Lake Macage C600 Con Canyon Lake MH Estates C600 Con Ceek Acreage C600 Con Ceek Acreage C600 Tom Creek Hills C600 New Development C700 Abbott-Barnett Subdivision C700 Ancient Oaks C700 Ancient Oaks C700 Denham Estates C700 Ancient Cake C700 Park Ranch C700 Denham Estates C700 Wiesner Ranch C700 Unplatted Acreage C700 Wiesner Ranch C700 New Development C700 New Development</td> <td></td> <td></td> <td></td> <td>8,602</td> <td>11.479</td> <td>14,899</td> <td>18,299</td> <td>19,964</td>	C500 Westhaven C500 Westhaven C500 Unplatted Acreage C500 Unplatted Acreage C600 Canyon Lake MH Estates C600 Canyon Lake MH Estates North C600 Canyon Lake MH Estates North C600 Canyon Lake MH Estates C600 Canyon Lake Macage C600 Con Canyon Lake MH Estates C600 Con Ceek Acreage C600 Con Ceek Acreage C600 Tom Creek Hills C600 New Development C700 Abbott-Barnett Subdivision C700 Ancient Oaks C700 Ancient Oaks C700 Denham Estates C700 Ancient Cake C700 Park Ranch C700 Denham Estates C700 Wiesner Ranch C700 Unplatted Acreage C700 Wiesner Ranch C700 New Development				8,602	11.479	14,899	18,299	19,964
1,001,440 23,329 35,777 45,747 48,880 47,959 47,382 3,332 1,001,440 238,601 446,216 55,394 44,516 55,394 44,477 10,1565 10,274 0 48,0725 10,294 11,730 48,072 11,730 48,072 11,730 11,73	C500 Unplatted Acreage C500 New Development AREA TOTAL  C600 Canyon Lake MH Estates C600 Canyon Lake MH Estates North C600 Canyon Lake MH Estates North C600 Canyon Lake MH Estates North C600 Lakeview Park C600 Lakeview Park C600 Lakeview Park C600 Canyon Lake MH Estates C600 Lakeview Park C600 Canyon Lake MH Estates C600 Lakeview Park C600 Loer Heights 1 C600 Tom Creek Hills C600 Tom Creek Hills C600 New Development AREA TOTAL AREA TOTAL AREA C TOTAL  AREA C TOTAL  Smith Ranch C700 Unplatted Acreage C700 Wiesner Ranch C700 New Development AREA TOTAL  AREA TOTAL  S60% of current capacity for non-CLWSC wells	218.0			0	0		•	0
1,081,440 238,601 446,216 620,243 1,011,555 1,466,719 1,580,238 287,399 37 1,081,440 238,601 446,216 620,243 1,011,555 1,466,719 1,580,288 2,17 1,081,440 1,730 46,794 39,981 98,118 96,876 1,133,34 11,130 1,730 46,794 39,703 34,963 32,470 1,730 46,794 38,703 34,963 32,470 1,730 46,794 38,703 34,963 32,470 1,730 1,730 46,794 38,703 34,963 32,470 1,730 1,	C500  C800  C800  C900	2017		35.77	45 747	48 880	47,969	47.362	47,058
1,081,440	AREA TOTAL  Canyon Lake MH Estates C600 Canyon Lake MH Estates North C600 Canyon Lake MH Estates North C600 Canyon Lake MH Estates North C600 Linnea S. Peg Lots C600 Linnea S. Peg Lots C600 C600 C600 C600 C600 C600 C600 C60				55 121	115 534	197.326	287.399	393 933
1001,400	AREA TOTAL  CEON CENTON Lake MH Estates CEON CENTON Lake MH Estates North CEON Lakeview Park CEON Linnea S. Peg Lots CEON Linnea S. Peg Lots CEON Linnea S. Peg Lots CEON CEON CEON CEON CEON CEON CEON CEON	1 1	,	•	101,00	#00'01 - V	0.20, 181	4 060 200	0.000,000 0.440.064
1         212,400         0         65,394         94,144         77,915         72,506         68,899           1         49,025         74,920         96,404         99,981         98,118         96,876         96,876           1         0         25,019         38,322         44,744         77,913         741         727         718           2         0         676         843         75,027         76,105         70,461         66,893           2         25,030         843         75,072         76,105         70,461         66,893         32,470           1         225,800         843         75,072         100,351         120,007         159,377           0         776         843         75,072         100,351         120,007         178           0         766         843         75,072         100,351         107,326         245,339         37,674           1         1         1         1         1         1         1         1         1         1           1         1         1         1         2         1         1         1         1         1           1         1 </td <td>C600 Canyon Lake MH Estates C600 Canyon Lake MH Estates North C600 Lakeview Park C600 Lakeview Park C600 Linnea S. Peg Lots C600 Rolling Hills C600 Scenic Heights 1 C600 Tom Creek Acres C600 Unplatted Acreage C600 New Development AREA TOTAL C700 Abbott-Barnett Subdivision C700 Abbott-Barnett Subdivision C700 Ancient Oaks C700 Ancient Oaks C700 Bremer Ranch C700 Bremer Ranch C700 Park Ranch C700 Monier Ranch C700 Wiesner Ranch C700 Now Development AREA C TOTAL AREA TOTAL</td> <td>1,081,4</td> <td></td> <td></td> <td>620,243</td> <td>1,011,555</td> <td>1,465,719</td> <td>887,008,1</td> <td>6,011,2</td>	C600 Canyon Lake MH Estates C600 Canyon Lake MH Estates North C600 Lakeview Park C600 Lakeview Park C600 Linnea S. Peg Lots C600 Rolling Hills C600 Scenic Heights 1 C600 Tom Creek Acres C600 Unplatted Acreage C600 New Development AREA TOTAL C700 Abbott-Barnett Subdivision C700 Abbott-Barnett Subdivision C700 Ancient Oaks C700 Ancient Oaks C700 Bremer Ranch C700 Bremer Ranch C700 Park Ranch C700 Monier Ranch C700 Wiesner Ranch C700 Now Development AREA C TOTAL AREA TOTAL	1,081,4			620,243	1,011,555	1,465,719	887,008,1	6,011,2
1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	C600 Canyon Lake MH Estates North C600 Canyon Lake MH Estates North C600 Lakeview Park C600 Linnea S. Peg Lots C600 Linnea S. Peg Lots C600 Scenic Heights 1 C600 Tom Creek Acres C600 Tom Creek Hills C600 Unplatted Acreage C600 New Development AREA TOTAL C700 Abbott-Barnett Subdivision C700 Ancient Oaks C700 Ancient Oaks C700 Bremer Ranch C700 Bremer Ranch C700 Smith Ranch C700 Wiesner Ranch C700 Unplatted Acreage C700 Unplatted Acreage C700 New Development AREA TOTAL AREA TOTAL  *500 Current capacity for non-CLWSC wells	A C1C			94.144	77.915	72.506	68,89	960'29
162,000	C600 Deer Meadows C600 Lakeview Park C600 Linnea S. Peg Lots C600 Scenic Heights 1 C600 Scenic Heights 1 C600 Tom Creek Acres C600 Tom Creek Hills C600 Unplatted Acreage C600 New Development AREA TOTAL C700 Abbott-Barnett Subdivision C700 Ancient Oaks C700 Now Development AREA TOTAL AREA C TOTAL  * 50% of current capacity for non-CLWSC wells		20.07		95.404	99 981	98 118	96.876	96,255
162,000         7,000         1,700         46,794         38,703         34,963         32,470           226,800         676         8,483         75,027         76,105         70,461         66,988         77,18           0         38,543         58,926         75,027         100,351         129,007         159,307         118           0         17,919         27,339         34,799         38,882         38,157         37,674         118           0         67,048         41,248         57,785         38,482         38,157         37,674         118           0         67,048         41,248         57,785         38,482         38,157         37,674         118           0         77,048         41,248         57,185         46,286         58,237         54,538         37,674         178           0         19,272         350,876         67,141         727         718         10         <	C600 Lakeview Park C600 Lakeview Park C600 Linnea S. Peg Lots C600 Scenic Heights 1 C600 Scenic Heights 1 C600 Tom Creek Hills C600 Tom Creek Hills C600 Unplatted Acreage C600 New Development AREA TOTAL C700 Abbott-Barnett Subdivision C700 Ancient Oaks C700 Ancient Oaks C700 Ancient Cake C700 Bremer Ranch C700 Bremer Ranch C700 Wiesner Ranch C700 Wiesner Ranch C700 Unplatted Acreage C700 Wiesner Ranch	5			48.875	65 173	83.582	103,334	124,062
226,800 676 8,483 73,097 76,105 70,461 66,698 689 73,097 75,105 70,461 66,698 74 727 718 718 72,097 71,019 27,359 74,093 38,882 74,124,007 159,007 159,007 71,019 72,7359 74,124 749 74,095 76,126,007 159,007 71,019 72,7359 74,124 74,095 76,126,007 72,139 71,019 72,139 71,019 72,139 71,019 72,139 71,019 72,139 71,019 72,139 74,124 74,06 8,423 74,124 74,06 8,423 74,124 74,06 8,423 74,125,00 17,139 71,	C600 Lakeview Prank C600 Linnea S. Peg Lots C600 Rolling Hills C600 Scenic Heights 1 C600 Tom Creek Acres C600 Unplatted Acreage C600 New Development AREA TOTAL C700 Abbott-Barnett Subdivision C700 Ancient Oaks C700 Ancient Caks C700 Bremer Ranch C700 Bremer Ranch C700 Monier Ranch C700 Wiesner Ranch C700 Wiesner Ranch C700 Wiesner Ranch C700 Wiesner Ranch C700 New Development AREA C TOTAL  * 50% of current capacity for non-CLWSC wells	763		,	46 794	38 703	34.963	32,470	31,223
226,800         0         8,483         73,037         76,105         70,461         66,698           0         38,543         58,926         75,072         100,351         129,007         159,307         115,344         129,007         159,307         115,344         129,007         159,307         115,344         129,007         159,307         115,344         129,007         159,307         115,344         129,007         159,307         115,344         129,007         159,307         115,344         129,007         159,307         115,344         129,007         159,307         118         118         118         25,237         24,538         13,648         52,785         56,286         55,237         54,538         13,648         14,155,441         197,326         287,339         33           601,200         676         842         782         741         727         718         718           0         676         842         782         744         7406         8722         8,611           0         676         842         782         744         7406         8722         8,611           0         676         842         782         744         7406         87,362 <td>C600 Linnea S. Peg Lots C600 Rolling Hills C600 Scenic Heights 1 C600 Tom Creek Acres C600 Unplatted Acreage C600 New Development AREA TOTAL C700 Abbott-Barnett Subdivision C700 Ancient Oaks C700 Ancient Oaks C700 Bremer Ranch C700 Bremer Ranch C700 Bremer Ranch C700 Monier Ranch C700 Wiesner Ranch C700 Wiesner Ranch C700 Wiesner Ranch C700 Wiesner Ranch C700 New Development AREA C TOTAL  * \$50% of current capacity for non-CLWSC wells</td> <td>192,0</td> <td></td> <td></td> <td>287</td> <td>741</td> <td>727</td> <td>718</td> <td>713</td>	C600 Linnea S. Peg Lots C600 Rolling Hills C600 Scenic Heights 1 C600 Tom Creek Acres C600 Unplatted Acreage C600 New Development AREA TOTAL C700 Abbott-Barnett Subdivision C700 Ancient Oaks C700 Ancient Oaks C700 Bremer Ranch C700 Bremer Ranch C700 Bremer Ranch C700 Monier Ranch C700 Wiesner Ranch C700 Wiesner Ranch C700 Wiesner Ranch C700 Wiesner Ranch C700 New Development AREA C TOTAL  * \$50% of current capacity for non-CLWSC wells	192,0			287	741	727	718	713
C20,000         38,543         58,926         75,007         100,351         129,007         159,307         11           0         17,919         27,359         34,799         38,882         34,157         77         718           0         17,019         27,359         34,799         38,882         34,57         778         778           0         27,048         41,248         52,785         56,286         55,237         54,538         17,674           0         19,272         32,830         55,131         115,534         197,326         287,339         33           0         601,200         178,178         56,136         67,410         780,810         908,630         1,0           0         676         842         782         741         727         718         1,0           0         676         842         782         741         727         718         1,0           0         676         842         782         741         727         718         1,3           0         676         8423         13,048         15,640         14,812         14,356         1,3           0         676         842	C600 Rolling Hills C600 Scenic Heights 1 C600 Tom Creek Acres C600 Unplatted Acreage C600 New Development AREA TOTAL C700 Abbott-Barnett Subdivision C700 Ancient Oaks C700 Bremer Ranch C700 Bremer Ranch C700 Bremer Ranch C700 Bremer Ranch C700 Wiesner Ranch	8 900			73 007	76.105	70.461	66 698	64.817
0         17,919         27,359         34,935         38,882         38,157         37,674           0         676         842         782         741         727         718           0         27,048         41,248         52,785         56,286         55,237         54,538         37,674           0         19,272         32,830         55,131         115,534         197,336         287,339         33,674           0         19,272         32,830         55,131         115,534         197,336         287,339         37,674           0         676         842         782         741         727         718           0         676         842         782         741         727         718           0         676         842         782         741         727         718           0         676         842         782         741         727         718           0         676         842         782         741         727         718           0         8,453         13,048         15,640         14,812         14,352         10,764           0         4,733         7,155	C600 Scenic Heights 1 C600 Tom Creek Acres C600 Tom Creek Hills C600 New Development AREA TOTAL C700 Abbott-Barnett Subdivision C700 Ancient Oaks C700 Bremer Ranch C700 Bremer Ranch C700 Bremer Ranch C700 Monier Ranch C700 Wiesner Ranch	9,027			75,037	100.351	129,007	159.307	191,084
601,200         17,513         27,728         741         777         718           601,200         27,048         41,248         52,785         56,286         55,237         54,538         36,878         57,785         56,286         55,237         54,538         36,878         57,786         57,786         56,286         55,237         54,538         36,873         54,538         38         36,878         57,786         56,286         55,237         54,538         38	C600 Tom Creek Acres C600 Tom Creek Hills C600 Unplatted Acreage C600 New Development AREA TOTAL C700 Abbott-Barnett Subdivision C700 Ancient Oaks C700 Bremer Ranch C700 Bremer Ranch C700 Monier Ranch C700 Monier Ranch C700 Wiesner Ranch C700 Unplatted Acreage C700 Unplatted Acreage C700 New Development AREA C TOTAL * 50% of current capacity for non-CLWSC wells				27,00	38,887	38 157	37.674	37,433
601,200         77,048         41,248         52,786         56,286         55,277         54,538         30,830         601,200         19,272         54,538         32,736         54,538         3           601,200         19,272         32,830         55,131         115,534         197,326         287,339         3           601,200         178,179         36,876         577,666         670,410         780,810         908,530         1,0           0         676         842         782         741         727         718         1,0         0 <t< td=""><td>C600 Tom Creek Hills C600 Unplatted Acreage C600 New Development AREA TOTAL C700 Abbott-Barnett Subdivision C700 Ancient Oaks C700 Bremer Ranch C700 Bremer Ranch C700 Monier Ranch C700 Monier Ranch C700 Park Ranch C700 Wiesner Ranch C700 Unplatted Acreage C700 Unplatted Acreage C700 New Development AREA C TOTAL *50% of current capacity for non-CLWSC wells</td><td></td><td></td><td></td><td>787</td><td>741</td><td>707</td><td>718</td><td>713</td></t<>	C600 Tom Creek Hills C600 Unplatted Acreage C600 New Development AREA TOTAL C700 Abbott-Barnett Subdivision C700 Ancient Oaks C700 Bremer Ranch C700 Bremer Ranch C700 Monier Ranch C700 Monier Ranch C700 Park Ranch C700 Wiesner Ranch C700 Unplatted Acreage C700 Unplatted Acreage C700 New Development AREA C TOTAL *50% of current capacity for non-CLWSC wells				787	741	707	718	713
601,200         17,049         41,240         55,131         115,534         197,326         287,399         3           601,200         178,179         360,876         677,666         670,410         780,810         287,326         287,399         3           601,200         178,179         360,876         677,666         670,410         727         718         1,0           0	C600 Unplatted Acreage C600 New Development AREA TOTAL C700 Abbott-Barnett Subdivision C700 Ancient Oaks C700 Bremer Ranch C700 Denham Estates C700 Monier Ranch C700 Monier Ranch C700 Smith Ranch C700 Wiesner Ranch C700 Unplatted Acreage C700 Unplatted Acreage C700 New Development AREA C TOTAL  * 50% of current capacity for non-CLWSC wells				20/ 207 C3	מכי שם	55 237	5.4 5.38	54 189
601,200         19,272         32,830         55,31         115,524         15,120         201,525         201,525         201,525         201,525         201,525         201,525         201,525         201,525         201,525         201,525         201,525         201,525         201,525         201,525         201,525         201,525         201,525         1,08         201,525         201,525         201,525         1,08         201,525         201,525         201,525         1,09         201,525	AREA TOTAL  AREA TOTAL  C700 Abbott-Barnett Subdivision C700 Ancient Oaks C700 Bremer Ranch C700 Denham Estates C700 Monier Ranch C700 Monier Ranch C700 Smith Ranch C700 Smith Ranch C700 Unplatted Acreage C700 Unplatted Acreage C700 New Development AREA TOTAL  * 50% of current capacity for non-CLWSC wells				32,703	007,00	107,204	267,200	202 033
601,200         178,179         350,876         677,666         670,410         789,810         908,630         1,10           0         676         842         782         741         727         718         1,10         0	AREA TOTAL  C700 Abbott-Barnett Subdivision C700 Ancient Oaks C700 Bremer Ranch C700 Denham Estates C700 Monier Ranch C700 Park Ranch C700 Smith Ranch C700 Wiesner Ranch C700 Unplatted Acreage C700 New Development AREA TOTAL  * 50% of current capacity for non-CLWSC wells				15,131	115,534	197,320	660,102	000,000
0         676         842         782         741         727         718           0         <	C700 Abbott-Barnett Subdivision C700 Ancient Oaks C700 Bremer Ranch C700 Denham Estates C700 Monier Ranch C700 Monier Ranch C700 Smith Ranch C700 Wiesner Ranch C700 Unplatted Acreage C700 Unplatted Acreage C700 New Development AREA C TOTAL * 50% of current capacity for non-CLWSC wells	601,2			577,665	670,410	780,810	908,630	7.06,F30,F
0         0	C700 Ancient Oaks C700 Bremer Ranch C700 Bremer Ranch C700 Monier Ranch C700 Monier Ranch C700 Park Ranch C700 Wiesner Ranch C700 Unplatted Acreage C700 Unplatted Acreage C700 New Development AREA C TOTAL * 50% of current capacity for non-CLWSC wells		0 67		782	741	727	718	713
0         676         842         782         741         727         718           0         676         842         782         741         727         718           0         676         842         782         741         727         718           0         8,453         13,048         15,640         14,812         14,536         14,352         8,611           0         676         842         782         741         727         718           0         676         842         7,038         6,665         6,541         6,458           0         4,733         7,155         8,993         11,109         10,902         10,764           0         82,158         125,849         160,310         171,079         167,891         165,766         1           0         19,272         32,830         55,131         115,534         197,326         287,399         3           0         124,421         193,193         266,714         329,667         408,825         496,220         6,350,030         7,256	C700 Bremer Ranch C700 Bremer Ranch C700 Denham Estates C700 Monier Ranch C700 Monier Ranch C700 Wiesner Ranch C700 Unplatted Acreage C700 Unplatted Acreage C700 New Development AREA C TOTAL * 50% of current capacity for non-CLWSC wells				0	0	0	0	J
666         842         782         741         727         718           0         2,705         4,209         5,474         7,406         8,722         8,611           0         8,453         13,048         15,640         14,812         14,536         14,352           0         6,76         842         782         741         727         718           0         4,395         6,734         7,038         6,665         6,541         6,458           0         4,733         7,155         8,993         11,109         10,902         10,764           0         82,158         125,849         160,310         171,079         167,891         165,766         1           0         19,272         32,830         55,131         115,534         197,326         287,399         3           0         124,421         193,193         266,714         329,667         408,825         496,220         6,350,030         7,256	C700 Denham Estates C700 Fox Hill C700 Monier Ranch C700 Monier Ranch C700 Smith Ranch C700 Wiesner Ranch C700 Unplatted Acreage C700 Unplatted Acreage C700 New Development AREA C TOTAL * 50% of current capacity for non-CLWSC wells				782	741	727	718	713
0     2,705     4,209     5,474     7,406     8,722     8,611       0     8,453     13,048     15,640     14,812     14,536     14,352       0     676     842     782     741     727     718       0     4,395     6,734     7,038     6,665     6,541     6,458       0     4,733     7,155     8,993     11,109     10,902     10,764       0     82,158     125,849     160,310     171,079     167,891     165,766     1       0     19,272     32,830     55,131     115,534     197,326     287,399     3       0     124,421     193,193     266,714     329,667     408,825     496,220     6       3,076,200     967,911     1,715,904     2,601,655     3,853,081     5,069,156     6,350,030     7,256	C700 Fox Hill C700 Monier Ranch C700 Park Ranch C700 Smith Ranch C700 Wiesner Ranch C700 Unplatted Acreage C700 New Development AREA TOTAL * 50% of current capacity for non-CLWSC wells				782	741	727	718	713
0     8,453     13,048     15,640     14,812     14,536     14,352       0     676     842     782     741     727     718       0     4,396     6,734     7,038     6,665     6,541     6,458       0     4,733     7,155     8,993     11,109     10,902     10,764       0     82,158     125,849     160,310     171,079     167,891     165,766     1       0     19,272     32,830     55,131     115,534     197,326     287,399     3       0     124,421     193,193     266,714     329,667     408,826     496,220     6       3,076,200     967,911     1,715,904     2,601,655     3,853,081     5,069,156     6,350,030     7,256	C700 Monier Ranch C700 Park Ranch C700 Smith Ranch C700 Wiesner Ranch C700 Unplatted Acreage C700 New Development AREA TOTAL * 50% of current capacity for non-CLWSC wells				5.474	7,406	8,722	8,611	8,55
0     676     842     782     741     727     718       0     4,395     6,734     7,038     6,665     6,541     6,458       0     4,733     7,155     8,993     11,109     10,902     10,764       0     82,158     125,849     160,310     171,079     167,891     165,766     1       0     19,272     32,830     55,131     115,534     197,326     287,399     3       0     124,421     193,193     266,714     329,667     408,825     496,220     6       3,076,200     967,911     1,715,904     2,601,655     3,853,081     5,069,156     6,350,030     7,256	C700 Park Ranch C700 Smith Ranch C700 Wiesner Ranch C700 Unplatted Acreage C700 New Development AREA TOTAL * 50% of current capacity for non-CLWSC wells			_	15,640	14,812	14,536	14,352	14,260
0     4,395     6,734     7,038     6,665     6,541     6,458       0     4,733     7,155     8,993     11,109     10,902     10,764       0     82,158     125,849     160,310     171,079     167,891     165,766     1       0     19,272     32,830     55,131     115,534     197,326     287,399     3       0     124,421     193,193     266,714     329,567     408,826     496,220     6       3,076,200     967,917     1,715,904     2,601,655     3,853,081     5,069,156     6,350,030     7,25	C700 Smith Ranch C700 Wiesner Ranch C700 Wiesner Ranch C700 Unplatted Acreage C700 New Development AREA TOTAL  * 50% of current capacity for non-CLWSC wells				782	741	727	718	71
3,076,200 967,911 1,715,904 2,601,655 3,853,081 5,069,156 6,350,030 7,25	C700 Wiesner Ranch C700 Wiesner Ranch C700 Unplatted Acreage C700 New Development AREA TOTAL  * 50% of current capacity for non-CLWSC wells				7 038	6,665	6.541	6.458	6.41
3,076,200 967,911 1,715,904 2,601,655 3,853,081 5,069,156 6,350,030 7,25	C700 Unplatted Acreage C700 Unplatted Acreage C700 New Development AREA TOTAL  * 50% of current capacity for non-CLWSC wells				8 993	11,109	10,902	10.764	10,69
3,076,200 967,911 1,715,904 2,601,655 3,853,081 5,069,156 6,350,030 7,28	AREA TOTAL  AREA C TOTAL  * 50% of current capacity for non-CLWSC wells			•	160.310	171 079	167,891	165,766	164,703
3,076,200 967,911 1,715,904 2,601,655 3,853,081 5,069,156 6,350,030 7,28	AREA TOTAL  AREA C TOTAL  * 50% of current capacity for non-CLWSC wells			-	55 131	115.534	197,326	287 399	393,933
3,076,200 967,911 1,715,904 2,601,655 3,853,081 5,069,156 6,350,030 7,2	AREA LOTAL  AREA C TOTAL  * 50% of current capacity for non-CLWSC wells		•	•	255 714	329 567	408.825	496.220	601.416
3,076,200 967,911 1,715,904 2,601,655 3,853,081 5,069,156 6,350,030	* 50% of current capacity for non-CLWSC wells		74.47		11004				•
	* 50% of current capacity for non-CLWSC wells	3.076.2	·		2,601,655	3,853,081	5,069,156	6,350,030	7,255,534
	750' of number opposite for CIM/CC walls								

<sup>75%</sup> of current capacity for CLWSC wells THC #201-10.11

Area No.	Subdivision Name	Current Well Capacity*		000 000 22	Net Supply dimum Day Flow 2010	Net Supply Requirements (gal/day) Maximum Day Flowrate, Based on 2.3 x Average Day 2010 2020	(gal/day) 1.3 x Average Da 2030	37, 2040	2050
D110	Buzzard's Rest Ranch	0	9/9	842	782	741	727	718	713
D110	Inland Estates	0	21,638	33,251	42,228	52,953	51,966	51,308	50,980
D110	L D 3 Ranch	0	929	845	782	741	727	718	713
D110	Naked Indian Reservation	0	27,724	42,511	45,356	42,955	42,154	41,621	41,354
D110	Oliver Estates	0	9/9	842	782	741	727	718	713
D110	Unplatted Acreage	0	61,534	94,282	120,428	128,494	126,100	124,504	123,706
D110	New Development	0	19,272	32,830	55,131	115,534	197,326	287,399	393,933
AREA D TOTAL	OTAL	0	132,197	205,399	265,489	342,157	419,727	506,984	612,111
	STUDY AREA TOTAL	6,001,200	4,685,277	7,711,915	10,425,349	15,046,207	20,457,964	26,208,830	32,238,814
NORTH SIDE	w.	2,355,120	1,115,938	1,793,914	2,415,360	3,545,281	4,913,873	6,263,588	7,681,049
SOUTH SIDE	ш	3,237,120	1,934,822	3,202,620	4,498,392	6,516,836	8,679,963	10,991,316	13,112,744
SOUTHWEST SIDE	T SIDE	408,960	1,634,516	2,715,381	3,511,597	4,984,089	6,864,128	8,953,926	11,445,022
	ı	6,001,200	4,685,277	7,711,916	10,425,349	15,046,207	20,457,964	26,208,830	32,238,814
NORTH SI	NORTH SIDE (Ac. Ft.Yr.)	1,147	543	874	1,176	1,726	2,393	3,050	3,740
SOUTH SI	DE (Ac. Ft./Yr.)	1,576	942	1,560	2,191	3,173	4,227	5,362	6,385
SOUTHWE	SOUTHWEST SIDE (Ac. Ft./Yr.)	199	962	1,322	1,710	2,427	3,343	4,360	5,573
		2,922	2,282	3,765	5,077	7,327	9,962	12,763	15,699

<sup>\* 50%</sup> of current capacity for non-CLWSC wells 75% of current capacity for CLWSC wells THC #201-10.11

# CANYON LAKE WATER SUPPLY CORPORATION REGIONAL WATER PLAN

## **Appendix B- Existing Water System Map Book**

(BOUND SEPARATELY)

## CANYON LAKE WATER SUPPLY CORPORATION REGIONAL WATER PLAN

## **Appendix C-**

## **TWDB Review Comments & Correspondence**



CE-22-97:11:134M:C L M S C

# TEXAS WATER DEVELOPMENT BOARD

William B. Madden, Cheirmon Charles W. Jenness, Member Lynwood Sanders, Member August 13, 1997

Craig D. Pedersen Executive Administrator

Not Fernández, Vice-Chairman Elaine M. Barrón, M.D., Member Charles L. Geren, Member

Mr. Dale Yates General Manager Canyon Lake Water Supply Corporation P. O. Box 1742

Canyon Lake, Texas 78130

Re:

Review Comments for Revised Draft Report Submitted by Canyon Lake Water Supply

Corporation (Corporation), TWDB Contract No. 96-483-155

Dear Mr Xales O

Staff members of the Texas Water Development Board have completed a review of the revised draft report under TWDB Contract No. 96-483-155 and the additional comments are attached. As stated in the above referenced contract, the Corporation will consider incorporating comments from the EXECUTIVE ADMINISTRATOR shown in Attachment 1 and other commentors on the draft final report into a final report. The Corporation must include a copy of the EXECUTIVE ADMINISTRATOR's comments in the final report.

The Board looks forward to receiving one (1) unbound camera-ready original and twenty (20) bound double-sided copies of the Final Report on this planning project. In addition, please submit one (1) electronic copy of any computer programs or models and an operations manual developed under the terms of this Contract along with one (1) copy of the AutoCAD DXF files.

Please contact Mr. Gordon Thorn, Research and Regional Planning Program Manager, at (512) 463-7979, if you have any questions about the Board's comments.

Sincerely,

Tommy Knowles

Deputy Executive Administrator

for Planning

Gordon Thorn, TWDB

V:\RPP\DRAFT\96483155.LT2

Exercise leadership in the conservation and responsible development of water resources for the benefit of the citizens, economy, and environment of Texas.

P.O. Box 13231 • 1700 N. Congress Avenue • Austin, Texas 78711-3231 Telephone (512) 463-7847 • Telefax (512) 475-2053 • 1-800- RELAY TX (for the hearing impaired) URL Address: http://www.rwdb.state.tx.us . E-Mail Address: info@rwdb.state.tx.us.

# ATTACHMENT 1 TEXAS WATER DEVELOPMENT BOARD

REVIEW COMMENTS FOR CANYON LAKE SUPPLY CORPORATION REGIONAL WATER SUPPLY CONTRACT CONTRACT NO. 96-483-155

- 1. There is mention of paying \$53/acre-foot of water and also the "abundant water supply in Canyon Lake". CLWSC needs to provide evidence that the water has been or will be committed by GBRA to serve the future service areas.
- The consultant was advised to address the on-going study by GBRA and the possible implications of such study in the CLWSC project. No evidence is found in the report as to the study by GBRA.
- 3. There were no supply options discussed as was called for in Part II of the scope.
- An analysis was made of various routes to get Canyon water to the southwest area. It would be of interest to see how this development plan compares to GBRA's plan and how they could be modified to each entity's need.
- 5. It is recommended that the digital base map and any other digital maps that were developed in the study be made available to TWDB and that GIS section staff get the digital information.
- 6. The population and water requirement projections presented in the draft final report are reasonable for water supply planning purposes.

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### CANYON LAKE WATER SUPPLY CORPORATION P.O. BOX 1742 CANYON LAKE TEXAS 78130 210-964-3854

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October 7, 1997

Dr. Tommy Knowles
Planning Division
Texas Water Development Board
1700 North Congress Avenue
Austin, Texas 78711-3231

RE: Regional Water Supply Contract Between Canyon Lake Water Supply Corporation and

the Texas Water Development Board TWDB Contract No. 96-483-155

Dear Dr. Knowles;

Pursuant to your letter dated August 13, 1997 regarding you staff's review of our revised draft report for the referenced project, we offer the following responses to the comments in Attachment 1:

- 1. The stated price for raw water purchased from GBRA is the amount CLWSC currently pays. With regard to the adequacy of supply from the Lake, at the time that Section 3.0 of the report was prepared, and in concurrent public meetings, GBRA representatives indicated that there were approximately 18,000 acre-feet of uncommitted water. This amount appears to be adequate with respect to the Year 2040 net supply requirement projected in Table 10 of the report of 12,763 acre-feet per year for the Study planning area. This information has been formally presented to both the Trans-Texas PMC and GBRA to facilitate regional coordination of the area's supply needs.
- 2. The scope of work did not specifically call for a review of a GBRA study, nor did one exist at the time the CLWSC planning project was initiated. The intent of the scope was to incorporate results from other Trans-Texas plans that were prepared for the area. Section 3.0 of the report presents a comparison of three treated water transmission systems for the southwest portion of the CLWSC study area. Alternate #2 is essentially the alignment recommended by the Trans-Texas Water Program, Phase II Report, Letter of Intent Analysis, modified by our consultant to accommodate the capacity needs determined in the CLWSC study.

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Dr. Knowles
October 7, 1997

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Page 2

3. The supply options described in Part II of the scope of work were intended to be various configurations of systems, and those options were stated and compared in Section 3.0 of the report, as described above.

- 4. Beginning in early May of this year, as our consultant was completing the final section of the report, CLWSC initiated an earnest and diligent effort to develop a combined project jointly with GBRA that satisfied the present and future water supply needs of the study area. Through a series of meetings with the GBRA staff, a "Joint Resolution and Agreement" (see attached) was developed which was intended to establish the framework for the two entities to organize and implement a regional supply system. The configuration of this system, a map of which is included in the Joint Resolution, was composite of this Resolution on May 14, 1997.
- 5. Digital files containing the overall study area base map and all elements related to that map, as shown in Figures 3, 4, 5, 6, 11a, 11b, and 12 in the report, will be delivered with this final report in the format requested. The detailed base map of the existing CLWSC service area, shown in Figures 14, 15, 16, and 17 in the report, cannot be delivered in electronic format, due to copyright restrictions contained in CLWSC's purchase agreement with the developer of the map, Guadalupe Valley Telephone Cooperative. These restrictions were previously reviewed with TWDB staff, and no objections were posed.

Your prompt consideration of this request will be greatly appreciated. Please do not hesitate to call if there are any comments or questions.

Sincerely,

Dale R. Yates
General Manager

Wale Ryats

encl.

### CANYON LAKE WATER SUPPLY CORPORATION

#### RESOLUTION

A regular monthly meeting of the Board of Directors of the Canyon Lake Water Supply Corporation was held on May 14, 1997 at 1:00 p.m. at the Corporate Office, 130 Kanz Drive, Sattler, Texas pursuant to public notice given in accordance with the Corporation By-laws and the Texas Open Meetings Act, Chapter 551 of the Texas Government Code as amended.

WHEREAS, the Board of Directors of Canyon Lake Water Supply Corporation has been made aware that additional treated water storage at the Triple Peak Surface Water Treatment Plant was needed to serve current and future customers connected to its water main distribution system, and

WHEREAS, the Canyon Lake Water Supply Corporation which is located and operated under its Certificate of Convenience and Necessity No. 10692 customers located in the Subdivisions served by this water distribution system, and

WHEREAS, the Canyon Lake Water Supply Corporation has hired the Hogan Corporation, Engineers-Planners-Consultants to engineer and request bids for the purchase and construction of a 100,000 Gallon Clearwell Storage Tank, which is served by the Triple Peak Water Treatment Plant, owned and operated by Canyon Lake Water Supply Corporation, and

WHEREAS, the Canyon Lake Water Supply Corporation has hired the Peabody TechTank, Inc. to construct said 100,000 Gallon Clearwell Storage Tank according to the plans and designs of the Hogan Corporation (THC 201-12.20), and

WHEREAS, the construction has now been completed and accepted by the Hogan Corporation and the General Manager of Canyon Lake Water Supply Corporation.

THEREFORE, BE IT RESOLVED that the Canyon Lake Water Supply Corporation Board of Directors has given its approval to pay all bills and invoices incurred from the Peabody TechTank, Inc. in relation to the Triple Peak Surface Water Treatment Plant 100,000 Clearwell, Job No. 103.

Jeff Branecky, President

Canyon Lake Water Supply Corporation

Board of Directors

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## JOINT RESOLUTION AND AGREEMENT

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BETWEEN GUADALUPE-BLANCO RIVER AUTHORITY AND CANYON LAKE WATER SUPPLY CORPORATION AGREEING TO A COOPERATIVE VENTURE FOR CONSTRUCTION OF FACILITIES TO TREAT AND TRANSPORT WATER FROM CANYON RESERVOIR

WHEREAS, the Guadalupe-Blanco River Authority, Seguin, Texas, hereafter referred to as "Authority", and Canyon Lake Water Supply Corporation, Canyon Lake, Texas, hereafter referred to as "Corporation", each desire to enter into a cooperative venture to treat and transport water from Canyon Reservoir, located in Comal County, Texas; and

WHEREAS, it is felt that substantial savings in design, construction, and operation and maintenance costs can be realized through joint cooperation of Authority and Corporation; and

WHEREAS, it is necessary to identify proposed projects and to develop procedures for joint engineering and construction management on the proposed projects; and

WHEREAS, this Joint Resolution will provide the administrative rules on projects specifically authorized by both governing bodies, but in no case will this Resolution create funding responsibilities without the express approval of such contracts by each governing body.

NOW THEREFORE, Authority and Corporation hereby contract and agree as follows:

#### SECTION L DESCRIPTION OF PROJECTS

The proposed projects to be designed and constructed are as follows:

- A. Raw Water Intake and Pump Station at Canyon Reservoir
- B. Raw Water Transmission Main from Canyon Reservoir to Water Treatment Plant, to be located at Startzville near the intersection of F.M. 3159 and F.M. 2673.
- C. A new Surface Water Treatment Plant
- D. Treated Water Transmission Main along F.M. 2673 from Oblate Street to F.M. 306
- E. Treated Water Transmission Main from Water Treatment Plant to the intersection of State Highway 46 and Bulverde Road
- F. Treated Water Transmission Main from the intersection of Bulverde Road and State Highway 46 to the intersection of U.S. Highway 281

G. Treated Water Transmission Main in Ammann Road from Bulverde Road to Fair Oaks
Ranch

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- H. Treated Water Transmission Main along F.M. 1863 from Ammon Road to Smithson Valley Road
- I. Treated Water Transmission Main from the intersection of U.S. Highway 281 to the existing storage reservoir of Bexar Metropolitan Water District, located in the Stone Oak Subdivision in Bexar County
- J. Treated Water Transmission Main from U.S. Highway 281 to SAWS Marshall Storage Reservoir
- K. Treated Water Transmission Main from Pair Oaks-Ammann Road to Boerne.

Other improvements might be added to the above list as additional projects are identified.

A map showing the general locations of the projects described above is attached hereto.

The above described projects will include all necessary pumping and metering stations, storage reservoirs, and other necessary appurtenances to complete the facilities.

All projects listed above will be developed as a joint effort of the Authority and the Corporation.

Each project must be approved for design and construction by the governing bodies of the Authority and the Corporation before either party is liable for any costs associated with any project.

## SECTION IL JOINT MANAGEMENT COMMITTEE

A Joint Management Committee is hereby created with two members appointed by the Authority and two members appointed by the Corporation. If majority approval on an issue cannot be reached among the Joint Management Committee members, then the issues will be referred to each governing body for final resolution.

The General Manager of the Authority shall serve as Staff Director for the Joint Management Committee. It will be his responsibility to coordinate the meetings of the Committee, to keep accurate minutes of Committee meetings, and to provide necessary information for consideration. The engineering staffs of the Authority and the Corporation will furnish necessary technical assistance when requested by the Committee.

The Joint Management Committee shall meet at least monthly to review progress being made and to make recommendations to the respective governing bodies, if appropriate. Meetings may also be held on call of either party or on call of the Staff Director.

#### SECTION IIL ENGINEER

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An Association of consulting engineering firms representing the Authority and the Corporation shall be employed to perform the engineering services on this entire project. The Association shall be responsible to the Joint Management Committee but will report to, and be supervised by, the Staff Director.

The Association shall perform professional technical services authorized by the Joint Management Committee and will be compensated therefor, in accordance with the Agreement for Engineering Services, a copy of which is attached to this Resolution. The work shall be performed in phases in accordance with the directions of the Joint Management Committee. The Association shall be responsible to both the Authority and the Corporation for the design and construction of specific facilities.

#### SECTION IV. CONSTRUCTION

No construction projects may be bid until the plans and specifications have received approval of the Joint Management Committee. No construction contracts can be awarded until the governing bodies of both the Authority and the Corporation have reviewed the tabulation of bids and authorized the contract to be awarded. The actual construction contracts shall be awarded by the Staff Director on behalf of the two parties. Any change orders to the contract shall be approved by both governing bodies; however, it is understood that change orders under \$5,000 could be authorized by the Staff Director. Change orders up to \$10,000 could be authorized by the Joint Management Committee. However, once change orders not approved by both governing bodies total \$100,000.00, no additional change orders in any amount shall be approved by an authority other than both governing bodies unless said governing bodies approve another \$100,000.00 change order account, and any change order over \$10,000 shall be brought directly to the governing bodies prior to authorization.

It shall be the responsibility of the Joint Management Committee and its Staff Director to assure that each project is built in accordance with the approved plans and specifications; however, the Authority and the Corporation agree not to hold each other responsible for acts of God, orders of Government, or matters beyond their control in the development of these projects.

A program for right-of-way acquisition shall be developed and presented to both governing bodies at the appropriate time. Surveying involved in right-of-way acquisition shall be by separate agreement approved as if it were a contract. Engineering and other costs involved in acquiring special permits shall be considered additional work and be approved in the same manner as a contract change order.

## SECTION V. FUNDING AND CAPACITY RECEIVED

Funding for each phase of the total project must be approved by the governing bodies of both the Authority and the Corporation prior to the start of any engineering and/or construction activities.

It is understood and agreed that all projects may be funded through separate bond issues or by any other legal means whereby the funds can be made available prior to commencing engineering services and award of any construction contracts.

Prior to engineering or construction contracts being awarded, the Authority must authorize adequate funds for the projects. The Staff Director shall be responsible for interim payments based upon invoices or construction estimates. On payment, both parties shall be notified of the billing amount along with adequate documentation for their records.

For and in consideration of the agreements described herein, the Authority and the Corporation will share in the capacity in all facilities constructed in the project area. Debt for the improvements will be repaid through proceeds from water sales.

Provisions are hereby made to adjust or add to the capacities described above by mutual agreement of both parties. Either party may delegate its capacity to others at any time. At the time that the debt is retired, final delegation of the capacity to each party will be according to the usage at that time. Projects I., I., and K. will be handled strictly by the Authority within its capacity. Water that is furnished outside the District that is short-term returnable will utilize the Corporation's capacity.

## SECTION VI. OPERATION AND MAINTENANCE

The Staff Director shall cause the facilities included in all projects to be operated and maintained in a first class manner and condition and to meet the requirements of the governing agencies. The costs for operating and maintaining these facilities shall be included in the cost to be paid by each party for its proportionate share.

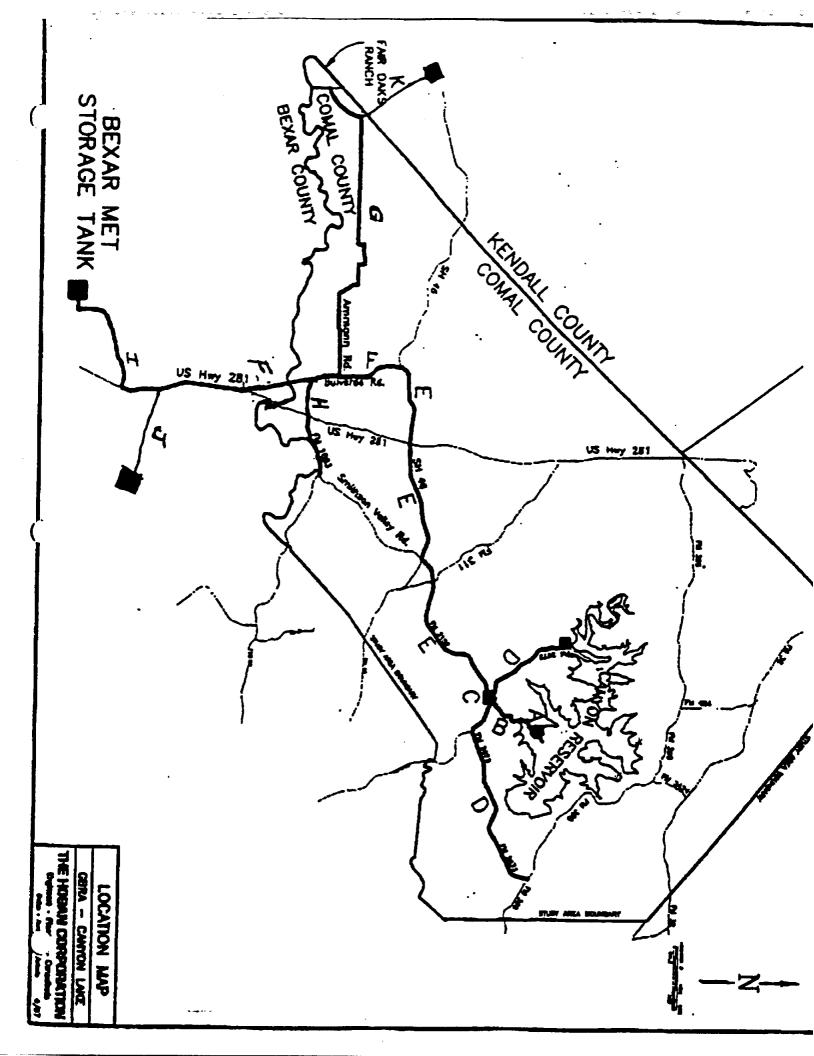
### SECTION VIL OBLIGATION

Nothing in this agreement shall relieve either party of the responsibility to perform in accordance with contractual provisions of any contract jointly approved under this agreement. Any legal liability arising from contracts authorized under this agreement shall be considered the joint responsibility of the Authority and the Corporation and shall be defended accordingly.

### SECTION VIIL COMPLETED PLANS

Upon termination or completion of the projects or any phases thereof, the Authority and the Corporation shall each receive one (1) set of "record drawings" and all pertinent project documents.

	day of
	•
•	W.E. West, It General Manage
ATTEST	· ·
Secretary	
	·
	DOOVED BY THE CANYON I AVE
THIS JOINT RESOLUTION AND AGREEMENT IS AP	
WATER SUPPLY CORPORATION this the 14	
THIS JOINT RESOLUTION AND AGREEMENT IS APWATER SUPPLY CORPORATION this the	
WATER SUPPLY CORPORATION this the 14	
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WATER SUPPLY CORPORATION this the	day of
WATER SUPPLY CORPORATION this the	day of  Jeff Braneck Presider





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## TEXAS WATER DEVELOPMENT BOARD

William B. Madden, Chairman Charles W. Jenness, Member Lynwood Sanders, Member

Craig D. Pedersen
Executive Administrator

Noé Fernández, Vice-Chairman Elaine M. Barrón, M.D., Member Charles L. Geren, Member

;210 964 2779

October 21, 1997

Mr. Dale Yates
General Manager
Canyon Lake Water Supply Corporation
P. O. Box 1742
Canyon Lake, Texas 78130

Re:

Regional Water Supply Study Contract Between Texas Water Development Board (TWDB) and Canyon Lake Water Supply Corporation (Corporation), TWDB Contract No. 96-483-155, Corporation's Response to TWDB Review Comments for Revised Draft

Dear Mr. Xates:

Staff of the Texas Water Development Board have completed a review of the Corporation's response to TWDB comments on the revised draft report under TWDB Contract No. 96-483-155. TWDB will accept the final report if the Corporation includes a copy of the EXECUTIVE ADMINISTRATOR's comments on the revised draft report and the Contractor's response to the EXECUTIVE ADMINISTRATOR's comments in the final report.

In addition, TWDB strongly suggests that the Corporation performs a cost comparison between the Corporation's recommended plan and the Guadalupe-Blanco River Authority's plan before the Corporation begins to implement a project.

The Board looks forward to receiving one (1) unbound camera-ready original and twenty (20) bound double-sided copies of the Final Report on this planning project. In addition, please submit one (1) electronic copy of any computer programs or models and an operations manual developed under the terms of this Contract along with one (1) copy of the AutoCAD DXF files that are not subject to copyright restrictions.

Please contact Mr. Gordon Thorn, Research and Regional Planning Program Manager, at (512) 463-7979, if you have any questions about the Board's comments.

Sincerely,

Tommy Knowles

**Deputy Executive Administrator** 

for Planning

cc: Gordon Thorn, TWDB

Our Mission

EXPRIDE HEADERSHIP IN the conversation and responsible development of water resources for the benefit of the citizens, economy, and environment of Texas.

Fig.					Hydrau V mex =	Hydraulic Analysis	# .			40 Yr.				Cost Projection	action 12%	15%	
1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	, to 2	O Total	d mxdy		26 S	1 7	F 2	ath, ft	Future Cap.	G Total	Pipelin	e Cost Total	Additional	Essements, Permits	Technical Services	Centingency	Total
10,004   0.63 mgd   0.18   420   4277.440   4105.000   425.000   40   40   40   40   40   40   40	Branch 1	- From FM	306 North A	fong FM 4				12 8 13									
16,044  1,10 mgd  1,31 mgd  1,31 mgd  1,32 mgd  1,32 mgd  1,32 mgd  1,33 mgd  1,34 mgd  1,35 mgd  1,36 mgd  1,37 mgd  1,38 mgd  1,38 mgd  1,39 mgd  1,39 mgd  1,39 mgd  1,39 mgd  1,39 mgd  1,30 mgd	à 8	0.13	0.13	5	3.52	•	13,872	0	0.63 mgd	0.19	\$20	\$277,440	\$105,000	\$25,000	<b>2</b>	<b>9</b>	\$407,440
4.80 6 6.053 7.089 7.089 7.089 6.05 mgd 6.33 420 1119,100 40 40 40 40 40 40 40 40 40 40 40 40 4	Branch 2	- From FM	306, North	long FM	3424, Ees	t Along FA	4 32										
6.19 6 7/089	2 3	0.24	0.24	169	4.80	•	8,955	440,01	0.63 mgd	0.33	\$20	\$179,100	<b>Q</b>	<b>2</b>	<b>0</b>	<b>0</b>	4179,100
8.58 8 13.384 13.370 27.154 1.13 mgd 0.88 6.25 6324,800 60 60 60 60 60 60 60 60 60 60 60 60 6	<b>ä ä</b>	9.0	0.29	198	5.19	10	7,089	890'/	0.63 mgd	0.42	<b>\$</b> 20	\$141,780	6115,000	\$25,000	9	<b>°</b>	\$460,880
18         13,344         27,154         1,13 mgd         0.86         425         4334,000         40         40,200           13         10         13,70         1,76 mgd         1,37         435         4481,950         4140,000         425,000         440,200           14         10         32,430         1,76 mgd         1,27         435         41,135,050         4140,000         425,000         443,700           15         12         9,410         1,2400         2,410         2,440         2,440         440         4304,000         4140,000         425,000         443,000           10         12         9,400         1,76 mgd         1,28         440         4304,000         4140,000         425,000         443,000           12         9,500         2,410         2,54 mgd         2,49         440         4304,000         40         40         440,000         40         440,000         40         414,000         40         40,000         40         40,000         40         40,000         40         40,000         40         40,000         40         40,000         40         40,000         40         40,000         40         40,000         40         40,00	Branch 3	- Along U.	S 281 North	1 SH 46				;									
13 10 13,770	<b>8</b>	0.46	0.48	318	6.58	80	13,384	27,154	1.13 mgd	0.86	\$25	\$334,800	<b>9</b>	<b>9</b>	\$40,200	\$56,200	4431,000
10 6,394	8 8	0.31	0.77	534	8.53	2	13,770	2 0	1.78 mgd	1.37	\$36	<b>6481,950</b>	<b>Q</b>	0	\$57,800	\$81,000	\$1,051,750
10   6,394   6,384   1.78 mgd   1.35   435   4223,790   4140,000   425,000   443,700     10   32,430   21,420   2.54 mgd   1.22   435   41,135,050   4140,000   425,000   4145,200     12   9,410   2,54 mgd   2,54 mgd   2,49   440   4378,400   4140,000   425,000   482,000     12   9,600   2,54 mgd   2,59   440   4378,400   4140,000   425,000   482,000     13   2,410   2,410   4,51 mgd   2,59   460   4144,600   40   410,000   425,000   410,000     13   41,085   1,78 mgd   1,71   435   4511,100   40,000   40   40,000     12   12,404   8,058   1,78 mgd   1,52   440   4322,320   440,000   40,000   423,500     13   14,404   2,54 mgd   2,54 mgd   2,54 mgd   2,55   440   4322,320   440,000   40,000   40,000     14   18,403   10,102   2,54 mgd   2,20   440   4404,000   40   40,000     15   10,102   2,54 mgd   2,20   440   4404,000   40   40   40,000     15   10,102   2,54 mgd   2,20   440   4404,000   40   40   40,000     15   10,102   2,54 mgd   2,20   440   4404,000   40   40   40,000     15   10,102   2,54 mgd   2,20   440   4404,000   40   40   40   40	Branch 4	- Along St	4 46 West of	US 281													
24         10         32,430         53,850         1.78 mgd         1.22         435         41,135,050         4100,000         425,000         4148,200           26         12         9,410         21,420         2.54 mgd         1.88         \$440         \$376,400         \$140,000         \$25,000         \$42,000           20         12         9,800         2,410         2.54 mgd         2.49         \$40         \$376,400         \$60         \$60         \$60         \$440,100         \$60,000         \$60         \$60,000 <t< td=""><td>8 E</td><td>0.44</td><td>0.74</td><td>41.0</td><td>B.37</td><td>5</td><td>6,394</td><td>6,394 0</td><td>1.76 mgd</td><td>1.35</td><td>435</td><td>\$223,790</td><td>\$140,000</td><td>\$25,000</td><td>\$43,700</td><td>\$64,900</td><td>6497,390</td></t<>	8 E	0.44	0.74	41.0	B.37	5	6,394	6,394 0	1.76 mgd	1.35	435	\$223,790	\$140,000	\$25,000	\$43,700	\$64,900	6497,390
8.24 10 32,430	Branch 5	- Along A	mmen Road V	Veet of US	1 281			6 6									
11.76 12 9,410 12,010 2.54 mgd 1.88 640 6376,400 6140,000 625,000 620 620 620 620 620 620 620 620 620	₹ ;	0.72	0.72	400	8.24	9	32,430	008,50	1.76 mgd	1.22	\$32	¢1,135,050	\$100,000	\$25,000	\$148,200	\$211,200	\$1,619,450
11.76 12 9,600 12,410 2,54 mgd 2.49 640 6384,000 60 60 60 646,100 12.20 16 2,410 0 4.51 mgd 2.59 600 6144,000 60 60 617,400 61	E 1	0.39	1.11	773	10.26	12	9,410	21,420	2.54 mgd	1.88	<b>4</b>	\$376,400	\$140,000	\$25,000	\$62,000	\$90,500	\$2,313,350
12.20 16 2.410 2.410 2.410 4.51 mgd 2.59 660 6144,600 60 60 617,400 617,400 61 61.71 635 6515,025 60 617,400 617,400 61 617,400 61 617,400 61 617,400 61 617,400 61 617,400 61 6	<b>5</b>	0.35	1.46	1,016	11.76	12	9,800	12,010	2.54 mgd	2.49	<b>4</b>	\$384,000	9	0,	\$48,100	\$64,500	\$2,807,950
9.48         10         15,460         1.76 mgd         1.71         ¢35         ¢541,100         ¢0         ¢64,900           5.27         8         20,633         41,095         1.13 mgd         0.53         ¢25         ¢615,825         \$0         \$0         \$61,900           5.27         10         12,404         8,058         1.76 mgd         0.53         ¢35         ¢434,140         ¢0         \$0         \$61,000           9.62         12         8,058         1.76 mgd         1.52         ¢40         ¢322,320         ¢40,000         \$0         \$61,000           9.89         12         18,040         25,4 mgd         1.47         ¢35         ¢561,400         ¢0         \$0         \$60           9.89         12         18,403         1.76 mgd         1.47         ¢35         ¢561,400         \$0         \$0         \$60           9.89         12         18,403         2.54 mgd         2.54 mgd         2.24 mgd         2.25 mgd         \$60,600         \$0         \$0         \$60           9.89         12         10,102         2.54 mgd         2.20         \$40         \$404,080         \$0         \$60         \$60	8 7	0.11	1.57	1,093	12.20	ē	2,410	0	4.51 mgd	2.59	98	6144,600	<b>Q</b>	<b>\$</b>	\$17,400	\$24,300	\$2,994,250
9.4B 10 15,490 0 1.78 mgd 1.71 #35 #541,100 #0 #0 #0 #04,900 5.27 8 20,633	Branch 6	. Along FA	W 1863 East	et US 281													
5.27 10 12,404 8,058 1.13 mgd 0.53 \$25 \$615,825 \$6 \$6 \$6 \$6 \$6 \$6 \$6 \$6 \$6 \$6 \$6 \$6 \$6	<b>6</b> 8	0.15	0.95	999	9.48	5	15,460	0	1.78 mgd	1.71	<b>\$</b> 35	\$541,100	<b>9</b>	<b>0</b>	\$64,900	006'06\$	\$696,900
5.27 10 12,404 8,058 1.13 mgd 0.53 \$25 \$615,825 \$6 0 \$6 0 \$6 0 \$61,900 \$6.52 \$1.13 mgd 0.53 \$2.27 10 12,404 8,058	Brench 7	· Esst Alo	ng FM 2673	from Plent													
5.27 10 12,404 8,058 1.78 mgd 0.53 635 6434,140 60 60 60 652,100 9,62 12 8,058 0.53 635 640,140 60 652,100 643,500 643	8 8	0.29	0.29	204	5.27	60	20,633	41,095	1.13 mgd	0.53	<b>‡</b> 52	<b>\$515,825</b>	<b>9</b>	0\$	\$61,900	\$86,700	\$684,425
9.62 12 8,058 0.54 mgd 1.52 640 6322,320 640,000 50 643,500 643,500 6.83	g 8	0.29	0.29	204	5.27	5	12,404	70,407	1.76 mgd	0.53	\$35	\$434,140	ç	<b>9</b>	\$52,100	\$72,900	\$1,223,585
8.82 10 16,040	9 <b>-</b>	0.68	96.0	679	9.62	12	8,058	8 O	2.54 mgd	1.52	440	\$322,320	\$40,000	<b>\$</b>	643,500	\$60,900	\$1,590,285
0.82 0.82 571 8.82 10 16,040 1.78 mgd 1.47 \$35 \$561,400 \$0 \$0 \$0 \$0 0.21 1.03 718 9.89 12 18,403 10,102 2.54 mgd 2.05 \$40 \$404,080 \$150,000 \$25,000 \$0 0.10 1.13 788 10.36 12 10,102 0 2.54 mgd 2.20 \$40 \$404,080 \$0 \$0 \$0	Branch 8	- From US	281 East Ak	ing FM 3t	<b>5</b> 1			3									
20,21 1,03 718 9.89 12 18,403 2.54 mgd 2.05 640 6736,120 6150,000 625,000 60 60 60 60 60 60 60 60 60 60 60 60	3 1	0.82	0.82	571	8.82	2	16,040	C#C,##	1.78 mgd	1.47	\$35	\$561,400	<b>9</b>	9	<b>\$</b>	0\$	\$561,400
0.10 1,13 788 10.36 12 10,102 2.54 mgd 2.20 640 6404,080 60 60 60 60		0.21	1.03	718	9.89	12	18,403	60,90	2.54 mgd	2.05	\$	4736,120	\$150,000	\$25,000	<b>9</b>	0,8	\$1,472,520
	à <b>8</b>	0.10	1,13	788	10.36	12	10,102	9	2.54 mgd	2.20	440	<b>\$404,080</b>	•	0	<b>9</b>	<b>9</b>	41,876,600

7/24/97

North System - Phase 1

				Hydr	Hydraufic Analysis	÷							Cost Projection	#ion		
				V mex =	3 fps	2			40 Yr.					12%	15%	
	Q Total	Q mxdy	-	Pipe Size, in	ze, in	Pipe Langth, ft	gth, ft	Future Cap.	O Total	Pipelin	Pipeline Cost	Additional	Essements,	Technical		
Node	pBu	р	ma	3	Select	2	Ę,	@ V = 5 fps	PE .	ž	- Total	Facilities	Permits	Services	Contingency	Total
Along FM 306	306															
80							17,339									
	0.63	0.63	435	7.70	œ;	2,467		1.13 mgd	0.95	\$25	\$61,675	0\$	O <b>\$</b>	\$7,400	\$10,400	\$79,475
8							14,872									
	0.29	0.91	633	9.28	2	8,790		1.76 mgd	1.37	\$35	\$307,650	0\$	0\$	\$36,900	\$51,700	\$475,725
87							6,082									
	0.00	0.91	633	9.28	2	6,082		1.76 mgd	1.37	\$35	\$212,870	<b>0</b>	0\$	\$25,500	\$35,800	\$749,895
98							0									
From Plan	From Plant North to Fm 306	m 306														
86							16,058									
	1.74	2.65	1,841	15.83	18	16,058		5.71 mgd	4.71	\$75	\$75 \$1,204,350	0	<b>0</b>	\$144,500	\$202,300	\$1,551,150
-							0									
														TOTAL TRAN	TOTAL TRANSMISSION COST	\$2,301,045

North System Phase 1	Amount Debt Funded Remaining \$0 \$2,200,000 \$0 \$2,301,045 \$0 \$4,501,045
Table 16B Operation and Maintenance Costs	Connections:  Project Cost Plant: \$2,200,000  Transmission System: \$2,301,045 Total: \$4,501,045
ation	ion <u>Data</u> 2,000,000 gpd 2,000,000 gpd 2,739
iyon Lake Water Supply Corporation ional Water Plan	Flow & Connection Data Maximum Plant Flow 2,00 System Base Flow 2,00 Equivalent Connections 2,7

	Surface Water Treatment P.	restment	Plant			Transmission System	ystem				Combined
Budget frem	λίδ	Units	Rate	Muk	Total	Otv	Units	Rate	Mult	Total	
FIXED COSTS Electrical Power - base	300	T Z	\$1.60	12	\$5,760	225	ᇁ	\$1.80	12	\$4,320	
Annual Debt Service Administration	\$2,200,000	20	20 years	8% 1.50%	\$224,075	\$2,310,000	20	20 years	8% 0.50%	\$235,279 \$11,505	
Subtotal, Fixed Costs					\$381,608					\$251,104	\$632,710
VARIABLE COSTS Electrical Power - useage Chemicals	733,107 2,000	kwh Kgal	\$0.07	1 365	\$51,317	776,354	kwh	\$0.07	-	\$54,345	
TNRCC Inspection Fees Repairs	2.00	annual mgd	\$2,030 \$500	12	\$2,030	9	6 miles	\$250	-	\$1,581	
Subtotal, Variable Costs					\$109,147					\$55,926	\$165,073
Total Annual O&M Cost					\$490,753					\$307,030	\$797,783

Treated water cost (\$ per 1,000 gallons)

	Plant				Transmission			Combined
Variable:			\$0.15	\$0.15   Variable:			\$0.0\$	\$0.23
Fixed:				Fixed:				
2,000,000 gpd	Conn's 2,739	onn's 2,739 \$11.81	\$0.52	\$0.52 2,000,000 gpd	Conn's 2,739	\$7.64	\$0.34	\$0.86

Supply Corporation	
Nater Supp	Plan
Lake W	Water Plan
Canyon	Regional

Table 16C Operation and Maintenance Costs

1, 2
Phase
System -
Vorth

Flow & Connection Data	on Data				Projec	Connections: Project Cost		1,554		Amount	Debt Remaining
Maximum Plant Flow System Base Flow	2,000,000 gpd	pdb pdb		Transmiss	Plant: Transmission System:	\$2,200,000		\$0 \$1.208		\$1.877.484	\$2,200,000
Equivalent Connections	2,739	<b>i</b>			Total:	\$6,377,645		\$1,208		\$1,877,484	\$4,500,161
·	Surface Water Treatment Plant	eatment	Mant			Transmission System	ystem				Combined
Budget Item	Oty	Units	Rate	Mult	Total	λΊ	Units	Rate	Mult	Total	
FIXED COSTS											
Electrical Power - base	300	ᇁ	\$1.60	12	\$5,760	375	크	\$1.60	12	\$7,200	
Raw water	2,000	Kgal	\$0.16	365	\$118,771						
Annual Debt Service	\$2,200,000	20 )	20 years	% 8	\$224,075	\$2,310,000	20	20 years	8%	\$235,279	
Administration				1.50%	\$33,000				0.50%	\$20,888	
Subtotal, Fixed Costs					\$381,606					\$263,367	\$644,973
VARIABLE COSTS	733 107	Š	\$0.07	-	\$51 217	1 164 531	ş	\$0.07	•	\$81 517	
Chemicals	2,000	Kgal	\$0.06	365	\$43,800			0	-		
TNRCC Inspection Fees	-	annna	\$2,030	-	\$2,030						
Repairs	2.00	pbu	\$500	12	\$12,000	15	15 miles	\$250	-	\$3,690	

Treated water cost (\$ per 1,000 gallons)

\$194,355

\$85,208

\$109,147

Subtotal, Variable Costs

Total Annual O&M Cost

\$490,753

\$839,328

\$348,574

	Plant				Tra	Transmission			Combined
Variable:			\$0.15	\$0.15 Variable:				\$0.12	\$0.27
Fixed:				Fixed:					
	Conn's					Conn's			
2,000,000 gpd	2,739	,739 \$11.61	\$0.52	\$0.52 2,000,000 gpd	þ	2,739 \$8.01	\$8.01	\$0.36	\$0.88
									81.18

Table 17A Primary System - South

Cost/Connection	Actual	\$803	\$1,153	\$1,956
	Cost	\$8,800,000	ystem: \$12,634,735	\$21,434,735
	Project Cost	Plant:	Transmission System:	Total:
	tion Data	8,000,000 gpd	8,000,000 gpd	10,955
	Flow & Connection Data	Maximum Plant Flow	System Base Flow	<b>Equivalent Connections</b>

Combined

Transmission System

Surface Water Treatment Plant

\$1,373,652 14 kwh \$0.07 1 \$307,533 8 miles \$250 1 \$4,500
\$0.07 1
kwh
kwh \$0.07 1 miles \$250 1
\$250 1
\$250 1
\$312,033

Treated water cost (\$ per 1,000 gallons)

Variable:         \$0.13         Variable:         \$0.11         \$0.2           Fixed:         Conn's         Conn's         \$0.09         \$0.52         \$0.00,000         gpd         \$0.47         \$0.99		Plant			L	Transmission			Combined
Conn's Conn's Conn's 60.52 8,000,000 gpd 10,955 \$10.45 \$0.47	Variable:			\$0.13	Variable:			\$0.11	\$0.24
Conn's Conn's 60.52 8,000,000 gpd 10,955 \$10.45 \$0.47	Fixed:				Fixed:				
10,955 \$11.54 \$0.52 8,000,000 gpd 10,955 \$10.45 \$0.47		Conn's				Conn's			
	8,000,000 gpd	10,955	\$11.54	\$0.52	8,000,000 gpd	10,955	\$10.45	\$0.47	\$0.99

Amount Debt	Funded Remaining		\$1,691,014 \$12,634,006	
: 1,339		0\$	\$1,263	\$1,263
Connections:	t Cost	\$8,800,000	\$14,325,020	\$23,125,020
	Project Cos	Plant:	Transmission System:	
	ction Data	8,000,000 gpd	8,000,000 gpd	10,955
	Flow & Connection Data	Maximum Plant Flow	System Base Flow	Equivalent Connections

	Surface Water Treatment Plant	reatment	Plant			Transmission System	em				Combined
Budget Item	λίδ	Units	Rate	Mult	Total	λij	Units	Rate	Muk	Totai	
FIXED COSTS Electrical Power - base	700	£ ,	\$1.60	12	\$13,440	1,350	흎	\$1.60	12	\$25,920	
Kaw water Annual Debt Service Administration	\$8,000	Kgai 20	al \$0.16 20 years	365 8% 1.50%	\$475,084 \$896,299 \$132,000	\$12,640,000	70	20 years	8% 0.50%	\$1,287,412 \$71,625	
Subtotal, Fixed Costs					\$1,516,823					\$1,384,957	\$2,901,780
VARIABLE COSTS Electrical Power - useage Chemicals	2,111,166	kwh Kgal	\$0.07 \$0.06	1 365	\$147,782	5,034,900	kwh	\$0.07	-	\$352,443	
TNRCC Inspection Fees Repairs	8.00	annual mgd	\$4,413 \$500	12	\$4,413	26	miles	\$250	<del>-</del>	\$6,500	
Subtotal, Variable Costs					\$375,395					\$358,943	\$734,338
Total Annual O&M Cost					\$1,892,218					\$1,743,900	\$3,636,118

Treated water cost (\$ per 1,000 gallons)

	Plant				Transmission			Combined
Variable:			\$0.13	\$0.13 Variable:			\$0.12	\$0.25
Fixed:				Fixed:				
	Conn's				Conn's			
8,000,000 gpd	10,955	\$11.54	\$0.52	8,000,000 gpd	10,955 \$10.54	\$10.54	\$0.47	\$0.99

	£
	Sout
	7
2	Phase
_	•
Table	Projections
	Cost

i						Connections:	1,339	2,068		Amount	Debt
Flow & Connection Data	on Data				Proje	Project Cost				Funded	Remaining
Maximum Plant Flow	8,000,000 gpd	pdß			Plant:	\$8,800,000	0\$	0\$		0\$	\$8,800,000
System Base Flow	8,000,000	pdfi		Transmis	Transmission System:	\$15,874,160	\$1,263	\$750		\$3,241,821	\$12,632,339
Equivalent Connections	10,955				Total:	\$24,674,160	\$1,263	\$750		\$3,241,821	\$21,432,339
	Surface Water Treatment Plant	**************************************	Plant			Transmission System	:tem				Combined
Budget Item	λīΟ	Units	Rate	Mult	Total	ζίζ	Units	Rate	Mult	Total	
FIXED COSTS	1	!	, ,	,							
Electrical Power - base	700	유 .	\$1.60	12	\$13,440	1,400	웊	\$1.60	12	\$26,880	
Raw water	8,000	Kgai	\$0.16	365	\$475,084						
Annual Debt Service	\$8,800,000	20	20 years	% 8	\$896,299	\$12,640,000	20	20 years	8%	\$1,287,412	
Administration				1.50%	\$132,000				0.50%	\$79,371	
Subtotal, Fixed Costs					\$1,516,823					\$1,393,663	\$2,910,486
VARIABLE COSTS											
Electrical Power - useage	2,111,166	kwh	\$0.07	-	\$147,782	5,195,292	kwh	\$0.07	-	\$363,670	
Chemicals	8,000	Kgal	\$0.06	365	\$175,200						
TNRCC Inspection Fees	-	annuai	\$4,413	-	\$4,413						
Repairs	8.00	mgd	\$500	12	\$48,000	32	32 miles	\$250	-	\$8,000	
Subtotal, Variable Costs					\$375,395					\$371,670	\$747,065
Total Annual O&M Cost					\$1,892,218					\$1,765,333	\$3,657,551

Treated water cost (\$ per 1,000 gallons)

Plant			1	Transmission			Combined
Variable:	0\$	\$0.13 Variable:	ariable:			\$0.13	\$0.26
Fixed:		F	їхед:				
Conn's 8,000,000 gpd 10,955	\$11.54	\$0.52	8,000,000 gpd	Conn's 10,955	Conn's 10,955 \$10.60	\$0.48	\$1.00

Table 17D Cost Projections - Phase 3 South

Flow & Connection Data Maximum Plant Flow 8,0 System Base Flow 8,0 Equivalent Connections 10,5	on <u>Data</u> 8,000,000 gpd 8,000,000 gpd 10,955	pd6		Transmiss	<u>Proje</u> Plant: Transmission System: Total:	Connections: Project Cost Int: \$8,800,000 Sm: \$21,534,285 tal: \$30,334,285	1,339 \$0 <u>\$1,263</u> \$1,263	2,068 \$0 \$750 \$750	4,460 \$0 \$1,270 \$1,270	Amount F <u>unded</u> \$0 \$8,905,986 \$8,905,986	Debt Remaining \$8,800,000 \$12,628,299 \$21,428,299
-	Surface Water Treetment Plant	restment	Plant		•	Transmission System	E				Combined
	λī	Units	Rate	Mat	Total	Ā	Units	Rate	Mult	Total	
FIXED COSTS Electrical Power - base	700	F Z	\$1.60	12	\$13,440	1,500	윺	\$1.60	12	\$28,800	
naw water Annual Debt Service Administration	\$8,800,000	70g	20 years	8% 1.50%	\$896,299 \$132,000	\$12,630,000	20	20 years	8% 0.50%	\$1,286,393 \$107,671	
Subtotal, Fixed Costs					\$1,516,823					\$1,422,865	\$2,939,688
VARIABLE COSTS Electrical Power - useage Chemicals	2,111,166	kwh Kgal	\$0.07	1 365	\$147,782	5,516,075	kwh	\$0.07	<b></b>	\$386,125	
TNRCC Inspection Fees Repairs	8.00	annual mgd	\$4,413 \$500	12	\$4,413	49	49 miles	\$250	-	\$12,250	
Subtotal, Variable Costs					\$375,395					\$398,375	\$773,770
Total Annual O&M Cost				-	\$1,892,218					\$1,821,240	\$3,713,458

Treated water cost (\$ per 1,000 gallons)

	Plant			_	Transmission			Combined
eriable:			\$0.13	\$0.13 Variable:			\$0.14	\$0.27
xed:				Fixed:				
8,000,000 gpd	Conn's 10,955	\$11.54	\$0.52	8,000,000 gpd	Conn's 10,955	Conn's 10,955 \$10.82	\$0.49	\$1.01

Table 18
Capital Cost Summary

Description	Pipeline Cost
South Treatment Plant	\$8,800,000
South - Primary System	\$14,603,710
Branch 7 - East Along FM 2673 from Plant	\$1,690,285
Branch 3 - Along US 281 North of SH 46	\$1,051,750
Branch 4 - Along SH 46 West of US 281	\$497,390
Branch 5 - Along Ammann Road West of US 281	\$2,994,250
Branch 6 - Along FM 1863 East of US 281	\$696,900
Subtotal	\$30,334,285
North Treatment Plant	\$2,200,000
North - Primary System	\$2,301,045
Branch 8 - From US 281 East Along FM 306	\$1,876,600
Branch 1 - From FM 306 North Along FM 484	\$407,440
Branch 2 - From FM 306, North Along FM 3424, East	\$460,880
Along FM 32 Subtotal	\$7,245,965

O & M costs have also been projected in order to illustrate the total water costs. O & M costs include purchase of raw water at \$53/acre-foot, electrical power, chemicals, debt service (for the plant and primary transmission system only), and generalized projections for administration and repairs. Costs have been calculated per thousand gallons, assuming a uniform delivery equal to the treatment plant capacity for both the North and South systems. These costs have been developed for the primary systems separately, and also for the aggregate systems for each phase. The O & M cost projections for the primary South system and Phases 1, 2, and 3 are presented in detail in Tables 17A, B, and C, and are summarized in Table 19. Similarly, the O & M costs for the primary (Phase 1) North system and Phase 2 are presented in Tables 16A and 16B, with a summary cost allocation provided in Table 20.

<u>C</u>	Annual O& Cost Inc		=	Connection Incren Incre	Water (\$/1000 nental	Cost	South System for Lateral Systems
Primary							
System							
Fixed Costs \$2	2,890,475		8.00		•	\$	0.99
Variable Costs	\$687 <u>,428</u>		8.00			\$	0.24
Total \$3	3,577,903						\$1.23
Additional Costs for I	Lateral Syste	ns			<del></del>		
Fixed Costs*				_		_	
	2,901,780	\$11,305	0.62	•	0.050	\$	1.040
	2,910,486	\$8,706	1.06	-	0.023	\$	1.012
Phase 3 \$2	2,939,688	\$29,202	2.47	\$	0.032	\$	1.022
		,					
Variable Costs	0704000	0.10.010	0.00	•	0.007	•	0.440
	\$734,338	\$46,910	0.62	•	0.207	\$	0.443
	\$747,065	\$12,727	1.06	•	0.033	\$	0.268
Phase 3	\$773,770	\$26,705	2.47	\$	0.030	\$	0.265
Total*							
Phase 1 \$3	,636,118	\$58,215		\$	0.257	\$	1.48
Phase 2 \$3	3,657,551	\$21,433		\$	0.055	\$	1.28
Phase 3 \$3	,713,458	\$55,907		\$	0.062	\$	1.29

### \*Based on Initial Connection Fee:

Phase 1	\$1,263 /connection
Phase 2	\$750 /connection
Phase 3	\$1,270 /connection

North System

Table 20 System Cost Allocation

Connection Charge to Offset Debt for Lateral Systems

	Annual Cos	_	Uniform Delivery	Inci	Wateı (\$/100 remental		
	<u>Overall</u>	<u>Increase</u>	(mgd)	<u>In</u>	<u>crease</u>	<u>T</u>	<u>otal</u>
Primary							
System		<del></del>					0.07
Fixed Costs	\$632,710		2.00			\$	0.87
Variable Costs	<u>\$165,073</u>		2.00			\$	0.23
Total	\$797,783						\$1.09
Additional Costs 1	for Lateral Sy	stems					
Fixed Costs*	\$644,973	\$12,263	0.80	\$	0.042	\$	0.909
Variable Costs	\$194,355	\$29,282	0.80	\$	0.100	\$	0.326
Total*	\$839,328	\$41,545		\$	0.142		1.24

\*Based on Initial Connection Fee:

Phase 2 \$1,208 /connection

# CANYON LAKE WATER SUPPLY CORPORATION REGIONAL WATER PLAN

# 4.0 CLWSC System Master Plan

#### 4.0 CANYON LAKE WATER SUPPLY CORPORATION SYSTEM MASTER PLAN

#### 4.1 General

The goal of this portion of the study is to perform a review of CLWSC's existing system and facilities, and to develop recommendations for specific improvements needed to accommodate existing and projected future demands within the areas currently served by CLWSC. The existing CLWSC water system serves approximately 45 separate subdivisions, most of which adjoin or are in the immediate vicinity of Canyon Lake. The customer base currently consists of about 4,300 active connections. Except for the Triple Peak water treatment plant, all water is currently supplied from approximately 36 active wells, and delivered to the distribution system through about 30 storage/pump station sites. A general location map of the existing CLWSC service area is presented as Figure 18.

### 4.2 System Mapping

A complete map of the existing CLWSC water system was developed to provide a basis for planning and presentation of recommended improvements, and to provide a working tool for use by CLWSC operations and maintenance staff. A digital base map was acquired from the Guadalupe Valley Telephone Cooperative (GVTC). The GVTC map includes parcel-based data on all subdivisions within CLWSC's existing service area, and provides a comprehensive, accurate structure on which to build the CLWSC water system maps. CWLSC's agreement with GVTC includes provisions for annual updating of the map database to reflect new development in the area.

The best available information on the existing water system was added to the base maps using computer aided drafting (CAD). CLWSC staff compiled existing paper maps and other similar background information for this purpose. Initial draft copies of the maps were printed and furnished to CLWSC staff for editing. Final corrections to the maps were performed, and the information was then organized into a map book for ongoing reference by CLWSC staff. A copy of the base map book is made of part of this report as Appendix B.

#### 4.3 System Improvements

A capacity analysis of the CLWSC existing production facilities and distribution system was performed to identify improvements needed to support existing demands as well as future growth. This analysis was based on several overriding assumptions and conditions, as follows:

- Future growth within the affected areas was assumed to follow the same general trend as presented in Section 2. An average annual growth rate of 4% was approximated from the TWDB "1996 Consensus Texas Water Plan" for the unincorporated areas of Comal County. Growth within existing subdivisions were assumed to be limited to 80% of the existing platted lots.
- The South regional water supply and transmission system as recommended in Section 2 is assumed to be implemented in the near term.

- The capacities of individual water production sites will be maximized commensurate with the existing, dependable groundwater (well) supply available at each site, to the extent that is required to serve the projected needs within each sub-area. All remaining water supply, storage, and pumping needs within the existing CLWSC service areas adjacent to the lake will be met through regional and sub-regional distribution and delivery systems.
- Future pressure storage requirements will be met through elevated storage tanks where feasible, with pressure tanks provided to serve smaller, disjointed areas or higher ground elevations.

It is recommended that CLWSC develop its system in the vicinity of the lake based on operating three pressure planes. The primary pressure plane will utilize elevated storage located at a base elevation of approximately 1,200 feet MSL. This elevation will provide adequate pressure for a large portion of the service areas adjacent to the lake, up to a ground elevation of about 1,115' MSL. The service areas above this elevation will utilize hydropneumatic tanks for pressure storage. For the lower service area in the river valley east of the lake, it is recommended that an elevated storage base elevation of 920 feet MSL be implemented.

The analysis of the CLWSC water system facilities for the 5 year (Phase 1), 10 year (Phase 2), and 20 year (Phase 3) planning milestones is presented in Tables 21, 22, and 23, respectively. Supply, total storage, service pump, and pressure storage capacities based on minimum TNRCC criteria have been established for the various existing facility sites and the associated service areas. Capacity improvements are highlighted in boldface, and the capacity requirements have been summarized geographically to indicate the regional system needs.

The capacities of existing water distribution lines were analyzed for conformance with TNRCC minimum sizing criteria. Interconnecting, looping, and supplemental feeder mains have been proposed where needed. New trunk mains serving multiple areas or primary laterals from the regional transmission lines were sized to maintain reasonable velocity limits under maximum demand situations. A brief discussion of the more significant recommended improvements is provided below. Improvements are presented graphically in Figures 14,15,16, and 17.

#### 4.3.1 Southwest Area

Phase 1 improvements should include upgrades to the Astro Hills, Canyon Lake Hills, Lakeview Park, and Rolling Hills plant facilities, and the interconnection of the Astro Hills and Canyon Lake Hills systems. Extension of a lateral supply main from the (new) regional transmission system to serve Canyon Lake Hills should also occur in Phase 1. It is recommended that separate well and plant facilities in Canyon Lake Forest and Waterfront Park be interconnected and combined into a single supply point, and the higher elevations in the south portion of Canyon Lake Forest should be interconnected to the upper pressure plane of the Woodlands. The principal improvement recommended for the Southwest area in Phase 2 is a new elevated storage tank centrally located to serve existing and future development in this area.

#### 4.3.2 South Area

Key improvements recommended for Phase 1 should include interconnecting distribution lines between the Oaks and the Woodlands, and between the Oaks and Canyon Lake Village (CLV) West, and extension of a lateral feeder main from the new regional transmission line on FM 2673 connecting to the Triple Peak existing 100,000 gallon elevated ground storage tank (EGST). It is also recommended that a new storage/pump station site be implemented to serve the upper pressure plane area east of the Woodlands and west of Triple Peak. The storage tank at this pump station should be set at a base elevation of approximately 1,200 MSL, and will provide a dual function as elevated storage for the primary pressure plane.

#### 4.3.3 East Area

Phase 1 improvements should include the establishment of elevated storage (EGST) for the river valley area at a suitable site northwest of the Horseshoe Falls subdivision. The site, which needs to have a ground elevation of approximately 920, should also be developed as a storage/pump station site to serve Crystal Heights as well as new development north of FM 306 in the future. In the Phase 2 timeframe, it is recommended that the existing 50,000 gallon tank at the Netherhill pump station be connected to the Sattler distribution system such that it functions as elevated storage for the river valley.

#### 4.3.4 North Area

Key improvements recommended for Phase 1 include interconnecting Scenic Terrace with Hancock Canyon and upgrading the combined plant facility, and improvements to the Canyon Lake Island and Canyon Lake Shores storage/pump station facilities. Major distribution lines are proposed along FM 306 to interconnect the Hancock and Tamarack systems, and the Point/DBH and Cougar Ridge/Northlake systems. Also recommended for Phase 1 is the establishment of a central storage/pump station site in the Devil's Backbone Heights (DBH) subdivision to serve the Point, DBH, and other upper pressure plane areas north of FM 306. The tank at this site will act in a dual function, also providing elevated storage for the primary pressure plane to the south, and should be of the standpipe style to provide an adequate storage volume above elevation 1,200. Consideration should be given to relocating the existing Horseshoe Falls standpipe for this purpose, as it is no longer effective at its current location.

The key project recommended for Phase 2 is the implementation of the North surface water treatment plant (WTP). After the South regional supply and transmission system is operational and lateral connections have been made, it is proposed to decommission the Triple Peak WTP, and relocate the existing package treatment units to the North WTP. To fully implement the North surface water system, Phase 2 improvements should also include major transmission lines from the WTP to and along FM 306. Transmission lines should also be extended north along FM 3424 to connect to the Point/DBH standpipe, and north along FM 484 to a new standpipe in the Rocky Creek area. Future (Phase 3) improvements should include the continued extension of transmission lines north, east, and west.

#### 4.3.5 West Area

Given the significant distance between the CLWSC systems north of the lake to the Deer River and Lake of the Hills systems, extension of the surface water transmission lines for those areas alone does not appear to be feasible. It is therefore projected that the transmission lines would be implemented in Phase 3, when additional new development may be in place to support the cost of the project. To provide additional water supply in the interim, it is recommended that a new well plant be constructed in Phase 1 to support the two subdivisions. Additional interconnecting and supplemental distribution lines are recommended in subsequent phases to fully integrate the two systems.

Phase 1 improvements to the Riverwood system should consist of a service pump addition and an interconnect to an adjoining water system to supplement supply. Future extensions of the South regional supply and transmission system will extend to Riverwood to support continued growth.

#### 4.4 Capital Improvements Plan

The recommended improvements have been organized into a series of individual projects based on location and phasing, and to allow flexibility in future planning, prioritizing, and implementation efforts. Each project has been assigned an identification number, which correlates the exhibit maps (Figures 14-18) to the tabular data (Table 24). Construction costs are based on current day values for similar work in the region. An allowance of 15% of construction cost has been provided to cover typical design engineering, surveying, and other technical services, and 20% has been added for contingencies. As detailed in Table 24, the total cost for Phase 1 improvements is projected to be \$3.33 million, the total for Phase 2 is \$4.62 million, and the total projection for Phase 3 work is \$4.14 million.

#### Table 21 Water System Requirements

			Sup	ply	Total		Servic	<b>&gt;e</b>		Pressu		Elevate	
Description			Сара	city	Storage	8	Pump	8		Storag		Storag	je
			lgp	m)	(gal's)		(gpm	10.00		(gal's	)	(gal's	1)
CRITERIA	•	Stby	Rated				0.60	gpm					
Primary			0.60	gpm	200	gals	2	gpm		20	gals	100	gals
Secondary			50	•		-	2	pk dy		30,000	gals	200	gals
Service area limit			250	conn'	s		1000	gpm		2,500	conn's	2,500	conn'
			projecte	_									
Astro Hills/CL Hills 1,2,3	417	conn's	<b>, ,</b>	-	1,735	lots							
Required			250	gpm	83,462		835	gpm	T	8,346	gals	31	gals
Provided	2			gpm	64,500	-		gpm		10,500	gals	0	gals
Facility Design Limit	417	conn's		gpm	83,400	-		gpm	F	8,340	gals		gals
Proposed Upgrade		5517.15		gpm	19,000	-	THE RESIDENCE OF THE PROPERTY OF THE PARTY.	gpm			gals	0	gals
External Facility Capacity				gpm	••• • • • • • • • • • • • • • • • • • •	gals		gpm		6	gals		gals
Externol County Capacity			projecte		·····	9		<u> </u>					
Canyon Lake Hills 4,5,6	322	conn's	<b>, ,</b>		750	lots							
Required	2		193	gpm	64,483		645	gpm	T	6,448	gals	8,941	gals
Provided	1			gpm	92,500	-		gpm		5,000	gals	0	gals
Facility Design Limit	233	conn's		gpm	46,600			gpm	F	4,660	-		gais
Proposed Upgrade		•••••		gpm		gals		gpm		0	gals	0	gals
External Facility Capacity				gpm	17,883	-		gpm		1,788	-	8,941	-
External Facility Copenity			projecte		,,,,,,,	9=:-					·*		
Lakeview Park	232	conn's	p. 0,0010	_	382	lots							
Required	1		139	gpm	46,476		465	gpm	Т	4,648	aals	3,238	gals
Provided	2			gpm	88,000	-		gpm		4,000	-		gals
Facility Design Limit	250	conn's		gpm	50,000	-		gpm	F	5,000			gals
Proposed Upgrade	100	Comme		gpm		gals	***************************************	gpm	•		gals	0	gals
External Facility Capacity				gpm	-3,524	-		gpm		648	-	3,238	gals
External Founty Supporty			projecte			<b>3</b>		<b>G F</b>			. <u>V</u> .		<u> </u>
Rolling Hills	380	conn's	p. ojooto	_	580	lots							
Required	200		228	gpm	75,919		759	gpm	Т	7,592	gals	12,960	gals
Provided	2			gpm	44,700			gpm		5,000	-		gals
Facility Design Limit	350	conn's		gpm	70,000	_		gpm	F	7,000	-		gals
Proposed Upgrade	000	00101		gpm	26,000			gpm			gals	0	gals
External Facility Capacity				gpm	5,919	-	200000000000000000000000000000000000000	gpm		2,592	-	12,960	-
Waterfront Park			projecte		0,010	90.0		87			<u> </u>		
Canyon Lake Forest	444	conn's	p. 0,00.0	•	1,050	lots							
Required	<del></del> 2		266	gpm	88,816		888	apm	Т	8,882	gals	0	gals
Provided	2			gpm	115600	_		gpm		21000	_		gals
Facility Design Limit	592	conn's		gpm	118,400	-	1,000		F	11,840	-		gals
Proposed Upgrade	002	COINTS		gbw.		gals	And the contract of the contra	gpm	•		gals	0	gals
External Facility Capacity				gpm	-26,784	_	-112			-2,958	-		gals
External Facility Capacity			projecte		20,704	Agia		gpiii			<del></del>	<del></del>	
Woodlands/CLFSo Upper	146	conn's	projecte	+ 26	s <u>425</u>	lots							
Required	1 <del>750</del>		88	gpm	29,200		292	gpm	Т	2,920	gals		gals
Provided	1		0	gpm	29,200	-		gpm	•		gals		gals
Facility Design Limit	146	conn's		gpm	29,200			gpm	F	2,920	_		gals
Proposed Upgrade	140	conn s		gpm		gals	**************************************	gpm	833	6,000	-	Eddin I in	gals
External Facility Capacity				gpm		gals	***************************************	gpm	19000		gals		gals
External Facility Capacity			projecte			gais.	<u>~</u>	урги			8	<u></u>	
Woodlands	129	conn's	hiologie	+ (	- <b>52</b>	lot#							
Required	129		דר	gpm	25,800		258	apm	т	2,580	gals	12,900	alsp
Provided	1			gpm	24,800			gpm	•		gals	24,800	_
	250							gpm	F	5,000	-	2 1,000	gais
Facility Design Limit	250	conn's		gpm	50,000	-	500		•		gals	ń	gais
Proposed Upgrade External Facility Capacity				gpm gpm	1,000	gals	250	gpm gpm		2,580	-	-11,900	-
External Facility Capacity	***********		- <i>1</i> 3	gpm	1,000	yais	230		*******	2,000			, <u>,</u>
GUP SUMMARY	2,071	ppnnect											
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~	*************	1 242		414,158		2,485	CI CINCO	F	30,000	nair.	n	aleg
Finquired Provided	11				459,300	85000000000	1,500			45,500		24,800	~~~~
	- 11		1,268	~~~~			-985			15,500		24,800	
Difference (capacity)	ck			CIMT:	45,144 228	****	(492)	4877		7.75		248	
Difference loom's)			21		228							18,270	gate
fusted Net				gpm:	5.444	yalo:	-350	eggetti.	**********				9 9 FFR
	••		projecte		- 404	1							
Upper Plane	<u>30</u>	conn's	4.0	+ 8		lots	64		_	600	anic		مام
Required	1		18	gpm	6,083		61	gpm	Т	608	•		gals
Provided				gpm		gals		gpm		000	gals		gals
Facility Design Limit	30	conn's	18	gpm	6,083			gpm		608	• .		gals
Proposed Upgrade				gpm	50,000	gals	100	gpm		O	gals	Walter State of the State of th	gals
External Facility Capacity				gpm	-	gals	_	gpm		608			gals

			Sup	• . •	Total		Servic			Pressu		Elevat	
Description	39 10		Capa	city	Storag	je i	Pump			Stora	ge	Storag	je
	100	<u> </u>	(gp	m)	(gal's	)	. (gpm	)		(gal's	1)	(gal's	)
CRITERIA		Stby	Rated				0.60	gpm					
Primary			0.60	gpm	200	gals	2	gpm	1	20	gals	100	gals
Secondary			50				2	pk dy		30,000	gals	200	gals
Service area limit		İ	250	conn's			1000	gpm		2,500	conn's	2,500	con
			projecte	d									
The Oaks	215	conn's		+ 38	353	lots							
Required		1	129	gpm	43,070	gals	129	gpm	Т	4,307	gals	5,735	gals
Provided		2	95	gpm	89,917	gals	400	gpm		7,000	gals	43,917	gals
Facility Design Limit	158	conn's		gpm	31,600	gals		gpm	F	3,160	-		gals
Proposed Upgrade				gpm		gals		gpm			gals	0	gals
External Facility Capacity				gpm	11,470	-	-187			1,147	-	-38,182	_
			projecte		•			<u> </u>		<u> </u>		· · · · · ·	
Village West	580	conn's	•	+103	706	lots							
Required		2	348	gpm	116,069		1,000	apm	F	11,607	gals	58,034	gals
Provided		- 2 241		gpm		gals		gpm			gals		gale
Facility Design Limit		conn's	·	gpm	•	alsg	·	gpm	F	Ŭ	gals	ŭ	gale
Proposed Upgrade		COINT	0	gpm	0	gals	۸	gpm	•	0	gals	۸	gale
, , , ,				•	116,069			-			-	58,034	-
External Facility Capacity			projecte	gpm	110,009	yans	1,000	Abair		11,607	Agip	56,034	yan
Taint- Daab	102		projecte		00	les-							
Triple Peak	102	conn's	64	+0	<u>99</u>	lots	04		_	2 040	1-	^	
Required		_		gpm	20,400			gpm	Т	2,040	-		gals
Provided			1,050		200,000		1,050		_	2,180	_	100,000	
Facility Design Limit	1750	conn's	1,050		350,000		2,100		F	30,000		_	galı
Proposed Upgrade				gpm		gals		gpm			gals		gala
External Facility Capacity			-989		-179,600	gals	-989	gpm		-140	gals	-100,000	gals
		1	projecte	d									
Canyon Lake Village	<u>275</u>	conn's		+ 49	1,060	lots							
Required	:	2	165	gpm	54,993	gals	550	gpm	T	5,499	gals	14,996	gals
Provided	•	1	150	gpm	70,000	gals	260	gpm		2,500	gals	0	gals
Facility Design Limit	250	conn's	150	gpm	50,000	gals	500	gpm	F	5,000	gals		gals
Proposed Upgrade			0	gpm	0	gals	300	gpm		0	gals	0	gals
External Facility Capacity			15	gpm	4,993		tanananan ananan anan anan a	gpm		2,999	gals	14,996	gals
			projected										
Summit	221	conn's		+ 39	410	lots							
Required		1	133	gpm	44,286	gals	443	gpm	T	4,429	gals	9,643	gale
Provided	•	1		gpm	130,000	•	720			2,500	_		gals
Facility Design Limit	183	conn's		gpm	36,600			gpm	F	3,660	-	•	gals
Proposed Upgrade		557.111.5		gpm		gals		gpm	•		gals	0	gals
External Facility Capacity				gpm	7,686	-		gpm		1,929		9,643	-
External Facility Capacity	*********	***********		gpm	7,000	9313			····	1,020	yala	0,040	
UP SUMMARY	1,425	commu											
Por Scannows Required				CHAP :	284.900		1.709		F	28,490		a	gala
Provided		7 261	1.405		489,917		2,430			14 180		143,917	
Difference (capacity)	ok			GDa.tr	205,016	1344	721	Alat)		-14,310		143.917	9.00
Differentia (contra)			917		1,025		360			(716)		1,439	
isted Net	*********		≎DU	gpra	39,383	905	49	gjarn	*******			55,508	0.5
		_			_								
Sattler	<u>195</u>	conn's	_	+0	<u>o</u>	lots			_	_			
Required	1			gpm	39,000	•		gpm	Т	3,900	-	19,500	-
Provided	(	)	0	gpm	0	gals	0	gpm		0	gals	0	gals
Facility Design Limit		conn's		gpm		gals		gpm			gals		gals
Proposed Upgrade			0	gpm	0	gals	0	gpm		0	gals	0	gals
Estamal Carilles Conneiles			117	gpm	39,000	gals	390	gpm		3,900	gals	19,500	gals
External Facility Capacity			projected	4									
ехтегная гасшту Сарасту		aann'a		+ 0	<u>79</u>	lots							
Riverside	<u>79</u>	conn's		gpm	15,800		158	gpm	T	1,580	gals	7,900	gals
	<u>79</u>		47	gr		gals		gpm			gals		gals
Riverside		1			U	-		gpm		•	gals		gals
<u>Riverside</u> Required Provided	1	)	0	gpm	U	gals							-
<u>Riverside</u> Required Provided Facility Design Limit	1	1	0	gpm gpm		gals gals		apm		٥	-	n	gale
<u>Riverside</u> Required Provided Facility Design Limit Proposed Upgrade	1	)	0	gpm gpm gpm	0	gals	0	gpm gpm			gals		-
<u>Riverside</u> Required Provided Facility Design Limit	1	conn's	0 0 47	gpm gpm gpm gpm		gals				0 1,580	gals	7,900	-
Riverside Required Provided Facility Design Limit Proposed Upgrade External Facility Capacity		conn's	0	gpm gpm gpm gpm	0 15,800	gals gals	0				gals		-
Riverside Required Provided Facility Design Limit Proposed Upgrade External Facility Capacity  Horseshoe Falls	225	conn's	0 47 projected	gpm gpm gpm gpm d + 40	0 15,800 <u>304</u>	gals gals	0 158	gpm		1,580	gals gals	7,900	gals
Riverside Required Provided Facility Design Limit Proposed Upgrade External Facility Capacity  Horseshoe Falls Required	225 1	conn's	0 47 projected	gpm gpm gpm gpm + 40 gpm	0 15,800 304 45,016	gals gals lots gals	0 158 450	gpm gpm	т	1,580 4,502	gals gals gals	7,900 22,508	gals gals
Riverside Required Provided Facility Design Limit Proposed Upgrade External Facility Capacity  Horseshoe Falls Required Provided	225	conn's	0 47 projected	gpm gpm gpm gpm d + 40 gpm gpm	0 15,800 <u>304</u>	gals gals lots gals gals	0 158 450 0	gpm gpm gpm		1,580 4,502	gals gals gals gals	7,900	gals gals
Riverside Required Provided Facility Design Limit Proposed Upgrade External Facility Capacity  Horseshoe Falls Required Provided Facility Design Limit	225 1	conn's	0 47 projected 135	gpm gpm gpm gpm d +40 gpm gpm gpm	0 15,800 <u>304</u> 45,016 43,917	gals gals lots gals gals gals	0 158 450 0	gpm gpm gpm gpm	T F	1,580 4,502 0	gals gals gals gals gals	7,900 22,508 43,917	gals gals gals gals
Riverside Required Provided Facility Design Limit Proposed Upgrade External Facility Capacity  Horseshoe Falls Required Provided	225 1	conn's	0 47 projected 135	gpm gpm gpm gpm d +40 gpm gpm gpm gpm	0 15,800 <u>304</u> 45,016 43,917	gals gals lots gals gals gals gals gals	0 158 450 0	gpm gpm gpm gpm gpm		1,580 4,502 0	gals gals gals gals gals gals	7,900 22,508 43,917	gals gals gals gals

#### Table 21 Water System Requirements

			Sup		Total		Servic			Pressu		Elevate	
Description			Capa	-	Storage (call'a)		Pump: (gpm)			Storag (gai's	•	Storaç (gal's	
CDITEDIA		T 544	(gpi Rated	m)	(gai's)	· · ·	0.60		<u> </u>	19	<u> </u>	1	
<u>CRITERIA</u> Primary		Stby	0.60	apm	200	gals	1	gpm	Į.	20	gals	100	gals
Secondary			50	gp		<b>8</b>		pk dy		30,000	_	200	gals
Service area limit				conn's	•		1000	gpm		2,500	conn's	2,500	conn
			projected	1									
Crystal Heights	<u>30</u>	conn's		+ 5		ots				_		_	
Required		1	18	gpm	6,083			gpm	Т		gals		gals
Provided		73		gpm	6,083	_		gpm		2,500	gals	U	gals
Facility Design Limit	30	conn's		gpm	•	gals		gpm gpm			gals	n	gals gals
Proposed Upgrade External Facility Capacity				gpm gpm		alsg alsg		gpm			gals		gals
External Facility Capacity	*******			gp/II	<u> </u>	<b>900</b>							
OUP SUMMARY	529	comed	iona										
Required	COOK and a second	2	318	gpm	105,899	gete	1,059	gpm	Ŧ	10,590			gals
Provided		1 209	o	gpare	60.000	geis.		gpm		2,500		43,917	
Difference (capacity)	Defici		-318	gpm	-55,809	geis	-1.059	gpm		-6.090		43,917	gels
Difference (conn's)			15291		(279)		(529)			(404)		439	
fjusted Net			(318)		165,8991	gels	(1,059)	gpm				15,991)	7205
North Lake Estates			projected		450								
Cougar Ridge	<u>30</u>	conn's	10	+6	<u>153</u> 6,083	lots	61	gpm	Т	608	gals	n	gals
Required Provided		1 2		gpm gpm		gais		gpm	•	5000	_		gals
Facility Design Limit	58	conn's		gpm	11,600	-	116		F	1,160	•	•	gals
Proposed Upgrade	56	COMM		gpm	12,000		200		•		gals	0	gals
External Facility Capacity				gpm	-5,517	-	-55	-		-552	_		gals
The Point			projecte					· · · · · · · · · · · · · · · · · · ·	_				
DBH/Hillcrest	<u>75</u>	conn's		+ 13		iots							
Required		1	45	gpm	15,086	gals	151	gpm	T	1,509	gals		gals
Provided		2	130	gpm	0	gals		gpm			gals	0	gals
Facility Design Limit	217	conn's	130	gpm	43,400	, -	434		T 400400000	4,340		5000000000 <u>11010011100</u>	gals
Proposed Upgrade				gpm	50,000	_	500		3900000	5,000		34,914	-
External Facility Capacity				gpm	-28,314	gals	-283	gpm		-2,831	gais	-34,914	gais
0 1 1 4	444		projected	i +20	627	lots							
Canyon Lake Acres Required	<u>111</u>	conn's	66	gpm	22,143	_	221	oom	Т	2,214	gals	11,072	oals
Provided		,		gpm	42,000	-		gpm	-	_	gals	_	gals
Facility Design Limit	58	conn's		gpm	11,600		116		F	1,160	-		gals
Proposed Upgrade				gpm	0	gals		gpm		0	gals	0	gals
External Facility Capacity			32	gpm	10,543	gals	221	gpm		2,214	gals	11,072	gals
Scenic Terrace			projected	1									
Hancock Canyon	<u>57</u>	conn's		+ 11		lots			_				
Required		1		gpm	11,437	_	114		T	1,144	-		gals gals
Provided		1		gpm		gals		gpm	F	2,500	gals	U	gals
Facility Design Limit	125	conn's		gpm	25,000 25,000	gais	250 <b>300</b>			2,500		n	gals
Proposed Upgrade External Facility Capacity				gpm gpm	-13,563	gais	-136	gpm	323327533	-1,356			gals
External Facility Capacity			projected		10,500	Agio	100	Bb			8		
Lakeside Valley	<u>6</u>	conn's	p. 0,2232	+1	<u>59</u>	lots							
Required	-	1	4	gpm	1,217		12	gpm	T	122	gals	0	gals
Provided		1		gpm		gals	0	gpm			gals	0	gals
Facility Design Limit	6	conn's	4	gpm	1,217	gals		gpm	F	122	gals	=	gals
Proposed Upgrade				gpm		gals		gpm		_	gals	_	gals
External Facility Capacity				gpm	1,217	gals	12	gpm		0	gals	0	gals
<b>~</b>	200		projected		<b>6</b> E 4	lat-							
Tamarack Shores	232	conn's	120	+ 41	<u>651</u> 46,476	lots gals	465	anen	т	4,648	gale	4,538	gale
Required Provided		1	112	gpm	39,500		400	•	•	5,000	~	_	gals
Facility Design Limit	187	conn's		gpm	37,400	-	374		F	3,740		-	gals
Proposed Upgrade	,			gpm		gals		gpm			gals	0	gals
External Facility Capacity				gpm	9,076			gpm		908	gals	4,538	gals
,			projected										
Tanglewood Shores	120	conn's		+21		lots			_		_	، - جيد	
Required		1		gpm	24,090	-	241		T	2,409	_	10,245	-
Provided		1		gpm	54,000	-		gpm	_		gals	0	gals
Facility Design Limit	58	conn's		gpm	11,600	_	116		F	1,160	-	^	gals
Proposed Upgrade External Facility Capacity				gpm		gals		gpm		2,049	gals	10,245	alsg alsn
			74.7	gpm	12,490	gais	201	CHOCK		2.049	y als	10,240	y 015

#### Table 21 Water System Requirements

		Oup	ply	Total		Service		Pressure	Elevated
		Capa	city	Storage		Pumps		Storage	Storage
		(gp	m)	(gal's)		(gpm)		(gal's)	(gal's)
	Stby	Rated				0.60 gpm			
		0.60	gpm	200 g	als	2 gpm		-	100 gals
		50						- 1	200 gals
		250	conn's			1000 gpm		2,500 conn's	2,500 conn
		projecte	d						
<u>9</u>	conn's		+ 2						
	1	5	gpm			σ,	T		0 gals
	1	75	gpm	0 g	als			•	0 gals
125	conn's	75	gpm	The second secon			F	and the state of t	gals
				-			93	.,	0 gals
				-23,297 g	als	-233 gpm		-2,330 gals	0 gals
		projecte	d						
_	conn's		+ 28				_	0.400	0
						•	i	-	0 gals
	2			_	-		_	*	0 gals
200	conn's						F	AND	gals
		0	gpm				3	ata tata tata ta ana ana ang anatan antan an	0 gals
		-25	gpm	-8,367 g	jals	-84 gpm	2000000	-837 gals	0 gals
<u>799</u>									
	0.0000000000000000000000000000000000000						1		0 gais
	.2					\$2000 Personal Company (1990) Personal Company (1990) Personal Company (1990) Personal Company (1990) Personal			O gals
ok			gpm		als				O gals
								1,288	0
		141	gpm	45,732 (	als	265 gpm			9,059 gats
122		'-		247 L					
	1					265 apm	т	2 652 gals	0 gals
						•	•		0 gals
205				_	-		E		gals
205						A/0004000000000000000000000000000000000		MANAGARAN SEESTATION	0 gals
	,					· · · · · · · · · · · · · · · · · · ·	33	annonce and a contract of the second	0 gals
		-43	gpin	-14,477 }	Jais	-140 gpm		000 90.0	
75		conn's	+ 13	668 le	ots				
_	1					151 gpm	Т	1,509 gals	3,243 gals
						<del>-</del> -		-	0 gals
43			-	-	-	<del>-</del>	F	860 gals	gals
				_		•		0 gals	0 gals
					_	65 gpm		649 gals	3,243 gals
						<del></del>			
101		conn's		156 i	ots				
	1					202 gpm	T	2,020 gals	898 gals
	2		•			160 gpm		5,000 gals	0 gals
92	conn's		••	-	-		F	1,840 gals	gals
	_		-	-	-	190 gpm		0 gals	0 gals
		_	04		-	18 gpm		180 gals	898 gals
5,137	ı	comment	one						
**********	2	3.080	Open	1,026.630 (		8.180 gpm	•	FALSE gale	513 315 gels
**********	****************								
	<b>3</b> 8	3,561	gpm	1.180,752	ale:	4,970 gpm		108,650 gale	168,717 gais
		*******	gpm	1.180,752 ( 134,122 (		4,970 gpm -1,190 gpm		108,650 gate 108,650 gate 6,433	168,717 gals 344,598 gals (3.448)
The state of the s	125  158 200  799 10k 133 205 75 43 101 92	9 conn's 1 1 125 conn's 1 2 200 conn's 2 2 12 0k  133 1 2 205 conn's 1 75 1 43 conn's	Stby Rated   0.60   50   250   projected   9   conn's   75   1   75   125   conn's   1   95   2   175   200   conn's   120   conn's   120	0.60 gpm   50   250 conn's   projected   9   conn's   +2   1   5 gpm   125   conn's   75 gpm   0 gpm   -70 gpm   projected   158   conn's   +28   1   95 gpm   2   175 gpm   0 gpm   -25 gpm   200   conn's   120 gpm   -25 gpm   217 gpm   362   141 gpm   362   141 gpm   217 gpm   362   141 gpm   217 gpm   362   141 gpm   217 gpm   362 gpm   -43 gpm   -43 gpm   -43 gpm   -43 gpm   123 gpm   360 gpm   -43 gpm   -43 gpm   -43 gpm   19 gpm   10	Stby Rated   0.60 gpm   50 gpm   50 gpm   50 gpm   1,703 gm   1,703 gm   1,703 gm   1,703 gm   25,000 gm   26,000 gm   26,000 gm   26,000 gm   26,523 gm   26,175 gm   26,000 gm   26,00	Stby   Rated   0.60 gpm   50   250 conn's   50 gpm   1,703 gals   1   55 gpm   25,000 gals   70 gpm   25,000 gals   70 gpm   25,000 gals   70 gpm   25,000 gals   70 gpm   23,297 gals   70 gpm   20,000 gals   2   175 gpm   20,000 gals   2   175 gpm   20,000 gals   2   175 gpm   20,000 gals   200 conn's   120 gpm   40,000 gals   25 gpm   20,000 gals   25 gpm   20,000 gals   25 gpm   25,500 gals   25 gpm   26,000 gals   25 gpm   26,523 gals   362   322   341 gpm   355,500 gals   362   322   341 gpm   365,732 gals   362   322   343 gpm   365,732 gals   362   323 gpm   360,75 gals   360 gpm   26,175 gals   360 gpm   26,000 gals   360 gpm   26,000 gals   360 gpm   36,000 gals   360 gpm   36,000 gals   360 gpm   36,000 gals   360 gpm   360 gals   360 gpm   36,000 gals   360 gpm   36,486 gals   360 gpm   36,000 gals   360 gpm   36,486 gals   360	Stby Reter   0.60 gpm   200 gals   2 gpm   50   2 pk dy   1000 gpm   200 gals   2 gpm   2 projected   2 pm   1,703 gals   1 7 gpm   1,703 gals   0 gpm   25,000 gals   250 gpm   25,000 gals   2300 gpm   25,000 gals   2300 gpm   25,000 gals   2300 gpm   20,000 gals   233 gpm   2 mojected   2 moject	Stby   Rered   0.60 gpm   200 gals   2 gpm   50   250 conn's   1000 gpm   1000 gpm   250 conn's   171   lots   1   5 gpm   1,703 gals   17 gpm   T   1   75 gpm   25,000 gals   250 gpm   F   25,000 gals   250 gpm   70 gpm   25,000 gals   250 gpm   F   25,000 gals   250 gpm   70 gpm   25,000 gals   250 gpm   F   25,000 gals   250 gpm   70 gpm   25,000 gals   250 gpm   F   25,000 gals   250 gpm   70 gpm   20,000 gals   95 gpm   70 gpm   20,000 gals   95 gpm   70 gpm   20,000 gals   400 gpm   70 gpm   20,000 gals   20 gpm   20,000 gals   20 gpm   20,000 gals   355 gpm   20 gpm   20,000 gals   362 gpm   362 gals   363 gals   364 gpm   362 gals   363 gpm   362 gals   363 gals   364 gpm   362 gals   363 gpm   362 gals   363 gpm   362 gals   363 gpm   362 gals   363 gpm   362 gpm   363 gals   365 gpm   360 gals   360 gpm   360 gpm   360 gals   360 gpm   360 gals   360 gpm   360 gals   360 gpm   360 gpm   360 gpm   360 gpm   360 gpm   360 gpm   3	Stby   Reter   0.60 gpm   200 gals   2 gpm   2 gpm   2500 conn's   250 conn's   1000 gpm   2,500 conn's   1   5 gpm   1,703 gals   17 gpm   T   170 gals   1   75 gpm   25,000 gals   250 gpm   2,500 gals   2,500

#### Table 22 Water System Requirements

			Sup	ply	Total		Servic	•		Pressu	re	Elevate	d
Description			Capa		Storag		Pump			Storag	e	Storag	e
			(gpi	m)	(gal's	}	lgpm.			(gal's	)	(gal's	)
CRITERIA		Stby	Rated				0.60						
Primary			0.60	gpm	200	gals		gpm			gals	100	_
Secondary			50 350	conn's	l		1000	pk dy	İ	30,000	gais conn's	200	gais conn's
Service area limit			projected		*		1000	gpin		2,500	CUIIII S	2,300	COTIIT 8
Astro Hills/CL Hills 1,2,3	508	conn's	projectet	•	1,735	lots							
Required	2		305	gpm	101,545		305	gpm	T	10,154	gals	50,772	gals
Provided	2	2	250		83,500		900	gpm		0	gals	250,000	gals
Facility Design Limit	417	conn's	250		83,400	-	834		F	8,340	_	_	gals
Proposed Upgrade				gpm		gals		gpm			gals		gals
External Facility Capacity			projected	gpm	18,145	gais	-529	gpm		10,154	gais	-199,228	gais
Canyon Lake Hills 4,5,6	392	conn's	projected	•	750	lots							
Required	2		235	gpm	78,453		785	gpm	T	7,845	gals	39,226	gals
Provided	1	1	140		92,500		500	gpm			gals	0	gals
Facility Design Limit	233	conn's	140	gpm	46,600	-	466		F	4,660	_		gals
Proposed Upgrade				gpm		gals		gpm			gals		gals
External Facility Capacity				gpm	31,853	gals	319	gpm		7,845	gals	39,226	gals
Lakeview Park	283	conn's	projected	•	382	lots							
<u>Lakeview Fark</u> Required	<u> 283</u>		170	gpm	56,545		565	gpm	T	5,655	gals	28,273	gals
Provided	2		150		88,000			gpm			gals		gals
Facility Design Limit	250	conn's	150	gpm	50,000	gals	500	gpm	F	5,000	gals		gals
Proposed Upgrade				gpm		gals		gpm			gals		gals
External Facility Capacity				gpm	6,545	gals	65	gpm		5,655	gals	28,273	gals
e ur irm.	400		projected	1	580	1-4-							
Rolling Hills Required	<u>462</u>	conn's	277	anm	92,367	lots	924	anm	т	9,237	gale	46,184	cale
Provided	2		210		70,700		700	••	•	-	gais		gals
Facility Design Limit	350	conn's	210		70,000	-	700		F	7,000			gals
Proposed Upgrade			0	gpm	0	gals	0	gpm		0	gais		gals
External Facility Capacity				gpm	22,367	gals	224	gpm		9,237	gais	46,184	gais
Waterfront Park	500	_	projected	j	4.050	1							
Canyon Lake Forest Required	<u>526</u> 2	conn's	316	anna	<u>1,050</u> 105,187	lots	1,000	000	F	10,519	cale	^	gals
Provided	2		355		115600		1,000		•	21000	•		gals
Facility Design Limit	592	conn's	355		118,400		1,000		F	11,840			gals
Proposed Upgrade				gpm	-	gais		gpm			gals		gals
External Facility Capacity			-40		-10,413	gals	0	gpm		-1,321	gals	0	gals
			projected			_							
Woodlands/CLFSo Upper	<u>178</u> 1	conn's	107	+ 58	425	lots	255		т	2 552	1-	Service Service Service	
Required Provided	,		107	gpm gpm	35,52 <del>6</del> 35,526		355 400		1	3,553 6,000	-		gals gals
Facility Design Limit	178	conn's	107		35,526		355		F	3,553	-		gals
Proposed Upgrade	.,,			gpm		gals		gpm			gals		gals
External Facility Capacity			107			gals	0	gpm		0	gals		gals
			projected										
Woodland*	129	conn's	~~	+0	<u>-52</u>	lots	250		<b>-</b>	2 500		12.000	
Required	1		150	gpm	25,800 18,474		258	gpm gpm	Т	2,580	gais gals	12,900 18,474	•
Provided Facility Design Limit	250	conn's	150		50,000		500		F	5,000	_		gals
Proposed Upgrade	200			gpm	55,555	gals		gpm			gals		gals
External Facility Capacity			-73	_	7,326	-	258			2,580	-	-5,574	_
GROUP SUMMARY	2,477	<u>uumned</u>										_	
Bequired	2		1.486		495.423		2,973		F	30.000		***************************************	aleg
Provided	ok		1,255 -231		504,300 9,877		4,000 1,027			27,000 -3,000		288,474 289,474	
Difference (cepacity) Difference (comm's)	178		(386)	<del>2111</del> 17	9.077 44	200	514	eler T		(150)	Manage	2,685	4117
Adjusted Net			-251	ggm	-76.823	gais	-336	gpm				91,119	gels
			projected										
Upper Plane	<u>37</u>	conn's		+12	<u>134</u>	iots							
Required	1		22	gpm	7,401	_		о.	T	740	-	AND DESCRIPTION OF THE PROPERTY OF	gals
Provided				gpm	50,000	-	100				gals	(27.49)	gals
Facility Design Limit	37	conn's		gpm	7,401		_	gpm		740		Market Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the	gals
Proposed Upgrade				gpm anm		gals		gpm		740	gals	10.0001113.1.	gals nals
External Facility Capacity			- 22	gpm	0	gals	<u>U</u>	gpm		740	Agià	CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR O	gals

#### Table 22 Water System Requirements

		Supply	Total		Service		Pressure	Elevate	
Description		Capacity	Storage		Pumps		Storage	Storag	je
4. <u>3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3</u>		(gpm)	(gal's)		(gpm)		(gal's)	(gal's	)
CRITERIA	Stby	Rated			0.60 gpm				
Primary		0.60 gpm	200 g	gals	2 gpm		20 gals		gals
Secondary		50			2 pk dy		30,000 gals	1	gals
Service area limit		250 conn's	\$		1000 gpm	L_	2,500 conn's	2,500	conn's
		projected							
The Oaks	262 conn's			ots		_		40.400	
Required	· 2	157 gpm	52,401 (	-	524 gpm	Т	5,240 gals	10,400	
Provided	2	95 gpm	88,599 (		400 gpm	_	7,000 gals	42,599	
Facility Design Limit	158 conn's	95 gpm	31,600 g	-	316 gpm	F	3,160 gals	_	gals
Proposed Upgrade		0 gpm	۽ 0	gals	0 gpm		0 gals		gals
External Facility Capacity		62 gpm	20,801 ç	gals	208 gpm		2,080 gals	-32,198	gals
		projected							
Village West	706 conn's	+ 229		ots		_		70.000	
Required	2	424 gpm	141,200 (	_	1,000 gpm	F	14,120 gals	70,600	-
Provided	2 241	0 gpm	0 (	gals	0 gpm	_	0 gals	O	gals
Facility Design Limit	conn's	gpm	Ş	gals	gpm	F	gals	_	gals
Proposed Upgrade		0 gpm		gals	0 gpm		0 gals		gals
External Facility Capacity		424 gpm	141,200 ç	gals	1,000 gpm		14,120 gals	70,600	gals
		projected							
Triple Peak	102 conn's			ots		_			
Required	1	61 gpm	20,400 g		61 gpm	Т	2,040 gals	10,200	_
Provided	1 40	Ø gpm	200,000 g	_	1,050 gpm	_	2,180 gals	100,000	•
Facility Design Limit	0 conn's	0 gpm	0 (	gals	gpm	F	0 gals	_	gals
Proposed Upgrade		gpm		gals	gpm		0 gals		gals
External Facility Capacity		61 gpm	-179,600 g	gals	-989 gpm		2,040 gals	-89,800	gals
		projected							
Canyon Lake Village	335 conn's	+ 109		ots					
Required	2	201 gpm	66,907	gals	669 gpm	Т	6,691 gals	20,954	
Provided	1	150 gpm	70,000 g		260 gpm		2,500 gals	0	gals
Facility Design Limit	250 conn's	150 gpm	50,000 g	gals	500 gpm	F	5,000 gals		gals
Proposed Upgrade		0 gpm	0 (	gals	300 gpm		0 gals		gals
<b>External Facility Capacity</b>		51 gpm	16,907 g	gals	169 gpm		4,191 gals	20,954	gals
		projected							
Summit	269 conn's	+87	<u>410 l</u>	ots					
Required	2	162 gpm	53,881	gals	539 gpm	T	5,388 gals	14,440	gals
Provided	1	110 gpm	80,000	gals	720 gpm		2,500 gals	0	gals
Facility Design Limit	183 conn's	110 gpm	36,600 g	gals	366 gpm	F	3,660 gals		gals
Proposed Upgrade		0 gpm	0 g	gals	0 gpm		0 gals	0	gals
External Facility Capacity		52 gpm	17,281 գ	gals	173 gpm		2,888 gals	14,440	gals
ROUP SUMMARY	1,711 comm	rione							
Required	2	1.027 gpm	342,190	galle	2.053 gpm	F	30,000 gals		gals
Provided	7 281		488,599		2,530 gpm		14 180 gels	142,598	
Difference Inapacity)	ok	-672 gpm	146,409		477 gpm		-15.820 gale	142,509	gels
Difference (conn's)		(1,119)	732		238		(791)	1,426	
Justed Net		-672 gpm	-18,589	gel\$	-561 gpm			16,004	gəlş
Sattler	195 conn's	+ 0	<u>0 i</u>	iots					
Required	1	117 gpm	39,000 g		117 gpm	Т	3,900 gals	19,500	gals
Provided	Ö	0 gpm	50,000		0 gpm		0 gals	50,000	gals
Facility Design Limit	conn's	gpm	Although a house and a second and a second a sec	gals	gpm		gals	2000,000,000	gals
Proposed Upgrade	301873	0 gpm	_	gals	0 gpm		0 gals	0	gals
External Facility Capacity		117 gpm	-11,000	-	117 gpm		3,900 gals	-30,500	gals
External County Capacity		projected	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,					
Riverside	79 conn's	• •	79 1	ots					
Required	1	47 gpm	15,800		158 gpm	Т	1,580 gals	7,900	gals
Provided	ò	0 gpm		gals	0 gpm	-	0 gals		gals
Facility Design Limit	conn's	gpm		gals gals	gpm		gals		gals
Proposed Upgrade	LOI III S	0 gpm	-	gals gals	0 gpm		alsg 0	0	gals
External Facility Capacity		47 gpm	15,800		158 gpm		1,580 gals	7,900	-
External racinty Capacity		projected	10,000 [	y wi w	, oo gpiii		.,		<del></del>
Horseshoe Falls	274 conn's		304 1	ots					
Required	274 conn s	164 gpm	54,769 g		548 gpm	т	5,477 gals	27,385	gals
Required Provided			42,599 g	-	0 gpm	•	0 gals	42,599	-
		•	-	gals gals	gpm	F	gals	- 2,000	gals
Facility Design Limit	conn's	gpm O gpm	-	gals gals	0 gpm	•	0 gals	n	gals
Proposed Upgrade		0 gpm	_	_			5,477 gals	-15,214	
External Facility Capacity		164 gpm	12,170 ք		548 gpm			* I 17 / IA	CAR:

#### Table 22 Water System Requirements

Description			Sup Capa		Total Storag		Servio Pump			Pressu Storag		Elevate Storaç	
			(gp		(gai's		(gpm	)		(gal's	)	(gal's	1
CRITERIA		Stby	Rated				0.60	gpm					
Primary			0.60	gpm	200	gals	2	gpm	ı	20	gals	100	gals
Secondary			50	<u> </u>			2	pk dy		30,000	gals	200	gals
Service area limit			250	conn's			1000	gpm		2,500	conn's	2,500	conn
			projecte										
Crystal Heights	<u>37</u>	conn's	22	+ 12	<u>153</u> 7,401	lots	74	gpm	т	740	gals	۸	gals
Required Provided		73	22	gpm	7,401	-		gpm	•	2,500	-		gals
Facility Design Limit	37	conn's	22	gpm gpm	7,401	gals	•	gpm			gals	v	gals
Proposed Upgrade	37	conns		gpm	0	gals	n	gpm			gals	0	gals
External Facility Capacity				gpm		gals		gpm			gals		gals
Xup Summary	585	comed	***********		158 070		1 170		Ŧ	11,697			gais
Required			**********	gpm	116,970		1,170			2.500		92,599	
Provided		1 209		gpm	100.000			dia.		-9.197		92,589	
Difference inapacity)	Deficit		******	das	-16,970 (85)	~~~	1,170 (586)	THE.		(480)	ri ala	926	400
Difference (conn's)			(585) (357)	aam	(18,970)		(897)	oom		(400)		37,814	oals
North Lake Estates	**********		projecte		*****	50 Sudici (COSCOSCOSCO	************	N(2666	**********		***************************************	*********	8°- 24344
Cougar Ridge	<u>37</u>	conn's		+ 13	<u>153</u>	lots							
Required		1 —	22	gpm	7,401	gals	74	gpm	T	740	gals	0	gals
Provided		2	35	gpm	12,000	gals	200	gpm		5000	gals	0	gals
Facility Design Limit	58	conn's	35	gpm	11,600	gals	116	gpm	F	1,160	gals		gals
Proposed Upgrade			0	gpm	0	gals	0	gpm		0	gals	0	gals
External Facility Capacity				gpm	-4,199	gals	-42	gpm		-420	gals	0	gals
The Point		_	projecte										
DBH/Hillcrest	<u>92</u>	conn's		+30	<u>393</u>	lots			_	4 000			
Required		1		gpm	18,355			gpm	T	1,836	-		gals
Provided		2		gpm	50,000		500		_	5,000	•	31,645	
Facility Design Limit	217	conn's		gpm	43,400		434		F	4,340		_	gals
Proposed Upgrade				gpm		gals		gpm			gals		gals
External Facility Capacity				gpm	-25,045	gals	-379	gpm		-2,504	gais	-31,645	gals
Canyon Lake Acres	135	conn's	projecte	n + <i>44</i>	627	lots							
Required		1	91	gpm	26,940		269	anm	T	2,694	gaie	13,470	nals
Provided		1		gbw	42,000	_		gpm	•		gals		gals
Facility Design Limit	58	conn's		gpm	11,600	•	116		F	1,160		J	gals
Proposed Upgrade	50	COMMIS	_	gpm		gals		gbu.	•		gals	0	gals
External Facility Capacity				gpm	15,340	-	269			2,694	-	13,470	-
Scenic Terrace			projecte		,			<u>ar</u>					
Hancock Canyon	<u>70</u>	conn's		+ 24	411	lots							
Required		1	42	gpm	13,914	gals	139	gpm	T	1,391	gals	0	gals
Provided	. •	1	75	gpm	25,000	gals	300	gpm		2,500	gals	0	gals
Facility Design Limit	125	conn's	75	gpm	25,000		250	gpm	F	2,500	gals		gals
Proposed Upgrade			0	gpm	0	gals	0	gpm		0	gals	0	gals
External Facility Capacity				gpm	-11,086	gals	-111	gpm		-1,109	gals	0	gals
			projecte			_				· <u> </u>			
Lakeside Valley	Z	conn's		+2	<u>59</u>	lots			_			_	_
Required	•	1		gpm	1,480			gpm	T		gals		gals
Provided		1		gpm		gals		gpm	_	500	-	0	gais
Facility Design Limit	7	conn's	_	gpm	1,480		15	gpm	F	148	gals	_	gals
Proposed Upgrade				gpm		gals		gpm		_	gals		gals
External Facility Capacity				gpm	1,480	gais	15	gpm		0	gals	. 0	gals
Tamasack Shares	202		projecte		851	lote							
Tamarack Shores Required	<u>283</u>	conn's	170	+92	<u>651</u> 56,545	lots cals	565	anm	Т	5,655	nale	9,573	ماده
Provided		2 1		gpm		-	400	_	•	5,000	_		gals
Facility Design Limit	187	-		gpm gpm	39,500 37,400		374		F	3,740	-	U	gals
Proposed Upgrade	107	conn's		gpm	_			gpm	•		gals	۸	gals
External Facility Capacity				gpm	19,145	gals gals	191	_		1,915		9,573	-
Entering Facility Capacity			projecte		10,170	g0		ar.''.		.,	J	-,-,-	g 2
Tanglewood Shores	147	conn's		+ 48	369	lote							
Required		1 —	88	gpm	29,309		293	gpm	T	2,931	gals	12,854	gals
Provided	•	1		gpm	54,000	_	40	gpm		360	gals	0	gals
Facility Design Limit	58	conn's	_	gpm	11,600	-	116	-	F	1,160	gals		gals
						-		-		٥	gals	0	gals
Proposed Upgrade			U	gpm	U	gais		gpm		v	gais	_	8

Table 22 Water System Requirements

Description			Sup Capa	city	Total Storage	•	Service Pumps		Pressur Storag	•	Elevate Storage	•
			(gp	<u>m)</u>	(gal's)		(gpm)	·	(gal's		(gal's)	
CRITERIA		<u>S</u> 222	Rated		200	1-	0.60 g	-	20	aala	100	aste
Primary		i i	0.60	gpm	200	gais	2 g		30,000	gals	200	
Secondary		l	50	I			1000 g	k dy		conn's	2,500	
Service area limit		<u> </u>		conn's	<del></del>		1 1000 9	pm	2,300	COMMIS	2,300	COIIII 8
0 11 111	**	'-	projecte		171	lote						
Canyon Lake Island	<u>10</u>	conn's		+3	<u>171</u> 2,072	lots	21 g	pm T	207	nale	n	gals
Required	1			gpm	25,000	•	300 g	•	2,500	-		gals
Provided	•			gpm		-	250 g	-	2,500	-		gals
Facility Design Limit	125	conn's		gpm	25,000	-	250 g O g	-		gals		gais
Proposed Upgrade				gpm	-22,928	gals	-	-	-2,293	-		gais
External Facility Capacity				gpm	-22,925	gais	-229 g	pm	-2,233	yala		yeis
O Laka Chana	102	'-	projecte		779	lots						
Canyon Lake Shores	<u>192</u>	conn's	115	+ 62	38,486		385 g	pm T	3,849	aale	0	gais
Required	1			gpm			400 g	•	4,000	-		gais
Provided	1167		*****	gpm	40,000	-	1,400 g		23,340	-		gais
Facility Design Limit	1167	conn's		gpm	233,400	_	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	•	23,340	• .	25,000	-
Proposed Upgrade				gpm	194,000	-	1,100 g	•	-151	gals	-25,000	_
External Facility Capacity	50500500010000100	000000000000000000000000000000000000000	-585	gpm	-194,914	gais	-1,016 g	þπ	101-	yais	-20,000	yais
GROUP SUMMARY	973	connec			404.604		1046	+	10 450		n	gals
Required				gpm	194,504		1,945 g		19,450			7.000
Provided	12		1,222	· · · · · · · · · · · · · · · · · · ·	200,500		1,140 g		47,360	· T	\$\$ <b>\$\$\$</b> \$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$	gals
Difference (capacity)	ok		antenan (na antenan eta esta de la como de la como de la como de la como de la como de la como de la como de l	gpm	5,996	gara	-805 g	pm	27,910	Bara		gals
Difference (conn's)			1,064		30		(402)		1,395		0 20 740	
Adjusted Net			618	gpm	204,496	gals	1,048 g	pm		*************	20,748	gais
5 P:	101		'-	+ 52	347	lots						
Deer River	161		conn's		32,269		323 g	pm T	3,227	cale	0	gals
Required	1			gpm	52,205	•	455 g	-	3,250	-		gals
Provided	2			gpm	41,000		410 g	-	4,100			gals
Facility Design Limit	205	conn's		gpm		-	710 g 0 g	-		gals		gais
Proposed Upgrade				gpm		gals	-			gals		gals
External Facility Capacity			-20	gpm	-8,731	gais	-87 g	pm	-23	yais		yais
Lake of the Hills	92		conn's	+30	666	lots						
Lake of the fills Required				730	nn×							ماده
Provided	•			ance		_	184 a	pm T	1.836	gals	4.8/8	
	1		55	gpm	18,355	gals	184 g 90 a	-	1,836 1,220	-	4,878 0	-
	2		55 26	gpm	18,355 13,860	gals gals	90 g	pm	1,220	gals	0	gals
Facility Design Limit			55 26 26	gpm gpm	18,355 13,860 8,600	gals gals gals	90 g 86 g	pm pm F	1,220 860	gals gals	0	gais gais
Facility Design Limit Proposed Upgrade	2		55 26 26 0	gpm gpm gpm	18,355 13,860 8,600 0	gals gals gals gals gals	90 g 86 g 0 g	pm pm F pm	1,220 860 0	gals gals gals	0	gals gals gals
Facility Design Limit	2		55 26 26 0 29	gpm gpm gpm gpm	18,355 13,860 8,600	gals gals gals gals gals	90 g 86 g	pm pm F pm	1,220 860	gals gals gals	0	gals gals gals
Facility Design Limit Proposed Upgrade External Facility Capacity	43		55 26 26 0 29 projecte	gpm gpm gpm gpm	18,355 13,860 8,600 0 9,755	gals gals gals gals gals	90 g 86 g 0 g	pm pm F pm	1,220 860 0	gals gals gals	0	gals gals gals
Facility Design Limit Proposed Upgrade External Facility Capacity <u>Riverwood</u>	43 2 123		55 26 26 0 29 projected	gpm gpm gpm gpm +40	18,355 13,860 8,600 0 9,755	gals gals gals gals gals	90 g 86 g 0 g 98 g	pm pm F pm pm	1,220 860 0 976	gals gals gals gals	0 0 4,878	gals gals gals gals
Facility Design Limit Proposed Upgrade External Facility Capacity <u>Riverwood</u> Required	43 123 1	conn's	55 26 26 0 29 projecter conn's 74	gpm gpm gpm gpm +40 gpm	18,355 13,860 8,600 0 9,755 156 24,572	gals gals gals gals gals gals	90 g 86 g 0 g 98 g 246 g	pm pm F pm pm pm	1,220 860 0 976	gals gals gals gals	0 4,878 3,086	gals gals gals gals
Facility Design Limit Proposed Upgrade External Facility Capacity  Riverwood Required Provided	43 2 43 1 2 1 2 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	conn's	55 26 26 0 29 projecter conn's 74	gpm gpm gpm gpm d +40 gpm gpm	18,355 13,860 8,600 0 9,755 156 24,572 16,000	gals gals gals gals gals lots gals	90 g 86 g 0 g 98 g 246 g 260 g	pm pm F pm pm pm	1,220 860 0 976 2,457 5,000	gals gals gals gals gals	0 0 4,878 3,086 0	gals gals gals gals gals
Facility Design Limit Proposed Upgrade External Facility Capacity  Riverwood Required Provided Facility Design Limit	43 123 1	conn's	55 26 26 0 29 projecter conn's 74 55	gpm gpm gpm gpm gpm +40 gpm gpm gpm	18,355 13,860 8,600 0 9,755 156 24,572 16,000 18,400	gals gals gals gals gals gals gals gals	90 g 86 g 0 g 98 g 246 g 260 g 184 g	pm F pm T pm F	1,220 860 0 976 2,457 5,000 1,840	gals gals gals gals gals gals	0 4,878 3,086 0	gals gals gals gals gals gals gals
Facility Design Limit Proposed Upgrade External Facility Capacity  Riverwood Required Provided Facility Design Limit Proposed Upgrade	43 2 43 1 2 1 2 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	conn's	55 26 26 0 29 projecte conn's 74 55 55	gpm gpm gpm gpm gpm +40 gpm gpm gpm gpm	18,355 13,860 8,600 0 9,755 156 24,572 16,000 18,400	gals gals gals gals gals gals gals gals	90 g 86 g 0 g 98 g 246 g 260 g 184 g 0 g	pm F pm T pm T pm F	1,220 860 0 976 2,457 5,000 1,840	gals gals gals gals gals gals gals	0 4,878 3,086 0	gais gais gais gais gais gais gais gais
Facility Design Limit Proposed Upgrade External Facility Capacity  Riverwood Required Provided Facility Design Limit	43 2 43 1 2 1 2 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	conn's	55 26 26 0 29 projecte conn's 74 55 55	gpm gpm gpm gpm gpm +40 gpm gpm gpm	18,355 13,860 8,600 0 9,755 156 24,572 16,000 18,400	gals gals gals gals gals gals gals gals	90 g 86 g 0 g 98 g 246 g 260 g 184 g	pm F pm T pm T pm F	1,220 860 0 976 2,457 5,000 1,840	gals gals gals gals gals gals gals	0 4,878 3,086 0	gais gais gais gais gais gais gais gais
Facility Design Limit Proposed Upgrade External Facility Capacity  Riverwood Required Provided Facility Design Limit Proposed Upgrade External Facility Capacity	123 1 2 92	conn's	55 26 26 0 29 projecter conn's 74 55 55 0	gpm gpm gpm gpm 3 +40 gpm gpm gpm gpm gpm	18,355 13,860 8,600 0 9,755 156 24,572 16,000 18,400	gals gals gals gals gals gals gals gals	90 g 86 g 0 g 98 g 246 g 260 g 184 g 0 g	pm F pm T pm T pm F	1,220 860 0 976 2,457 5,000 1,840	gals gals gals gals gals gals gals	0 4,878 3,086 0	gais gais gais gais gais gais gais gais
Facility Design Limit Proposed Upgrade External Facility Capacity  Riverwood Required Provided Facility Design Limit Proposed Upgrade External Facility Capacity	123 1 1 92 92	conn's	55 26 26 0 29 projecte: conn's 74 55 55 0 19	gpm gpm gpm gpm d +40 gpm gpm gpm gpm	18,355 13,860 8,600 0 9,755 156 24,572 16,000 18,400 8,572	gals gals gals gals gals gals gals gals	90 g 86 g 0 g 98 g 246 g 260 g 184 g 0 g 62 g	pm F pm T pm T pm F pm F pm F pm F pm F pm F	1,220 860 0 976 2,457 5,000 1,840 0 617	gals gals gals gals gals gals gals gals	0 4,878 3,086 0 0 3,086	gals gals gals gals gals gals gals gals
Facility Design Limit Proposed Upgrade External Facility Capacity  Riverwood Required Provided Facility Design Limit Proposed Upgrade External Facility Capacity  OVERALL SUMMARY Required	123 1 92 92	conn's	55 26 26 0 29 projecte: conn's 74 55 55 0 19	gpm gpm gpm gpm i +40 gpm gpm gpm gpm gpm	18,355 13,860 8,600 0 9,755 156 24,572 16,000 18,400 8,572	gals gals gals gals gals gals gals gals	90 g 86 g 0 g 98 g 246 g 260 g 184 g 62 g	pm F pm T pm T pm F pm F pm F pm F	1,220 860 0 976 2,457 5,000 1,840 0 617	gals gals gals gals gals gals gals gals	0 4,878 3,086 0 0 3,086	gals gals gals gals gals gals gals gals
Facility Design Limit Proposed Upgrade External Facility Capacity  Riverwood Required Provided Facility Design Limit Proposed Upgrade External Facility Capacity  OVERALL SUMMARY Required Provided	123 1 2 92 6,123 2	conn's	55 26 26 0 29 projecter conn's 74 55 55 0 19	gpm gpm gpm gpm i +40 gpm gpm gpm gpm gpm gpm	18,355 13,860 8,600 0 9,755 156 24,572 16,000 18,400 8,572 1,224,284 1,276,434	gals gals gals gals gals gals gals gals	90 g 86 g 0 g 98 g 246 g 260 g 184 g 0 g 62 g	pm F pm T pm F pm F pm F pm F pm F pm F pm F	1,220 860 0 976 2,457 5,000 1,840 0 617	gals gals gals gals gals gals gals gals	0 4,878 3,086 0 0 3,086	gals gals gals gals gals gals gals gals
Facility Design Limit Proposed Upgrade External Facility Capacity  Riverwood Required Provided Facility Design Limit Proposed Upgrade External Facility Capacity  OVERALL SUMMARY Required	123 1 92 92	conn's	55 26 26 0 29 projecte: conn's 74 55 55 0 19	gpm gpm gpm gpm i +40 gpm gpm gpm gpm gpm gpm	18,355 13,860 8,600 0 9,755 156 24,572 16,000 18,400 8,572	gals gals gals gals gals gals gals gals	90 g 86 g 0 g 98 g 246 g 260 g 184 g 62 g	pm F pm T pm F pm F pm F pm F pm F pm F pm F	1,220 860 0 976 2,457 5,000 1,840 0 617	gals gals gals gals gals gals gals gals	0 4,878 3,086 0 0 3,086	gals gals gals gals gals gals gals gals

#### Table 23 Water System Requirements

			Sup	ply	Total		Servi	ce		Pressure	Elevat	ed
Description			Capa		Storag		Pump			Storage	Storaç	je
	A		(gp		(gal's		(gpm	1)		(gal's)	(gal's	ı)
CRITERIA		Stby	Rated					gpm				
Primary				gpm	200	gals		gpm		20 gals	100	gals
Secondary			50			•		pk dy		30,000 gals	200	gale
Service area limit			250	conn's			1000			2,500 conn's	2,500	conn's
			projecte	:d								
Astro Hills/CL Hills 1,2,3	752	conn's	p,	-	1,735	lots						
Required		2	451	gpm	150,311		451	gpm	Т	15,031 gals	75,156	gals
Provided		2		gpm	83,500			gpm		0 gals	250,000	gals
Facility Design Limit	417	conn's		gpm	83,400			gpm	F	8,340 gals		gals
Proposed Upgrade				gpm		gals		gpm		0 gals	0	gals
External Facility Capacity				gpm	66,911	-		gpm		15,031 gals	-174,844	gals
			projecte	d								
Canyon Lake Hills 4,5,6	581	conn's			750	iots						
Required		2	348	gpm	116,130		1,000	gpm	F	11,613 gals	58,065	gals
Provided		1		gpm	92,500	-		gpm		0 gals		gals
Facility Design Limit	233	conn's		gpm	46,600			gpm	F	4,660 gals		gals
Proposed Upgrade				gpm		gals	0	gpm		0 gals	0	gals
External Facility Capacity				gpm	69,530	-		gpm		11,613 gals	58,065	gals
			projecte			•						<del> </del>
Lakeview Park	306	conn's			382	lots						
Required		2	183	gpm	61,120		611	gpm	Т	6,112 gals	30,560	gals
Provided		2		gpm	88,000			gpm		0 gals	0	gals
Facility Design Limit	250	conn's		gpm	50,000			gpm	F	5,000 gals		gals
Proposed Upgrade				gpm		gals		gpm		0 gals	0	gals
External Facility Capacity				gpm	11,120	_		gpm		6,112 gals	30,560	gals
			projecte									
Rolling Hills	464	conn's	•		580	lots						
Required		2	278	gpm	92,800		928	gpm	T	9,280 gals	46,400	gals
Provided		2		gpm	70,700			gpm		0 gals	0	gals
Facility Design Limit	350	conn's		gpm	70,000			gpm	F	7,000 gals		gals
Proposed Upgrade				gpm		gals		gpm		0 gals	0	gals
External Facility Capacity				gpm	22,800	-		gpm		9,280 gals	46,400	gais
Waterfront Park	•		projecte					<u> </u>				
Canyon Lake Forest	690	conn's			1,050	lots						
Required	;	2 —	414	gpm	138,030	gals	1,000	gpm	F	13,803 gals	9,815	gals
Provided	:	2	355	-	115600	gals	1,000	gpm		21000 gals	0	gals
Facility Design Limit	592	conn's	355	gpm	118,400		1,000	gpm	F	11,840 gals		gals
Proposed Upgrade				gpm		gals		gpm		0 gals	0	gals
External Facility Capacity				gpm	22,430	_		gpm		1,963 gals	9,815	gals
			projecte					V				
Woodlands/CLFSo Upper	<u> 263</u>	conn's	, ,	+143	425	lots						
Required		2	158	gpm	52,587		526	gpm	Т	5,259 gals		gals
Provided	-			gpm	52,587			gpm		0 gals		gals
Facility Design Limit	263	conn's		gpm	52,587			gpm	F	5,259 gals		gals
Proposed Upgrade				gpm		gals	200	gpm		0 gals	With the second second	gals
External Facility Capacity				gpm	0	gais		gpm		5,259 gals	\$	gals
			projecte			0						
<u>Woodlands</u>	129	conn's	,	+0	<u>-52</u>	lots						
Required	1		77	gpm	25,800		258	gpm	Т	2,580 gals	12,900	gals
Provided	1			gpm	1,413	-		gpm		0 gals	1,413	
Facility Design Limit	250	conn's		gpm	50,000	_		gpm	F	5,000 gals		gals
Proposed Upgrade				gpm	,	gals		gpm		0 gals	0	gals
External Facility Capacity				gpm	24,387	-	258	gpm		2,580 gals	11,487	
, , , , ,									****			
POUP SUMMARY	3,184	connect	iom									
Sequired		2000 no concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concensor and a concen	1 910	COMP	636,777	gals	3,821	ODEN	F	FALSE gale	318,389	gals
Provided	11		1,258		504,300		4,000			21,000 gals	251,413	
Difference (capacity)	ck			Cha.	-132,477			gpm		21,000 gals	86,978	
Difference (cumn's)			11 092		(662)		90			1,050	6870)	
djusted Net				gpm	-217 177	********		gpm			18,518	gets
			projecte		and the second second							<del></del>
Upper Plane	<u>55</u>	conn's	p. 0,30 (8)	+30	134	iots						
Opper Flane Required	<u> 22</u> 1		33	gpm	10,956		110	gpm	т	1,096 gals	333 S. S. S. T. S.	gals
Provided	'	•	33	-	50,000	_	100		•	gals		gals
Facility Design Limit	5 <b>5</b>	cons's	33	gpm gpm	10,956	-	110			1,096 gals		gals
· · · · · · · · · · · · · · · · · · ·	55	conn's	33			-	100	-		0 gals		gals
Proposed Upgrade			22	gpm		gals				· ·		gals
External Facility Capacity			33	gpm	U	gals	U	gpm		1,096 gals		Agio

#### Table 23 Water System Requirements

TALL THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF		Supply	Total		Service		Pressure	Elevated
Description		Capacity	Storage		Pumps		Storage	Storage
	tan kiangan aki	(gpm)	(gai's)		(gpm)		(gai's)	(gal's)
CRITERIA	Stby	Rated		İ	0.60 gpn			
Primary		0.60 gpm	200	gals	2 gpn		20 gals	100 gal
Secondary		50		l	2 pk (		30,000 gals	200 gal
Service area limit		250 conn's			1000 gpm	<u> </u>	2,500 conn's	2,500 co
		projected		_				
The Oaks	282 conn's	+ 105	<u>353</u>	lots	505		F 640 l-	10.440
Required	2	169 gpm	56,480		565 gpn		5,648 gals	12,440 gal
Provided	2	95 gpm	85,044	-	400 gpn		7,000 gals	39,044 gai
Facility Design Limit	158 conn's	95 gpm	31,600	_	95 gpn		3,160 gals	gal
Proposed Upgrade		0 gpm		gals	0 gpn		0 gals	50,000 gal
External Facility Capacity		75 gpm	24,880	gais	470 gpn	1	2,488 gals	-76,604 gal
LEW SAF 4		projected	706	1-4-				
Village West	706 conn's	+229	<u>706</u> 141,200	lots	1,000 gpm	ı F	14 120 mala	70,600 gal
Required		424 gpm		-			14,120 gals	
Provided	2 241	0 gpm		gals	0 gpn	_	0 gals	0 gal
Facility Design Limit	conn's	gpm		gals	gpn		gals	gal
Proposed Upgrade		0 gpm		gals	0 gpn		0 gals	0 gal
External Facility Capacity		424 gpm	141,200	gais	1,000 gpn	<u>.                                    </u>	14,120 gals	70,600 gal
Til-D-1		projected	00	lat-				
Triple Peak	102 conn's	+0	<u>99</u>	lots	e1	T	2,040 gals	10,200 gal
Required	1	61 gpm	20,400		61 gpn		•	· · ·
Provided	1 40	0 gpm	200,000		1,050 gpm	_	2,180 gals	100,000 gal
Facility Design Limit	O conn's	0 gpm	U	gals	gpn		0 gals	gal
Proposed Upgrade		gpm	170 000	gals	gpn		0 gals	0 gal
External Facility Capacity		61 gpm	-179,600	gais	-989 gpn		2,040 gals	-89,800 gal
0 11 150		projected	1 000	1-4-				
Canyon Lake Village	495 conn's	+ 269	1,060	lots	000	. +	0.004	27.010
Required	2	297 gpm	99,039		990 gpm		9,904 gals	37,019 gal
Provided	1	150 gpm	70,000	-	260 gpm		2,500 gals	0 gal
Facility Design Limit	250 conn's	150 gpm	50,000	-	500 gpm		5,000 gals	gal
Proposed Upgrade		0 gpm		gals	300 gpm		0 gals	0 gal
External Facility Capacity		147 gpm	49,039	gais	490 gpn	!	7,404 gals	37,019 gai
ta		projected	410	1-4-				
<u>Summit</u>	399 conn's	+217	<u>410</u> 79,757	lots	798 gpm	T	7,976 gals	27,378 gal
Required Provided	1	239 gpm	80,000		730 gpm 720 gpm		2,500 gals	27,070 gas 0 gas
	· ·	110 gpm	36,600		720 gpm 366 gpm		3,660 gals	<del>-</del> .
Facility Design Limit	183 conn's	110 gpm		gals	0 gpm		0 gals	gal Ogal
Proposed Upgrade External Facility Capacity		0 gpm 129 gpm	43,157	-	432 gpm		5,476 gals	27,378 gal
External Facility Capacity		125 gpm	43,137	yais	402 gpi		3,470 gala	27,070 gai
DUP SUMMARY	2,039 comes	dana.						
sor summen: Regurad	E.VOS CAME	1,223 gam	407.831		2,447 gpr	E	30,000 gals	C gal
Provided	7 281		485.044		2,530 gpn		14.180 gala	139,044 gal
Clifference (capacity)	ok .		77.213		93 gpm		15.820 gale	139,044 gal
<b>10.11</b>		-888 gpm (1,447)	386	Aces	42		(791)	1.390
Difference (corn a)		*************			-1.403 gps		17017	31,407 gel
usted Net		-869 gpm	-78,676					
Cattle-	195 conn's	+0	<u>o</u>	iote				
<u>Sattler</u>		117 gpm	39,000	iots	117 gpm	т	3,900 gals	19,500 gal
Required Provided	1		50,000	-	_			50,000 gal
Provided	_	0 gpm	· · · · · · · · · · · · · · · · · · ·	•	0 gpm		0 gals	· .
Facility Design Limit	conn's	gpm		gals	gpm		gals O gale	gal A aal
Proposed Upgrade		0 gpm		gals	0 gpm		0 gals 3,900 gals	0 gal
External Facility Capacity		117 gpm	-11,000	Rais	117 gpm		3,300 gais	-30,500 gal
Diverside		projected	70	lote				
<u>Riverside</u>	79 conn's	+0	<u>79</u> 15,800	lots	150		1 580 ania	7,900 gal
Required	1	47 gpm		-	158 gpm		1,580 gals	
Provided	0	0 gpm		gals	0 gpm		0 gals	0 gal
Facility Design Limit	conn's	gpm		gals	gpm		gals	gal:
Proposed Upgrade		0 gpm		gals	0 gpm		0 gals	0 gal
External Facility Capacity		47 gpm	15,800	gais	158 gpm		1,580 gals	7,900 gal
U1 F.W		projected	204	las-				
Horseshoe Falls	304 conn's	+119		iots	600 -	-	6.000	20.400
Required	2	182 gpm	60,800		608 gpm		6,080 gals	30,400 gal
Provided	1 136	gpm	39,044		0 gpm	_	0 gals	39,044 gal
Facility Design Limit	conn's	gpm		gals	gpm		gals	gal:
Proposed Upgrade		0 gpm		gals	0 gpm		0 gals	0 gal
External Facility Capacity		182 gpm	21,756	gals	608 gpm		6,080 gals	-8,644 gal

Description			Sup <sub>j</sub> Capa	city	Total Storage		Service Pumps		Pressul Storag	•	Elevated Storage	
			(gpr	n)	(gai's)		(gpm)		(gal's		(gai's)	
CRITERIA		Stby	<u>Rated</u>		***		0.60 gr		20	gals	100 ga	ale.
Primary			0.60	gpm	200	gais	2 gr		30,000	-	200 ga	
Secondary			50				2 pl 1000 gr			coun, e	2,500 cd	
Service area limit		<u> </u>	projected	conn's			1000 gs	A11	2,500	COINT	2,000 00	,,,,, <u>,</u>
Crystal Heights	55	conn's	projected	+ 30	153	lots						
Required	== ;		33	gpm	10,956		110 gr	m T	1,096	gals	0 ga	als
Provided		73		gpm	10,956		O gr	m	2,500	gals	0 ga	als
Facility Design Limit	55	conn's		gpm		gals	gr	m	1,096	gals	ga	als
Proposed Upgrade			0	gpm	0	gals	O gr	m	0	gale	O ga	
External Facility Capacity			33	gpm	0	gals	110 gr	m	0	gals	O ga	als
eroup Summary	<u>633</u>	<u>aanneal</u>			**** ***		1,266 gj	an T	12,656	n esta	O gr	seler.
Required		209	380	A 100 CO CO CO CO CO CO CO CO CO CO CO CO CO	126,558 100,000		0 g		2,500		89,044 g	
Provided Difference (capacity)	Deficit		-380	Bbw	-28.555		-1.286 g		10,158	g ala	88.044 ge	
Difference (conn's)			16331	·	(133)		[633]		(508)		890	
djusted Net				gpm	(26,556)	geis	(993) 0	<b>777</b> 2			31,24 <b>4</b> gr	als
North Lake Estates	************		projected									
Cougar Ridge	<u>55</u>	conn's		+31	<u>153</u>	lots						
Required	<del></del> .		33	gpm	10,956		110 g;	om T	1,096	gals	O ga	
Provided		2	35	gpm	12,000	gals	200 gj	om	5000	_	0 ga	
Facility Design Limit	58	conn's	35	gpm	11,600	gals	116 g;	om F	1,160	_	_	als
Proposed Upgrade			0	gpm		gals	0 g			gals	O ga	
External Facility Capacity				gpm	-644	gals	-6 gr	m	-64	gals	O ga	als
The Point			projected									
DBH/Hillcrest	<u>136</u>	conn's		+ 74	393	lote	270	om T	2,717	asla	0 ga	nle.
Required		-		gpm	27,170		272 gj 500 gj		5,000	_	22,830 ga	
Provided		2	130		50,000 43,400		434 gi	_	4,340	-	_	als
Facility Design Limit Proposed Upgrade	217	conn's	130	gpm		gais	0 gi			gals	0 ga	
External Facility Capacity				gpm	-16,230	-	-162 g		-1,623	_	-22,830 ga	
External / domey coputity			projected									
Canyon Lake Acres	199	conn's	<b>.</b> ,	+108	627	lots						
Required		, —	120	gpm	39,878	gals	399 gı	T mo	3,988	gals	19,939 ga	als
Provided		1	35	gpm	42,000	gals	O g		0	gals	0 ga	
Facility Design Limit	58	conn's	35	gpm	11,600		116 g	om F	1,160	_		als
Proposed Upgrade				gpm		gals		om		gals	0 ga	
External Facility Capacity				gpm	28,278	gals	399 g	om	3,988	gals	19,939 ga	ais
Scenic Terrace			projected		444	1.4.						
Hancock Canyon	<u>103</u>	conn's	63	+67	<u>411</u> 20,597	lots anla	206 gi	om T	2,060	nale	0 ga	als
Required Provided		1		gpm gpm	25,000		300 g		2,500	_	O ga	
Facility Design Limit	125	conn's		gpm	25,000		250 g		2,500		_	als
Proposed Upgrade	125	COIRTS		gbu,		gals	0 g			gals	0 ga	
External Facility Capacity				gpm	-4,403		-44 gi		-440	gals	O ga	als
			projected									
Lakeside Valley	<u>11</u>	conn's		+6	<u>59</u>	lots						
Required		1		gpm	2,191	gals	22 g <sub>l</sub>			gals	O ga	
Provided		1	25	gpm		gals	0 g;		500		O ga	
Facility Design Limit	11	conn's		gpm	2,191	_	22 g;		219	gals	_	als
Proposed Upgrade				gpm		gals		om 	_	gals	0 ga	
External Facility Capacity	<del>.</del>			gpm	2,191	gals	22 g	om		gals	0 ga	ais
		_	projected		054	1-4-						
Tamarack Shores	<u>419</u>	conn's	254	+ 228	<u>651</u> 83,701	lots	837 gi	om T	8,370	gals	23,150 ga	als
Required Provided		2 1		gpm	39,500		400 g		5,000	_	0 g:	
Facility Design Limit	187	conn's	112 112		37,400		112 g		3,740			als
Proposed Upgrade	,	COINT B		8bm Abu		gals	0 gi			gals	50,000 g	
External Facility Capacity			139		46,301	_	725 g		4,630	_	-26,850 g	
and the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of th			projected									
Tanglewood Shores	217	conn's		+118	369	lots						
Required		1	130	gpm	43,384	gals	434 g	om T	4,338	-	19,892 g	
Provided		1		gpm	54,000	-	40 g			gals	O ga	
Facility Design Limit	58	conn's	35	gpm	11,600	-	116 g		1,160	-	_	ale
Proposed Upgrade				gpm		gals	_	pm		gals	0 g:	
External Facility Capacity			95	gpm	31,784	alsn	394 g	om	3,978	gais	19,892 gi	OIE

### Table 23 Water System Requirements

			Supp		Total		Service			Pressur		Elevate	
Description			Capac		Storage		Pump			Storage		Storag	
<u> </u>	·		(gpm	1)	(gal's)		(gpm			(gal's)	· ''	(gai's	,
CRITERIA		<u>Stby</u>	Rated				0.60			20		100	gals
Primary			0.60 g	pm	200	gais		gpm			gals		•
Secondary			50					pk dy		30,000	- 1		gals conn's
Service area limit			250 c	onn's			1000	gpm		2,500	conn s 1	2,300	CUIIII
			projected										
Canyon Lake Island		conn's	_	+8	171	lots			-	207		٥	مام
Required	1			pm	3,068	•		gpm	T	307	-		gals
Provided	1		75 g		25,000	-	300		-	2,500	-	Ū	gals
Facility Design Limit	125	conn's	75 g		25,000	-		gpm	F	2,500	_	0	gals
Proposed Upgrade				pm		gals		gpm			gals		gals
External Facility Capacity			-66 g	pm	-21,932	gals	-219	gpm		-2,193	gais		gals
			projected		770	1-4-							
Canyon Lake Shores		conn's	474	+ 155	779	lots	E70		т.	E 607	l-	٥	gals
Required	2		171 g	•	56,969	-		gpm	Т	5,697	-		_
Provided	2		700 g		234,000	-	1,500	•	_	4,000	_	25,000	
Facility Design Limit	1167	conn's	700 g		233,400	-	1,400		F	23,340	-		gals
Proposed Upgrade				pm		gals		gpm		19,400	-		gals
External Facility Capacity			-529 ç	gpm	-176,431	gais	-831	gpm		-17,643	gals	-25,000	gais
GROUP SUMMARY	Min.	connec								nn 1104			
Required	2		864 (		287,914		1,727		F	28,791			gals
Provided	12		1,222 (		394,500		2,240			47,360	<b></b>	25,000	
Difference (capacity)	ok		358 ;	1bm	106,586	gals		gpm		18,569	gais	25,000	gals
Difference (conn's)			597		533		256			928		250	
Adjusted Net			340 (	<sub>l</sub> pm	111,086	gais	(277)	gpm				34,848	gats
					247	1-0-							
Deer River	239		conn's	+130		iots	470		т	4,777	aala	^	gals
Required	1		143 (		47,766	_		gpm	•	-	-		gals
Provided	2			gpm	52,175	-	455		F	3,250	-	v	gals
Facility Design Limit	338	conn's	www.www.wac `	gpm	67,600			gpm	໌:	6,760 <b>3,60</b> 0	-	^	gals
Proposed Upgrade			<b>300</b>		15,500	-	300	-	383	-1,983	-		gals
External Facility Capacity			-60 g	pm	-19,834	gais	-198	gpm		-1,363	yais .		yais
Lake of the Hills	136		conn's	+ 74	668	lots							
Required	1		82 9		27,170		272	gpm	Т	2,717	aals	9,285	gals
Provided	2		26		13,860	_		gpm	•	1,220	-		gals
Facility Design Limit		conn's	26		8,600			gpm	F	860	-		gals
Proposed Upgrade	43	COTITIES		gpm		gals		gpm	•		gals	0	gals
External Facility Capacity			56		18,570	-		gpm		1,857	-	9,285	-
External Facility Capacity			projected		10,070	90		B					
Riverwood	156		conn's	+ 73	156	lots							
Required	1 1		94		31,200	_	312	gpm	Т	3,120	gals	6,400	gals
Provided	2			gpm	16,000	_		gpm	-	5,000	_	-	gals
Facility Design Limit		conn's	55 g		18,400	-		gpm	F	1,840		•	gals
• •	92	COINTE		gpm	10,400	gals		gpm	•		gals	o	gals
Proposed Upgrade External Facility Capacity			38		15,200	-		gpm		1,280		6,400	
External Pacifity Capacity			- 55	· · ·	10,200	,				.,			
OVERALL SUMMARY	7,826		connectio	118									
Required	2		4.698	0000013333333	1,565,214	gala	9.391		F	FALSE	gals	782.607	gels
Provided	36		3,116	********	1,465,679		9,576			92,010	gale	415,457	gale
Difference (capacity)	ыk		1.580	30000000000	99,335			gpm		92,010	gats	367,150	gals
Difference (com/s)			(2,633)		(497)		92			4,801		(3,671)	
				ACCUMANCE OF THE									

Table 24 Cost Projections/Phasing Plan

Segment	Phase	System	Line Size	Unit	Sir	Unit Price	Quantity	Subtotal	Engr./Conting.	Total Cost
No.			(m.)		ľ	200	 	000 334	640 250	074 250
-	+	Astro Hills/CLH 1,2,3	Plant Upgrade	ട്ട	<b>₩</b>	22,000	-	000,000	007'814	007,476
	-	Astro Hills/CI H 1 2 3	80	ند	S	ଛ	4,658	\$139,740	\$48,909	\$188,649
4 (		Astro-Cilia (12)	· <b>c</b> c	11	<b>.</b>	8	5.947	\$178,410	\$62,444	\$240,854
יני	<u>-</u> .	Asao milis/cru 1,2,3	<b>,</b>	i _		3 5	1 607	\$64.280	\$22 498	\$86,778
4	-	Astro Hills/CLH 1,2,3	7 (		<b>?</b> 6	<b>?</b> (	3 6	£20,100	£7 035	\$27 135
ω	-	Lakeview Park	ထ	<u>.</u>	<b>~</b> •	3	9,	\$20,100	2,000	\$27,000
တ	-	Lakeview Park	Plant Upgrade	ട	· 1	20,000	_	\$20,000	000,74	000,124
ç	-	Rolling Hills	Plant Upgrade	r.	<b>↔</b>	20,000	-	\$50,000	\$17,500	\$67,500
. <del>.</del>	- <b>-</b>	Woodlands/Cl Forest	Plant Upgrade	rs	•	45,000	•	\$45,000	\$15,750	\$60,750
<u>,</u>	- •		α α	<u> </u>	<b>.</b>	8	719	\$21,570	\$7,550	\$29,120
<u>-</u> ;	- ,	VVOCATATION OF THE POST	, w	Ц		Ϋ́,	1 272	\$31,800	\$11,130	\$42,930
<u>2</u> :		CL FOIBSUVVEIGHT FAIN	) o	. u	• •	<b>?</b>	432	\$12,960	\$4,536	\$17,496
9	<del>-</del>	CL Forestwaterfront Park	0 (		• •	3 8	304	\$0 77E	£3 421	\$13.196
8	-	CL Forest/Waterfront Park	0	۱ <u>۱</u> . ن	4	3 ;	- 0	1000	20,00	\$24 030
7	-	CL Forest/Waterfront Park	ဟ	<u>ب</u>	və	ß	71/	008,714	067,04	424,000
3	,-	CL Forest/Waterfront Park	Plant Upgrade	ട	₩	23,000	-	\$23,000	\$8,050	000,15\$
1 K		The Oaks		u.	S	52	2,148	\$53,700	\$18,795	\$72,495
3 8	- •	The Ooks	· œ	ш	₩7	25	778	\$19,450	\$6,808	\$26,258
Q !	- ,	THE CARS		i _		7.	837	\$20,925	\$7,324	\$28,249
/7	-	Ine Caks	<b>.</b>			, K	783	\$19.575	\$6.851	\$26.426
78	-	The Oaks	0 0	، - ز	, (	3 6	-	675,000	C26 250	\$101.250
8	<b>-</b>	The Oaks	EGS I/Pump Station	2	A ·	30,0	- ;	200,000	20,230	£744 734
સ	<b>-</b> -	The Oaks	œ	Ľ.	<b>6</b> 3	<del>4</del>	3,921	\$156,840	404,894	\$5/117¢
£	_	The Oaks	ဖ	ω. Ľ	4	8	00	\$15,000	\$5,250	\$20,250
, E		C.I.V.West/Triple Peak	12	ш,	₩	4	2,433	\$97,320		\$131,382
3 1	- +	CIV Mest/Trials Dest	Plant Ungrade	S	S	45.000	<b>,-</b>	\$45,000	\$15,750	\$60,750
ō 1		OLY West Tiple Fear	Evena FGST	<u></u>	4	35,000	•	\$35,000		\$47,250
<u>.</u> 6	- ,	CLV West Hiple Fear		<u> </u>	بى د	75	899	\$16,700	\$5,845	\$22,545
8	-	Sattle	•		•	9 0	902	801.08		\$12,296
61	-	Sattler	4 (	י י	A 4	<u> </u>	8 6	\$3,100 \$25,550		\$34 493
62	-	Sattler	0 '	ָ ֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֡	A (	3 6	770	000,020	00000	£31 860
9/	-	Horseshoe Falls	ဖ	<b>L</b> 1	<b>19</b>	R S	944	\$23,600	40,409	900,150
11	-	Horseshoe Falls	œ	<u>ب</u>	•	8	968	\$26,88U	904,900	907'004
20	· <b>-</b>	Horseshoe Falls	Plant Upgrade	S	s	20,000	₹~	\$50,000	\$17,500	\$67,500
2 g	• •	Crystal Heights		'n.	s	23	2,311	\$57,775		\$77,996
2 6	٠.	Crystal Heights	9	<u>ب</u> نــ	₩	22	1,339	\$33,475	\$11,716	\$45,191
8 8	- •	Colorada Loisanto	4	u.	49	8	614	\$11,052	\$3,868	\$14,920
ō	- •	Clystal cleagens	- 00	<u>ш</u>	بي .	99	1.977	\$59,310	\$20,759	\$80,069
76	- ,	Not unake/ Cougai Noge	5	: ц _	· G	56	2,906	\$101,710		\$137,309
	- •	Canyon Lake Acres	2 4	. u	• •	, χ.	515	\$12,875		\$17,381
96 46	-	Northeast Area	<b>.</b>	: L		3 4	735	\$18 375		\$24,806
97	-	Point/DBH/Hillcrest	۰ ۵	ن . . ز	9 (	3 5	3 8	0.00		\$22,545
86	-	Point/DBH/Hillcrest	4	L.	₩.	2	958	000000000000000000000000000000000000000		\$26,277
8	_	Point/DBH/Hillcrest	4	Ę.	s,	9	1,497	\$26,946		115,056
20	-	Point/DBH/Hillcrest	Plant Upgrade	S	₩	000 06	_	\$90,000	<del>57</del>	\$121,500
5	· •	Point/DBH/Hillcrest	. 0	Ľ.	<b>↔</b>	22	735	\$18,375		\$24,806
		Hancock Canyon	Plant Ungrade	S	49	65,000	•	\$65,000	\$22,750	\$87,750
711	-	Tancock Canyon	)	ì	•					

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Table 24 Cost Projections/Phasing Plan

North Area	Segment	Phase	System	Line Size (in.)	Unit	Cnit	Unit Price	Quantity (L.F.)	Subtotal	Engr./Conting. 35%	Total Cost
Tammatick Shores	2		14 - 14 A	12	-	S	8	4.049	\$161,960	\$56,686	\$218,646
Tamazack Shores	115	-	North Area	2 (	i .	• 6	i k	410	610.450	£3 658	\$14,108
Tamazack Stores	116	-	Tamarack Shores	တ	: ن	A .	Q !	0 1	0.00	207.04	626 263
Tangelenood	117	-	Tamarack Shores	ဖ	ت ت	s,	S	1,0/8	058,05%	004,04 001	000,000
Traglewood		-	Tamarack Shores	g	u. L	4	53	636	\$15,900	\$5,565	\$21,465
Tanglawood	- 6		Tourist of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the s	Œ	ш.	4	52	847	\$21,175	\$7,411	\$28,586
Januara	132	- ,		o w	_ _		ξ.	908	\$22,625	\$7,919	\$30,544
Galvania Lake Sland	133	-	anglewood	<b>D</b> (	۱ <u>.</u> ز ز	•	3 6	999	614 150	64 053	\$19 103
Canyon Lake Island	<del>1</del> 34	<del></del>	Glenmare	ω	֝֝֝֝֝֡֝֝֝֡֝֝֝֡֝֝֝֡ ֡֡֡֡֡֡֡֡֡֡	A 1	3 ;	8 8	) (C	44,000	CE4 730
Carrýon Lake Island	135	~	Canyon Lake Island	<b>ග</b>	F.	<b>6</b>	8	1,533	438,325	414'0'4	607,104
Canyon Lake Shores	126	· <del>•</del>	Canvon Lake leland	Plant Upgrade	Ľ.S.	s,	75,000	-	\$75,000	\$26,250	0€Z,101\$
Carryon Lake Strongs	2 :	- ,	Carryon Lave Island	Diant I Ingrade	<i>σ</i> .	•	0000	Ψ-	\$60,000	\$21,000	\$81,000
Caryon Lake Shores	145	_	Canyon Lake Shores		یا د ا		, K	1 212	\$30,300	\$10,605	\$40,905
1   Deer Rivarf Lake of the Hills	146	-	Canyon Lake Shores	: :	، ز	9 4	3 8	1 7	900,000	£34 500	\$121,500
Riverwood   Plant Upgrade   L.S. \$ 10,000   T. \$10,000   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,250   \$131,25	175	-	Deer River/ Lake of the Hills	Well Plant	i L	<b>A</b>	20,00	- ,	900'00'	000,100	612 500
2         Southwest area         Elev. Storage Tank         LS         \$ 375,000         1         \$ 3375,000         \$ \$ 131,250         \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	188	-	Riverwood	Plant Upgrade	S.	•	10,000	-	\$10,000	000,00	9
Southwest area			4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4								\$3,331,340
2         Southwest area         Elev. Storage Tank         L.S. s 375,000         1         \$375,000         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,390         \$11,300         \$11,390         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300         \$11,300 </td <td></td> <td></td> <td>riidse i totals</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>			riidse i totals								
2. Johnness Anumana         B. L.F. \$ 30 1,139 534,170 511,960           2. Lakeview Park         6 L.F. \$ 24 3,127 575,048 526,875         \$11,960           2. Lakeview Park         6 L.F. \$ 25 2,195 57,048 526,875         \$11,960           2. The Oaks Canyon Lake Village         6 L.F. \$ 25 1381 54,755         \$12,084 57,324           2. The Oaks/Canyon Lake Village         6 L.F. \$ 25 1791 54,775         \$12,084 515,671           2. The Oaks/Canyon Lake Village         6 L.F. \$ 25 1791 54,775         \$15,671           2. The Oaks/Canyon Lake Village         6 L.F. \$ 25 1791 54,775         \$15,671           2. The Oaks/Canyon Lake Village         6 L.F. \$ 25 1791 54,775         \$15,671           2. The Oaks/Canyon Lake Village         6 L.F. \$ 25 1,795 54,775         \$15,671           2. The Oaks/Canyon Lake Village         6 L.F. \$ 25 1,425 53,625         \$12,489           2. The Oaks/Canyon Lake Village         6 L.F. \$ 25 1,425 53,625         \$12,489           2. The Oaks/Canyon Lake Village         6 L.F. \$ 25 1,425 53,625         \$12,489           2. The Oaks/Canyon Lake Village         6 L.F. \$ 25 1,425 53,625         \$12,489           2. The Oaks/Canyon Lake Village         6 L.F. \$ 25 1,425 53,625         \$12,489           2. The Oaks/Canyon Lake Village         6 L.F. \$ 25 1,425 53,625         \$12,489           3. The Oaks/Canyon Lake Vill	u	r	o o o o o o o o o o o o o o o o o o o	Flev Storade Tank	S	49	375,000	-	\$375,000	\$131,250	\$506,250
2         Lakewiew Park         6         L.F.         \$ 24         3,127         \$57,048         \$26,27         \$13,00         \$13,00         \$13,00         \$13,00         \$13,00         \$13,00         \$13,00         \$13,00         \$13,00         \$13,00         \$13,00         \$13,00         \$13,00         \$13,00         \$13,00         \$13,00         \$13,00         \$13,00         \$13,00         \$13,00         \$13,00         \$14,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00         \$12,00	n (	71 (	Countings) died	,	<u>u</u>	· ·	8	1.139	\$34.170	\$11,960	\$46,130
2         Liskeview Park         6         L.F.         \$ 25         2,165         \$54,875         \$19,206           2         The Oaks         The Oaks         6         L.F.         \$ 25         2,165         \$54,875         \$19,206           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,391         \$24,025         \$1,004           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         989         \$24,775         \$15,671           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,791         \$44,775         \$15,671           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,781         \$44,775         \$15,671           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,781         \$44,775         \$15,671           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,781         \$44,775         \$11,689           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,781         \$14,775         \$11,689           3         The Oaks/Canyon Lake Village	φ	7	Lakeview Park	<b>.</b> (	j _		3 8	2 127	\$75,048	\$26.267	\$101,315
2         Woodlands/CL Forest         6         L.F.         \$ 25         175         37,324         \$ 7,324           2         The Oaks         The Oaks         5         25         1,381         \$20,255         \$ 7,324           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,381         \$34,525         \$ 1,084           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,289         \$ 24,775         \$ 1,084           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,288         \$ 32,450         \$ 11,358           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,428         \$ 52,525         \$ 84,79           1         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,288         \$ 32,450         \$ 11,358           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,489         \$ 51,469           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,48         \$ 50,50         \$ 51,749           2         The Oaks/Canyon Lake Village         6         L.F. <td>7</td> <td>7</td> <td>Lakeview Park</td> <td>יס</td> <td>. i</td> <td>9 6</td> <td>ָּבְ לְ</td> <td>100</td> <td>654 975</td> <td>\$19.008</td> <td>\$74 081</td>	7	7	Lakeview Park	יס	. i	9 6	ָּבְ לְ	100	654 975	\$19.008	\$74 081
2         The Oaks         6         L.F.         \$ 25         837         \$24,525         \$17,084           2         The Oaks         6         L.F.         \$ 25         1,381         \$34,525         \$17,084           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,791         \$44,775         \$15,671           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,791         \$44,775         \$15,671           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,791         \$44,775         \$15,671           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,298         \$32,650         \$11,358           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         248         \$51,755         \$11,489           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         248         \$32,650         \$11,358           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         248         \$52,00         \$21,175         \$11,489           2         The Oaks/Canyon Lake Village         6<	15	7	Woodlands/CL Forest	ထ	ָ	A (	Q ;	2,133	0,00	\$07'51#	¢28 240
2         The Oaks         6         L.F.         \$ 25         1/381         \$34,525         \$17,004           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1/781         \$44,775         \$15,671           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1/226         \$24,225         \$8,479           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,425         \$35,625         \$12,469           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,426         \$37,70         \$1,469           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         248         \$10,741         \$1,413           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         248         \$10,741         \$1,411         \$1,411         \$1,411         \$1,411         \$1,411         \$1,411         \$1,411         \$1,411         \$1,411         \$1,411         \$1,411         \$1,411         \$1,411         \$1,411         \$1,411         \$1,411         \$1,411         \$1,411         \$1,411         \$1,411         \$1,411         \$1,411         \$1,411         \$1,	83	7	The Oaks	9	<u>ٿ</u>	se e	2	33	CZ6'0Z\$	•	640,030
2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         532         \$13,300         \$4,655           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,791         \$44,775         \$15,671           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,425         \$35,625         \$12,469           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,298         \$32,450         \$11,388           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         248         \$32,450         \$11,388           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         248         \$51,775         \$7,411           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         248         \$51,775         \$7,411           2         Sattler/Horseshoe Falls         6         L.F.         \$ 25         1,69         \$52,770         \$52,745         \$51,70           2         Sattler/Horseshoe Falls         6         L.F.         \$ 25         7,458         \$146,290         \$50,805         \$50,805           2	34	7	The Oaks	ဖ	T.	4	23	1,381	\$34,525	,	940,003
2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,791         \$44,775         \$15,671           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         969         \$24,225         \$15,671           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,298         \$32,450         \$11,388           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         248         \$52,00         \$1,791           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         248         \$52,00         \$2,170           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         248         \$52,00         \$2,170           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         248         \$52,00         \$2,170           2         Sattler         Sattler         \$ 25         7,48         \$65,288         \$52,145         \$52,145         \$52,145         \$52,145         \$52,145         \$52,145         \$52,145         \$52,145         \$52,145         \$52,145         \$52,145         \$52,145         \$52,145         \$52,145         \$52,145	. <b>4</b>	^	The Oaks/Canvon Lake Village	ဖ	Ľ.	s,	SS SS	532	\$13,300		CC8,714
2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         969         \$24,225         \$8,479         \$ 1,425         \$8,479         \$ 1,425         \$8,479         \$ 1,425         \$8,479         \$ 1,489         \$ 1,489         \$ 1,489         \$ 1,489         \$ 1,489         \$ 1,489         \$ 1,489         \$ 1,489         \$ 1,489         \$ 1,489         \$ 1,489         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1,449         \$ 1	. 4		The Cake/Canvon Lake Village	φ	u. L	↔	ß	1,791	\$44,775	\$15,671	\$60,446
2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,425         \$35,625         \$12,469           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         1,298         \$32,450         \$11,358           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         248         \$6,200         \$2,170           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         248         \$6,200         \$2,170           2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         248         \$6,200         \$2,170           2         Sattler/Horseshoe Falls         6         L.F.         \$ 25         7,458         \$10,275         \$5,446         \$5,2145           2         Sattler/Horseshoe Falls         6         L.F.         \$ 25         7,458         \$10,275         \$5,446         \$5           2         Sattler/Horseshoe Falls         6         L.F.         \$ 25         7,458         \$10,275         \$5,446         \$5           2         Sattler/Horseshoe Falls         6         L.F.         \$ 25         7,649         \$14,5290         \$50,806         \$5,406         \$5,406<	÷ 5	1 (	The Cake/Canyon Lake Village	ဖ	H.	<b>↔</b>	52	696	\$24,225	\$8,479	\$32,704
2         The Carks Carryon Lake Village         6         L.F.         \$         25         1,298         \$32,450         \$11,358         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,411         \$7,	<b>,</b>	4 (	The Cake/Carwon Lake Villade	ဖ	ų. L	49	22	1,425	\$35,625		\$48,094
2         The Oaks/Canyon Lake Village         6         L.F.         \$         25         248         \$6,200         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,170         \$2,145         \$2,145         \$2,145         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146         \$2,146 <td>?:</td> <td>4 (</td> <td>The Canal Canal of Mara</td> <td>· cc</td> <td>щ</td> <td>49</td> <td>22</td> <td>1,298</td> <td>\$32,450</td> <td></td> <td>\$43,808</td>	?:	4 (	The Canal Canal of Mara	· cc	щ	49	22	1,298	\$32,450		\$43,808
2         The Oaks/Canyon Lake Village         6         L.F.         \$ 25         248         \$6,200         \$2,170           2         The Oaks/Canyon Lake Village         8         L.F.         \$ 30         2,109         \$63,270         \$22,145         \$52,145         \$52,145         \$52,145         \$52,145         \$52,145         \$52,145         \$52,145         \$52,145         \$52,145         \$52,145         \$52,145         \$55,258         \$52,145         \$55,258         \$55,258         \$55,258         \$55,258         \$55,246         \$55,258         \$55,446         \$55,258         \$55,446         \$55,258         \$55,446         \$55,258         \$55,446         \$55,258         \$55,446         \$55,258         \$55,446         \$55,258         \$50,852         \$55,446         \$55,258         \$50,852         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,446         \$55,44	4 1	<b>V</b> (	The Cars/Caryon Land Village	o cc	і і —	4	25	847	\$21,175		\$28,586
2     Sattler       2     Sattler       2     Sattler       2     Sattler/Horseshoe Falls     6       2     Northeast Area     6       2     Northeast Area       3     Northeast Area       4     12       2     12       4     1445       5     260       5     12       12     14       12     14       12     14       12     14       12     14       12     14       12     14       12     14       14     4,859       14     4,859       15     14       16     14       17     14       18     40       40     4,859       14     4,859       14     4,859       14     14       14     14       14     14,445       14<	<b>ਹੈ</b> ;	7 (	The Cars/Carryon Land Village	oα	і і _	<b>.</b>	33	248	\$6,200		\$8,370
2       Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent of Satuent	φ 9 (	<b>7</b> (	The Caks/Canyon Lake Village	οα	і і	₩.	8	2.109	\$63,270		\$85,415
2       Sattler/Horseshoe Falls       6       L.F.       \$ 25       4,051       \$101,275       \$55,446       \$ \$ 5         2       Sattler/Horseshoe Falls       6       L.F.       \$ 25       4,843       \$145,290       \$50,852       \$ \$ 5         2       Northeast Area       6       L.F.       \$ 25       2,660       \$66,500       \$23,275       \$ \$ 54,740       \$ \$ 54,740       \$ \$ 54,740       \$ \$ 54,740       \$ \$ 54,740       \$ \$ 54,740       \$ \$ 54,740       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ \$ 50,230       \$ 50,230       \$ 50,230       \$ \$ 50,230       \$		7		o «	i _		χ. Σ	7 458	\$186,450		\$251,708
2       Sattler/Horseshoe Falls       9       L.F.       \$ 30       4,843       \$145,290       \$50,852       \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	99 1	Ν (		<b>.</b>	. u	•	ا ا	4 051	\$101,275		\$136,721
2       Northeast Area       6       L.F.       \$ 25       787       \$19,675       \$6,886         2       Northeast Area       6       L.F.       \$ 25       2,660       \$66,500       \$23,275       \$53,275         2       North Area       12       L.F.       \$ 40       3,910       \$156,400       \$54,740       \$ 55,740       \$ 55,740       \$ 50,230         2       North Area       12       L.F.       \$ 40       4,859       \$19,360       \$68,026       \$ 56,846         2       North Area       12       L.F.       \$ 40       4,859       \$19,560       \$ 56,846       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446       \$ 55,446	/9	7	Sattler/Horseshoe Falls	•			<b>8</b>	4 843	\$145 290		\$196,142
2 Northeast Area 2 Northeast Area 2 North Area 2 North Area 3 State	91	7	Northeast Area	o 4	ں ۔ _ ز	, <i>u</i>	8 K	787	\$19,675	•	\$26,561
2 Northeast Area 6 L.F. \$ 40 3,910 \$156,400 \$54,740 \$ 2 2 North Area 12 L.F. \$ 40 1,445 \$57,800 \$50,230 \$ 2 2 North Area 12 L.F. \$ 40 4,859 \$194,360 \$68,026 \$ 5 2 North Area 12 L.F. \$ 40 4,89 \$19,560 \$6,846 \$ 2 2 North Area 6 L.F. \$ 25 7,04 \$17,600 \$6,160	92	7	Northeast Area	0 (		<b>,</b>	3 2	2 660	466 500		\$89,775
2 North Area 12 L.F. \$ 40 3,910 4103,400 520,230 2 North Area 12 L.F. \$ 40 1,445 \$57,800 \$20,230 \$ 2 North Area 12 L.F. \$ 40 4,859 \$19,560 \$6,846 \$ 2 North Area 6 L.F. \$ 25 4,051 \$101,275 \$35,446 \$ 2 North Area 6 L.F. \$ 25 704 \$17,600 \$6,160	96	7	Northeast Area	! ه	۱ . ن	A 4	3 5	2,000	6156 400		\$211 140
2 North Area 12 L.F. \$ 40 1,445 \$57,800 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,230 \$20,23	110	7	North Area	12	<u>.</u> ن	A ·	<b>3</b>	0.0,0	201,001		679 030
2 North Area 12 L.F. \$ 40 4,859 \$194,360 \$68,026 \$ \$ 2 North Area 12 L.F. \$ 40 489 \$19,560 \$6,846 \$ 2 North Area 6 L.F. \$ 25 4,051 \$101,275 \$35,446 \$ \$ 2 North Area 6 L.F. \$ 25 704 \$17,600 \$6,160	111	2	North Area	12	Ę.	<b>↔</b>	<del>4</del>	1,445	\$57,800		000,000
2 North Area 12 L.F. \$ 40 489 \$19,560 \$6,846 \$ 2 North Area 6 L.F. \$ 25 4,051 \$101,275 \$35,446 \$ 2 North Area 6 L.F. \$ 25 704 \$17,600 \$6,160	5,5	0	North Area	12	ш. Т	↔	₽	4,859	\$194,360	<b>.</b>	\$202,380
2 North Area 6 L.F. \$ 25 4,051 \$101,275 \$35,446 \$ 2 North Area 6 L.F. \$ 25 704 \$17,600 \$6,160	3 5	4 (	Notes	12	<u>ن</u>	49	4		\$19,560		\$26,406
2 North Area 6 L.F. \$ 25 704 \$17,600 \$6,160	7 5	4 (		! œ	ш.	49	25		\$101,275		\$136,721
2 North Area b L.F. \$ 23 /54 \$11,555	122	7	North Area	<b>.</b>	i .		ָרְ ה		\$17 BOC		\$23,760
	123	7	North Area	۵	ن د	9	3				-

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Table 24 Cost Projections/Phasing Plan

Segment No.	Phase	System	Line Size (In.)	Cuit	Unit Price		Quantity (L.F.)	Subtotal	Engr./Conting. 35%	Total Cost
124	2	North Area	EGST/Standpipe	SJ	\$ 75	75,000	-	\$75,000	\$26,250	\$101,250
130	7	North Area	12	'n.	s	4	7,094	\$283,760	\$99,316	\$383,076
131	2	Tanglewood	ဖ	Ę.	<b>↔</b> >	52	995	\$24,875	\$8,706	\$33,581
140	2	North Area	12	ب ن	<b>6</b> 9	4	5,210	\$208,400	\$72,940	\$281,340
141	2	North Area	12	T.	•	5	2,526	\$101,040	\$35,364	\$136,404
142	7	North Area	12	щ. Щ	<b>~</b>	6	1,059	\$42,360	\$14,826	\$57,186
143	2	North Area	16	Ę.	<b>~</b> >	4	2,956	\$118,240	\$41,384	\$159,624
144	0	North WTP	Plant	Ľ.	900 \$	000,000	<del></del>	\$600,000	\$210,000	\$810,000
171	۱ ۵	Deer River/ Lake of the Hills	ဖ	<u>ب</u> ت.	s,	23	1,510	\$37,750	\$13,213	\$50,963
172	٦ ا	Deer River/ Lake of the Hills	က	Ę.	•	15	209	\$7,635	\$2,672	\$10,307
173	7	Deer River/ Lake of the Hills	ø	F.	<b>↔</b>	52	096	\$24,000	\$8,400	\$32,400
		Phase 2 Totals								\$4,623,491
16a	ო	Woodlands/CL Forest	Plant Upgrade	rs	<u>۷</u>	2,000	-	\$7,000	\$2,450	\$9,450
303	m	The Oaks	EGST	รา	\$ 40	40,000	-	\$40,000	\$14,000	\$54,000
65	က	Sattler/Horseshoe Falls	ဖ	'n.	<b>\$</b>	52	1,853	\$46,325	\$16,214	\$62,539
20	ო	Summit	ဖ	Ę.	•>	52	2,060	\$176,500	\$61,775	\$238,275
75	ო	Horseshoe Falls	∞	Ľ.	<b>~</b>	ස	3,093	\$92,790	\$32,477	\$125,267
8	ო	Northeast Area	œ	<u>ٿ</u>	•	ଚ	4,075	\$122,250	\$42,788	\$165,038
105	ო	Northeast Area	9	'n.	<b>∽</b>	52	3,039	\$75,975	\$26,591	\$102,566
106	ო	Northeast Area	ဖ	'n.	€9	22	7,402	\$185,050	\$64,768	\$249,818
113	ო	North Area	EGST/Standpipe	S	\$ 75	75,000	<b>-</b>	\$75,000	\$26,250	\$101,250
114	ო	North Area	œ	Ę.	₩	8	2,700	\$81,000	\$28,350	\$109,350
125	ო	North Area	ၒ	'n.	<b>4</b>	52	3,032	\$75,800	\$26,530	\$102,330
147	က	Canyon Lake Shores	9	L.F.	<b>↔</b>	52	200	\$17,500	\$6,125	\$23,625
150	က	North Area	12	Ë.	s	4	5,284	\$211,360	\$73,976	\$285,336
151	က	North Area	12	Ę.	<b>∽</b>	4	4,749	\$189,960	\$66,486	\$256,446
152	က	North Area	ထ	i.	<b>⇔</b>	4	3,200	\$128,000	\$44,800	\$172,800
155	က	North Area	12	'n.	s	4	20,000	\$800,000	\$280,000	\$1,080,000
157	က	North Area	Tank/Pump Sta.	L.S.	\$ 150	150,000	-	\$150,000	\$52,500	\$202,500
160	က	North Area	10	<u>н</u> .	<b>∽</b>	32	8,900	\$311,500	\$109,025	\$420,525
165	က	North Area	5	'n.	↔	93	2,000	\$175,000	\$61,250	\$236,250
170	က	Deer River/ Lake of the Hills	Plant Upgrade	i.	<b>≈</b> ⊗	80,000	-	\$80,000	\$28,000	\$108,000
174	က	Deer River/ Lake of the Hills	ဖ	ب آ	•	52	1,116	\$27,900	\$9,765	\$37,665
		Phase 3 Totals								\$4,143,029

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Table 4
WATER USE PROJECTION - UNINCORPORATED COUNTY AREAS

		(Acre-Feet,	, w/ Expect	ted Consei	rvation)			
<u>Precipitation</u>	1980	<u> 1990</u>	2000	<u> 2010</u>	<u> 2020</u>	<u>2030</u>	<u> 2040</u>	<u> 2050</u>
Below Normal	2,616	3,817	7,921	10,100	13,502	17,299	21,460	25,713
Normal	2,616	3,817	6,319	8,019	10,651	13,566	16,791	20,074
	(Gallons	per Person	per Day, v	w/ Expecte	d Conserv	ration)		
Below Normal	166	147	183	170	161	158	156	155
Normal	166	147	146	135	127	124	122	121

Source: TWDB 1996 Consensus Texas Water Plan, Projections of Population and Municipal Water Use for Comal County.

#### 2.4 Existing Water Systems

Existing community water systems in the planning area were identified from available TWDB and TNRCC data. Maps and tabular data for existing water system Certificates of Convenience and Necessity (CCN) were obtained from TNRCC. TWDB supplied ownership and general consumption information from its water system database. The two data sources were merged to produce a master list of water system names and ownership data. Letters were sent to all identified entities to request specific information for each system, including source and quantity of supply, and configuration and capacity of existing water storage and distribution facilities. Voluntary response to these inquiries was very limited. The system ownership, location, and service area information was further refined through telephone inquiries. Field observations were performed on all of the larger systems (i.e., > 50 connections) to obtain accurate data on the location and configuration of existing facilities.

Existing community water production facilities are located on the System Location Map (Figure 5) along with the boundaries of existing CCN's. The capacities of existing supply, storage, and distribution facilities for each system are presented in detail in Table 5, Water System Capacity Data, and are summarized by planning area in Table 6. Table 5 also presents the required capacities for each system based on the reported number of existing connections and TNRCC criteria. Required capacities of each system component are compared to the existing capacities, and differences are noted as either surpluses (positive values) or deficiencies (negative values) on a capacity and equivalent connection basis. Of the 73 systems thus evaluated, it appears that 20 systems have an existing deficiency in supply capacity, 9 systems have a deficiency in total storage, 16 have a deficiency in service pump capacity, and 32 systems have a deficiency in pressure storage.

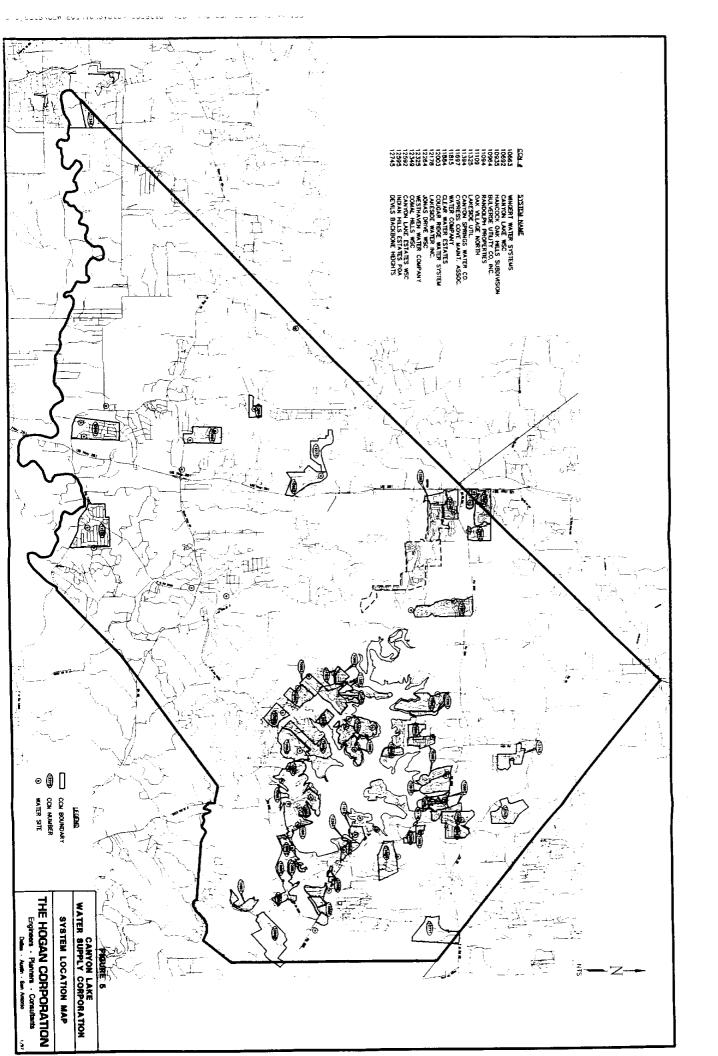
Table 6
Capacity Data Summary

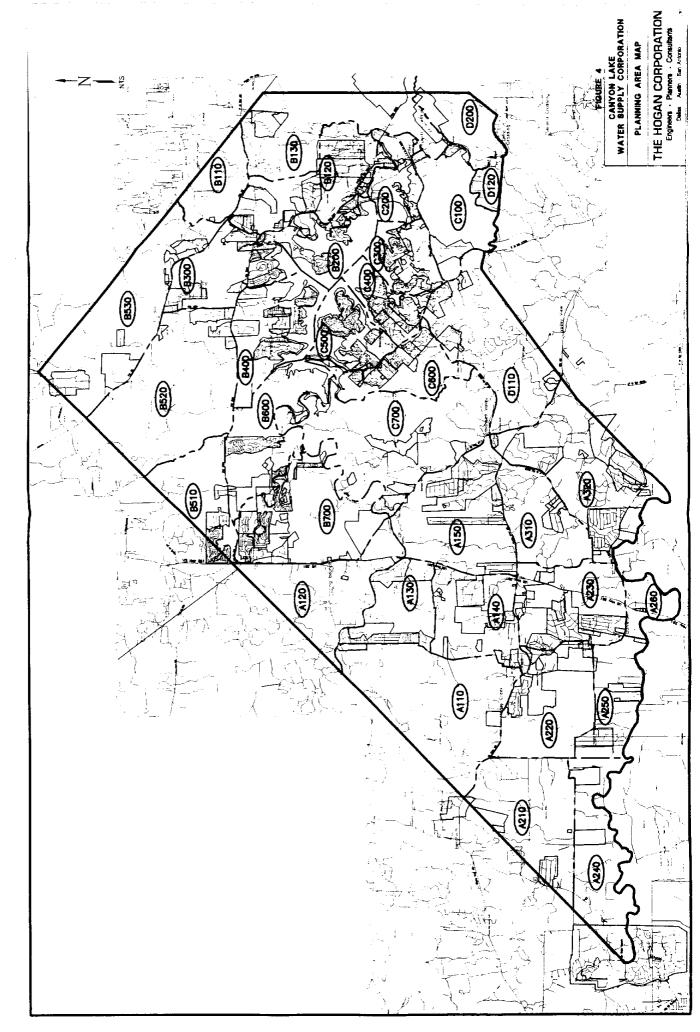
Description	,	Supply Capacity (gpm)	Total Storage (gal's)	Service Pumps (gpm)		Pressure Storage (gal's)	Elevated Storage (gal's)
<u>CRITERIA</u> Primary Secondary Service area limit		1.5 gpm 0.60 gpm 50 conn' 250 conn'		0.60 gpm 2 gpm 2 pk dy 250 conn's		50 conn's 20 gals 30,000 gals 2,500 conn's	100 gals 200 gals 2,500 conn's
GROUP A SUMMARY  Required  Provided  Difference (capacity)  Deficiencies	<u>2,702</u> ok	conn's 2 1,770 gpm 58 3,154 gpm 1,384 gpm 0	629,600 gals 2,470,100 gals 1,840,500 gals 3	2,757 gpm 3,609 gpm 852 gpm 2	Т	50,860 gals 47,364 gals -3,496 gals 5	116,005 gals 1,127,100 gals 1,011,095 gals 2
GROUP B SUMMARY  Required  Provided  Difference (capacity)  Deficiencies	2.163 ok	conn's 2 1,443 gpm 51 2,613 gpm 1,170 gpm 14	477,200 gals 1,018,860 gals 541,660 gals 3	6,664 gpm 8,203 gpm 1,540 gpm 8	F	43,220 gals 82,850 gals 39,630 gals 18	85,375 gals 87,400 gals 2,025 gals 16
GROUP C SUMMARY  Required Provided  Difference (capacity)  Deficiencies	4,017 ok	conn's 2 2,416 gpm 34 3,210 gpm 794 gpm 6	803,400 gals 1,242,600 gals 439,200 gals 3	4,831 gpm 7,635 gpm 2,804 gpm 6	F	80,340 gals 100,085 gals 19,745 gals 9	66,500 gals 422,000 gals 355,500 gals 3

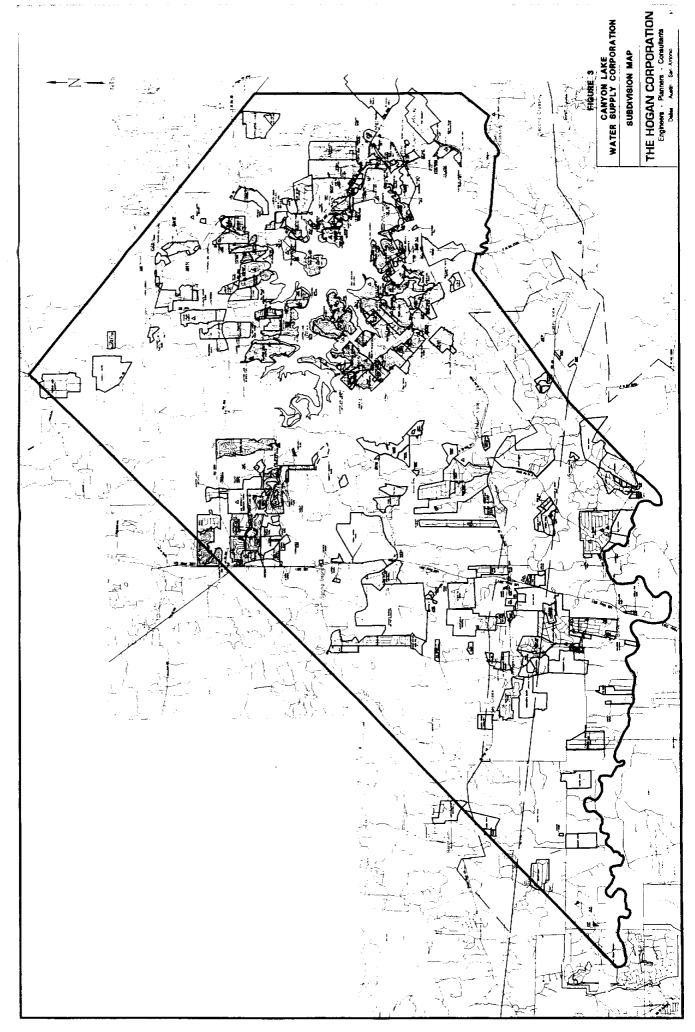
### 2.5 Existing Water Wells

As described earlier, essentially all of the existing public water supply in the study area is provided by groundwater wells pumping from the upper and middle Trinity Group aquifers. Existing information indicates that wells in the area are typically founded in the Lower and Upper Glen Rose Limestone formations, and the Cow Creek Limestone formations. According to information obtained from the TNRCC, groundwater supplies in the area located above the Edward's Aquifer recharge zone are typically of poor quality and limited supply. The groundwater storage coefficient in this area is only 2 to 3 percent, meaning that the percentage of saturated rock is very small. Groundwater in this area is very hard and includes high levels of sulfates contributing to odor problems. The Texas Water Commission has designated the Canyon Lake area a "Critical Groundwater Zone".

Data on existing public water supply wells was compiled from the TWDB Ground Water Data System, TNRCC survey reports, and system owners. A total number of 121 wells have been identified, the locations of which are shown on Figure 6. Identifying numbers on the exhibit map correspond to individual well line items in Table 7, which presents the available, reported data for each well. This table also presents excursions of TNRCC water quality limits for constituents measured by TWDB as reported in the TWDB Ground Water Data System. The data indicate that of the 72 wells previously sampled, 30 exceeded at least one of the TNRCC maximum contaminant levels.







AREA UMBER	Description		c	Supply apacity (gpm)		Total Storage (gal's)	,	Service Pumps (gpm)		Pressure Storage {gal's}	Elevated Storage (gal's)
1	CRITERIA		T	1.5 g	pm T	, jan. 01		0.60 gpm		50 conn's	(94.47
i	Primary			0.60 g	pm	200	gals	2 gpm		20 gals	100 gai
	Secondary			50 c				2 pk dy		30,000 gals	200 gai
	Service area limit			250 c	onn's			250 conn'	5	2,500 conn's	2,500 cor
A110	TX P&WD, Guadalupe River S.P.	20	conn's								
~	Required	ex.	1	12 g	pm .	4,000	gals	40 gpm	Т	400 gals	2,000 gai
	Provided		•	14 g		6,000		gpm	•	gals	gai
	Difference (capacity)	Deficit		2 gr		2,000		N/A gpm		-400 gals	-2,000 gai
	Difference (conn's)			3		10	•	N/A		(20)	(20)
		•									****
A130	Guadalupe River Est_Riverwood	90	conn's								
	Required		1	54 gr		18,000		180 gpm	T	1,800 gals	0 gai
	Provided		2	80 gr		16,000		160 gpm		5,000 gals	gat
	Difference (capacity)	ok		26 g	pm	-2,000	gals	-20 gpm		3,200 gals	0 gai
	Difference (conn's)			43		(10)		(10)		160	0
A130	<u>Riverwood</u> Required	<b>77</b>	conn's	46 g	om.	15,400	cals	154 gpm	т	1,540 gals	0 gai
	Provided		2	52 gs		16,000		160 gpm	•	5,000 gals	0 gai
	Difference (capacity)	ok		-	pm	600		6 gpm		3,460 gals	0 gai
	Difference (conn's)			10		3	-	3		173	0
<del> </del>	····				<del>.</del>						
A150	Guadalupe Valley Tel. Co-Op	2	conn's								
	Required	_	1	1 gr		400		4 gpm	T	40 gals	0 gai
	Provided		1	13 gr		8,400		60 gpm		225 gals	gal
	Difference (capacity)	ok		12 g	pm	8,000	gais	56 gpm		185 gals	O gai
	Difference (conn's)			20		40		28		9	0
A150	Hart-N-Hart Mobile Home Park Required	<u>30</u>	conn's	18 gs	om	6,000	oals	60 gpm	т	600 gals	0 gai
	Provided		1	20 g		8,700		60 gpm		880 gals	gai
	Difference (capacity)	ok			pm.	2,700		0 gpm		280 gals	0 gai
	Difference (conn's)			3		14		0		14	0
A150	<u>Tamiga Acres</u> Required	28	conn's	17 gs		5,600	andr	56 gpm	т	560 gals	280 gai
	Provided		2		pm pm	4,800		60 gpm	•	504 gals	200 gai
	Difference (capacity)	ok	_		pm.	-800		4 gpm		-56 gals	-280 gal
	Difference (conn's)			22		(4)	•	2		(3)	(3)
A230	Bulverde Hills	212	conn's	407		40 100		454		4.040	
	Required Provided		1 12	127 gr 144 gr		42,400 286,000		424 gpm 655 gpm	T	4,240 gals 10,000 gals	0 gai
	Difference (capacity)	ok	12		ויזיכן אורק	243,600		231 gpm		5,760 gais	gal O gal
	Difference (conn's)	•		28	,,,,	1,218	Ama	116		288	0
						-,2.0					-
1240	Fairco. Inc.	1.461	conn'e								
<b>1240</b>	Fairco. Inc. Required		conn's	877 g		292,200		877 gpm	T	29,220 gais	
A240	Required Provided		27	2,357 gr	pm	1,972,000	gais	877 gpm 2,400 gpm	T	28,500 gals	
<b>4240</b>	Required Provided Difference (capacity)		27	2,357 gr 1,480 gr	pm	1,972,000 1,679,800	gais	2,400 gpm 1,523 gpm	T	28,500 gals -720 gals	1,000,000 gal 996,400 gal
<b>A240</b>	Required Provided Difference (capacity)		27	2,357 gr	pm	1,972,000	gais	2,400 gpm	Т	28,500 gals	1,000,000 gal
	Required Provided Difference (capacity) Difference (conn's)	ok <sup>2</sup>	27	2,357 gr 1,480 gr	pm	1,972,000 1,679,800	gais	2,400 gpm 1,523 gpm	T	28,500 gals -720 gals	1,000,000 gal 996,400 gal
A240 	Required Provided Provided Provided Difference (capacity) Difference (conn's)  Qak Village North		2 27 27 conn's	2,357 gr 1,480 gr 2,467	pm pm	1,972,000 1,679,800 8,399	gais gais	2,400 gpm 1,523 gpm 762	T F	28,500 gals -720 gals (36)	1,000,000 gai 996,400 gai 9,964
	Required Provided Difference (capacity) Difference (conn's)	ok 459	27	2,357 gr 1,480 gr	pm pm	1,972,000 1,679,800	gals gals	2,400 gpm 1,523 gpm		28,500 gals -720 gals	1,000,000 gai 996,400 gai 9,964
	Required Provided Difference (capacity) Difference (conn's)  Oak Village North  Required Provided Difference (capacity)	ok 459	2 27 27 2000's	2,357 gr 1,480 gr 2,467 275 gr 424 gr 149 gr	pm pm pm	91,800 181,000 89,200	gais gais gais gais	2,400 gpm 1,523 gpm 762 551 gpm 575 gpm 24 gpm		28,500 gals -720 gals (36) 9,180 gals 6,000 gals -3,180 gals	1,000,000 gai 996,400 gai 9,964 15,900 gai 80,000 gai 64,100 gai
	Required Provided Difference (capacity) Difference (conn's)  Qak Village North Required Provided	ok 459	2 27 27 2000's	2,357 gg 1,480 gg 2,467 275 gg 424 gg	pm pm pm	1,972,000 1,679,800 8,399 91,800 181,000	gais gais gais gais	2,400 gpm 1,523 gpm 762 551 gpm 575 gpm		28,500 gals -720 gals (36) 9,180 gals 6,000 gals	1,000,000 gai 996,400 gai 9,964 15,900 gai 80,000 gai
A320	Required Provided Difference (capacity) Difference (conn's)  Oak Village North Required Provided Difference (capacity) Difference (conn's)	ok 459 ok	2 27 :: :: :: :: :: :: :: :: :: :: :: :: ::	2,357 gr 1,480 gr 2,467 275 gr 424 gr 149 gr	pm pm pm	91,800 181,000 89,200	gais gais gais gais	2,400 gpm 1,523 gpm 762 551 gpm 575 gpm 24 gpm		28,500 gals -720 gals (36) 9,180 gals 6,000 gals -3,180 gals	1,000,000 gai 996,400 gai 9,964 15,900 gai 80,000 gai 64,100 gai
	Required Provided Difference (capacity) Difference (conn's)  Oak Village North Required Provided Difference (capacity) Difference (conn's)  Wingert Water Supply	ok 459	conn's	2,357 gr 1,480 gr 2,467 275 gr 424 gr 149 gr 248	om om om om om	1,972,000 1,679,800 8,399 91,800 181,000 89,200 446	gals gals gals gals gals	2,400 gpm 1,523 gpm 762 551 gpm 575 gpm 24 gpm 12	F	28,500 gals -720 gals (36) 9,180 gals 6,000 gals -3,180 gals (159)	1,000,000 gai 996,400 gai 9,964 15,900 gai 80,000 gai 64,100 gai
A320	Required Provided Difference (capacity) Difference (conn's)  Oak Village North Required Provided Difference (capacity) Difference (conn's)  Wingert Water Supply Required	ok 459 ok	conn's	2,357 gr 1,480 gr 2,467 275 gr 424 gr 149 gr 248	om om om om om	1,972,000 1,679,800 8,399 91,800 181,000 89,200 446 64,600	gals gals gals gals gals	2,400 gpm 1,523 gpm 762 551 gpm 575 gpm 24 gpm 12		28,500 gais -720 gais (36) 9,180 gais 6,000 gais -3,180 gais (159) 6,460 gais	1,000,000 gai 996,400 gai 9,964 15,900 gai 80,000 gai 64,100 gai 641
A320	Required Provided Difference (capacity) Difference (conn's)  Oak Village North Required Provided Difference (capacity) Difference (conn's)  Wingert Water Supply Required Provided Provided	ok 459	conn's	2,357 gr 1,480 gr 2,467 275 gr 424 gr 149 gr 248	om om om om om om	1,972,000 1,679,800 8,399 91,800 181,000 89,200 446 64,600 63,000	gals gals gals gals gals gals	2,400 gpm 1,523 gpm 762 551 gpm 575 gpm 24 gpm 12 388 gpm 30 gpm	F	28,500 gals -720 gals (36) 9,180 gals 6,000 gals -3,180 gals (159) 6,460 gals 435 gals	1,000,000 gai 996,400 gai 9,964 15,900 gai 80,000 gai 64,100 gai 641 30,125 gai 63,000 gai
<b></b>	Required Provided Difference (capacity) Difference (conn's)  Oak Village North Required Provided Difference (capacity) Difference (conn's)  Wingert Water Supply Required	ok 459 ok	conn's	2,357 gr 1,480 gr 2,467 275 gr 424 gr 149 gr 248	om om om om om om	1,972,000 1,679,800 8,399 91,800 181,000 89,200 446 64,600	gals gals gals gals gals gals	2,400 gpm 1,523 gpm 762 551 gpm 575 gpm 24 gpm 12	F	28,500 gais -720 gais (36) 9,180 gais 6,000 gais -3,180 gais (159) 6,460 gais	1,000,000 gai 996,400 gai 9,964 15,900 gai 80,000 gai 64,100 gai 641 30,125 gai 63,000 gai
<b></b>	Required Provided Difference (capacity) Difference (conn's)  Oak Village North Required Provided Difference (capacity) Difference (conn's)  Wingert Water Supply Required Provided Difference (capacity)	ok 459	conn's	2,357 gr 1,480 gr 2,467 275 gr 424 gr 149 gr 248	om om om om om om	1,972,000 1,679,800 8,399 91,800 181,000 89,200 446 64,600 63,000 -1,600	gals gals gals gals gals gals	2,400 gpm 1,523 gpm 762 551 gpm 575 gpm 24 gpm 12 388 gpm 30 gpm -358 gpm	F	28,500 gals -720 gals (36) 9,180 gals 6,000 gals -3,180 gals (159) 6,460 gals 435 gals -6,025 gals	1,000,000 gai 996,400 gai 9,964 15,900 gai 80,000 gai 64,100 gai 64,100 gai 63,000 gai 32,875 gai
A320	Required Provided Difference (capacity) Difference (conn's)  Oak Village North Required Provided Difference (capacity) Difference (conn's)  Wingert Water Supply Required Provided Difference (capacity) Difference (capacity) Difference (capacity) Difference (conn's)  GROUP A SUMMARY	ok 459 ok 323 ok	conn's  conn's  conn's	2,357 gr 1,480 gr 2,467 275 gr 424 gr 149 gr 248 194 gr 248	om om om om om om	1,972,000 1,679,800 8,399 91,800 181,000 89,200 446 64,600 63,000 -1,600	gals gals gals gals gals gals	2,400 gpm 1,523 gpm 762 551 gpm 575 gpm 24 gpm 12 388 gpm 30 gpm -358 gpm	F	28,500 gals -720 gals (36) 9,180 gals 6,000 gals -3,180 gals (159) 6,460 gals 435 gals -6,025 gals	1,000,000 gai 996,400 gai 9,964 15,900 gai 80,000 gai 64,100 gai 64,100 gai 63,000 gai 32,875 gai
A320	Required Provided Difference (capacity) Difference (convis)  Oak Village North Required Provided Difference (capacity) Difference (convis)  Wingert Water Supply Required Provided Difference (capacity) Difference (capacity) Difference (capacity) Difference (convis)	ok 459 ok 323 ok 2,702	sonn's  sonn's  sonn's  sonn's  conn's  conn's  conn's	2,357 gr 1,480 gr 2,467 275 gr 424 gr 149 gr 248 194 gr 295 gr 101 gr 169	om om om om om om	1,972,000 1,679,800 8,399 91,800 181,000 89,200 446 64,600 63,000 -1,600 (8)	gals gals gals gals gals gals gals	2,400 gpm 1,523 gpm 762 551 gpm 575 gpm 24 gpm 12 388 gpm 30 gpm -358 gpm (179)	F	28,500 gais -720 gais (36)  9,180 gais 6,000 gais -3,180 gais (159)  6,460 gais 435 gais -6,025 gais (301)	15,900 gai 80,000 gai 64,100 gai 641 30,125 gai 63,000 gai 32,875 gai 329
A320	Required Provided Difference (capacity) Difference (conn's)  Oak Village North Required Provided Difference (capacity) Difference (conn's)  Wingert Water Supply Required Provided Difference (capacity) Difference (capacity) Difference (capacity) Difference (conn's)  GROUP A SUMMARY	ok 459 ok 323 ok 2,702	sonn's  sonn's  sonn's  sonn's  conn's  conn's  conn's	2,357 gr 1,480 gr 2,467 275 gr 424 gr 149 gr 248 194 gr 248	om om om om om om om	1,972,000 1,679,800 8,399 91,800 181,000 89,200 446 64,600 63,000 -1,600 (8)	gals gals gals gals gals gals gals gals	2,400 gpm 1,523 gpm 762 551 gpm 575 gpm 24 gpm 12 388 gpm 30 gpm -358 gpm (179)	F	28,500 gais -720 gais (36) 9,180 gais 6,000 gais -3,180 gais (159) 6,460 gais 435 gais -6,025 gais (301)	1,000,000 gai 996,400 gai 9,964 15,900 gai 80,000 gai 64,100 gai 64,100 gai 63,000 gai 32,875 gai 329

					Supply	Total	Service	Pressure	Elevated
AREA	Description				apacity	Storage	Pumps	Storage	Storage
UMBER		2.11111.1		1 1 2 2 1	(gpm)	(gafs)	(gpm)	(gel's)	(gal's)
	CRITERIA				1.5 gpm		0.60 gpm	50 conn's	
l	Primary				0.60 gpm	200 gals	2 gpm	20 gals	100 gais
	Secondary Service area li	mit			50 conn's		2 pk dy 250 conn's	30,000 gals 2,500 conn's	200 gals 2,500 conn's
	Set vice area s				250 (011)3		250 CORTS	2,500 COINS	2,500 COM
B120	Clear Water Estates		60	conn's					
		Required		1	36 gpm	12,000 gals	120 gpm T	1,200 gais	6,000 gals
		Provided		2	600 gpm	100,000 gals	600 gpm	gais	gals
	Difference		ok		564 gpm 940	88,000 gals 440	480 gpm 240	-1,200 gals	-6,000 gals
	Unionerio	e (conn's)			940	440	240	(60)	(60)
B120	Cougar Ridge	Required	24	conn's	36 gpm	4,800 gals	48 gpm T	480 gais	2,400 gals
		Provided		i	gom	gats	0 gpm	gals	gals
	Difference	(capacity)	ok		-36 gpm	N/A gals	N/A gpm	-480 gals	-2,400 gals
		e (conn's)			(60)	N/A	N/A	(24)	(24)
B120	DBH/Hillcrest		29	conn's					
		Required	_	1	17 gpm	5,800 gats	58 gpm T	580 gals	2.200 gals
		Provided		2	95 gpm	9,000 gals	60 gpm	140 gals	gals
	Difference		ok		78 gpm	3,200 gals	2 gpm	-440 gals	-2,200 gais
	Difference	ce (conn's)			129	16	1	(22)	(22)
3120	Horseshoe Falls	Daminod	<u>166</u>	conn's	100 gpm	22 200	332 com T	2 220	4 400 = 1
		Required Provided		1 2	100 gpm 132 gpm	33,200 gals 65,800 gals	332 gpm T 150 gpm	3,320 gals 2,500 gals	4,100 gels gais
	Difference		ok	•	32 gpm	32,600 gals	-182 gpm	-820 gais	-4,100 gais
		ce (conn's)			54	163	(91)	(41)	(41)
									· · ·
3120	North Lake Estates		12	conn'e					
,,20	HAD LEGE LEGISTE	Required	-18	1	7 gpm	2,400 gels	24 gpm T	240 gals	0 gals
		Provided		1	34 gpm	15,000 gals	0 gpm	5,000 gals	gals
	Difference		ok		27 gpm	12,600 gals	N/A gpm	4,760 gals	0 gels
	Difference	ce (conn's)			45	63	N/A	238	0
B120	Rivers Edge/Cadilac Carry		1	conn's					
		Required		1	2 gpm	200 gals	2 gpm T	20 gais	100 gels
	Difference	Provided	Deficit		gpm	gals N/A gals	0 gpm	gals	gals
	Difference	ce (coun;s)	Deligi		-2 gpm (3)	N/A	N/A gpm N/A	-20 gals (1)	-100 gals (1)
	Oo.	, (CC, 114)			(0)	164		(1)	
	DI								
B120	Riverside W.S.	Required	77	conn's	46 gpm	15,400 gals	154 gpm T	1,540 gals	7,700 gals
		Provided		ò	0 gpm	0 gals	0 gpm	0 gais	0 gais
	Difference		Deficit		-46 gpm	-15,400 gals	-154 gpm	-1,540 gals	-7,700 gals
	Differenc	ce (conn's)			(77)	(77)	(77)	(77)	(77)
B130	Summit		350	conn's					
		Required		2	215 gpm	71,800 gals	431 gpm F	7,180 gals	23,400 gais
	•	Provided		2	110 gpm	130,000 gals	720 gpm	2,500 gals	gals
	Difference		ok		-105 gpm	58,200 gais	289 gpm	-4,680 gals	-23,400 gais
	Difference	ce (conn's)			(176)	291	145	(234)	(234)
		······································						·	
3130	Whitewater Sprots, Inc.	Decide 1	<u> 26</u>	conn's		E 000 .			_
		Required Provided		1	16 gpm	5,200 gals 13,500 gals	52 gpm T 100 gpm	520 gais	O gais
	Difference		ok	•	60 gpm 44 gpm	13,500 gais 8,300 gais	100 gpm 48 gpm	1,005 gais 485 gais	gals C gals
		ce (conn's)	<b>-</b>		74	42	24	24	O gans
						væ:			
	Cameral Halahar	-	44						
2200	Crystal Heights	Required	11	<u>conn's</u> 1	17 gpm	2,200 gats	22 gpm T	220 gals	0 gals
B200		Provided		i	75 gpm	2,200 gais	0 gpm	2,500 gais	gais
B200			ok	•	59 gpm	N/A gals	N/A gpm	2,280 gais	0 gais
B200	Difference				98	N/A	NA	114	0
3200	Difference Difference	ce (conn's)							
B200		ce (conn's)						<del></del>	
**************************************	Different	ce (conn's)	98	<u>¢o</u> nn's					
**************************************		Required	96	<u>conn's</u> 1	58 gpm	19,200 gals	192 gpm T	1,920 gals	O gais
	Hill Country Resort	Required Provided			58 gpm 160 gpm	40,000 gals	400 gpm	10,000 gals	gais
B200	Hill Country Resort  Difference	Required Provided	<u>96</u> ok	1	58 gpm				

AREA NUMBER	Description		Supply Capacity (gpm)	Total Storage (gal's)	Service Pumps (gpm)	Pressure Storage (gaf's)	Elevated Storage (gal's)
I	CRITERIA	*********	1.5 gpm	1 7	0.60 gpm	50 conn's	i¥′
1	Primary		0.60 gpm	200 gals	2 gpm	20 gals	100 gals
	Secondary		50 conn's		2 pk dy	30,000 gals	200 gals
	Service area limit		250 conn's	<u>!</u>	250 conn's	2,500 conn's	2,500 conr
B200	Jones Dr. W.S.C.	12	conn's	•			
DIO	Required		1 7 gpm	2,400 gals	24 gpm T	240 gals	0 gals
	Provided		gpm	2,000 gals	O gpm	5,000 gals	gals
	Difference (capacity)	Deficit	-7 gpm	-400 gais	N/A gpm	4,760 gals	0 gals
	Difference (conn's)		(12)	(2)	N/A	238	0
				<del>* • •</del>	- 11.4.11	41 4.5	
B200	<u>Log Cabin at Jacobe Creek</u> Required	20	<u>conπ's</u> 1 12 gpm	4,000 gals	40 gpm T	400 gals	425 gals
	Provided		1 25 gpm	5,000 gals	40 gpm	315 gals	gals
	Difference (capacity)	ok	13 gpm	1,000 gals	0 gpm	-85 gals	-425 gals
	Difference (conn's)	<b></b>	22	5	0	(4)	(4)
B200	The Water Co.	<u>65</u>	conn's	40.000 - 1-	420	4 700!-	
	Required		1 39 gpm	13,000 gals	130 gpm T	1,300 gals	3,500 gak
	Provided Difference (capacity)		1 55 gpm	9,000 gats -4,000 gats	120 gpm -10 gpm	600 gals -700 gals	gals -3,500 gals
	Difference (capacity) Difference (conn's)	ok	16 gpm 27	-4,000 gans (20)	- ער gpm (5)	-700 gass (35)	-3,500 gar (35)
	Difference (comis)		<u> </u>	120)	(0)	(50)	(33)
B200	U.S.A.F., Randolph Rec. Area	17	conn's		<del></del>		
	C.S.A.F., Namouph Rec. Area Required		1 26 gpm	3,400 gals	34 gpm T	340 gals	0 gal
	Provided		2 55 gpm	gels	0 gpm	440 gais	gal
	Difference (capacity)	ok	30 gpm	N/A gals	N/A gpm	100 gais	O gal
	Difference (corm's)		49	N/A	N/A	5	0 ~
B200	U.S.C.O.E. Canyon Park #1 Required	•	conn's 1 9 gpm	1,200 gals	12 gpm T	120 gals	0 gal
	Provided		1 16 gpm	gels	0 gpm	120 gals	gal
	Difference (capacity)	ok	7 gpm	N/A gals	N/A gpm	0 gals	0 gal
	Difference (corrrs)		12	N/A	N/A	o ~	0 -
B200	U.S.C.O.E., Canyon Park #2 Required	\$	<u>conn's</u> 1 9 gpm	1,200 gals	12 gpm - T	120 gels	0 gal
	Provided		1 17 gpm	gals	0 gpm	120 gals	gel
	Difference (capacity)	ok	8 gpm	N/A gals	N/A gpm	0 gals	0 gal
	Difference (conn's)		13	N/A	N/A	0	0
D200	URGOS Commendados		1-				
B200	U.S.C.O.E., Canyon Park #4 Required	5	conn's 1 9 gpm	1,200 gals	12 gpm T	120 gais	0 gai
	Provided		1 16 gpm	gals	0 gpm	120 gals	gal
	Difference (capacity)	ok	7 gpm	N/A gals	N/A gpm	0 gals	0 gat
	Difference (conn's)		12	N/A	N/A	0	0
B200	<u>U.S.C.O.E., Canvon Park #5</u> Required	5	conn's 1 9 gpm	1,200 gais	12 gpm T	120 gals	0 gel
	Provided		1 15 gpm	gals	0 gpm	120 gals	gel
	Difference (capacity)	ok	6 gpm	N/A gals	N/A gpm	O gals	C get
	Difference (conn's)		10	N/A	N/A	0	0
D.0.4	HOCOF Inc. C. 199						
B200	U.S.C.O.E., Jacobs Creek #2 Required	₫	conn's 1 9 gpm	1,200 gals	12 gpm T	120 gals	0 gai
	Provided		1 15 gpm	gals	0 gpm	120 gals	gel
	Difference (capacity)	ok	6 gpm	N/A gals	N/A gpm	O gais	0 gai
	Difference (conn's)		10	N/A	N/A	0	0
5000	HOODE N 4 5					7.4	
B200	<u>U.S.C.O.E., North Park</u> Required	₫	conn's 1 9 gpm	1,200 gals	12 gpm T	120 gais	0 gai
	Provided		1 12 gpm	gais	0 gpm	120 gals	gat
	Difference (capacity)	ok	3 gpm	N/A gais	N/A gpm	0 gals	C gai
	Difference (conn's)		5	N/A	N/A	o o	0
B300	<u>Canyon Lake Acres</u> Required	<u>81</u>	<u>conn's</u> 1 49 gpm	16,200 gals	49 gpm T	1,620 gals	8,100 gai
	Provided		1 34 gpm	42,000 gais	49 gpm ≀ 0 gpm	gais	45,000 gai
						<b></b>	
	Difference (capacity)	ok	-15 gpm	25,800 gais	-49 gpm	-1,620 gals	36,900 gats

AREA	Description			c	Supply apacity	Total Storage	Service Pumps	Pressure Storage (gal's)	Elevated Storage (gal's)
UMBER				<del></del>	(gpm)	(gal's)	(gpm)	50 conn's	(98/8)
	CRITERIA			ì	1.5 gpm	200	0.60 gpm	20 gals	100 gals
1	Primary				0.60 gpm	200 gals	2 gpm		
į	Secondary				50 conn's		2 pk dy	30,000 gals 2,500 conn's	200 gals 2,500 conf
	Service area li	mit			250 conn's		250 conn's	2,000 CONTS	2,500 CG #
B300	Hancock Canvon		26	conn's					
		Required		1	16 gpm	5,200 gals	52 gpm. T	520 gals	0 gals
		Provided		1	24 gpm	6,400 gais	0 gpm	1,050 gais	gals
	Difference	(capacity)	ok		8 gpm	1,200 gais	N/A gpm	530 gals	0 gals
		e (conn's)			14	6	N/A	27	0
	414 471 · 417		.,						
B300	Hancock Oak Hills Sub.		20	conn's					
		Required		1	12 gpm	4,000 gais	40 gpm T	400 gais	0 gals
		Provided		1	20 gpm	5,000 gats	70 gpm	500 gais	gals
	Difference	(capacity)	ok		8 gpm	1,000 gals	30 gpm	100 gals	0 gals
	Difference	e (conn's)			13	5	15	5	0
								r	-
B300	<u>Lakeside Park</u>	Daminad	1	conn's	2 ~~~	200 gals	2 gpm T	20 gals	100 gals
		Required		•	2 gpm				gais
	<b></b>	Provided			gpm	gels	0 gpm	gals 20. cels	
	Difference		Defict		-2 gpm	N/A gals	N/A gpm	-20 gals	-100 gals
	Difference	ce (conn's)			(3)	N/A	N/A	(1)	(1)
B300	Lakeside Water Co.		14	conn's					
D300	PENABIOA MISTAL CO.	Required	13	1	21 gpm	2,800 gals	28 gpm T	280 gals	0 gal
		Provided		1	11 gpm	gais	0 gpm	1,000 gals	gal
	Difference		ok	•	-10 gpm	N/A gals	N/A gpm	720 gals	0 gal
		, , ,,	-		(17)	N/A	N/A	36	0
	Dillerenk	ce (conn's)			(17)				
B300	Scenic Terrace		16	conn's					
	<del></del>	Required	_	1	24 gpm	3,200 gals	32 gpm T	320 gais	0 geli
		Provided		1	75 gpm	gals	0 gpm	30,000 gais	gat
	Difference	(capacity)	ok		51 gpm	N/A gals	N/A gpm	29,680 gals	0 gal
	Differen	ce (conn's)			85	N/A	N/A	1,484	0
								· · · · · · · · · · · · · · · · · · ·	
B300	Tamarack Shores	Required	182	conn's	109 gpm	36,400 gals	364 gpm T	3,640 gals	0 gai
		Provided		1		39,500 gals	400 gpm	5,000 gals	gei
			-1.	1	112 gpm				
	Difference		ok		3 gpm	3,100 gals	36 gpm	1,360 gais	C gal
	Differen	ce (conn's)			5	16	18	68	0
B300	The Point		20	conn's					
	TIME TAKE	Required		1	12 gpm	4,000 gals	40 gpm T	400 gais	1,600 ga
		Provided		3	65 gpm	4,500 gals	25 gpm	80 gals	ga
	Difference	(capacity)	ok		53 gpm	500 gals	-15 gpm	-320 gals	-1,600 ga
		ce (com's)			88	3	(8)	(16)	(16)
B400	Canvon Lake Island	Den inc	12	conn's		2,400 gals	24 gpm T	240 gals	n
		Required		1	7 gpm		24 gpm 17 30 gpm	240 gais 315 gais	0 ga
		Provided		1	75 gpm	4,500 gals			90
		(capacity)	ok		68 gpm	2,100 gais 11	ьgpm З	75 gals 4	O gas
	Unieren	ce (conn's)			113		J	<del>-</del>	
B400	Canvon Lake Shores		126	conn'i	1				
		Required		1	76 gpm	25,200 gals	252 gpm T	2,520 gals	7,600 ga
		Provided		2	112 gpm	60,000 gals	95 gpm	1,000 gals	ge
	Difference	(capacity)	ok		36 gpm	34,800 gals	-157 gpm	-1,520 gals	-7,600 ga
		ce (conn's)			61	174	(79)	(76)	(76)
				·					
B400	<u>Lakewood Hills</u>	_	1	conn			_ =		
B400		Required	1	conn's	2 gpm	200 gals	2 gpm. T	20 gals	
B400	Lakewood Hills	Provided		1	2 gpm gpm	gals	0 gpm	gats	ga
B400	<u>Lakewood Hills</u> Difference		1 Deficit	1	2 gpm				100 gel gal -100 gal (1)

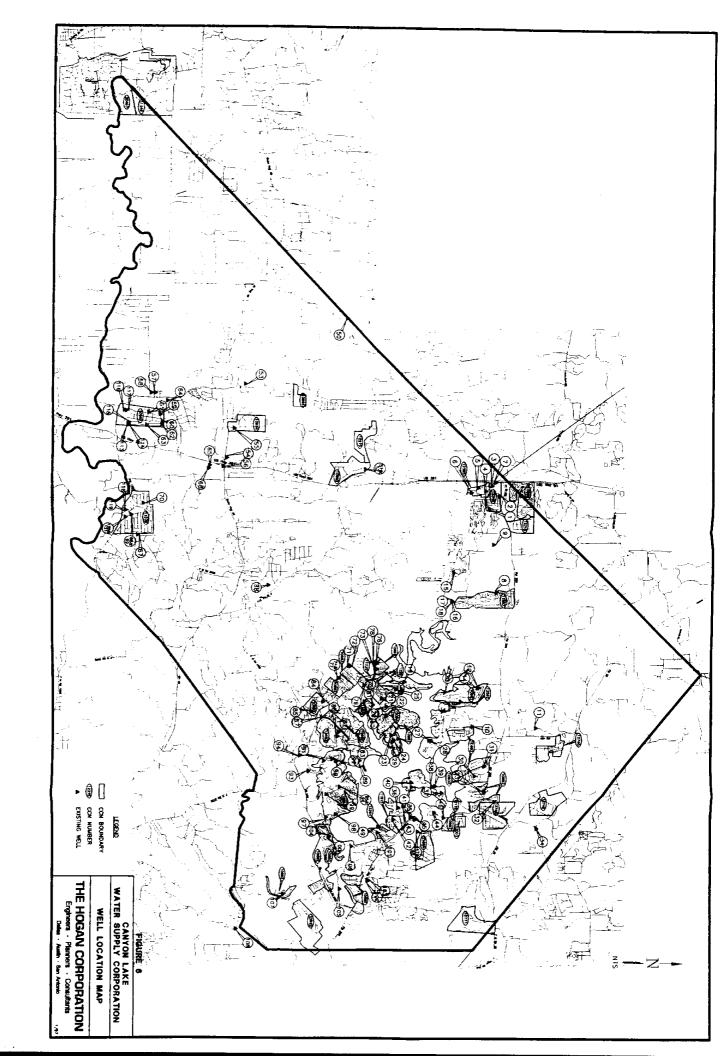
AREA	Description		Ca	ibby becità ibby	Total Storage (gal's)	Service Pumps (gpm)	Pressure Storage (gal's)	Elevated Storage (gal's)
MBER	CRITERIA		T	1.5 gpm	(9-1-7	0.60 gpm	50 conn's	
	Primary			0.60 gpm	200 gats	2 gpm	20 gais	100 gals
1	Secondary			50 conn's		2 pk dy	30,000 gais	200 gals
į	Service area limit			250 conn's		250 conn's	2,500 conn's	2,500 com
B400	<u>Tanglewood Shores</u> Required	99	conn's	53 gpm	17,800 gals	178 gpm T	1,780 gals	7,100 gals
	Provided		, 1	33 gpm	54,000 gals	40 gpm	360 gals	gals
	Difference (capacity)	ok	•	-20 gpm	36,200 gals	-138 gpm	-1,420 gals	-7,100 gals
	Difference (conn's)			(34)	181	(69)	(71)	(71)
B510	Deer River	<u>76</u>	conn's	46 gpm	15,200 gals	152 gpm T	1,520 gals	0 gals
	Required Provided		1 2	85 gpm	20,800 gais	340 gpm	1,575 gais	gala
	Difference (capacity)	ok	-	39 gpm	5,600 gals	188 gpm	55 gals	0 gals
	Difference (conn's)			66	28	94	3	0
B510	Lake of the Hills	62	conn's	22	12 400	124 gpm T	1,240 gals	100 gak
	Required Provided		1 2	37 gpm 32 gpm	12,400 gals 13,860 gals	90 gpm	1,220 gais	gat
	Provided Difference (capacity)	ok	-	-5gpm -5gpm	1,460 gals	-34 gpm	-20 gals	-100 gais
	Difference (conn's)	~		(9)	7	(17)	(1)	(1)
B530	Stallion Springs	17	conn's					_
	Required		1	10 gpm	3,400 gals	34 gpm T	340 gais	0 gat
	Provided		2	20 gpm	8,400 gais	45 gpm	360 gals 20 gals	gal: 0 gal:
	Difference (capacity)	ok		10 gpm 16	5,000 gals 25	11 gpm 6	20 gans 1	O gas
	Difference (conn's)			16			•	-
2000	Cypress Cove Maint, Assoc.	177	conn's					
B600	Required		1	106 gpm	35,400 gals	354 gpm T	3,540 gals	0 gal
	Provided		4	280 gpm	170,000 gals	760 gpm	6,000 gals	gal
	Difference (capacity)	ok		174 gpm	134,600 gais	406 gpm	2,460 gals	O gak O
	Difference (conn's)			290	673	203	123	
B700	<u>Cornel Co. F.W.S.D. #1</u> Required	220	conn's	132 gpm	44,000 gals	132 gpm T	4,400 gals	18,450 gal
	Provided		2	182 gpm	190,000 gals	740 gpm	710 gals	50,000 gal
	Difference (capacity)	ok		50 gpm	146,000 gals	608 gpm	-3,690 gais	31,550 gal
	Difference (conn's)			83	730	304	(185)	316
		40						
B700	Comal Hills W.S.C. Required	10	conn's	6 gpm	2,000 gals	20 gpm T	200 gals	0 gei
	Provided		2	37 gpm	16,000 gals	200 gpm	2,500 gals	ge
	Difference (capacity)	ok		31 gpm	14,000 gals	180 gpm	2,300 gals	0 gai 0
	Difference (conn's)			52	70	90	115	
B700	Indian Hills Estates	1	conn's	1 gpm	200 gais	2 gpm T	20 gals	O ga
	Required						1,500 gals	ge
	Required Provided			δbω.	10,000 gals	0 gpm		
	Required Provided Difference (capacity)	Deficit		-1 gpm	9,800 gals	N/A gpm	1,480 gals	0 ge
	Required Provided	Deficit						<b>▲</b> 1
	Required Provided Difference (capacity) Difference (conn's)		conn'e	-1 gpm	9,800 gals	N/A gpm	1,480 gals	0 ge
	Required Provided Difference (capacity) Difference (conn's)  Spring Branchindian Hills Estates	Deficit 1	conn's	-1 gpm (1)	9,800 gals	N/A gpm	1,480 gals 74 20 gals	O ge
	Required Provided Difference (capacity) Difference (conn's)			-1 gpm	9,800 gais 49 200 gais 10,000 gais	N/A gpm N/A 2 gpm T 0 gpm	1,480 gals 74 20 gals 1,500 gals	0 ge 0 0 ge
	Required Provided Difference (capacity) Difference (conn's)  Spring Branchindian Hills Estates Required Provided Difference (capacity)		1	-1 gpm (1) 1 gpm gpm -1 gpm	9,800 gais 49 200 gais 10,000 gais 9,800 gais	N/A gpm N/A 2 gpm T 0 gpm N/A gpm	1,480 gels 74 20 gels 1,500 gels 1,480 gels	O ga O O ga O ga O ga
	Required Provided Difference (capacity) Difference (conn's)  Spring Branchindian Hills Estates Required Provided	1	1	-1 gpm (1)	9,800 gais 49 200 gais 10,000 gais	N/A gpm N/A 2 gpm T 0 gpm	1,480 gals 74 20 gals 1,500 gals	O ge O
	Required Provided Difference (capacity) Difference (conn's)  Spring Branchindian Hills Estates Required Provided Difference (capacity) Difference (conn's)	1 ok	1	-1 gpm (1) 1 gpm gpm -1 gpm	9,800 gais 49 200 gais 10,000 gais 9,800 gais	N/A gpm N/A 2 gpm T 0 gpm N/A gpm	1,480 gels 74 20 gels 1,500 gels 1,480 gels	O ga O O ga O ga O ga
B700	Required Provided Difference (capacity) Difference (conn's)  Spring Branchindian Hills Estates Required Provided Difference (capacity) Difference (corn's)  GROUP B SUMMARY	1	1 1 conn's	-1 gpm (1) 1 gpm gpm -1 gpm	9,800 gais 49 200 gais 10,000 gais 9,800 gais	N/A gpm N/A 2 gpm T 0 gpm N/A gpm N/A 6,664 gpm F	1,480 gels 74  20 gels 1,500 gels 1,480 gels 74  43,220 gels	0 ga 0 ga 0 ga 0 ga 0 ga
	Required Provided Difference (capacity) Difference (conn's)  Spring Branchindian Hills Estates Required Provided Difference (capacity) Difference (conn's)	1 ok 2.163	conn's	-1 gpm (1) 1 gpm gpm -1 gpm (1)	9,800 gais 49  200 gais 10,000 gais 9,800 gais 49  477,200 gais 1,018,860 gais	N/A gpm N/A 2 gpm T 0 gpm N/A gpm N/A 6,664 gpm F 8,203 gpm	1,480 gels 74  20 gels 1,500 gels 1,480 gels 74  43,220 gels 82,850 gels	0 gai 0 gai 0 gai 0 gai 0 gai 85,375 gai
	Required Provided Difference (capacity) Difference (conn's)  Spring Branchindian Hills Estates Required Provided Difference (capacity) Difference (conn's)  GROUP B SUMMARY Required Provided Difference (capacity)	1 ok 2.163	1 1 <u>conn's</u> 2 51	-1 gpm (1) 1 gpm gpm -1 gpm (1) 1.443 gpm 2.613 gpm 1,170 gpm	9,800 gais 200 gais 10,000 gais 9,800 gais 49  477,200 gais 1,018,860 gais 541,660 gais	N/A gpm N/A 2 gpm T 0 gpm N/A gpm N/A 6,664 gpm F 8,203 gpm 1,540 gpm	1,480 gels 74  20 gels 1,500 gels 1,480 gels 74  43,220 gels 82,850 gels 39,630 gels	0 ga 0 ga 0 ga 0 ga 0 ga 0 ga 0 ga 0 ga
	Required Provided Difference (capacity) Difference (conn's)  Spring Branch/Indian Hills Estates Required Provided Difference (capacity) Difference (capacity) Difference (conn's)  GROUP B SUMMARY Required Provided	1 ok 2.163	1 1 <u>conn's</u> 2 51	-1 gpm (1) 1 gpm gpm -1 gpm (1) 1,443 gpm 2,613 gpm	9,800 gais 49  200 gais 10,000 gais 9,800 gais 49  477,200 gais 1,018,860 gais	N/A gpm N/A 2 gpm T 0 gpm N/A gpm N/A 6,664 gpm F 8,203 gpm	1,480 gels 74  20 gels 1,500 gels 1,480 gels 74  43,220 gels 82,850 gels	0 ga 0 ga 0 ga 0 ga 0 sa 0 sa 0 sa 0 sa 0 sa 0 sa 0 sa 0 s
B700	Required Provided Difference (capacity) Difference (conn's)  Spring Branch/Indian Hills Estates Required Provided Difference (capacity) Difference (conn's)  GROUP B SUMMARY Required Provided Difference (capacity) Deficiencies	1 ok 2.153	conn's 2	-1 gpm (1) 1 gpm gpm -1 gpm (1) 1.443 gpm 2.613 gpm 1,170 gpm	9,800 gais 200 gais 10,000 gais 9,800 gais 49  477,200 gais 1,018,860 gais 541,660 gais	N/A gpm N/A 2 gpm T 0 gpm N/A gpm N/A 6,664 gpm F 8,203 gpm 1,540 gpm	1,480 gels 74  20 gels 1,500 gels 1,480 gels 74  43,220 gels 82,850 gels 39,630 gels	0 ga 0 ga 0 ga 0 ga 0 ga 0 ga 0 ga 0 ga
	Required Provided Difference (capacity) Difference (corn's)  Spring Branchindian Hills Estates Required Provided Difference (capacity) Difference (capacity) Difference (corn's)  GROUP B SUMMARY Required Provided Difference (capacity) Deficiencies  Arrowhead Village W.S.	1 ok 2.163	conn's	-1 gpm (1) 1 gpm gpm -1 gpm (1) 1.443 gpm 2.613 gpm 1.170 gpm	9,800 gais 10,000 gais 10,000 gais 9,800 gais 49  477,200 gais 1,018,860 gais 541,660 gais	N/A gpm N/A 2 gpm T 0 gpm N/A gpm N/A 6,664 gpm F 8,203 gpm 1,540 gpm 8	1,480 gais 74  20 gais 1,500 gais 1,480 gais 74  43,220 gais 82,850 gais 39,630 gais 18	0 gai 0 gai 0 gai 0 gai 0 gai 0 gai 16
B700	Required Provided Difference (capacity) Difference (conn's)  Spring Branch/Indian Hills Estates Required Provided Difference (capacity) Difference (conn's)  GROUP B SUMMARY Required Provided Difference (capacity) Deficiencies  Arrowhead Village W.S. Required	1 ok 2.153	conn's	-1 gpm (1) 1 gpm gpm -1 gpm (1) 1,443 gpm 2,613 gpm 1,170 gpm 14	9,800 gais 49  200 gais 10,000 gais 9,800 gais 9,800 gais 49  477,200 gais 1,018,860 gais 541,660 gais 3	N/A gpm N/A  2 gpm T 0 gpm N/A gpm N/A  6,664 gpm F 8,203 gpm 1,540 gpm 8	1,480 gais 74  20 gais 1,500 gais 1,480 gais 74  43,220 gais 82,850 gais 39,630 gais 18	0 gal 9 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal 0 gal
B700	Required Provided Difference (capacity) Difference (corn's)  Spring Branchindian Hills Estates Required Provided Difference (capacity) Difference (capacity) Difference (corn's)  GROUP B SUMMARY Required Provided Difference (capacity) Deficiencies  Arrowhead Village W.S.	1 ok 2.153	conn's	-1 gpm (1) 1 gpm gpm -1 gpm (1) 1.443 gpm 2.613 gpm 1.170 gpm	9,800 gais 10,000 gais 10,000 gais 9,800 gais 49  477,200 gais 1,018,860 gais 541,660 gais	N/A gpm N/A 2 gpm T 0 gpm N/A gpm N/A 6,664 gpm F 8,203 gpm 1,540 gpm 8	1,480 gels 74  20 gels 1,500 gels 1,500 gels 1,480 gels 74  43,220 gels 82,850 gels 39,630 gels 18	0 gai 0 gai 0 gai 0 gai 0 gai 2.025 gai

## Table 5 Water System Capacity Data

AREA	Description			upply pacity	Total Storage	Service Pumps		Pressure Storage	Elevated Storage
UMBER				gpm)	(gal's)	(gpm)		(gal's)	(gal's)
	CRITERIA		T	1.5 gpm		0.60 gpm		50 conn's	
	Primary			0.60 gpm	200 gals	2 gpm		20 gals 30,000 gals	100 gals 200 gals
	Secondary Service area limit			50 conn's		2 pk dy 250 conn's	.	2,500 conn's	2,500 con
1	Service area min			200 00111					
C200	Canyon Lake Village	222	conn's						
	Required		1	133 gpm	44,400 gats	444 gpm	T	4,440 gals	9,700 gals
	Provided		2	85 gpm	70,000 gals	260 gpm		2,500 gals -1,940 gals	35,000 gals 25,300 gals
	Difference (capacity)	ok		-48 gpm (80)	25,600 gals 128	-184 gpm (92)		-1,940 yars (97)	25,300 yan 253
	Difference (conn's)			(80)	120	(32)		(0,)	
C300	Canyon Lake Village West Required	<u> 670</u>	conn's	402 gpm	134,000 gais	804 gpm	F	13,400 gals	0 gals
	Provided		3	425 gpm	136,000 gais	1,450 gpm	•	14,000 gals	gal
	Difference (capacity)	ok	_	23 gpm	2,000 gats	646 gpm		600 gais	0 gal
	Difference (com's)			38	10	323		30	0
C300	Moorwood Ranch	Q	conn's	_		470.47		0 ask-	A
	Required		1	0 gpm	0 gals	#DIV/0! gpm	#	0 gals gals	C gal gal
	Provided Difference (capacity)	Deficit		gpm 0 gpm	gals N/A gals	gpm N/A gpm		gais O gais	0 gat
	Difference (capacity)	Delici		0 gpm	N/A	N/A		0	o ja
	Contractive (CONTS)			-					
C300	The Oaks	199	conn's						
-300	Required		1	119 gpm	39,800 gals	398 gpm	Ŧ	3,980 gals	0 gal
	Provided		2	98 gpm	46,000 gals	400 gpm		7,000 gals	gai
	Difference (capacity)	ok		-21 gpm	6,200 gals	2 gpm		3,020 gats	0 gai
	Difference (conn's)			(36)	31	1		151	0
C300	<i>Triple Peak</i> Required	97	conn's	58 gpm	19,400 gais	58 gpm	T	1,940 gals	0 gai
	Provided		i	350 gpm	100,000 gals	350 gpm		2,180 gals	100,000 gal
	Difference (capacity)	ok		292 gpm	80,600 gals	292 gpm		240 gals	100,000 gal
	Difference (conn's)			486	403	146		12	1,000
<del></del>				•					
C300	<u>Village West</u> Required	468	conn's	281 gpm	93,600 gais	562 gpm	F	9,360 gals	2,300 gal
	Provided		3	200 gpm	74,000 gals	1,270 gpm		8,900 gals	gal
	Difference (capacity)	ok		-81 gpm	-19,600 gals	708 gpm		-460 gals	-2,300 gal
	Difference (conn's)			(135)	(98)	354		(23)	(23)
				140					
C400	Canyon Lake Forest	326	conn's	196 gpm	65,200 gals	391 gpm	F	6,520 gals	0 ga
	Required Provided		1	147 gpm	88,000 gais	770 gpm	•	20,525 gals	ge
	Difference (capacity)	Deficit	•	-49 gpm	22,800 gais	379 gpm		14,005 gals	0 ga
	Difference (conn's)			(81)	114	189		700	0
C400	Waterfront Park System	134	conn's				_	0.000	40 400
	Required Provided		1	80 gpm 105 gpm	26,800 gals 36,000 gals	80 gpm gpm	т	2,680 gais gais	13,400 ga 36,000 ga
	Difference (capacity)	ok	1	105 gpm 25 gpm	9,200 gals	-80 gpm		-2,680 gals	22,600 ge
	Difference (conn's)			41	46	(40)		(134)	226
			conn's				_	0.000	46.050
C400	Woodlands	115			77 000	69 gpm	Т	2,300 gals 110 gals	10,950 ga 54,000 ga
C400	Required	115	1	69 gpm	23,000 gals				o⊶,ous ga
C400	Required Provided			110 gpm	54,000 gals	20 gpm			43 050 m
C400	Required	115 ok	1					-2,190 gals (110)	43,050 ge 431
C400	Required Provided Difference (capacity)		1	110 gpm 41 gpm	54,000 gais 31,000 gais	20 gpm -49 gpm		-2,190 gals	
C400	Required Provided Difference (capacity)		1 1	110 gpm 41 gpm 68	54,000 gals 31,000 gals 155	20 gpm -49 gpm (25)		-2,190 gals (110)	431
	Required Provided Difference (capacity) Difference (convis)  Astro Hills/Canyon Lake Hills Required	ok	conn's	110 gpm 41 gpm 68	54,000 gals 31,000 gals 155 1.735 64,800 gals	20 gpm -49 gpm (25)	F	-2,190 gals (110) 6,480 gals	431 0 ga
	Required Provided Difference (capacity) Difference (convis)  Astro Hills/Canyon Lake Hills Required Provided	ok 324	1 1	110 gpm 41 gpm 68 194 gpm 139 gpm	54,000 gais 31,000 gais 155 1.735 64,800 gais 64,500 gais	20 gpm -49 gpm (25) 389 gpm 200 gpm	F	-2,190 gals (110) 6,480 gals 10,500 gals	431 0 ga ga
	Required Provided Difference (capacity) Difference (convis)  Astro Hills/Canyon Lake Hills Required Provided Difference (capacity)	ok	conn's	110 gpm 41 gpm 68 194 gpm 139 gpm -55 gpm	54,000 gais 31,000 gais 155 1.735 64,800 gais 64,500 gais -300 gais	20 gpm -49 gpm (25) 389 gpm 200 gpm -189 gpm	F	-2,190 gats (110) 6,480 gats 10,500 gats 4,020 gats	431 0 gq 9 0 gq
	Required Provided Difference (capacity) Difference (convis)  Astro Hills/Canyon Lake Hills Required Provided	ok 324	conn's	110 gpm 41 gpm 68 194 gpm 139 gpm	54,000 gais 31,000 gais 155 1.735 64,800 gais 64,500 gais	20 gpm -49 gpm (25) 389 gpm 200 gpm	F	-2,190 gals (110) 6,480 gals 10,500 gals	431 0 ga ga
C500	Required Provided Difference (capacity) Difference (convis)  Astro Hills/Canyon Lake Hills Required Provided Difference (capacity) Difference (convis)	ok 324 ok	conn's	110 gpm 41 gpm 68 194 gpm 139 gpm -55 gpm (92)	54,000 gais 31,000 gais 155 1.735 64,800 gais 64,500 gais -300 gais	20 gpm -49 gpm (25) 389 gpm 200 gpm -189 gpm	F	-2,190 gats (110) 6,480 gats 10,500 gats 4,020 gats	431 0 gq 9 0 gq
	Required Provided Difference (capacity) Difference (capacity) Difference (corn's)  Astro Hills/Canyon Lake Hills Required Provided Difference (capacity) Difference (corn's)  Canyon Lake Hills - Unit 1	ok 324	conn's	110 gpm 41 gpm 68 194 gpm 139 gpm -55 gpm (92)	54,000 gais 31,000 gais 155 1.735 64,800 gais 64,500 gais -300 gais (2)	20 gpm -49 gpm (25) 389 gpm 200 gpm -189 gpm (94)		-2,190 gals (110) 6,480 gals 10,500 gals 4,020 gals 201	0 ga ga 0 ga 0 ga
C500	Required Provided Difference (capacity) Difference (convis)  Astro Hills/Canyon Lake Hills Required Provided Difference (capacity) Difference (convis)  Canyon Lake Hills - Unit 1 Required	ok 324 ok	conn's	110 gpm 41 gpm 68 194 gpm 139 gpm -55 gpm (92)	54,000 gais 31,000 gais 155 1.735 64,800 gais 64,500 gais -300 gais (2)	20 gpm -49 gpm (25) 389 gpm 200 gpm -189 gpm (94)	F	-2,190 gals (110) 6,480 gals 10,500 gals 4,020 gals 201 3,600 gals	0 ga ga 0 ga 0 ga
C500	Required Provided Difference (capacity) Difference (capacity) Difference (corn's)  Astro Hills/Canyon Lake Hills Required Provided Difference (capacity) Difference (corn's)  Canyon Lake Hills - Unit 1	ok 324 ok	conn's	110 gpm 41 gpm 68 194 gpm 139 gpm -55 gpm (92)	54,000 gais 31,000 gais 155 1.735 64,800 gais 64,500 gais -300 gais (2)	20 gpm -49 gpm (25) 389 gpm 200 gpm -189 gpm (94)		-2,190 gals (110) 6,480 gals 10,500 gals 4,020 gals 201	0 ga ga 0 ga

## Table 5 Water System Capacity Data

AREA	Description		Supply Capacit (gpm)		Total Storage (gal's)	Service Pumps (gpm)	Pressure Storage (gaFs)	Elevated Storage (gal's)
NUMBER				gpm	(95.5)	0.60 gpm	50 conn's	
į	CRITERIA		0.60		200 gals	2 gpm	20 gals	100 gals
	Primary Secondary			conn's		2 pk dy	30,000 gats	200 gals
	Secondary Service area limit			conn's		250 conn's	2,500 conn's	2,500 conn
			_1_					
C500	Canvon Lake Hills 4.5.8 Requires	<u> 267</u>	<u>conn's</u> 2 160	gpm	53,400 gais	320 gpm F	5,340 gals	1,700 gals
	Provide			gpm	92,500 gals	500 gpm	5,000 0	gals
	Difference (capacity				39,100 gals	180 gpm	-340 gals	-1,700 gals
	Difference (conn's	, –	(29)	•	196	90	(17)	(17)
		200		-				
C500	Canyon Springs Resort	280	conn's 2 168	gpm	56,000 gals	336 gpm F	5,600 gals	0 gals
	Require Provide			gpm	92,000 gals	600 gpm	15,000 gals	gals
	Difference (capacity			gpm	36,000 gals	264 gpm	9,400 gals	0 gais
	Difference (conn's	,	470	<b>3</b>	180	132	470	0
C500	U.S.C.O.E. Cranes Mill Park	4 9	<u>солп'в</u> 1 9	gpm	1,200 gais	12 gpm T	120 gals	0 gek
	Require Provide			gpm gpm	gals	gom.	120 gals	gah
	Difference (capacity	_	13		N/A gals	N/A gpm	0 gals	0 gab
	Difference (conn's		22		N/A	N/A	0	0
	Dille ance (cont.				··			
C500	Westhaven Water Co.	115	conn's		23,000 gals	69 gpm T	2,300 gals	11,500 ga)
	Require			gpm	142,000 gals	575 gpm	gais	85,000 gal
	Provide		2 300 231		119,000 gals	506 gpm	-2,300 gais	73,500 gal
	Difference (capacit Difference (conn't	,	385	ypan	595	253	(115)	735
		115	conn's					
C600	<u>Lakeside Utilities</u> Require			gpm	23,000 gals	69 gpm T	2,300 gals	11,500 gel
	Provide			gom .	30,000 gais	0 gpm	D gais	30,000 gal
	Difference (capacit			gom .	7,000 gels	-69 gpm	-2,300 gals	18,500 gal
	Difference (conn'	,,	63	•	35	(35)	(115)	185
5000	Lakeview Park	182	conn's	-	······································			
C600	<u>Lakevjew Park</u> Requin			gom	36,400 gals	364 gpm T	3,640 gals	D ga
	Provide			Logom	88,000 gais	100 gpm	4,000 gals	22,000 ga
	Difference (capacit			gom	51,600 gals	-264 gpm	360 gals	22,000 ga
	Difference (conn'		41		258 .	(132) .	18	220
C600	Rollina Hills	302	conn's					
2000	Require Fines			1 gpm	60,400 gais	362 gpm F		5,200 gs
	Provid			gom.	60,000 gals	500 gpm	5,000 gais	60,000 ga
	Difference (capaci		!	9 gpm	-400 gals	138 gpm .	-1,040 gals	54,800 ga
	Difference (conn	••	15	i	(2)	69	(52)	548
	GROUP C SUMMARY	4.017	conn's					_
	Requir			6 gpm	803,400 gals	4,831 gpm F		66,500 pa
	Provid			D gpm	1,242,600 gals	7,635 gpm	100,085 gals	422,000 ga
	Difference (capaci	ty) ok	79	4 gpm	439,200 gals	2,804 gpm	19,745 gals	355,500 ga
			€		3	6	9	3



## WATER WELL DATA (a)

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CANYON LAKE HILLS	CANYON LAKE HILLS NO. 4,5 & 6	CANYON LAKE HILLS UNIT	RESORT WATER CO.	ENGS., POTTERS CREEK	ENGS, CRANES MILL #1	MAINTENANCE ASSOC.	MAINTENANCE ASSOC.	MAINTENANCE ASSOC.	COMAL CO. FWSD NO.1	CANYON LAKE SHORES STANDBY WELL	CANYON LAKE ESTATES	CANYON LAKE SHORES	ROCKY CREEK SUB.	TANGLEWOOD SHORES	COMAL CO. FWSD NO.1	MAINTENANCE ASSOC.	#2	HILLS ESTATES	HILLS ESTATES	SPRING BRANCH INDIAN HILLS ESTATES	#1 #1	OWNERS ASSOC.	OWNERS ASSOC	Owner (I)
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THC #201-10.11

(a) TWDB Ground Water Data System - Recods of wells, springs and test holes for Comal County
(b) TWDB Ground Water Data System - Ground water quality samples for Comal County
- Shaded cells sampled by TWDB

1/24/97 well list

Table 7
WATER WELL DATA (a)

8	47	<b>&amp;</b>	45	4	<b>\$</b>	42	41	<del>\$</del>	38	88	37	ક્ર	ઝ	ž	33	32	31	8	29	28	27	26	25	Number of the second
CLEAR WATER ESTATES	CLEAR WATER ESTATES	HILL COUNTRY RESORT	LOG CABINS OF JACOBS	CANYON LAKE VILLAS	AREA HOUSTON REC	CANYON LAKE YACHT	U.S. ARMY CORPS OF ENG., CANYON PARK #5	U.S. ARMY CORPS OF ENG., CANYON PARK #4	U.S. ARMY CORPS OF ENG., CANYON PARK #3	U.S. ARMY CORPS OF ENG., CANYON PARK #2	U.S. ARMY CORPS OF ENG., CANYON PARK #1	U.S. ARMY CORPS OF ENG., JACOBS CREEK	U.S. ARMY CORPS OF ENG., JACOBS CREEK	BUCKHORN RANCH	HANCOCK CANYON SUB.	CANYON LAKE ACRES	TAMARAK SHORES	HANCOCK OAKHILL EST.	LAKE POINT RESORT	LAKE POINT RESORT	LAKE POINT RESORT	ECO RESOURCES INC. ASTRO HILLS	CANYON SPRINGS WATER	
220	220	320 3 <b>30</b>	290	220	350	315	260	267	274	270	307	440 430	å Ž	360	250	400	425	395 400	125	160	160	390	400	destall Marri Objective
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THC #201-10.11

(a) TWDB Ground Water Data System - Recods of wells, springs and test holes for Comal County (b) TWDB Ground Water Data System - Ground water quality samples for Comal County

## Table 7 WATER WELL DATA (a)

72	71	70	89	88	67	8	8	64	63	න	61	8	86	58	57	85	8	፳	ಜ	52	51	ક	49	
GROVES WATER SYSTEM	GROVES WATER SYSTEM WELL A	WATER SERVICES INC.	WATER SERVICES INC. OAK VILLAGE NORTH #8	WATER SERVICES INC. OAK VILLAGE NORTH #3	OAK VILLAGE NORTH	281 N. RV PARK	281 N. RV PARK JACK HOGAN	BULVERDE BAPTIST CHURCH	BULVERDE HILLS WELL #9	BULVERDE HILLS WELL #8	BULVERDE UTILITY CO. WELL #7	BULVERDE HILLS WELL #6	BULVERDE HILLS WELL #5	COMAL COUNTY ISD	COMAL I.S.D. BULVERDE	VAL SMITH PETROLEUM	OAKLAND ESTATES	TLC % MR. RON BIEKER	ELM RIDGE WATER CO.	GUADALUPE RIVER EST. WATER CO., INC. #2	GUADALUPE RIVER EST. WATER CO, INC.	TEXAS PARKS AND WILDLIFE DEPT.	WATER COMPANY	OWNER
460	530	555 390	520 640	550 640	815 790	425	425	500	595	545 450	600	580	540 580	415	467	400	500	400	580	186 200	191 200	520	650 430	DEPTH OF
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## Table 7 WATER WELL DATA (a)

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THC #201-10.11

(a) TWDB Ground Water Data System - Recods of wells, springs and test holes for Comal County
(b) TWDB Ground Water Data System - Ground water quality samples for Comal County

## Table 7 WATER WELL DATA (a)

					121	120	119	118	117	116	115	114	113	108	107	106	105	104	183	102	101	100	98	98	97	Number
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## CANYON LAKE WATER SUPPLY CORPORATION REGIONAL WATER PLAN

## 3.0 Future Water Supply Requirements

### 3.0 FUTURE WATER SUPPLY REQUIREMENTS

### 3.1 General

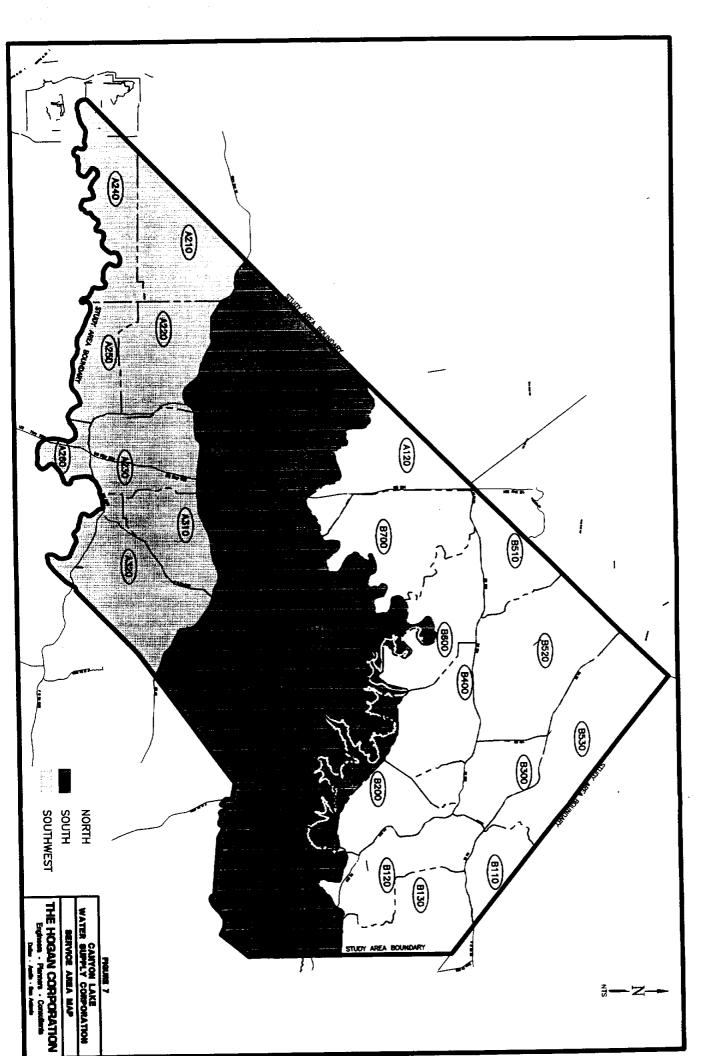
Future water supply needs for the study area are derived from future population projections and established water consumption planning values. Population and water projection information is provided at each decade from 2000 through 2050. Given the magnitude of the planning area, the configuration of the recommended system, and in consideration of implementation, and jurisdictional issues, the overall study area was divided into three service areas. These service areas, which are shown in Figure 7, are designated North, South, and Southwest. The North service area is essentially all portions of the planning area north of the Guadalupe River. The South service area extends from the Guadalupe south to SH 46, which approximates the southerly river basin divide. The Southwest service area encompasses all remaining area south of SH 46. Population and water use projection data have been summarized by Service area, and cost projections have been organized in a similar fashion.

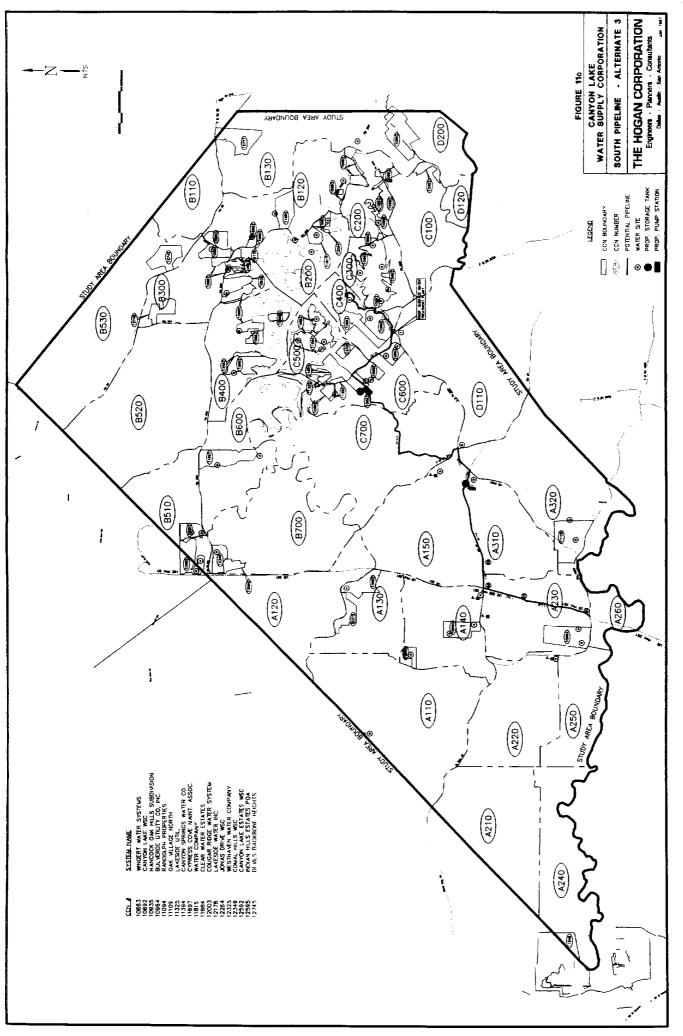
### 3.2 Population Projections

The overall future population for the study area has been projected using the existing (1996) population established in Section 2, then escalating by the effective growth factors extracted from the TWDB "1996 Consensus Texas Water Plan" as presented in Table 2. The distribution of the future population throughout the study area assumes continued, but limited growth within existing subdivisions, as well as new land development in currently undeveloped areas. To account for the differing styles of existing subdivisions and their varying development rates, future population growth has been distributed to these areas up to the point that 80% of the existing lots are occupied. The remaining future population growth has been assigned as "New Development". Initial growth has been allocated to match current growth dynamics, with more emphasis given to the southwesterly portion of the study area, particularly in the US 281 corridor. A detailed breakdown of the future population projections within each planning area is presented in Table A2 in the appendices, and is summarized by planning area in Table 8, and graphically, by Service area, in Figure 8. These projections indicate a total population in the study area of 52,823 at year 2020, increasing to 86,656 at year 2040.

**Table 8 - Population Projection Summary** 

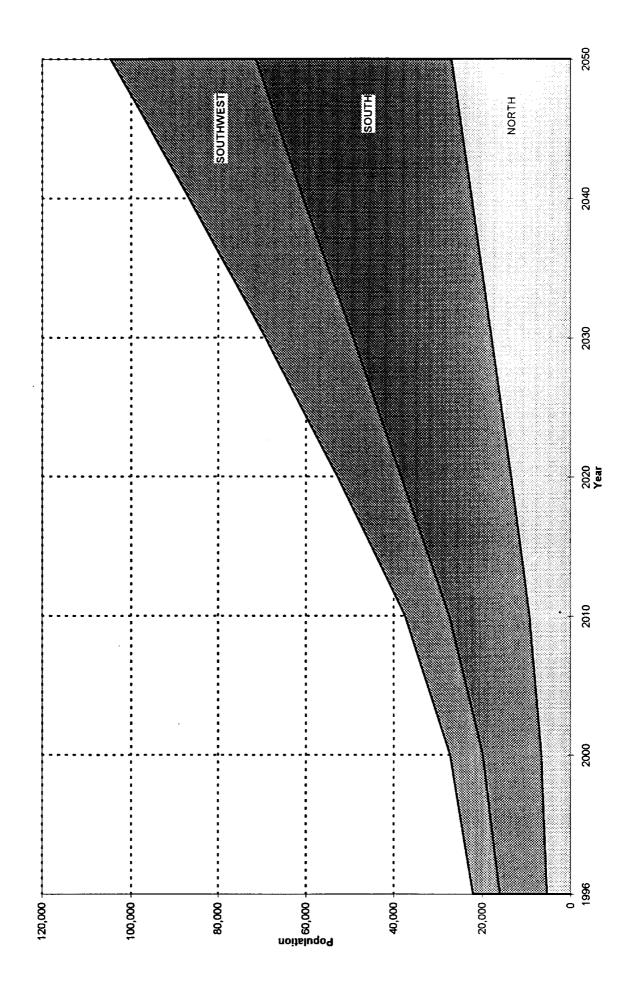
	2000	(Year/Proj 2010	pulation Pro ected Annua 2020	al Growth Ra 2030	2040	2050
Area	5.28%	3.22%	3,50%	2.73%	2.26%	1.90%
AREA A TOTAL	11,090	15,094	22,166	30,678	40,094	51,152
AREA B TOTAL	6,268	8,738	12,478	16,437	20,253	24,107
AREA C TOTAL	9,393	12,887	17,255	20,988	24,896	27,677
AREA D TOTAL	488	679	924	1,155	1,413	1,717
PROJECT AREA TOTAL	27,239	37,398	52,823	69,248	86,656	104,653
NORTH	6,569	9,223	13,381	17,878	22,296	26,861
SOUTH	13.247	18,148	24,878	31,356	38,265	44,541
SOUTHWEST	7,423	10,027	14,564	20,014	26,095	33,251
300104601	* Derived From TV	•	ensus Texas Wat	er Plan"		





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Figure 8 - Future Population Projections



### 3.3 Water Use Projections

Future water use has been projected by multiplying the future population by the future per capita demand rates extracted from the TWDB "1996 Consensus Texas Water Plan" for the unincorporated areas of Comal County, as presented in Table 4. Unit demand rates are based on the "below normal precipitation with expected conservation" scenario. This somewhat conservative approach was taken for several reasons, including: (1) the need to achieve the minimum TNRCC supply requirement of 0.60 gpm per connection; (2) to mitigate the uncertainties introduced by crediting the existing, somewhat unreliable groundwater supplies against the overall supply requirement; and (3) to ensure an adequate level of supply is available in drought conditions, as were experienced in 1996. A detailed breakdown of future water requirements within each planning area is presented in Table A3 in the appendices. The projections are summarized by planning area in Table 9, and graphically, by Service area, in Figure 9. These projections indicate a total projected water use for the study are at year 2020 of 8.50 mgd (9,525 acre-feet/year), increasing to 13.52 mgd (15,141 acre-feet/year) at the year 2040.

Table 9 - Projected Water Use Summary

Area	1996 147	2000 183			ns (gal/day) isumption*) 2030 158		2050 155
AREA A TOTAL	1,331,379	2 029 470	2,565,980	3.568.726	4.845,544	6,254,664	7,928,560
AREA B TOTAL	750.729	1.147.044		2,008,958	2,597,046	3,159,468	3,736,585
AREA C TOTAL	1.119.258	-,		2,778,055	3,316,104	3,883,776	4,289,935
AREA D TOTAL	57,477	89,304	115,430	148,764	182,490	220,428	266,135
PROJECT AREA TOTAL	3,258,843	4,984,737	6,357,660	8,504,503	10,941,184	13,518,336	16,221,215
NORTH (Ac. Ft./Yr.)	880	1,346	1,756	2,413	3,164	3,896	4,663
SOUTH (Ac. Ft./Yr.)	1,775	2,715	3,455	4,486	5,549	6,686	7,732
SOUTHWEST (Ac. Ft./Yr.)	995	1,521	1,909	2,626	3,542	4,559	5,772
TOTALS	3,650	5,583	7,121	9,525	12,254	15,141	18,168

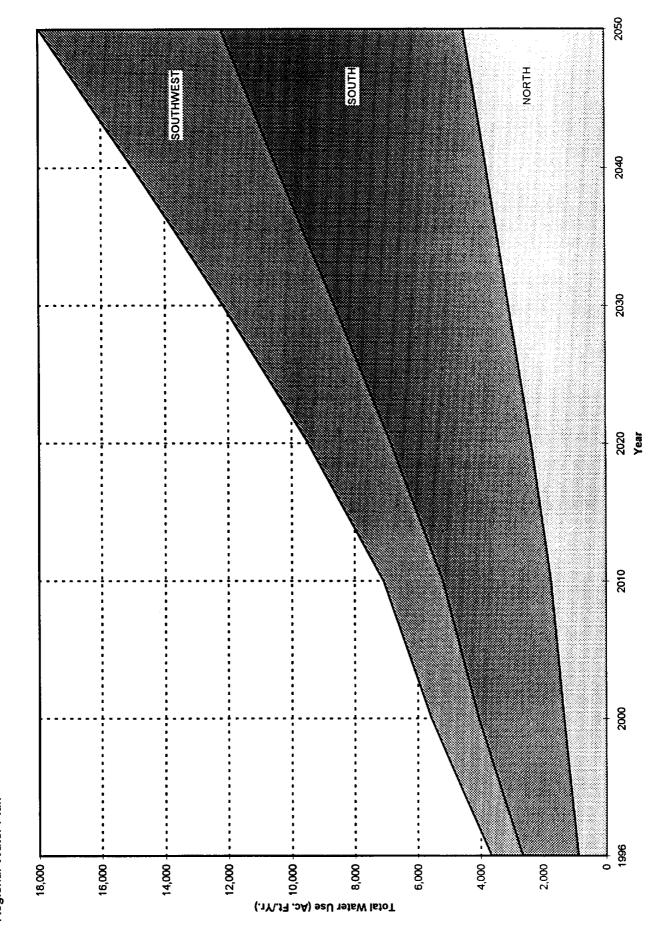
<sup>\*</sup> From TWDB "1996 Consensus Texas Water Plan" - Below Normal Precipitation with Expected Conservation

### 3.4 Water Supply Requirements

As previously described, existing public water supply in the planning area is almost entirely from groundwater wells. It is assumed that most of the existing wells which do not exhibit water quality problems would continue to be utilized for supply after a regional surface water supply system is implemented. The reliable yield will, of course, vary with each well, depending on site specific conditions and operation and maintenance variables. For the existing CLWSC systems, recent operating history has helped to clarify the status and dependability of its wells. For purposes of this study, future supply requirements for the CLWSC systems assume the continued use of 75% of the existing, firm well supply. For all other existing water systems in the study area, future supply needs within each system were reduced by 50% of the reported existing well supply.

Future water supply requirements are taken as the total projected water demand less the existing supply (adjusted as described above), credited on an individual system basis. A detailed breakdown of future, net water supply requirements within each planning area is

Figure 9 - Future Water Use Projections



presented in Table A4 in the appendices. These projections are summarized by planning area and Service area in Table 10, and are presented graphically in Figure 10. The projections indicate a net total water supply requirement for the study area at the year 2020 of 6.54 mgd, increasing to 11.40 mgd at the year 2040. Depending on the operational strategies employed by individual systems in the use of existing water wells, the average annual supply requirement may vary between the aforementioned projection, and the total water use projection presented in Section 3.3. Specifically, the average annual net water supply for the study area is projected to range between 7,327 acre-feet/year and 9,525 acre-feet/year at the year 2020, and in year 2040, may range between 12,763 acre-feet/year and 15,141 acre-feet/year.

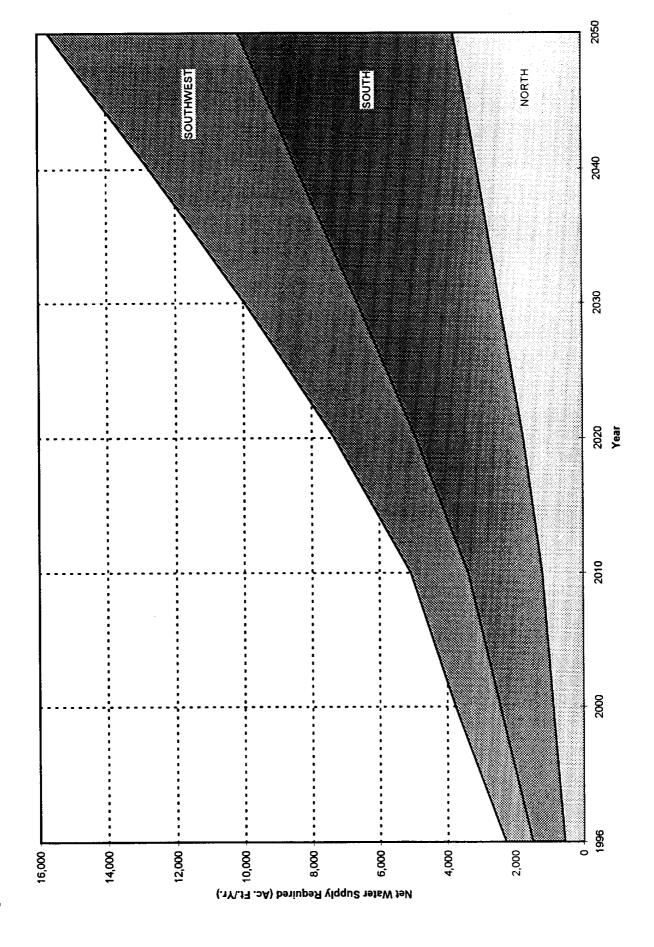
**Table 10 - Future Net Supply Requirements** 

	Current *		N		Requirem ge Daily F		day)	
Area	Well Capacity	1996	2000	2010	2020	2030	2040	2050
AREA A TOTAL	247,774	1,108,271	1,792,778	2,318,470	3,321,769	4,599,508	6,009,242	7,683,445
AREA B TOTAL	1,023,965	450,499	724,880	967,707	1,396,044	1,908,789	2,404,591	2,912,716
AREA C TOTAL	1,337,478	420,831	746,045	1,131,154	1,675,253	2,203,981	2,760,883	3,154,580
AREA D TOTAL	0	57,477	89,304	115,430	148,764	182,490	220,428	266,135
PROJECT AREA TOTAL	2,609,217	2,037,077	3,353,006	4,532,760	6,541,829	8,894,767	11,395,144	14,016,876
NORTH	1,147	543	874	1,176	1,726	2,393	3,050	3,740
(Ac. Ft./Yr.) SOUTH	1,576	942	1,560	2,191	3,173	4,227	5,352	6,385
(Ac. Ft./Yr.) SOUTHWEST (Ac. Ft./Yr.)	199	796	1,322	1,710	2,427	3,343		5,573
TOTALS	2,922	2,282	3,755	5,077	7,327	9,962	12,763	15,699

<sup>\*</sup> Based on 1996 reported well capacity. Assume: (1) well supply utilized only by parent system; (2) no new well supply provided; (3) capacities taken as 50% of current capacities for non-CLWSC systems, and 75% of current capacities for CLWSC system.

### 3.5 Regional Water Supply System

In the context of this study, a future water system for the planning area would emanate from surface water treatment facilities located adjacent to Canyon Lake. Treated water would then be conveyed via transmission pipelines to designated delivery points in the area. Regional supply alternatives have been formulated and analyzed as treatment and transmission systems only, with distribution to individual customers accomplished through secondary, independent distribution networks. Transmission system layouts were configured to deliver water to existing population centers, public school sites, and most existing certificated water systems (CCN areas), and were also generally arranged to provide at least one delivery point in each planning area. Transmission pipelines were generally aligned with existing highways, roads, or similar features to minimize environmental impacts, unless indirect routing appeared to result in excessive line lengths, or where higher ground elevations required additional pumping facilities.



Public facilities for water supply are typically designed for a maximum day demand, which is taken in this study as 2.3 times the average daily rate. To avoid over-sizing of future facilities, the TWDB "Normal Precipitation" series (Table 4), was utilized to establish average water demand, then the aforementioned peaking factor was applied to arrive at the maximum day flow rate. Table 10A summarizes the maximum day flow rates used for sizing of facilities by planning area and service area.

**Table 10A - Facility Capacity Requirements** 

	Current	ı	Ne Maximum l	et Supply D <i>ay Flowr</i>	Requireme ate, Based	nts (gal/da on 2.3 x A	y) verage Day	
Area	Well Capacity	1996 147	2000 146	2010 135	2020 127	2030 124	2040 122	2050 121
AREA A TOTAL	247,774	2,549,022	3,197,841	4,141,080	5,930,694	8,204,637	10,709,912	13,695,844
AREA B TOTAL	1,023,965	1,036,147	1,286,826	1,723,010	2,387,746	3,264,792	4,131,883	5,022,528
AREA C TOTAL	1,337,478	967,911	1,238,166	1,754,213	2,619,367	3,556,934	4,543,570	5,240,918
AREA D TOTAL	0	132,197	163,870	210,830	269,900	329,406	396,488	477,841
PROJECT AREA TOTAL	2,609,217	4,685,277	5,886,703	7,829,132	11,207,707	15,355,769	19,781,852	24,437,130
		Eau	uivalent Av	erage Anı	nual Volum	e		
NORTH	1,147	543	676	912		1,790	2,291	2,819
(Ac. Ft./Yr.) SOUTH	1,576	942	1,176	1,583	2,294	3,107	3,975	4,774
(Ac. Ft./Yr.) SOUTHWEST	199	796	1,015	1,317	1,872	2,580	3,366	4,307
(Ac. Ft./Yr.) TOTALS	2,922	2,282	2,867	3,812	5,458	7,478	9,633	11,900

<sup>\*</sup> Based on 1996 reported well capacity. Assume: (1) well supply utilized only by parent system; (2) no new well supply provided; (3) capacities taken as 50% of current capacities for non-CLWSC systems, and 75% of current capacities for CLWSC system.

Proposed transmission facilities are designed to accommodate the projected 20-year (2020) water supply requirement. Pipelines have been sized to convey the net required maximum day flowrates at year 2020 with a target velocity of 3 feet per second (fps). Pipeline capacities using a 5 fps velocity were then compared to the year 2040 maximum day flows, with the consideration that future flow demands should be satisfied using the same pipeline system with the addition and/or upgrading of booster pumps. Existing ground profiles were prepared for each transmission system alignment and hydraulic gradients were developed using the aforementioned capacity/velocity criteria. Booster pump stations were interjected as needed to deliver the required flow to designated delivery points. Storage tanks were located at critical control locations, to facilitate delivery to adjacent service areas and to provide an operating reserve for booster stations.

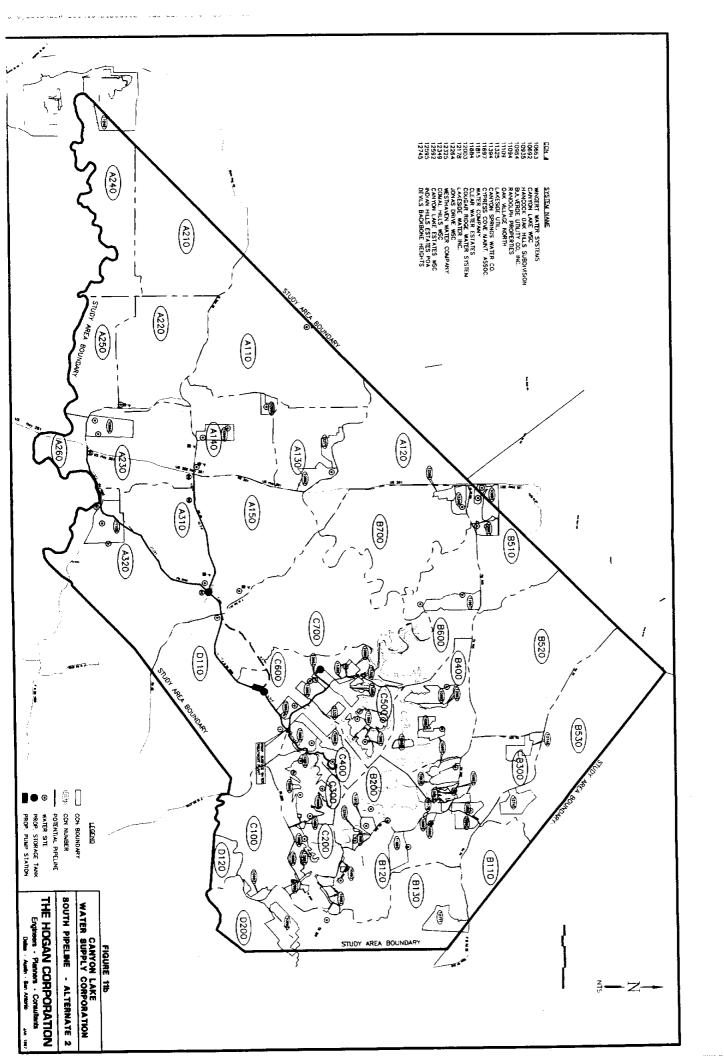
### 3.5.1 Proposed Water Treatment Plants

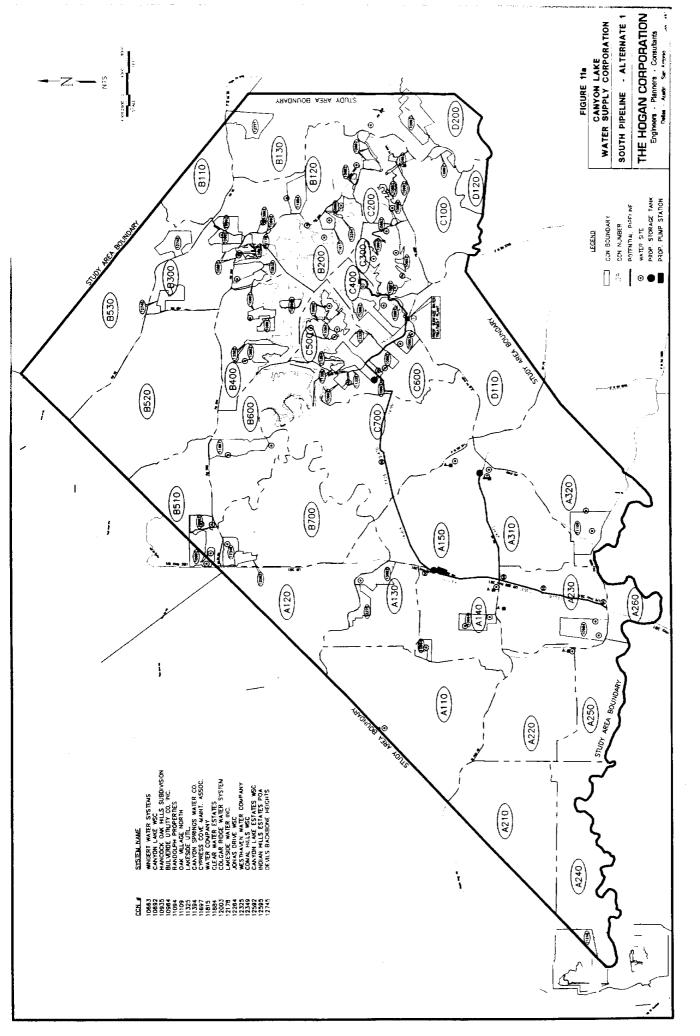
Given the relative location of the Lake and the physical characteristics of the study area, it is recommended that future water supply requirements be met through the provision of two water treatment plant sites, one on the south (South WTP) and the other on the north (North WTP) sides of the Lake. Proposed sites were selected based on lake depth and shoreline topography characteristics that appeared to provide suitable intake arrangements, and overall, centralized locations with respect to transmission line routing. The North WTP site is located at the southerly end of the Canyon Lake Shores subdivision adjoining the Lake adjacent to the old riverbed. The South WTP is located in the Startzville community on Old Sattler Road immediately northwest of the intersection of Farm-To-Market Road (FM) 2673 and FM 3159. The recommended intake point for this facility is northeast of the site in Comal Park, situated on the southerly cutbank of the old riverbed. This location will require approximately 15,000 feet of raw water pipeline to connect the intake to the plant site.

Based on CLWSC's experience with this existing water treatment plant, the superior raw water quality in Canyon Lake can be economically treated to comply with current drinking water standards. It is anticipated that the proposed North and South WTP's will employ a treatment process similar to CLWSC's existing 0.50 mgd plant, utilizing solids-contact type clarification followed by multi-media filtration and disinfection, with chemical addition consisting of coagulant and coagulant aid. The required capacity of the North and South WTP's will be a function of actual supply needs, which, as presented in Section 3.4, will depend on the operation of existing water wells. Based on the projections previously presented, it is anticipated that the South WTP will reach a design capacity of at least 8 mgd by year 2020, and may be as large as 12 mgd. For the North WTP, it appears that a minimum 2 mgd capacity will be needed by year 2020, up to a maximum capacity of 4 mgd. Capital and O & M cost projections are based on an 8 mgd South plant capacity, and a 2 mgd North plant capacity. As with any facility of this type, the plants should be designed in a modular fashion to allow incremental expansion. For the South WTP, it is assumed that the expansion increment will be 2 mgd, and for the North WTP, 1 mgd.

### 3.5.2 South Transmission System Alternatives Analysis

Given the significant distances from the lake to the southwesterly limits of the study area, selection of the most cost-effective transmission system arrangement to serve the South and Southwest service areas was considered critical. Three alignment options, depicted in Figures 11a, 11b, and 11c, were analyzed with respect to capital and operating cost, environmental impacts, and adequacy of service. The northernmost route, designated Alternate #1 (Figure 11a), departs from the South WTP northwesterly along FM 2673, then extends westerly from the southwesterly corner of the Canyon Lake Mobile Home Estates subdivision, following an existing Guadalupe Valley Telephone Cooperative (GVTC) easement to the intersection of Demi John Road. The pipeline continues westerly across generally undeveloped areas to its intersection with US 281, then follows US 281 south to FM 1863. A lateral pipeline extending east along SH 46 is required to serve the Smithson Valley area. The southern route (Alternate #2, Figure 11b) follows FM 3159 south to FM 1863 and continues S.W. to US 281, with a lateral pipeline extending west from the intersection of FM 3159 and SH 46 to serve the SH 46/US 281 area. The middle route, identified as Alternate #3 (Figure 11c), follows the same path initially as Alternate #1, extending northwesterly along FM 2673, and through Canyon Lake Mobile Home Estates. From that point the route would briefly follow the aforementioned GVTC easement, then intercept and align with Bendel Ranch Road, traversing south and west





to its intersection with Rebecca Creek Road. The line would then follow Rebecca Creek Road south to FM 3159, then southwest to SH 46, then west to US 281. The last segment of Alternate #3 would be identical to Alternate #1, following US 281 south to FM 1863.

The projected capital costs and operations and maintenance (O & M) costs for each of these three options are presented in Tables 11, 12, and 13. Cost projections are based on a uniform system delivery of 8 mgd. Alternative #1 appears to have superior hydraulic characteristics in that the alignment is closer to the river and bypasses higher ground elevations further south near FM 3159 and SH 46. A significant portion of the segment between Canyon Lake and US 281 crosses undeveloped areas. While no significant environmental issues for this segment were noted, there are general concerns typical of any cross-country utility line, including stream crossings and easement requirements. Alternative #2 follows existing highways throughout, and provides a direct path from the plant southwest, but crosses the highest elevation point in the area. A modification of the route along FM 3159 between the plant and SH 46 was investigated, which would entail a parallel, off-road diversion to miss Startz Hill, but the environmental review identified the area as potential endangered species habitat, and this option was therefore disregarded. Alternative #3 follows existing easements, roads, and highways for most of its length, and therefore, does not appear to present any environmental concerns. While the alignment of Alternate #3 seems to be somewhat circuitous, its route passes directly through or adjacent to critical service locations, thereby eliminating the need for lateral pipeline that are required for Alternatives #1 and #2.

Capital and O & M costs for the three alternatives are summarized for comparison in Table 14. Given the degree of accuracy in estimating and the overall magnitude, the projected costs for the three alternatives are quite similar. Alternative #3 is recommended to be incorporated into the regional plan, in that it appears to provide superior service to schools, existing developed areas, and future development.

Table 14
Southwest Transmission System

Plant: Transmission System: Total:	Alternate #1 \$8,800,000 <u>\$14,413,525</u> <b>\$23,213,525</b>	Alternate #2 \$8,800,000 \$13,586,210 \$22,386,210	Alternate #3 \$8,800,000 \$14,603,710 \$23,403,710
Capital Cost per Connection:	\$2,119	\$2,043	\$2,136
*Total Water Cost (\$/1,000 gal's):	\$1.29	\$1.28	\$1.30

<sup>\*</sup> Based on 8 mgd uniform delivery.

Canyon Lake Water Supply Corporation Regional Water Plan

Table 11A South Transmission System

			Total
	15%		Easements Services Contingency
ojection	12%	Technical	Services
Cost Projectio		Land,	Easements
		Additional	Facilities
		Pipeline Cost	Total
			S
		Future Cap.	@ V = 5 fps
		Pipe Length, ft	CEE
	80	Pipe	<u>nct</u>
Hydraulic Analysis	3.	Pipe Size, In	Calc Select Incr Cum
Hydrauli	V mex =	Pipe	Calc
		ş	Map
		Q mxdy	mad
		Q Total	le mad
		ĺ	ę

			-	nyaraunc Anaryasa Vaaxa	naryans 3 fos								12%	15%	
	Q Total	Q mxdy	λþi	1.5			Jth, ft	Future Cap.	Pipeli	Pipeline Cost	Additional	Land,	Technical		,
Node	шад	mag	MDM	Colc	Select	nor.	Cul	@ V=5 fpe	Cuit	Total	Facilities	Easements	Services	Contingency	Total
North A	North Along US 281;Crossing East to FM 2673, South to Plant	1,Crossing	East to FM	2673, Sou	th to Meni	•									
8	۰						89,226								
	2.60	2.60	1,807	15.69	16	13,028		4.51 mgd	9	\$781,680	Ç	0\$	\$93,800	\$131,300	\$1,006,780
62							76,198								
	0.65	3.26	2,262	17.55	8	7,353		5.71 mgd	<b>\$75</b>	\$551,475	0\$	<b>0</b>	\$66,200	\$92,700	\$1,717,155
65							68,845								
	1.33	5.17	3,589	22.11	74	13,770		10.15 mgd	\$82	<b>\$1,308,150</b>	\$240,000	\$50,000	\$185,800	\$267,600	\$3,768,705
20	-						55,075								
	0.77	5.94	4,123	23.69	24	22,440	!	10.15 mgd	<b>\$8</b>	<b>\$2,131,800</b>	<b>0</b>	\$112,200	\$255,800	\$376,000	\$6,643,505
52							32,635						1		
	0.26	6.20	4,303	24.21	74	17,460		10.15 mgd	<b>\$</b> 82	\$1,658,700	0\$	\$34,920	\$199,000	\$283,900	\$8,820,025
4							15,175						1		
	1.10	7.30	5,069	26.27	ဓ္က	15,175		15.86 mgd	\$110	\$1,669,250	\$150,000	\$25,000	\$218,300	\$309,400	\$11,191,975
_							0								
East Al	East Along SH 46 to Smithson Valley	o Smithson	Valley												
65							24,865								
	0.58	0.58	404	7.42	00	24,865		1.13 mgd	\$25	\$621,625	\$150,000	\$25,000	\$92,600	\$133,400	\$1,022,625
5															
From L.	From Lake to Treatment Site	ment Site													
0	_						14,915								!
	1.26	8.56	5,942	28.44	30	14,915	ć	15.86 mgd	\$110	\$1,640,650	<del>Q</del>	\$74,575	\$196,900	\$286,800	\$2,198,925
-							>						TOTAL TRANS	TOTAL TRANSMISSION COST	\$14,413,525

Table 11B Operation and Maintenance Costs

Cost/Connection	Actual	\$803	\$1,316	\$2,119
	Project Cost	Plant: \$8,800,000	Transmission System: \$14,413,525	Total: \$23,213,525
	tion Data	8,000,000 gpd	8,000,000 gpd	10,955
	Flow & Connection Data	Maximum Plant Flow	System Base Flow	Equivalent Connections

	Surface Water Treatment P	reatment	Plant			Transmission Systam	ystem				Combined
Budget Item	Ottv	Units	Rate	Mult	Total	ΔĮ	Units	Rate	Mult	Total	
FIXED COSTS Electrical Power - base	700	Ŧ ?	\$1.60	12	\$13,440	1,125	Ŧ	\$1.60	12	\$21,600	
Haw water Annual Debt Service Administration	\$8,800,000	ngai 20	al	303 8% 1.50%	\$475,084 \$896,299 \$132,000	\$14,420,000	20	20 years	8% 0.50%	\$1,468,709 \$72,100	
Subtotal, Fixed Costs					\$1,516,823					\$1,562,409	\$3,079,232
VARIABLE COSTS Electrical Power - useage Chemicals	2,111,166 8,000	kwh Kgai	\$0.07	1 365	\$147,782	4,072,551	kwh	\$0.07	-	\$285,079	
TNRCC Inspection Fees Repairs	8.00	annual mgd	\$4,413 \$500	12	\$4,413 \$48,000	25	miles	\$250	<del>-</del>	\$6,250	
Subtotal, Variable Costs					\$375,395					\$291,329	\$666,723
Total Annual O&M Cost					\$1,892,218					\$1,853,737	\$3,745,956

Treated water cost (\$ per 1,000 gallons)

	Plant				Trar	Transmission	_		Combined
ariable:			\$0.13	\$0.13 Variable:				\$0.10	\$0.23
ixed:				Fixed:	:				
8,000,000 gpd	Conn's 10,955	nn's 955 \$11.54	\$0.52	\$0.52 8,000,000 gpd		Conn's 10,955 \$11.89	\$11.89	\$0.54	\$1.06 <b>\$1.28</b>

Canyon Lake Water Supply Corporation Regional Water Plan

Table 12A Southwest Comal County Water Supply System

			Hyd	Hydraulic Analysis	lysis							Cost Projection			
				V mex =	3 /ps	80							12%	15%	
	Q Total	Q mxdy		Pipe Size, in		Pipe Length, ft	zth, ft	Future Cap.	Pipelir	Pipeline Cost	Additional	Land,	Technical		
Node	pBu	pbui	шав	Celc	Select	Incr	E S	@ V = 5 fps	Unit	Total	Facilities	Easerrents	Services	Contingency	Total
From US 2	From US 281 East Alona FM 1863. North Alona FM 3169	M 1863. N	orth Along	FM 3169											
9							43,927								
	1.81	1.81	1,255	13.07	14	11,652		3.45 mgd	\$45	\$524,340	0	0\$	\$62,900	\$88,100	\$675,340
61							32,275								
	0.80	2.60	1,807	15.69	16	32,275		4.51 mgd	\$60	\$1,936,500	O#	0.	\$232,400	\$325,300	\$3,169,540
თ							0								
From US 2	From US 281 along SH 46 to FM 3159 to Plant	to FM 315	9 to Plant												
65							63,002								
	2.16	2.16	1,503	14.31	16	27,887		4.51 mgd	9	\$1,673,220	<b>•</b>	0	\$200,800	\$281,100	\$2,155,120
0							35,115								
	0.90	3.06	2,128	17.02	8	6,495		5.71 mgd	<b>\$</b> 75	\$487,125	\$150,000	\$25,000	\$76,500	\$110,800	\$3,004,545
o							28,620								
	0.53	6.20	4,303	24.21	9	28,620		15.86 mgd	\$110	\$3,148,200	\$270,000	\$25,000	\$410,200	\$578,000	\$7,435,945
-							0								
Along FM	Along FM 2673 West of FM 3159	M 3159													
4						!	15,175		;			;	1	4	
	1.10	1.10	766	10.21	12	15,175		2.54 mgd	<b>8</b>	\$607,000	0	0	\$72,800	\$102,000	\$781,800
-							0								
Intake to I	Intake to Treatment Plant														
0	•	0	10.00	77 00	ć	310 71	14,915	15 08 mm	4110	*1 640 650	<b>C</b>	\$74 575	\$196 900	\$286 800	\$2.198.925
	07.1	9.00	2,842	707	9	n t	c	200.0	-	2000	2				
-							•						TOTAL TRANS	TOTAL TRANSMISSION COST	\$13,586,210

# Table 12B Operation and Maintenance Costs

Cost/Connection	Actual	\$803	\$1,240	\$2,043
	Project Cost	Plant: \$8,800,000	Transmission System: \$13,586,210	Total: \$22,386,210
	tion Data	8,000,000 gpd	8,000,000 gpd	10,955
	Flow & Connection Data	Maximum Plant Flow	System Base Flow	<b>Equivalent Connections</b>

	Surface Water Treatment Plant	reatment	Plant			Transmission System	ystem				Combined
Budget Item	Otty	Unite	Rate	Mult	Total	Oty	Unite	Rate	Mult	Total	
FIXED COSTS Electrical Power - base	700	チ,	\$1.60	12	\$13,440	1,275	Ŧ	\$1.60	12	\$24,480	
Raw water Annual Debt Service Administration	\$8,800,000	кgа! 20 ув	şU. I D years	303 8% 1.50%	\$472,084 \$896,299 \$132,000	\$13,590,000	20	20 years	8% 0.50%	\$1,384,172 \$67,950	
Subtotal, Fixed Costs					\$1,516,823					\$1,476,602	\$2,993,425
VARIABLE COSTS Electrical Power - useage Chemicals	2,111,166	kwh Kgal	\$0.07	1 365	\$147,782 \$175,200	4,714,117	kwh	\$0.07	-	\$329,988	
TNRCC Inspection Fees Repairs	8.00	annual mgd	\$4,413 \$500	12	\$4,413 \$48,000	26	26 miles	\$250	-	\$6,488	
Subtotal, Variable Costs					\$375,395		:		:	\$336,476	\$711,871
Total Annual O&M Cost					\$1,892,218					\$1,813,077	\$3,705,295

Treated water cost (\$ per 1,000 gallons)

	Plant					Transmission	c		Combined
			\$0.13	\$0.13 Variable:				\$0.12	\$0.25
				Fixed:					
pdB 000,000,	Conn's 10,955	nn's ,955 \$11.54	\$0.52	8,000,000 gpd	pdß	Conn's 10,955	Conn's 10,955 \$11.23	\$0.51	\$1.03

Canyon Lake Water Supply Corporation Regional Water Plan

Table 13A Southwest Transmission System

				Hydr	Hydraulio Analysis								Cost Projection	jection		
				V mex =	3 fps	3.6			40 Yr.					12%	15%	
	© Total	Q mxdy	t,	Pipe Size, in	ze, in	Pipe Length, ft	Jth, ft	Future Cap.	Q Total	Pipelir	Pipeline Cost	Additional	Land,	Technical	Canting	7
Node	D D	pB <sub>m</sub>	Had a	9	Select		E	adi o a A			100		Casolinai		1200	
North Alv	ma US 281	'. East along	1 SH 46; FI	M 3169, 1	FM 311. C	North Alona US 281, East along SH 46; FM 3159, FM 311, Crossing Northeast to FM	thoust to FA	W 2873, South to Plent	o Plant							
9							97,924									
	2.60	2.60	1,807	15.69	18	13,028		5.71 mgd	4.65	\$75	\$977,100	0	0\$	\$117,300	\$164,200	\$1,258,600
62							84,896									
	0.65	3.26	2,262	17.55	18	7,353		5.71 mgd	5.55	\$75	\$551,475	0\$	0\$	\$66,200	\$92,700	\$1,968,975
65							77,543	•	;			:	;		4	4
	1.51	4.77	3,310	21.23	24	24,865		10.15 mgd	8.27	<b>\$</b> 95	\$2,362,175	0	0	\$283,500	008,088	000'110'0\$
5							52,678									
	06.0	5.67	3,935	23.15	24	7,978		10.15 mgd	10.14	\$88	\$757,910	\$150,000	\$25,000	\$108,900	\$156,300	\$6,209,660
60							44,700								i	
	0.53	6.20	4,303	24.21	24	29,525		10.15 mgd	10.92	\$95	\$2,804,875	\$150,000	\$15,000	\$354,600	\$498,700	\$10,032,835
4							15,175									1
	1.38	7.58	5,263	26.77	စ္တ	15,175		15.86 mgd	12.93	\$110	\$1,669,250	\$150,000	\$25,000	\$218,300	\$309,400	\$12,404,785
-																
From Int	From Intake to Treatment Plant	tment Plant					,									
0							14,915			;		,		0000	000	900
•	0.98	8.58	5,942	28.44	30	14,915	•	15.86 mgd	15.08	01.1	\$1,640,650	0	\$74,575	9196,900	\$680,800	676,961,74
-							>							TOTAL TRANS	TOTAL TRANSMISSION COST	\$14,603,710

Operation and Maintenance Costs

Cost/Connection \$803 \$1,333 \$2,136 Actual \$8,800,000 \$14,603,710 \$23,403,710 Project Cost Plant: Transmission System: Total: 8,000,000 gpd 10,955 8,000,000 gpd Flow & Connection Data **Equivalent Connections** Maximum Plant Flow System Base Flow

Surface Water Treatment Plant

Transmission System

Combined

Budget Item	QtX	Units	Rate	Mult	Total	δĬ	Chits	Rate	Mult	Total	
FIXED COSTS											
Electrical Power - base	700	ᇁ	\$1.60	12	\$13,440	1,200	皇	\$1.60	12	\$23,040	
Raw water	8,000	Kgal	\$0.16	365	\$475,084						
Annual Debt Service	\$8,800,000	20 )	/ears	8%	\$896,299	\$14,610,000	20	20 years	8%	\$1,488,061	

20 years kwh 4,393,334 \$14,610,000 \$896,299 \$132,000 \$1,516,823

1.50%

Administration

\$3,100,974

\$1,584,151

\$307,533

\$0.07

\$1,488,061

0.50%

22 miles \$175,200 \$4,413 \$48,000 \$147,782 365

> \$0.06 \$0.07

> > 8,000

2,111,166

Subtotal, Fixed Costs

VARIABLE COSTS

Electrical Power - useage

TNRCC Inspection Fees

Repairs

Chemicals

\$4,413 \$500

annuai Kgal κ×

βgω

8.00

\$1,897,184

\$3,789,402

\$688,428

\$313,033

\$5,500

\$250

Total Annual O&M Cost

Subtotal, Variable Costs

\$1,892,218

\$375,395

Treated water cost (\$ per 1,000 gallons)

	Plant			•	Transmission			Combined
Variable:			\$0.13	\$0.13 Variable:			\$0.11	\$0.24
Fixed:				Fixed:				
8,000,000 gpd	Conn's 10,955	\$11.54	\$0.52	8,000,000 gpd	Conn's 10,955	\$12.05	\$0.54	\$1.06

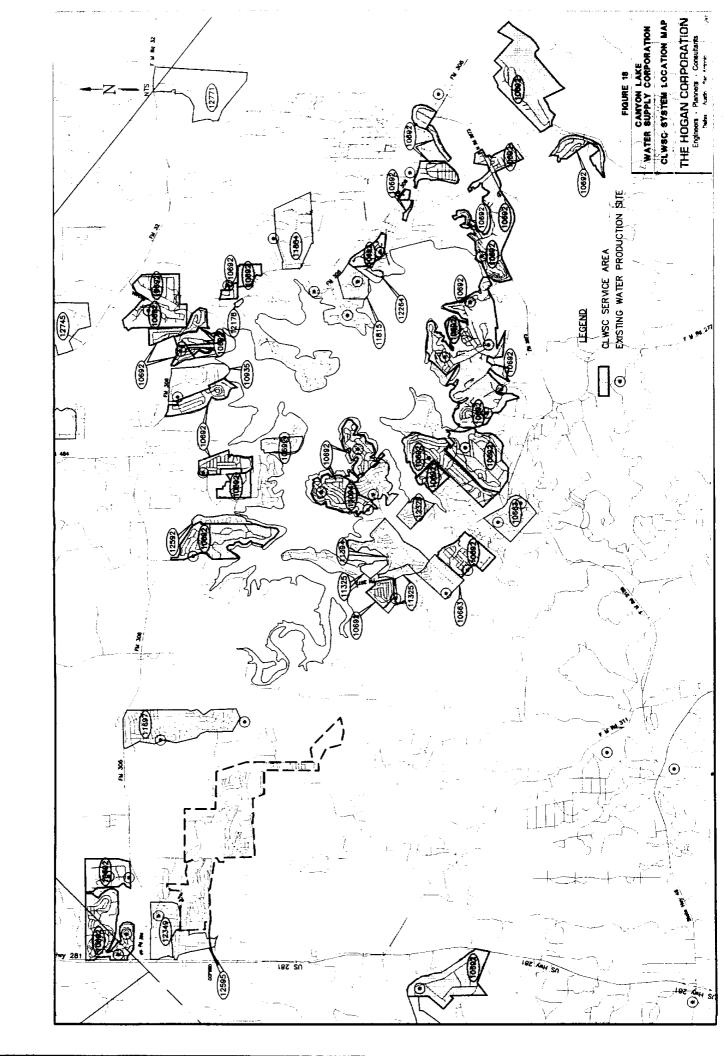
### 3.5.3 Recommended System

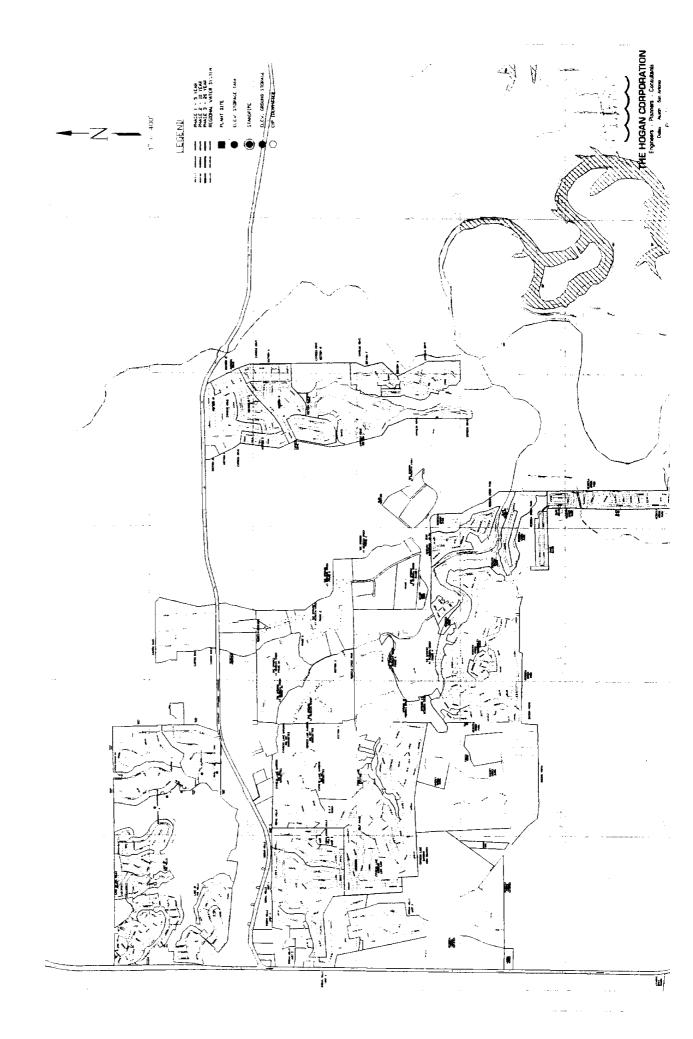
The proposed regional supply system, incorporating the facility locations and transmission pipeline routes previously described, is presented in Figure 12. Figure 13 displays ground profiles and system hydraulic gradients along proposed transmission routes. Phasing of the transmission system has been organized to address various priorities and implementation issues within the North, South, and Southwest Service areas.

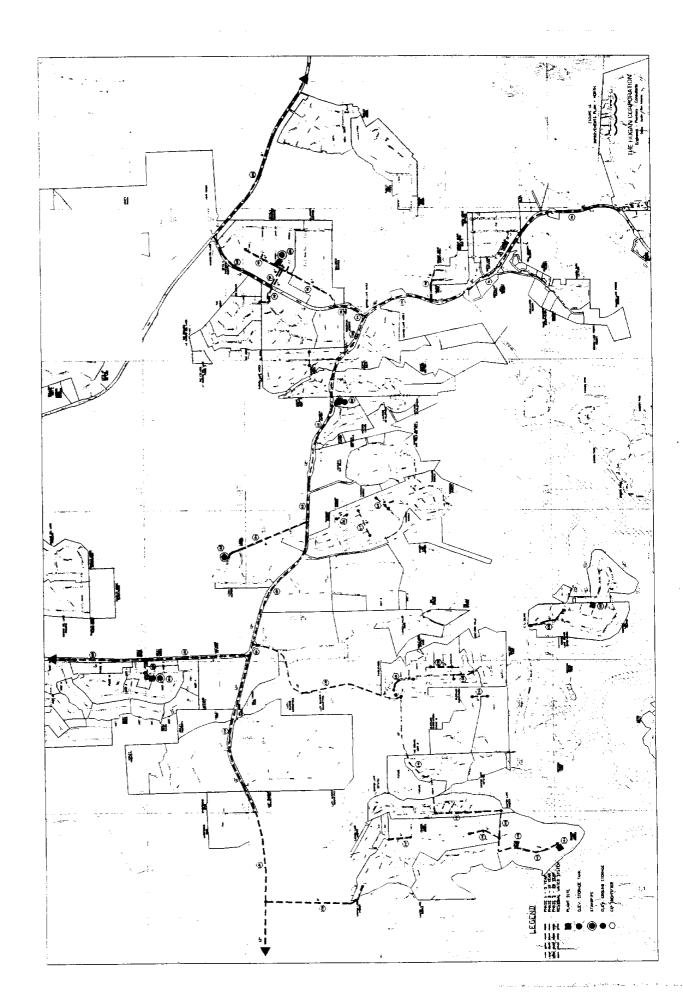
In the North service area, the primary transmission line would follow FM 306 both easterly and westerly from the North WTP, as this appears to provide the most direct route to delivery points. Lateral transmission lines would branch from the main line at FM 484 and FM 3424 to feed the northerly and northeasterly periphery of the study area. The phase 1 system would consist of the North WTP, and a transmission pipeline from the plant north to FM 306, then east to FM 3424. Phase 2 would comprise a transmission line westerly along FM 306 to the existing developments in the vicinity of US 281 and SH 306. Lateral pipelines extending north of FM 306 to serve the areas north of FM 32, and south along US 281 from FM 306 are designated as future.

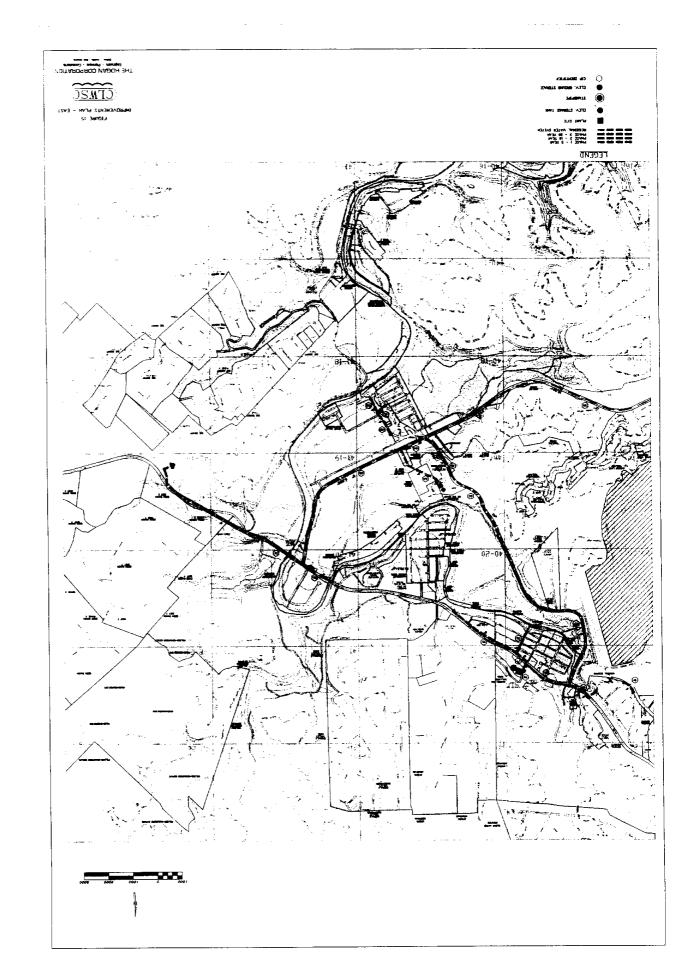
For the South and Southwest service areas, the primary facilities are considered to be the South WTP and main transmission pipeline previously described as Alternative #3, terminating at the intersection of SH 46 and US 281. Transmission segments identified as Phase 1 would also include a pipeline extending east along FM 2673 through the Sattler community, terminating at FM 306 and the Guadalupe River. Phase 2 improvements consist of lateral extensions from the primary system terminus at SH 46/US 281, north along US 281 to the Guadalupe River, and west along SH 46 to a point near the new Comal ISD school campus. The Phase 3 transmission system includes all proposed facilities in the Southwest service area, beginning with a pipeline connected to the primary system at the intersection of SH 46 and US 281, then extending south along US 281 to FM 1863. A lateral line would continue from that point east along FM 1863 to serve the Oak Village North area. To serve the southern portion of the Bulverde area and the westerly part of the Southwest service area, a second lateral pipeline would be routed west along Bulverde Road and up to Amman Road. At this location, a storage tank and booster station is recommended to convey the flow further west along Amman Road, as well as to act as a delivery and transfer point to serve the Bulverde area. Future system extensions in the South service area may occur west along SH 46 from the phase 2 terminus and north from SH 46 along old Bulverde Road. In the Southwest service area, future transmission lines could be extended along FM 1863 east of Oak Village North, as well as north and south of Amman Road to serve new development in those areas.

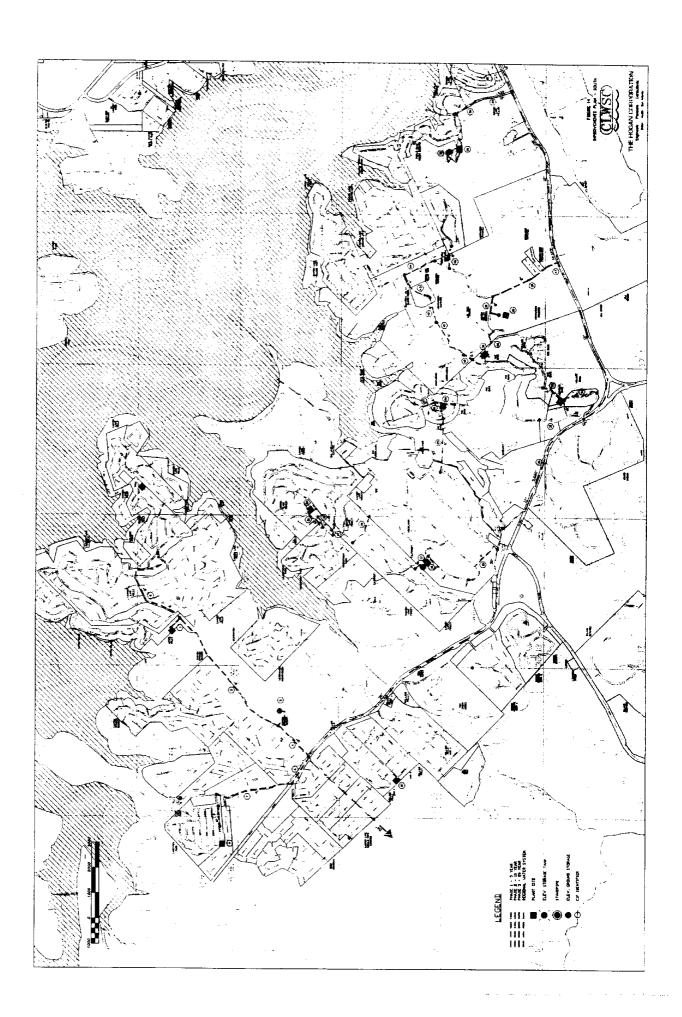
Capital costs have been projected for all of the proposed transmission system segments, and are presented in detail in Table 13a (South primary system), Table 16a (North Primary/phase 1 system), and 15 (lateral transmission systems). The projected capital costs are summarized in Table 18.

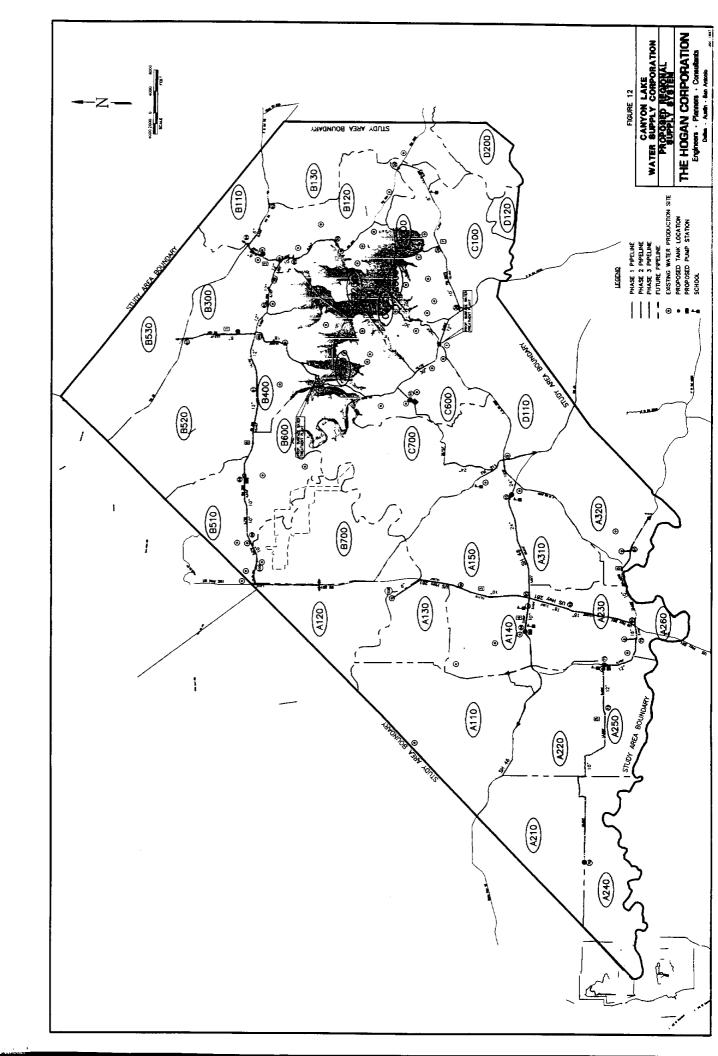


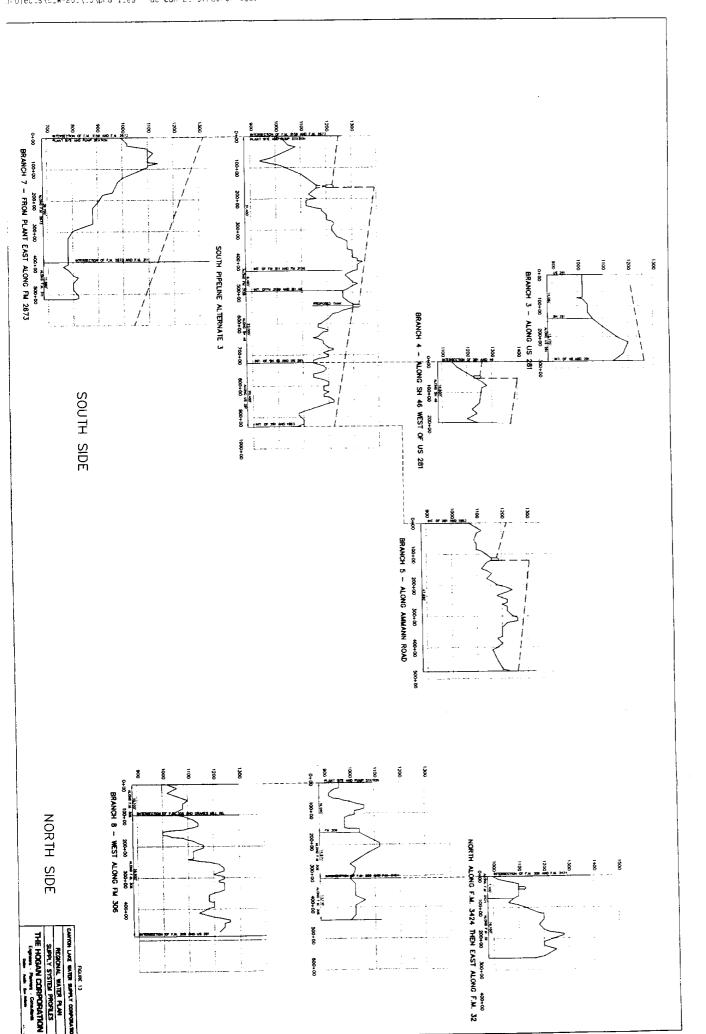












## CANYON LAKE WATER SUPPLY CORPORATION

### REGIONAL WATER PLAN DECEMBER 1997

### **HOGAN CORPORATION**

Contract 96-483-155

The following maps are not attached to this report. Due to their size, they could not be copied. They are located in the official file and may be copied upon request.

Regional Water Plan Key Maps

Key Maps - 27 - 42

Please contact Research and Planning Fund Grants Management Division at (512) 463-7926 for copies.