

DISTRICT MANAGEMENT PLAN

This groundwater management plan is in partial fulfillment of the requirements of SB 1 and TWDB rules, specifically Texas Administrative Code, Chapter 356 (31TAC §356).



BARTON SPRINGS / EDWARDS AQUIFER CONSERVATION DISTRICT

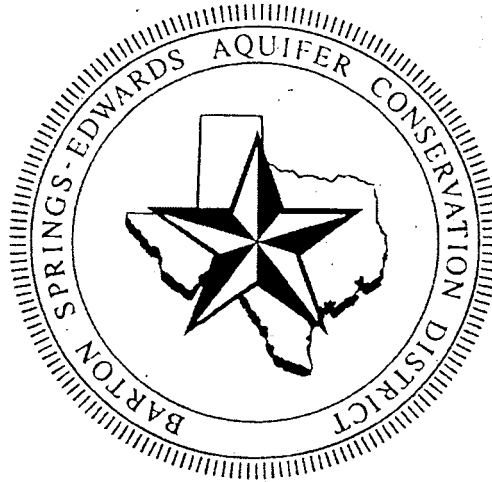
Adopted - August 20, 1998

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BARTON SPRINGS / EDWARDS AQUIFER CONSERVATION DISTRICT

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DISTRICT MISSION STATEMENT

The Barton Springs / Edwards Aquifer Conservation District (BS/EACD) is committed to providing for the conservation, preservation, protection, recharging, and prevention of waste of groundwater.

DISTRICT INFORMATION

The BS/EACD was created in 1987 by the 70th Texas Legislature under Senate Bill 988 and Chapter 52 (revised to Chapter 36) of the Texas Water Code. The District's mandate is to conserve, protect, and enhance the groundwater resources of the Barton Springs segment of the Edwards aquifer and other groundwater resources located within the District's boundaries. The District has the power and authority to undertake various studies and to implement structural facilities and non-structural programs to achieve its statutory mandate. The District has rule-making authority to implement its policies and procedures and to help ensure the management of the groundwater resources.

The BS/EACD's jurisdictional area is bounded on the west by the western edge of the Edwards aquifer outcrop and on the north by the Colorado River. The eastern boundary is generally formed by the easterly service area limits of the Creedmoor-Maha and Goforth Water Supply Corporations. The District's southern boundary is generally along the established groundwater divide or "hydrologic divide" between the Barton Springs and the San Antonio segments of the Edwards Aquifer. This area encompasses approximately 255 square miles, estimated to be 10 percent urban / suburban, 45 percent ranchland, and 45 percent farmland. The Edwards Aquifer is either a sole source or primary source of drinking water for approximately 44,000 people residing within the BS/EACD boundaries. Barton Springs provides significant recreational opportunities at Barton Springs Pool in Austin's Zilker Park and is home to the endangered Barton Springs Salamander. Some wells in the BS/EACD also produce water from the Taylor, Glen Rose, and Trinity Formations, as well as various alluvial deposits along stream banks. The area has a long history of farming, ranching, and rural domestic use of groundwater.

PURPOSE OF THE MANAGEMENT PLAN

The 75th Texas Legislature enacted Senate Bill 1 (SB 1) in 1997. SB 1 amends Chapter 36 (formerly Chapter 52) of the Texas Water Code to require all underground water conservation districts to develop a management plan for the groundwater within their jurisdiction. These groundwater management plans are to be submitted to the Texas Water Development Board (TWDB) for review and certification by September 1998.

subject to large drawdowns, and complete dewatering may occur in local wells that only partially penetrate the Edwards Aquifer. Overall, current and projected pumpage is small in comparison to spring discharge, and there is no information available to suggest that this level of pumpage will appreciably decrease springflow, even during periods of drought. The problems of drought and the effects of water-quality degradation due to urbanization and other causes may be more severe and critical to the health of the Barton Springs Edwards Aquifer than simply the adverse effects of current and projected pumpage on springflow.

Several factors potentially influence the volume of available groundwater in the Barton Springs segment. Heavy pumpage south of the District (around Kyle) may shift the groundwater divide further north. Heavy pumpage or drought conditions potentially would cause leakage of the bad-water zone or underlying Glen Rose waters into the eastern side of the Barton Springs segment. Increased urbanization over the recharge zone could reduce the availability of potable water through additional pumpage coupled with the potential for increased groundwater degradation. Additional impervious cover over the recharge zone may reduce recharge to the aquifer by inhibiting surface infiltration -- while contributing to increased flow velocity in local streams which will carry an additional sediment and constituent load (water-quality implications) and could bypass or clog critical recharge features in the creekbeds.

The District will continue to research these issues, identify viable solutions to groundwater problems and implement the goals in this plan to achieve the District's mission.

Implementation and Enforcement

The District will develop, modify, implement and enforce the District's Rules and Bylaws as necessary to carry out duties as provided in Chapters 35 and 36 of the Texas Water Code and Senate Bill 988 to properly manage the Barton Springs segment of the Edwards Aquifer. District staff and Directors will perform an ongoing review of District's Rules and Bylaws and Well Construction Standards to locate areas where there is need for improvement, changes, or additions to properly manage the Barton Springs segment of the Edwards Aquifer. Current District Rules are an addendum to, but separate document from this management plan.

The District will develop, modify, implement and enforce the District's Board Resolutions and Orders as necessary to carry out duties as provided in Chapter 35 and 36 of the Texas Water Code and Senate Bill 988 to manage the Barton Springs segment of the Edwards Aquifer.

The District will implement programs, plans and policies based on the Board's directives, management plans, and project objectives in accordance with the adopted annual District budgeted expenses and income.

The District will hold Board Meetings at least six times a year to conduct District business. Staff will develop, print and distribute meeting agendas, assemble back-up materials, prepare meeting facilities and provide support and attendance as required. Minutes will be prepared after each meeting for approval at a subsequent Board meeting. The Board will appoint a Policy Advisory Committee whose meetings will be held on an as-needed basis. District staff and Directors will attend and participate in meetings held by local, state and federal regulatory agencies, local, state and federal legislative bodies, and other organizations and provide comments, reports and technical assistance as needed. The District will hold and attend meetings that provide the public with the opportunity to review, discuss, and provide comments on plans, programs, and regulations of the District.

District staff will develop an Annual Report within 120 days of fiscal year end of the District's activities. District staff will facilitate a complete independent Annual Audit within 120 days of fiscal year end of the District's financial records for the Board's consideration. The District will develop an annual budget based on the Board's directives and management plans, estimated District costs, expenses, projected annual income, and available or awarded grants. The District will develop and maintain an annual inventory of all District property. The District will facilitate, within 120 days of fiscal year end, a complete independent report of the District's Pension's Plan for submission to the State's Pension Review Board.

The District will hold Director elections in even numbered years in accordance with State and Federal Law. The District will redistrict Director Precincts as required by State and Federal law and changes in local election precincts.

The District's Board will in all cases seek voluntary compliance with the rules and regulations of the District. The District will, however, pursue any non-compliance matters left unsettled through appropriate administrative and legal actions to obtain compliance with the Rules, goals and objectives of the District and in the management of the groundwater resources within the District's jurisdiction, and in accordance with Board directives.

EXISTING AND PROJECTED WATER SUPPLY

Estimate of the total usable amount of groundwater in the Barton Springs / Edwards Aquifer Conservation District - 31TAC §356.5 (a)(4)(A).

and

Estimate of the projected water supply within the Barton Springs / Edwards Aquifer Conservation District - 31TAC §356.5 (a)(4)(D).

Basic Hydrogeology of the Barton Springs Edwards Aquifer

The Edwards Aquifer is a karst aquifer that is one of the greatest sources of groundwater in Central Texas. Recharge to the Barton Springs segment occurs within a 90-square-mile *outcrop area*. The *recharge zone* encompasses the outcrop area of the Edwards Aquifer. Recharge to the Barton Springs segment occurs within the watersheds of Onion, Little Bear, Bear, Slaughter, Williamson, and Barton creeks. Some recharge occurring in Barton Creek, Eanes (Dry) Creek and Bee Creek is believed to flow through the Rollingwood subsegment and discharge through springs along the south side of the Colorado River. Flow path and groundwater divides within the Barton Springs segment are largely based on indirect measurements, such as water levels, geochemistry and creek flow, and are not well defined. Direct measurement of groundwater flow paths and travel times through groundwater tracing is currently being conducted by the BS/EACD.

The outcrop area is bounded by: the Colorado River to the north; the *contributing zone*, or the outcrop of the underlying Walnut and Glen Rose Formations to the west, and the outcrop of the Del Rio Clay and other overlying units to the east. A groundwater divide, which is believed to fluctuate around the Buda and Kyle areas between Onion Creek and the Blanco River (Garza, 1962; Stein, 1994), separates flow directed toward Barton Springs from flow towards San Marcos Springs. The southern groundwater divide may fluctuate because it may be influenced by the combination of pumping by major water systems (including the City of Kyle), recharge along Onion Creek, changes in rainfall and water levels, and inferred barrier faults that subparallel the Blanco River (Stein, 1994). The usable portion of the Barton Springs segment is limited to the east by a zone of highly mineralized groundwater (or the *bad-water zone*), containing total dissolved solid concentrations greater than 1,000 mg/l. The usable portion of the Barton Springs segment is defined as the area west of the bad-water line, which is approximated to extend along South Congress Avenue south of Town Lake and Interstate Highway 35 south of Austin.

A long-term average of 50 cubic feet per second discharges from Barton Springs, which makes up the largest volume discharge of the Barton Springs segment (Slade, Dorsey, and Stewart, 1986). Smaller discharge occurs at Cold Springs, which is partially submerged by the Colorado River. Flow from the exposed portion of the spring has been measured to be about two to four cubic feet per second (Brune,

1981). Bee Springs discharges near the mouth of Bee Creek on the far northwestern edge of the Barton Springs segment. The exposed portion of Bee Springs flow has been measured at a rate of at least 0.2 cubic feet per second (Brune, 1981).

Saturated Thickness and Estimated Aquifer Yield

Aquifer tests have been conducted within the District to measure or estimate the aquifer characteristics, including transmissivity, storativity, and specific yield at specific sites across the aquifer. Aquifer tests involve the measurement of drawdown associated with the pumping of a test well. Generally the best data was obtained from tests conducted over a long period (8 to 24 hours or more) at a high rate of discharge (500 gallons per minute or more) with numerous local observation wells. Following the pumping phase of the test, the recovery of water levels was often measured for verification of the pumping results. The pumping drawdown and recovery response were compared to analytical models of ideal response using Aqtesolv for Windows software developed by Geraghty and Miller, Inc. (Duffield, 1996). Adjustments were made to account for pumping or observation wells where the interval known to be open to the aquifer did not extend through the aquifer (*partially penetrating wells*), as described by Hantush (1961). This adjustment considers the ratio of vertical to horizontal permeability. For the purposes of correcting for partial penetrating wells, the horizontal permeability was assumed to be five times greater than the vertical permeability, based on outcrop observations.

Based on the range of specific yield and the volume of saturated aquifer estimates (21,252,000 acre-feet), the volume of water that can be discharged from the aquifer is about 100 billion gallons (300,000 acre-feet). The volume of groundwater that lies above the elevation of Barton Springs (427 feet elevation) in 1996 was estimated to be about 94,000 acre-feet. This estimate for water that can be released from the aquifer is not a safe or sustained yield estimate, but represents all of the groundwater that can be released under gravity, and excludes the specific retention. The elevation of the base of the Edwards Aquifer lies above this 427 feet elevation within almost all of the recharge zone. The District's estimate of volume above the elevation of Barton Springs (94,000 acre feet) in 1996 lies between estimates by the *Lumped Parameter Model* of the Center for Research in Water Resources (45,000 acre-feet) at Barton springflows of 24 cfs, but is less than the estimate by the USGS estimates (204,000 acre-feet) for average-flow conditions (Barton Springs flow at 50 cfs) from 1981. This difference between the USGS estimates and these estimates may be due to several factors, including: (1) the USGS estimate was for average-flow rather than low-flow and therefore should be higher, and (2) the estimated saturated thicknesses on the southwestern side of the Barton Springs segment are less than those in the USGS study due to recent revisions in the interpretation of the geological framework.

The total volume of rock matrix and groundwater within the usable Barton Springs segment of the Edwards Aquifer during 1996 low-flow conditions was estimated from the saturated thickness and compared to values derived from other studies and methods. The fiscal year 1996 (September 1995 to August 1996) estimated pumpage of about 1.61 billion gallons (5,000 acre-feet) compares to about 14 percent of the long-term average flow of Barton Springs (50 cubic feet per second or 36,000 acre-feet per

year). The 1996 annual pumpage accounted for about 5 percent of the groundwater volume above the elevation of Barton Springs (94,000 acre-feet) and less than 2 percent of the total estimated groundwater in the Barton Springs segment (300,000 acre-feet). However, during extended dry periods the proportion of pumping represents a higher portion of the transient storage than during high aquifer flow conditions. From May to September 1996, the average daily springflow from Barton Springs ranged from 17 to 35 cubic feet per second (up to 41 cfs in short-term response to storms in September) with a daily mean of about 24 cubic feet per second (USGS Water Resources Data Water Year 1996). The monthly August 1996 pumpage consisted of about 127,000,000 gallons (390 acre-feet) reported pumpage, an estimated 19,000,000 gallons (58 acre-feet) domestic well pumpage, and an estimated 1,250,000 gallons (4 acre-feet) of agricultural withdrawals. The total estimated monthly pumpage for August 1996 was 147,250,000 gallons (450 acre-feet), which averaged 8 cubic feet per second distributed over the month. Prior to a major rainfall event in August 1996 that immediately recharged Barton Springs flow, pumpage equaled to about 45 percent of the lowest discharge of Barton Springs measured in August 1996 (or about 30 percent of the total aquifer discharge). Note that this short-term proportion between pumpage and springflow does not suggest that pumpage is measurably influencing springflow, but rather indicates the significant impacts of prolonged drought or low recharge conditions. Numerical groundwater models are necessary in order to estimate the relationship between pumpage and springflow under various aquifer flow and pumpage scenarios.

The District has identified the need for further research and funding in this subject area.

Other Factors That May Influence the Available Aquifer Yield

It has long been hypothesized that heavy mining (withdrawal rates greater than recharge rates) of the usable Edwards Aquifer groundwater resources could result in a shifting to the west of the high saline (sodium-chloride) "bad water" zone. The Texas Water Development Board (Flores, 1990) reassessed the position of the saline water zone and noted that it was further west than was previously indicated (Baker and others, 1986). This apparent "shift" could be the result of new data available or an actual movement of the bad-water line. The lowering of water levels in the freshwater portion of the Edwards could also result in greater leakage from the underlying Glen Rose, which is typically high in sulfate, fluoride, and strontium (Senger and Kreidler, 1984).

Heavy pumpage in the Kyle area to the south could draw some of the available groundwater from the Barton Springs segment. Water-level measurements and pumpage information collected and presented by Guyton and Associates (Stein, 1994) suggest that the groundwater divide between the Barton Springs and San Antonio segments may have shifted north due to pumpage in the vicinity of the City of Kyle.

The available yield of potable water in the Barton Springs Edwards Aquifer may be further diminished by the effects of growth over the recharge zone, which can be expected to diminish the quality of the underlying groundwater available for use without treatment. Studies by the City of Austin (1990) and the

Center for Research in Water Resources (Barrett and others, 1996) measured water quality of runoff from varying levels of impervious cover, population density, and traffic densities on roadways. The Barton Springs / Edwards Aquifer Conservation District measured groundwater-quality degradation under urban areas of the Barton Springs segment (Hauwert and Vickers, 1994, and addendum 1995) in samples collected after rain events. Several water systems in urban areas, including water-supply wells originally reliant on the Edwards Aquifer in the Westlake area, have been abandoned due to groundwater-quality degradation.

Increases in impervious cover over the recharge zone may further limit the recharge volume needed to replenish water levels. The Center for Research in Water Resources (Barrett and Charbeneau, 1996) lumped parameter model for the Barton Springs segment simulated the effects of impervious cover development on water levels and springflow. The model predicted a 12 percent reduction in springflow from moderate development (20 percent impervious cover) across the aquifer, and a 19 percent reduction in springflow from an intense development (45 percent impervious cover). The effects of impervious cover on the rate and volumes of recharge requires further study and field measurements.

Groundwater transports out of the District, when permitted, will reduce the total amount of groundwater available inside the District's boundaries. Additional demand from outside the District's boundaries has not been taken into consideration for these planning purposes. These additional demands could adversely impact groundwater users within the District's jurisdiction by accelerating the conditions to reach a manmade or pumpage induced drought condition. Additional study is necessary to determine the extent of the impacts of increased demand and out of District transports and to design programs and projects to help mitigate these impacts.

Trinity Aquifer and Alluvial Deposits

BS/EACD has not undertaken any specific research to quantify the amount of Trinity or alluvial water available within the District's jurisdictional boundaries. The Trinity group includes the Glen Rose formation. The TWDB Water Supplies Section has made estimates of the Trinity available within the entire counties of Hays and Travis. This method does not attempt to identify the amount of Trinity water available specifically within the District's jurisdictional boundaries or to indicate the full amount that could be used within the District's boundaries.

An estimated 1,810 acre-feet of Trinity water is available in Hays County and an estimated 855 acre-feet is available in Travis County. The Trinity water within the District is of generally low quality. Only a few wells within the District currently pump Trinity water. This water is primarily used for irrigation purposes or is blended with Edwards water in public water systems or for domestic and livestock use.

Citation of Estimate Source or Method

Assessment of Available Barton Springs Edwards Aquifer Groundwater (Low-Flow Conditions)

The availability of groundwater within the Barton Springs segment of the Edwards Aquifer was estimated by measuring the height of groundwater in the aquifer (saturated thickness) and through aquifer testing, where the aquifer response to pumping is measured.

Historical water level data from the Texas Water Development Board and U.S. Geological Survey were compiled from three monitor wells with a long history of measurement. These three wells, 58-50-101 in Buda, 58-50-801 in San Leanna, and 58-50-301 in southeast Austin, have been equipped with continuous (daily-maximum) water-level monitoring probes and maintained by the BS/EACD since 1991. The three monitoring wells only penetrate the top of the aquifer. Water levels can fluctuate more than 100 feet from wet to dry years. Natural fluctuations can be expected to be greater, further from the discharge points (further in the recharge zone), and along areas that are well-connected hydraulically to recharge and discharge points. High fluctuations can also be expected near pumping wells. The amplitude of the water-level cycles remained high during the early 1990s as they have measured historically, suggesting that the aquifer is capable of being fully replenished by natural recharge, given sufficient rainfall. In mid-1996, daily maximum water levels from these three wells temporarily reached or dropped below historical water levels measured during the drought of the 1950s.

Water levels were measured across the aquifer from May 1996 to October 1996 to map the water-level surface during low-flow aquifer conditions. Low-flow conditions are considered to be in effect when the flow at Barton Springs is less than 35 cubic feet per second for an extended period. A similar water-level map for low-flow aquifer conditions from August 1978, was presented by the USGS (Slade, Dorsey, and Stewart, 1986). A number of wells in the outcrop area of the Barton Springs segment encountered perched water flowing within the unsaturated or vadose zone above a deeper saturated or phreatic zone. Wells with perched water were distinguished by significantly higher water-level elevations than other nearby wells in all directions, and were usually associated with audible cascading water where the well penetrated through a perched zone to the actual water table. Low-flow conditions were selected in order to conservatively estimate the groundwater available when the yield is relatively low. Historical water level measurements collected by BS/EACD, the U.S. Geological Survey, and Guyton and Associates (Stein, 1994) at wells during other low-flow periods were also considered.

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EXISTING AND PROJECTED WATER DEMAND

Estimate of the amount of groundwater being used within the Barton Springs / Edwards Aquifer Conservation District on an annual basis - 31TAC §356.5 (a)(4)(B)

and

Estimate of the projected water demand within the Barton Springs / Edwards Aquifer Conservation District - 31TAC §356.5 (a)(4)(D)

Population Estimates

The District population in 1980 was approximately 49,000 (BH&S, 1990), while in 1990 it was an estimated 132,000. This population change translates into a District wide annual growth rate of approximately 9.9 percent, which is consistent with other rates in and adjacent to the District over the same period of time (CAPCO, 1990). In 1995 an estimated 44,000 people lived in the sole source area and an estimated 116,000 people lived in the non-sole source area of the District. Combined, approximately 160,000 people lived in the Barton Springs / Edwards Aquifer Conservation District in 1995 (BS/EACD, 1996).

Estimated Population 1995 - 2015			
Year	Sole Source Population ¹	Non-Sole Source Population ²	Combined
1995	44,000	116,000	160,000
2000	64,000	132,000	196,000
2005	93,000	150,000	243,000
2010	135,000	171,000	306,000
2015	196,000	195,000	391,000
1 Annual Sole Source population growth rate is 7.45%.			
2 Annual District (non Sole Source) population growth rate is 2.70%.			

Demand Projection Limitations

Groundwater use demand projections presented in this section may prove to be an underestimation of actual future demand. The *permitted volume based methodology* used below did not attempt to account for the development of new public water supply, industrial, commercial, irrigation or agricultural groundwater systems. The *population based methodology* may account for new public water supply, industrial, commercial, irrigation or agricultural groundwater systems as it is based on gross population.

Groundwater Use (1996-2016)

Groundwater demand has been calculated two ways. Each method gives different results providing a range of possible future demand projections.

Permitted Volume Based Methodology

Public water supply wells use the majority of permitted groundwater withdrawn from the Barton Springs segment of the Edwards Aquifer. They accounted for approximately 79 percent of the permitted use in fiscal year 1996 (September 1995 - August 1996). The remainder of the permittee use is withdrawn by industrial, commercial, and irrigation wells.

In 1990, non-permitted domestic wells were estimated to number approximately 1090 (US Census, 1990) (other sources have estimated a higher number). From September 1990 to June 1996 another 161 non-permitted domestic wells were drilled. Assuming a per capita consumption of 170 gallons per day (Botto, 1994), yields a total of approximately 225,000,000 gallons (691 acre feet) withdrawn by non-permitted domestic wells in fiscal year 1996.

Combined use from permitted and non-permitted domestic wells totaled approximately 1.6 billion gallons in fiscal year 1996. Agricultural withdrawals are not reported to the District; however, the most current estimated use ranges from 13,000,000 to 16,000,000 gallons (BS/EACD, 1990). Holding agricultural use constant from 1990, in fiscal year 1996, agricultural withdrawals and non-permitted domestic wells accounted for approximately 14 percent and permitted wells accounted for approximately 86 percent of the total water pumped from the aquifer. The total estimated pumpage from the Barton Springs segment during 1996 is approximately 1.61 billion gallons or 5,000 acre-feet.

It is projected that by the year 2016, total pumpage demands will require about 6,900 acre-feet per year, which averages about 9.6 cubic feet per second. From May to September 1996, the average daily springflow from Barton Springs ranged from 17 to 35 cubic feet per second, with a daily mean of about 24 cubic feet per second (USGS Water Resources Data Water Year 1996). On an average, the total projected pumpage is estimated to constitute about 17 percent of the current average aquifer discharge of springflow and pumpage. In 2016, the total annual pumpage is projected to withdraw about 2 percent of the total volume of groundwater available within the Barton Springs segment (300,000 acre-feet), or about 7 percent of the groundwater above the elevation of Barton Springs (94,000 acre-feet), under low flow conditions similar to 1996 (BS/EACD, 1996).

Population Based Methodology

Using a per capita consumption figure of 170 gallons per day and the population figures given above, the water demand in the sole source areas of the District are given below.

Note that the water use projections presented in these tables is based on population growth and is different than the water use projections in the Permitted Volume Based Methodology.

Sole Source Water Use Demand Based on Population Projections				
Year	Sole Source Population	GPD	GPY	AF/YR
1995	44,000	7,480,000	2,632,960,000	8,080.26
2000	64,000	10,880,000	3,829,760,000	11,753.10
2005	93,000	15,810,000	5,565,120,000	17,078.73
2010	135,000	22,950,000	8,078,400,000	24,791.70
2015	196,000	33,320,000	11,728,640,000	35,993.87

Surface Water Use

Residents in the District not on groundwater are being serviced by the City of Austin's surface water system. Per capita water use figures obtained from the City of Austin indicate a slightly higher daily consumption than District groundwater estimates. Using a per capita consumption figure of 194 gallons per day and the population figures given above, the water demand in the non-sole source areas of the District are given below.

Non Sole Source Water Use Demand Based on Population Projections				
Year	Non Sole Source Population	GPD	GPY	AF/YR
1995	116,000	22,504,000	7,921,408,000	24,309.91
2000	132,000	25,608,000	9,014,016,000	27,663.00
2005	150,000	29,100,000	10,243,200,000	31,435.23
2010	171,000	33,174,000	11,677,248,000	35,836.16
2015	195,000	37,830,000	13,316,160,000	40,865.79

Total Water Demand

The range of groundwater use in the District for 1995 and 1996 varied between approximately 5,000 and 8,000 acre feet per year, depending on the methodology used. Four obvious factors could be identified to explain the variation, they are: (1) the population estimate for 1995 of 44,000 residents is an over estimation, (2) the average per capita consumption rate of 170 gallons is an over estimation, (3) the permitted pumpage is an under estimation of actual use, and (4) the number of non-permitted domestic wells in the District is an under estimation.

Additional future demands from outside the District's boundaries have not been taken into consideration, yet, could possibly turn out to be a significant water demand. Any demand from beyond the District's boundaries may adversely impact groundwater users from within the Barton Springs segment of the Edwards Aquifer, including dewatering the wells on the westward side of the District more frequently.

Entire District Water Use Demand Based on Population Projections				
Year	Entire District Population	Sole Source Use	Non Sole Source Use	AF/YR
1995	160,000	8,080	24,309	32,389.26
2000	196,000	11,753	27,663	39,416.10
2005	243,000	17,079	31,435	48,513.73
2010	306,000	24,792	35,836	60,627.70
2015	391,000	35,994	40,865	76,858.87

Citation of Estimate Source or Method

Growth projections in the permitted volume based methodology is based on the number of public water supply system connections using groundwater. Other groundwater systems including institutional wells or commercial and industrial wells water uses were held constant throughout the planning horizon. System growth, and thus projected water use, is based on information obtained from the TNRCC for 1991 - 1995 and from the BS/EACD. An annual growth rate was developed for each system based on the change in the number of connections between 1991 - 1995. Growth rates were developed using a least squares regression model. A factor of 2.9 persons per connection per system was used to determine the number of individuals within a system. An average rate of 170 gallons per capital per day was used to project demand for individual water systems.

Demand projections in the population based methodology were derived by multiplying the population projections established in the District's Alternative Regional Water Supply Plan (TWDB Grant Contract # 95-483-079) with per capita water consumption figures established by the BS/EACD (170 GPD) and City of Austin projections (194 GPD).

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Capitol Area Planning Council, 1990, *Growth Trends Report #7*, CAPCO, Austin, Texas.

US Census Bureau, 1990, *1990 Census of Population and Housing Summary Tape File 3A*, US
Department of Commerce, Washington, DC.

GROUNDWATER RECHARGE

Estimate of the annual amount of recharge to the groundwater resources within the Barton Springs / Edwards Aquifer Conservation District - 31TAC §356.5 (a)(4)(C)

and

Estimate of the annual amount of additional natural or artificial recharge of groundwater within the Barton Springs / Edwards Aquifer Conservation District that could result from implementation of feasible methods for increasing the natural or artificial recharge - 31TAC §356.5 (a)(4)(C)

The Barton Springs segment of the Edwards Aquifer is recharged by the runoff that enters the aquifer from the rainfall that falls in the contributing and recharge zones. The Barton Springs segment has two major watersheds that contribute groundwater recharge. The Barton Creek watershed provides approximately 26 percent of total recharge to the aquifer. The Onion Creek watershed is subdivided into five sub-watersheds: Onion, Bear, Little Bear, Williamson and Slaughter creeks which provide the remaining 74 percent of the recharge. The following chart estimates recharge by watershed in acre-feet from 1996.

Month	Barton	Williamson	Slaughter	Bear	Little Bear	Onion	Total by Creek in Acre-Feet
January	798	18	130	172	150	973	2,241
February	502	99	139	249	218	1,018	2,225
March	1,738	589	722	606	673	1,403	5,731
April	1,395	284	294	368	321	1,505	4,167
May	2,391	973	2,215	850	1,064	2,637	10,130
June	1,477	887	1,572	1,189	1,176	2,553	8,854
July	646	701	319	397	352	1,371	3,786
August	354	32	85	165	145	434	1,215
September	172	65	34	139	130	528	1,068
October	1,147	17	69	291	262	1,208	2,994
November	800	31	110	384	139	910	2,374
December	1,035	43	139	225	197	1,042	2,681
Monthly Total	12,455	3,739	5,828	5,035	4,827	15,582	47,466

Source: BS/EACD, 1996

Recharge enhancement potentially may be used to increase groundwater in storage. By increasing the recharge volume entering the aquifer, the impacts of pumpage can be reduced. Adding additional recharge will also help delay the negative impacts of an extended drought on available groundwater supplies and spring flow. Recharge enhancement may be one way to help mitigate the adverse impacts associated with increased demand for water within the District and for out of District groundwater transports.

Properly placed recharge enhancement efforts could potentially increase the availability of groundwater in the Barton Springs segment. The groundwater model developed by the USGS suggests that properly placed recharge enhancement structures could raise water levels along Onion Creek as much as 120 feet along the western side of the recharge zone and as much as 40 feet near Buda. Flow measurements taken by the USGS from 1979 to 1982 suggested that about 52,000 acre-feet recharged in the Onion Creek watershed over that three year period and that as much as 88,000 acre-feet of runoff was measured downstream of the recharge zone. Note that during the period of measurement, rainfall was about 25% higher than normal, and that some creek sites may not receive significant recharge over long dry periods.

The Onion Creek Recharge Project Study completed by the District in April 1992, considered 5 possible engineered structures which could be installed on Onion Creek to enhance recharge. The range of additional recharge between these alternatives varied from 768, 1,142, 1,576, 3,515 and 5,718 acre-feet per year. Several complex considerations regarding regulating, permitting and funding would have to be addressed before any one of these alternatives could be implemented. These considerations include, but are not limited to, securing water rights, performing environmental assessments, acquiring real property and backwater easements, securing adequate program funding, and providing the necessary operating and maintenance services.

This level of analysis has not been completed for the other recharge creeks -- Bear, Little Bear, Slaughter, Williamson and Barton -- in the Barton Springs segment of the Edwards Aquifer. Additional research is needed in these areas. Likewise, to more fully understand the complex nature of the relationship between recharge, pumpage, springflow and drought, additional research involving groundwater tracing and detailed flow measurement is being conducted. Accurate and timely analysis of this data will be essential. Techniques need to be assessed and appropriate methodology established for continued data collection and modeling these groundwater relationships both numerically and graphically. The District has identified the need for further research and funding in this subject area.

Citation of Estimate Source or Method

Barton Springs/Edwards Aquifer Conservation District, 1992, *Onion Creek Recharge Study*, BS/EACD, Austin, TX.

Slade, Raymond M. Jr., Linda Ruiz, and Diana Slagle, 1985, Simulation of the flow system of Barton Springs and Associated Edwards Aquifer in the Austin Area, Texas: U.S. Geological Survey WRI Report 85-4299.

CONJUNCTIVE WATER MANAGEMENT

To address conjunctive surface water management issues within the Barton Springs / Edwards Aquifer Conservation District - 3ITAC §356.5 (a)(1)

BS/EACD Conservation and Drought Management Programs

The District administers both a conservation and drought program. The District's *Water Conservation Plan*, developed in 1990, was included in the *Regional Water Plan*. Its goal is to preserve and protect the waters in the Barton Springs segment of the Edwards aquifer, including maintaining the quality of Barton Springs. All non-exempt well users (permittees) who consume groundwater are required to develop User Conservation Plans (UCP) and User Drought Contingency Plans (UDCP) that are approved by the District's Board of Directors. There are several classes of permitted groundwater use, these include: public water supply, industrial, commercial, and irrigation wells. Other non-exempt wells include earth-coupled heat exchange closed loop (ECHE) and monitor wells. At present, there are over 80 permittees whose annual permitted pumpage is 100,000 gallons or more. While public water supply companies number fewer than 50% of those permittees, they account for approximately 80% of the total permitted groundwater withdrawal.

Conservation

Each permittee is required to prepare, adopt and implement a UCP, which is consistent with the *Rules and Bylaws of the Barton Springs/Edwards Aquifer Conservation District (Rules)*. These plans require permittees to consider, as a minimum, the following:

- implementation of a conservation-oriented rate structure;
- promotion and encouragement of voluntary conservation measures;
- promotion and encouragement, installation, and use of water saving devices;
- promotion and encouragement of water efficient landscape practices;
- financial measures which encourage conservation;
- distribution of conservation information and other educational efforts, and,
- provision for ordinances, regulations or contractual requirements necessary for the permittee to enforce the UCP.

The District's Rules also describe other mechanism's that the District can use to encourage permittees to reduce consumption, which includes: descriptions of the Conservation-Oriented Rate Structure (Rule 3-6.1), Contract Agreement For New Connections (Rule 3-6.2), Ultra Low Flow Plumbing Fixtures In New Construction (Rule 3-6.3), Landscape Irrigation (Rule 3-6.4), Low Flow Services In Homes For Resale (Rule 3-6.5), and Conservation Policy (Rule 3-6.6).

As a conservation measure, all newly drilled, exempt wells are required to install a meter. Exempt wells do not pay water use fees. The meter allows homeowners to evaluate their groundwater use, and with

this knowledge use water more wisely. The District produces its own, and uses water conservation literature from a number of State and local agencies including the TWDB. Residents throughout the District receive information describing how to save water including an annual 5-day lawn watering schedule distributed to permittees, local newspapers and is included in the Austin Environmental Guide. The District offers a financial incentive for permittees to conserve water in the form of Conservation Credits. Permittees who follow the District's rules and adhere to the conditions of their permits are eligible for Conservation Credits. In this program, permittees' accounts are credited with the difference in their actual annual usage and their annual permitted volume. Since the inception of the program, the District has issued approximately \$225,000 in Conservation Credits.

District residents are also provided information and encouraged to practice other prudent conservation and "water wise" techniques such as the use of xeriscape principles, rainwater harvesting, water reuse, checking for water system leaks, checking for leaky toilets and faucets, replacing old plumbing fixtures, running washing machine and dishwasher only with full loads, not letting faucet water run when brushing teeth or washing dishes in the sink, composting food scraps instead of using the disposal, limiting the length of time in showers, and following the District's 5-day lawn watering schedule.

Surface Water Resources

The District's Alternative Regional Water Supply Plan was developed to evaluate the potential of developing a District-wide water supply system capable of providing supplemental water to existing private and public purveyors to augment their Edwards Aquifer resources, especially during drought conditions. The plan was met with mixed emotions when it was presented at a series of public hearings in 1997. The study was intended to gather data and identify possible solutions, it was not a recommendation for action. Before any of these alternatives could be implemented, the study would need to be revisited. At which time, a detailed analysis of the specific proposal would be conducted, taking existing conditions into consideration, and further public input would be solicited. In the interim, GBRA, LCRA, the City of Austin, or other interested groups may implement their own plans to provide surface water to areas within the District's jurisdictional boundaries, regardless of District activities.

The District's 31 major permitted water users were grouped, based on their locale and points of use, into 3 water demand centers and the historic and projected total water requirements for each demand center was determined. These projections reflect water use within 31 existing public and private water systems and did not attempt to include supply to new water systems that may develop within the study area (i.e. the District's geographic boundaries) in the foreseeable future.

Alternative water supply options for the three demand centers include purchasing treated water from the Guadalupe-Blanco River Authority, the Lower Colorado River Authority, and the City of Austin. An additional alternative for future supply involves the District developing an Edwards Aquifer well field in an area remote to current public and private District permitted wells and pumping water to the demand centers. In order to evaluate these four options, the following assumptions were used:

1. All major District well permittees (i.e. private or public water purveyors) would obtain supplemental water from the regional system;
2. The regional system would be initially sized to provide at least 30 percent of the projected year 2000 water demands for major Edwards Aquifer well permittees;
3. The District's regional system would include all necessary improvements to transport potable water from supply sources to centrally located water demand centers;
4. The District's regional system would deliver water to the demand centers under sufficient pressure for subsequent transfer to each permittee's points of use;
5. Each water purveyor would bear the cost of any infrastructure improvements needed to deliver water from the District's regional system to their individual point of use;
6. A 12-inch water transmission main would be utilized to supply water from the supply source to a central location within each demand center;
7. Flow velocity in the 12-inch water transmission main is limited to 4.5 feet per second for preliminary design purposes;
8. All District owned water transmission and storage facilities would be located in private easements or land owned by the District;
9. Capital and operation and maintenance costs would be estimated based on 1996 dollars; and
10. For cost purposes the following water supply alternatives serving all three water demand centers were evaluated:
 - A. GBRA Treated Water Supply Option;
 - B. LCRA Treated Water Supply Option; and
 - C. COA Treated Water Supply Option.

Guadalupe-Blanco River Authority

Under this alternative, the District would enter into a wholesale treated water agreement with the GBRA. The District would purchase Canyon Lake contract water from the GBRA and participate in a raw water intake structure, located on the Guadalupe River at Lake Dunlap, and a 30-inch diameter, 19-mile pipeline to the San Marcos water treatment plant. The cost of GBRA contract water is estimated at \$53.03 per acre-foot per year. The District would need to purchase a minimum of 1,378 acre-feet (i.e. 30 percent of year 2000 demands for the three water demand centers) of contract water at an annual cost of \$73,075. The District's proportionate share of debt service on the 19-mile transmission main from Lake Dunlap to the San Marcos WTP is estimated at \$143,915 per year. This amount, which is included in the final cost analysis, pays for the District's capacity in the Lake Dunlap to San Marcos water treatment plant pipeline. This yields a total annual cost (excluding operation and maintenance costs associated with the 30-inch diameter, 19-mile raw water pipeline) of \$216,950 per year.

The District would enter into a contract with the City of San Marcos to treat and pump District-purchased GBRA water from the GBRA WTP to a District point of delivery, which is anticipated to be located along

Interstate Highway 35 near the CFAN Corporation Manufacturing Plant (approximately 2-miles north of the Blanco River). The unit cost of the District's treated water contract with San Marcos is estimated at \$0.75 per 1,000 gallons of treated water.

For purposes of evaluating this alternative, it is assumed that the City of Kyle will cost participate with the District to construct a 24-inch diameter treated water transmission main from the District's San Marcos point of delivery (i.e. along I.H. 35 near CFAN Corporation) to Kyle. From Kyle, the District would construct a 12-inch diameter water transmission main, with appurtenances (including an elevated storage facility) to Buda for supplying the three water demand centers.

The total projected capital cost for all required water improvements to supply Kyle and the District initial water needs for this alternative is \$7.3 million. The District's portion of this capital cost is for improvements extending from the San Marcos point of delivery to the three water demand centers and is estimated at \$5.6 million.

The annual revenue requirement for this alternative is projected at \$1,325,996. The largest annual cost of service items are for water treatment services (\$553,703) and for debt service (\$491,808).

Lower Colorado River Authority

The LCRA is planning to construct Phase II of their treated water regional supply system, originating from its Uplands Water Treatment Plant. This plant is located near the intersection of FM 2244 and State Highway 71, in the Village of Bee Cave. LCRA's water system will extend from its WTP eastward along State Highway 71 and thence westward along U.S. Highway 290 to Dripping Springs. The Phase II system should be completed around the year 2000, if wholesale water supply contracts with area purveyors are secured.

The LCRA alternative entails the District constructing a 12-inch diameter water main from LCRA's Phase II system. The District's point of delivery will be near the intersection of U.S. Highway 290 and Nutty Brown Road. The District's line would extend along Nutty Brown Road (with a ground storage tank that will serve as an elevated storage), thence along FM 1826 and thence eastward along the proposed alignment of Bliss Spillar Road to FM 1626. From this point, the District would construct a 12-inch diameter water transmission main westward towards the City of Hays and eastward to the Village of San Leanna. Another 12-inch diameter main would extend from the FM 1626 line southward to Buda to serve wholesale customers.

The District would enter into a wholesale treated water supply contract with LCRA and must purchase contract water from the authority. LCRA's treated water cost is estimated at \$1.60 per 1,000 gallons, with contract water costing about \$105 per acre-foot per year or \$144,648 per year for 1,378 acre-feet per year.

The projected capital cost for this alternative is \$5.7 million. The annual cost of service, based on 30 percent of Water Demand Centers Nos. 2 and 3 year 2000 water need, is estimated at \$1.5 million. Of this amount, approximately \$500,595 is for debt service and \$1.0 million is for annual operation and maintenance costs.

City of Austin

Under the COA alternative, the District may be able to connect directly to an existing Austin water main located near the intersection of Manchaca Road and Slaughter Lane. Austin would provide water and the District would boost or repressurize the water in the District's distribution network. The District would construct a 12-inch diameter transmission main from the point of delivery to supply water to all water demand centers. The District would enter into a wholesale treated water contract with Austin. Currently, Austin provides water to its wholesale treated water customers at about \$1.90 per 1,000 gallons.

The capital cost for this alternative is estimated at \$4.7 million. Annualized cost of service for this alternative is estimated at \$1.5 million based on satisfying 30 percent of the year 2000 demands for all water demand centers. As in the other alternatives, wholesale water purchases (estimated at \$853,005) and debt service (approximately \$405,004) represent the largest annual cost of service items.

Conjunctive Use of Surface and Groundwater

By identifying and developing an alternative surface water supply, the District's permittees and residents can begin to take advantage of the conjunctive use of surface water and groundwater. As proposed under the three surface water alternatives (GBRA, LCRA, and COA), the District would propose to provide surface water to satisfy 30 percent of the region's groundwater demand from existing permitted users through the year 2016. This does not take into account growth in groundwater demand from new permittees in the area, or the ever-increasing demand from exempt private wells. Groundwater may not be available, depending on aquifer conditions, demand, or any limitation the District may put on permittees to reduce impacts on the groundwater resources overall; therefore, by having a surface water supply available some future, potential permittees may choose surface water over groundwater for a more dependable and consistent quantity and quality of water.

If surface water is available in the existing high demand areas, most of which are in the deeper artesian portion of the aquifer, it may be possible to manage the groundwater resource, reducing negative consequences by providing an alternative source in these high demand areas. By reducing the demand on the aquifer in these areas, groundwater could remain available to those dependent upon it in the western portion of the District and in the shallower recharge zone areas. Surface or supplemental water can also be used to help mitigate the adverse impacts associated with in-District use, as well as, out of District groundwater transports.

The major inequity that has to be addressed is the fact that the major permitted pumpers in the artesian portions of the aquifer (eastern edge) will be expending funds for improvements and paying for the

surface water that will ultimately help sustain the availability of groundwater in the recharge zone where there are few permitted District wells (western edge) to share the cost. If the District assessed fees to a broader range of users, or established a fee mechanism to allow all beneficiaries to contribute to the conservation, recharge or establishment of an alternative water source in the region, it would benefit all users and the economic viability of the area. It would allow for ongoing improvements and expansions of selected surface water alternatives designed to reduce the negative impacts on groundwater demand from future growth. Board adopted policies and fees for the transport of groundwater out of the District may help to address some of these conjunctive use issues, but undoubtedly, additional funding resources must be developed to implement a capital improvement program.

GOALS, MANAGEMENT OBJECTIVES, AND PERFORMANCE STANDARDS

31TAC §356 requires goals, objectives, performance standards and tracking methods to be established in 6 emphasis areas that are specifically applicable to District operations. These requirements are detailed on the following tables along with their location in the plan. The 6 management goals are:

- **1. To provide for the most efficient use of groundwater within the Barton Springs / Edwards Aquifer Conservation District - 31tac §356.5 (a)(1);**
- **2. To control and prevent waste of groundwater within the Barton Springs / Edwards Aquifer Conservation District - 31tac §356.5 (a)(1);**
- **3. To control and prevent subsidence within the Barton Springs / Edwards Aquifer Conservation District - 31tac §356.5 (a)(1);**
- **4. To address conjunctive surface water management issues within the Barton Springs / Edwards Aquifer Conservation District - 31TAC §356.5 (a)(1);**
- **5. To address natural resource issues that impact the use and availability of groundwater and which are impacted by the use of groundwater within the Barton Springs / Edwards Aquifer Conservation District - 31TAC §356.5 (a)(1); and,**
- **6. Any additional management goal(s) beyond those specified in 31TAC §356.5 (a)(1) and considered specifically applicable to the operations of the Barton Springs / Edwards Aquifer Conservation District.**

Note that the management goal for controlling and preventing subsidence, as specified in 31TAC §356.5 (a)(1), is not specifically applicable to the operations of the Barton Springs / Edwards Aquifer Conservation District.

Many of the programs, projects and activities detailed in the District's 1995 Management Plan are applicable to one or more of the SB 1 groundwater management goals listed above. Specific goals, objectives, performance standards and tracking methods have been developed for this plan that are indicative of the inter-relatedness of District activities. When practicable, goals objectives, performance standards and tracking methods have been identified on the following tables that indicate the relationship with specific SB 1 groundwater management goals.

TWDB Checklist	PLAN REQUIREMENTS (13 ITEMS)	Page #
1	Estimate of the total usable amount of groundwater in the Barton Springs / Edwards Aquifer Conservation District - 31TAC §356.5 (a)(4)(a).	6
	Citation of estimate source or method.	10
2	Estimate of the amount of groundwater being used within the Barton Springs / Edwards Aquifer Conservation District on an annual basis - 31TAC §356.5 (a)(4)(b).	12
	Citation of estimate source or method.	15
3	Estimate of the annual amount of recharge to the groundwater resources within the Barton Springs / Edwards Aquifer Conservation District - 31TAC §356.5 (a)(4)(c).	17
	Citation of estimate source or method.	18
4	Estimate of the annual amount of additional natural or artificial recharge of groundwater within the Barton Springs / Edwards Aquifer Conservation District that could result from implementation of feasible methods for increasing the natural or artificial recharge - 31TAC §356.5 (a)(4)(c).	17
	Citation of estimate source or method.	18
5	Estimate of the projected water supply within the Barton Springs / Edwards Aquifer Conservation District - 31TAC §356.5 (a)(4)(d).	6
	Citation of estimate source or method.	10
6	Estimate of the projected water demand within the Barton Springs / Edwards Aquifer Conservation District - 31TAC §356.5 (a)(4)(d).	12
	Citation of estimate source or method.	15
7	Details of how the Barton Springs / Edwards Aquifer Conservation District will manage groundwater supplies within the Barton Springs / Edwards Aquifer Conservation District - 31TAC §356.5 (a)(5).	3
8	Actions, procedures, performance and avoidance necessary to effectuate the management plan, including specifications and proposed rules, all specified in as much detail as possible - 31TAC §356.5 (a)(3).	3
9	Ten year planning period - 31TAC §356.5 (a).	2
10	Certified copy of the Barton Springs / Edwards Aquifer Conservation District resolution adopting the plan - 31TAC §356.6 (a)(2).	45
11	Evidence that the plan was adopted after notice and hearing - 31TAC §356.6 (a)(3).	47
12	Evidence that following notice and hearing the Barton Springs / Edwards Aquifer Conservation District coordinated in the development of its management plan with surface water management entities - 31TAC §356.6 (a)(4).	57
13	Evidence of consistency with and any conflict between proposed management plan and the regional water plan (developed by regional planning groups formed under authority of TWC 16.053 (c)) for each region in which any part of the Barton Springs / Edwards Aquifer Conservation District is located, if such regional water plan has been approved by the board - 31TAC §356.6 (a)(5).	N/A

Note that the management goal for controlling and preventing subsidence, as specified in 31TAC §356.5 (a)(1), is not specifically applicable to the operations of the Barton Springs / Edwards Aquifer Conservation District.

CORRELATION MATRIX				
District Management Goals	<i>To provide for the most efficient use of groundwater - 31TAC §356.5 (a)(1)(A).</i>	<i>To control and prevent waste of groundwater - 31TAC §356.5 (a)(1)(B).</i>	<i>To address conjunctive surface water management issues - 31TAC §356.5 (a)(1)(D).</i>	<i>To address natural resource issues - 31TAC §356.5 (a)(1)(E).</i>
1.0 Water Well Program	✓	✓	✓	✓
2.0 Education / Public Outreach Program	✓	✓	✓	✓
3.0 Water Quality Protection Program	✓	✓	✓	✓
4.0 Water Quality Program	✓	✓	✓	✓
5.0 Information Systems	✓	✓	✓	✓
6.0 Grants Program	✓	✓	✓	✓
7.0 Legislative Program	✓	✓	✓	✓
8.0 Administrative Program	✓	✓	✓	✓

1.0 WATER WELL PROGRAM

1.0 Management Goal(s):

Manage the groundwater resources within the Barton Springs / Edwards Aquifer Conservation District to mitigate the adverse impacts of transporting groundwater out of the District, protect groundwater quality, provide for the most efficient use of the groundwater, to control and prevent waste, to address conjunctive surface water use, and to address natural resource issues.

1.1

Management Objective(s) - 31TAC §356.5 (a)(2):

Each year, maintain a water well program to help conserve and protect the groundwater in the Barton Springs segment of the Edwards Aquifer.

Performance Standard - 31TAC §356.5 (a)(2):

1.1.1 Register all new exempt and nonexempt wells that are drilled in the District. Complete well registration forms and register and inventory exempt and nonexempt wells within the District.

1.1.2 Perform at least one well site inspection on each new well drilled in the District.

1.1.3 Annually permit all non-exempt wells within the District by August 31.

1.1.4 Require monthly meter readings from permitted wells and monitor usage in accordance with District's Rules and Bylaws, user permits, and approved User Drought and Conservation Plans and enter reported pumpage into the District database within 45 days of receipt.

1.1.5 Inspect at least 20% of the District's permittee's systems each fiscal year for compliance with District rules.

1.1.6 Collect water quality and groundwater level information to monitor the aquifer's condition, record in databases, and use data to assess water quality and quantity conditions.

1.1.7 Ensure compliance with the District's Rules and Bylaws and Well Construction Standards during the drilling and completion of new wells and the capping or plugging of all identified abandoned wells.

1.1.8 Take water level measurements and water samples from selected abandoned wells prior to closure or plugging.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Data entry into District database(s), completed documentation on file.

1.2

Management Objective(s) - 31TAC §356.5 (a)(2):

Each year, the District will review the subject of transporting groundwater out of the District. Of major concern will be the subjects of the impact on the use of wells within the District, supplying needs outside of the District and how the District, if approving such transportation, can ensure that economic opportunities and water resources lost from the District due to the export are addressed.

Performance Standard - 31TAC §356.5 (a)(2):

1.2.1 Board adoption of Transport Rules by September 1998.

1.2.2 The District's Board of Directors will annually set, adopt and collect fees:

- a. for transport permits to cover all reasonable and necessary costs to the District of processing the application, conducting public hearings and determining the adequacy of the application, and for mitigating the loss of natural resources due to the transport;
- b. for services provided for the transport of groundwater out of the District, which fees will be dedicated to mitigating in District impacts of the transport; and,
- c. for all services provided outside of the boundaries of the District.

1.2.3 Hold a public hearing within 20 days regarding requests for transport of water out of the District once an application is determined to be administratively complete.

1.2.4 Determine whether to approve the transport, and appropriate conditions to place upon the transport, following consideration of whether the transport:

- (1) would have a beneficial use;
- (2) would cause or contribute to waste;
- (3) would present the possibility of unreasonable interference with the production of potable water from exempt, existing, or previously permitted wells;
- (4) would be otherwise contrary to the public welfare; and
- (5) is contrary to the District's certified management plan or an approved regional water supply plan.

Also considering:

- (1) the availability of water in the District and in the proposed receiving area during the period for which the water supply is requested;
- (2) the availability of feasible and practicable alternative supplies to the applicant;
- (3) the amount and purposes of use for which water is needed in the proposed receiving area;
- (4) the projected effect of the proposed transport out of the District on aquifer conditions, including flow at Barton Springs, depletion, subsidence, or effects on existing permit holders or other groundwater users within the District;

- (5) the indirect costs, economic and social impacts, and cost of resource replacement associated with the proposed transport of water from the District;
- (6) the approved regional water plan and certified District management plan; and,
- (7) other facts and considerations considered necessary by the District's Board of Directors for protection of the public health and welfare and conservation and management of natural resources in the District. No transport permits shall take effect during Drought Alarm Stage II or Drought Critical Stage III.

1.2.5 Make a decision regarding permits within 35 days following conclusion of a public hearing or any contested hearing held to consider transport applications.

1.2.6 Identify the use of fees collected to mitigate impacts of the transport of water out of the District in the annual budget for such purposes including: programs identified in paragraph 1.2.7, making grants, loans or contractual payments to achieve, facilitate, or expedite reductions in groundwater pumping or the development or distribution of alternative water supplies.

1.2.7 Each year, establish programs, policies and projects that supplement the enhancement of the groundwater within the Barton Springs segment of the Edwards Aquifer by either conserving water, recharging water, obtaining alternative surface water supplies or other measures that achieve, facilitate, or expedite reductions in groundwater pumping or the development or distribution of alternative water supplies.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Adopted Board policies, adopted annual budget and fee schedule. Board approved transport permits on file, copies of transport permits approved, disapproved or pending.

2.0 EDUCATION / PUBLIC OUTREACH PROGRAMS

2.0 Management Goal(s) -31TAC §356.5 (a)(1)(A):

Initiate, develop and promote activities and relationships that will enhance an understanding of the aquifer and the District's programs. Develop, organize and distribute educational and informational material designed to inform area residents, government officials, students and the media about District activities, the geology and hydrology of the Barton Springs segment of the Edwards Aquifer, principles of water conservation, water management, pollution mitigation, and other issues involving groundwater resources, such as: mitigating the adverse impacts of transporting groundwater out of the District, protecting groundwater quality, providing for the most efficient use of the groundwater, controlling and preventing waste, addressing conjunctive surface water use, and addressing natural resource issues.

2.1

Management Objective(s):

Each year, maintain and develop programs to educate, inform, and update local citizens about water-related matters of local, state and national importance using available media.

Performance Standard - 31TAC §356.5 (a)(2):

2.1.1 Each year, promote approved conservation practices and plans, make educational materials and water conservation materials and devices, Xeriscape informational brochures, and information regarding drought conditions available to permittees and exempt well owners, public schools, and other residents within the District.

2.1.2 Each month, release to the local media, timely information regarding District programs and activities and prepare articles for area newspapers that update District residents about water-related matters of local, regional, state, and national importance.

2.1.3 Each year, distribute technical reports, newsletters, brochures and related information about District activities as they are prepared.

2.1.4 Maintain availability of District Directors and employees for speaking engagements at schools, neighborhood associations, professional meetings or conferences, and other private or public functions as a public service where District programs, activities, goals, and plans can be presented, promoted, or emphasized.

2.1.5 Each year, assist educators, parents and students to learn about the Barton Springs segment of the Edwards Aquifer and the principles of water quantity / quality protection and conservation through the development and distribution of educational materials, field trips and presentations.

2.1.6 Organize and shelve reference materials in the District library and along with pertinent newspaper articles. Maintain a District "scrapbook" on articles about the District, the aquifer, and related issues.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Copies of articles, press releases and materials provided to promote District programs and projects, activity logs, and Annual Report.

2.2

Management Objective(s):

Each year, recognize individuals, private corporations and public organizations who contribute to the District's efforts by promoting conservation through their initiative, innovation, and application of practices or activities designed to reduce consumptive uses, eliminate waste, or provide aquifer protection.

Performance Standard - 31TAC §356.5 (a)(2):

2.2.1 Nominate persons, determine winners, present Conservation Awards to winners.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Conservation Awards conveyed.

2.3

Management Objective(s):

Each year, maintain the District's Drought Management Plan in accordance with District rules.

Performance Standard - 31TAC §356.5 (a)(2):

2.3.1 Assist in the development of permittee User Drought and Conservation Plans (UDCP) in accordance with District Rules, review the plans and obtain Board approval in accordance with District Rules and Bylaws and State standards.

2.3.2 Monitor water level and weather conditions for implementation of District Drought Management Plan.

2.3.3 Develop and implement drought contingency programs that help to minimize the negative impacts of droughts on District residents and that will help provide enough water to satisfy basic needs

for public health and safety, prevent degradation to the aquifer, and maintain groundwater levels sufficient to preserve the integrity of the aquifer.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Approved UDCPs on file, water level measurements, newsletters / notices concerning drought conditions and weather database.

2.4

Management Objective(s):

Organize and conduct events which allows the District to work cooperatively with area residents and school children in demonstrating the important relationships between surface water and groundwater quality.

Performance Standard - 31TAC §356.5 (a)(2):

2.4.1 One creek cleanup annually.

2.4.2 One cave or recharge feature cleanup every other year.

2.4.3 Every other year, hold a Household Hazardous Waste Collection Day for rural and suburban residents in cooperation with other public and private interest groups.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Advertising literature, volume of trash collected and a list of materials collected.

2.5

Management Objective(s):

Develop cooperative public and private partnerships with agencies, organizations and entities having areas of mutual interest that will further the District's mission and maximize the effective use of public funds and resources while protecting the aquifer.

Performance Standard - 31TAC §356.5 (a)(2):

2.5.1 Participate in activities designed to learn more about the threats to the aquifer and help to establish methods to reduce the potential for harm.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Participation in cooperative activities to protect the aquifer.

3.0 WATER QUALITY PROTECTION PROGRAMS

3.0 Management Goal(s):

Collect, analyze and provide information on groundwater quality conditions, and develop and implement programs designed to monitor, prevent, and mitigate pollution of the groundwater within the Barton Springs segment of the Edwards Aquifer and address other issues involving groundwater resources, such as: mitigating the adverse impacts of transporting groundwater out of the District, protecting groundwater quality, providing for the most efficient use of the groundwater, controlling and preventing waste, addressing conjunctive surface water use, and addressing natural resource issues.

3.1

Management Objective(s) - 31TAC §356.5 (a)(2):

Collect groundwater samples in order to assess ambient conditions and monitor groundwater quality. Sample permitted wells during regularly scheduled inspections, all newly drilled wells upon completion, and other wells upon request. Sample other wells where water quality data is needed and / or contamination is suspected. Monitor water quality in wells that characterize and describe the dynamic nature of the "Bad-Water Zone."

Performance Standard - 31TAC §356.5 (a)(2):

3.1.1 Sample scheduled wells and springs.

3.1.2 Sample selected abandoned wells prior to plugging.

3.1.3 Sample sites where contamination is reported or suspected.

3.1.4 Sample permitted wells as part of inspections.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Water quality database.

3.2

Management Objective(s) - 31TAC §356.5 (a)(2):

Develop and evaluate strategies for notification, response, abatement, and remediation in the event of an emergency situation that threatens the water quality of the Barton Springs segment of the Edwards Aquifer.

Performance Standard - 31TAC §356.5 (a)(2):

3.2.1 Prepare spill-response kit with respirator, cartridges, calorimetric tubes, proper documentation, and other supplies.

3.2.2 Spill response personnel receive training and refresher as per CFR 1910.120.

3.2.3 Every two years, arrange a meeting with US. Fish and Wildlife, City of Austin, TNRCC, local fire dept., pipeline companies to prepare for accidental spills, develop contacts, and delineate agencies contributions and responsibilities.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Update certification, spill-response supplies, and document packet.

3.3

Management Objective(s) - 31TAC §356.5 (a)(2):

Provide technical assistance to federal, state and local entities, organizations and individuals on the use of structural / non-structural BMPs that reduce impacts of construction and urbanization on the water quality or quantity.

Performance Standard - 31TAC §356.5 (a)(2):

3.3.1 As requested, inspect and analyze commercial and industrial sites, residential subdivisions, roadways and infrastructure before, during, and after construction to determine the developments potential impact on groundwater quality.

3.3.2 As requested, provide information to developers, roadway contractors, the regulated community and local and state agency personnel about the vulnerability of the District's groundwater resources and the steps they can take to mitigate the threats of contamination.

3.3.3 Review and provide comments, where applicable, for applications made to the Texas Natural Resource Conservation Commission (TNRCC), City of Austin (COA), small cities or other entities concerning efforts to mitigate potential degradation to the aquifer from contaminated stormwater and submit comments on selected plans.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Attendance at relevant meetings to address District concerns, copies of comments provided, inspection reports.

4.0 WATER QUANTITY PROGRAMS

4.0 Management Goal(s):

Develop, evaluate, and implement management strategies that will protect and enhance the quantity of water in the Barton Springs segment of the Edwards Aquifer. Gather geologic and socioeconomic information pertaining to the use and the quantity of water in the aquifer that will allow the public, District staff and elected official to make more informed decisions on issues involving groundwater resources, such as: mitigating the adverse impacts of transporting groundwater out of the District, protecting groundwater quality, providing for the most efficient use of the groundwater, controlling and preventing waste, addressing conjunctive surface water use, and addressing natural resource issues.

4.1

Management Objective(s) - 31TAC §356.5 (a)(2):

Implement and maintain recharge enhancement projects as identified by the Board of Directors.

Performance Standard - 31TAC §356.5 (a)(2):

4.1.1 Continue development and implementation of recharge enhancement projects that maximize the productivity and extend the available sustained yield from the Barton Springs segment of the Edwards Aquifer.

4.1.2 Pursue alternate funding, sponsorship, or partnerships and continue to implement recharge enhancement projects; and evaluate costs, impacts, and benefits of the projects in order to minimize the expense to the District and maximize the projects' effectiveness.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Projects implemented, sites maintained and applications or proposals submitted for grants, sponsorship, or partnerships.

4.2

Management Objective(s) - 31TAC §356.5 (a)(2):

Research, identify and evaluate alternative water supply sources to offset groundwater demand and prolong the long-term viability of the Barton Springs segment of the Edwards Aquifer.

Performance Standard - 31TAC §356.5 (a)(2):

4.2.1 Identify alternative or supplemental water supplies for drought and conservation management, and for future growth.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Discussions and correspondence with surface water entities, meeting notes and minutes.

4.3

Management Objective(s) - 31TAC §356.5 (a)(2):

As records become available, obtain historical stream flow gain / loss records and monitor stream flow over the recharge zone in major contributing creeks and correlate with meteorological data and groundwater levels.

Performance Standard - 31TAC §356.5 (a)(2):

4.3.1 Identification of sites and quantities of recharge into the Barton Springs Edwards Aquifer.

4.3.2 Identify stations suitable for flow measurements utilizing previous USGS sites and on either side of point recharge sites.

4.3.3 Use visual observations or flow measurements to locate major point recharge sites.

4.3.4 Install permanent flow meters at appropriate sites on recharge creeks.

4.3.5 Collect flow measurements on recharge creeks during high, low, and base flow conditions.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Inventory of sites and data entered in the database.

4.4

Management Objective(s) - 31TAC §356.5 (a)(2):

Obtain hydrogeological reports from permittees who request new permits of more than 2 million gallons a year or any major pumpage amendment in accordance with established District criteria.

Performance Standard - 31TAC §356.5 (a)(2):

4.4.1 Obtain hydrogeological reports from permittees who request new permits of more than 2 million gallons a year or any major pumpage amendment in accordance with established District criteria.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Hydrogeological reports on file.

4.5

Management Objective(s) - 31TAC §356.5 (a)(2):

Each year, monitor groundwater levels in at least 5 wells in the Barton Springs segment of the Edwards Aquifer to describe water level changes, groundwater flow, recharge / discharge relationships and available water for storage / yield to make drought determinations from selected monitor wells.

Performance Standard - 31TAC §356.5 (a)(2):

4.5.1 Collect water level data at least twice a month or once a week during drought declarations.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Graphs of water levels and data in the database.

5.0 INFORMATION SYSTEMS PROGRAMS

5.0 Management Goal(s):

Develop and maintain an efficient computerized GIS database. Use District data in the construction of computer generated information depicting aquifer conditions or other applicable scenarios to be used for educational and management goals on issues involving groundwater resources, such as: mitigating the adverse impacts of transporting groundwater out of the District, protecting groundwater quality, providing for the most efficient use of the groundwater, controlling and preventing waste, addressing conjunctive surface water use, and addressing natural resource issues.

5.1

Management Objective(s) - 31TAC §356.5 (a)(2):

Annually maintain the District GIS program to analyze District data.

Performance Standard - 31TAC §356.5 (a)(2):

5.1.1 Utilize GIS for all District programs or projects requiring GIS support.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Graphics or analysis developed to support District programs or projects.

5.2

Management Objective(s) - 31TAC §356.5 (a)(2):

Annually maintain the District computer system and network to facilitate District productivity.

Performance Standard - 31TAC §356.5 (a)(2):

5.2.1 Keep computer system and network fully functional.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Functionality of computer system and network.

6.0 GRANTS PROGRAM

6.0 Management Goal(s):

Identify, make application for, and receive grant funding in order to support District programs. Offset District expenditures and minimize expenses to the District's customers. Undertake research and implement management strategies that would be difficult to pursue without grant funding support on issues involving groundwater resources, such as: mitigating the adverse impacts of transporting groundwater out of the District, protecting groundwater quality, providing for the most efficient use of the groundwater, controlling and preventing waste, addressing conjunctive surface water use, and addressing natural resource issues.

6.1

Management Objective(s) - 31TAC §356.5 (a)(2):

Each year, identify and determine opportunities to obtain grant funds to support District groundwater research programs in water quality and quantity.

Performance Standard - 31TAC §356.5 (a)(2):

6.1.1 As grant opportunities are identified, make applications for grants that support District programs and objectives.

6.1.2 Establish mutually beneficial cooperative working relationships and public / private joint ventures to accomplish the District's management objectives and that would enhance the District's opportunities for receiving and utilizing grant funds.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Grant applications submitted and funded.

6.2

Management Objective(s) - 31TAC §356.5 (a)(2):

Each year, administer existing grants in accordance with their contract requirements.

Performance Standard - 31TAC §356.5 (a)(2):

6.2.1 Meet or exceed all contractual grant obligations in an efficient, timely manner as per grant requirements.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Individual grant contract requirements.

7.0 LEGISLATIVE PROGRAMS

7.0 Management Goal(s):

Monitor pending state legislation or agency rules, provide testimony to legislators or agencies, and inform area residents and public officials about its implications. Work with legislators and agencies to introduce and support legislation or rules that complement or enhance District interests on issues involving groundwater resources, such as: mitigating the adverse impacts of transporting groundwater out of the District, protecting groundwater quality, providing for the most efficient use of the groundwater, controlling and preventing waste, addressing conjunctive surface water use, and addressing natural resource issues.

7.1

Management Objective(s) - 31TAC §356.5 (a)(2):

Monitor legislative activities, encourage or develop legislation favorable to District programs, and work to suppress legislation which may negatively impact the District, its residents, or programs.

Performance Standard - 31TAC §356.5 (a)(2):

7.1.1 Attend and participate in legislative and agency committee meetings, public hearings, and other opportunities to share District goals and objectives with legislative and agency decision-makers.

7.1.2 Work to obtain legislation identified by the Board of Directors.

7.1.3 Work to establish legislation, monitor rule making activities, and develop regulations favorable to District programs, and work to suppress those which may negatively impact the District, its residents, or programs.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Annual District legislative activities.

8.0 ADMINISTRATIVE PROGRAM

8.0 Management Goal(s):

Maintain an effective, efficient, and professional business environment in the routine execution of District administration that supports District activities on issues involving groundwater resources, such as: mitigating the adverse impacts of transporting groundwater out of the District, protecting groundwater quality, providing for the most efficient use of the groundwater, controlling and preventing waste, addressing conjunctive surface water use, and addressing natural resource issues.

8.1

Management Objective(s) - 31TAC §356.5 (a)(2):

Each year, manage District accounting and financial records for optimum precision and accuracy in accordance with Federal and State law, the District's Rules and Bylaws, and Board direction.

Performance Standard - 31TAC §356.5 (a)(2):

8.1.1 Develop, modify, implement and enforce the District's Rules and Bylaws, Well Construction Standards, and Board Resolutions and Orders, as necessary to carry out duties as provided in Chapters 35 and 36 of the Texas Water Code and Senate Bill 988 to properly manage the Barton Springs segment of the Edwards Aquifer.

8.1.2 Follow adopted budget to implement District programs plans and policies based on the Board's directives, management plans, and project objectives in accordance with approved District budgeted expenses and annual income.

8.1.3 Maintain, record, and update all District financial transactions as funds are accrued or dispersed in order to keep the District's financial records current and accurate.

8.1.4 Maintain District financial resources in a manner that maximizes liquidity while maintaining the greatest return on District fund balances by investing in securities or investment pools that operate in low risk investments and are backed by the State and / or Federal government.

8.1.5 Engage counsel, as necessary, to interpret and advise the District on legal matters pertaining to District activities and defend the District against challenges.

8.1.6 Coordinate acquisition activities ensuring cost-effectiveness and quality. Utilize purchasing procedures that meet, or exceed, the requirements of State law and District rules.

8.1.7 Obtain contracts for service in accordance with established District standards.

8.1.8 Maintain and update District Director and Employee Errors and Omissions, Liability and Public Officials Policies and District records on eligibility and types of insurance coverage provided.

8.1.9 Maintain and update employee and District records on eligibility for health insurance and related benefits, and bonding as applicable.

8.1.10 Maintain official records, files, and meeting minutes. Preserve and protect public documents in accordance with State and Federal laws and District Records Retention Schedule to allow for safe keeping and efficient retrieval.

8.1.11 Conduct within 120 days of fiscal year end, a complete independent audit of the District's financial records.

8.1.12 Develop within 120 days of fiscal year end a year end report of the District's activities.

8.1.13 Develop an annual budget based on the Board's directives and management plans, estimated District cost, expenses, and projected annual income.

8.1.14 Develop and maintain an annual inventory of all District property.

8.1.15 Conduct within 120 days of fiscal year end, a complete independent report of the District's Pension's Plan for submission to the Pension Review Board.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):

Annual budget, annual audit and annual report, copies of inventory, and meeting minutes or audio tape.

8.2

Management Objective(s) - 31TAC §356.5 (a)(2):

Conduct and attend meetings vital to District operations.

Performance Standard - 31TAC §356.5 (a)(2):

8.2.1 Board Meetings and Agenda Preparation - Develop, print and distribute meeting agendas.

Assemble back-up materials, prepare meeting facilities and provide staff support and attendance as required. Prepare meeting minutes after each meeting for approval at a subsequent regular meeting.

8.2.2 Policy Advisory Committee Meetings - Develop, print and distribute meeting agendas.

Assemble back-up materials, prepare meeting facilities and provide staff support and attendance as required. Prepare meeting minutes after each meeting for approval at a subsequent regular meeting.

8.2.3 Attend and participate in meetings held by local, state and federal regulatory agencies, local, state and federal legislative bodies, and other organizations by providing comments, reports and technical assistance.

8.2.4 Hold and attend meetings that provide the public with the opportunity to review, discuss, and provide comments on plans, programs, and regulations of the District.

8.2.5 Attend and participate in meetings held by professional organizations which provide training, technical assistance, support and information about topics critical to the District, and / or the professional development of the District employees and Directors.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):
Status reports.

8.3

Management Objective(s) - 31TAC §356.5 (a)(2):
Conduct District elections.

Performance Standard - 31TAC §356.5 (a)(2):

8.3.1 Hold Director elections in even numbered years in accordance with State and Federal Law.

8.3.2 Redistrict Director Precincts as required by State and Federal law and changes in local election precincts.

Methodology To Track Annual Progress - 31TAC §356.5 (a)(5):
District election and redistricting materials and records.

Appendix I - District Resolution

STATE OF TEXAS

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RESOLUTION #082098-01

COUNTY OF TRAVIS

**BARTON SPRINGS/EDWARDS AQUIFER CONSERVATION DISTRICT
RESOLUTION AUTHORIZING APPROVING MANAGEMENT PLAN**

WHEREAS, the Management Plan of the Barton Springs/Edwards Aquifer Conservation District, attached hereto as Attachment A, has been developed for the purpose of conserving, preserving, protecting and recharging the underground water in the District, and this action is taken under the District's statutory authority to prevent waste and protect rights of owners of interest in groundwater;

WHEREAS, the Management Plan meets the requirements of Senate Bill 1;

WHEREAS, Under no circumstances, and in no particular case will this Management Plan, or any part of it, be construed as a limitation or restriction upon the exercise of any discretion, where such exists; nor will it in any event be construed to deprive the Board of an exercise of powers, duties and jurisdiction conferred by law, nor to limit or restrict the amount and character of data or information which may be required for the proper administration of the law.

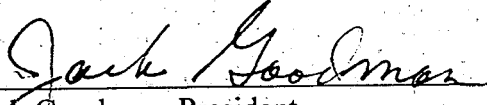
NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE BARTON SPRINGS/EDWARDS AQUIFER CONSERVATION DISTRICT THAT:

- 1) The "Management Plan of the Barton Springs/Edwards Aquifer Conservation District" contained in attachment A is hereby adopted.
- 2) This Management Plan will take effect upon certification by the Texas Water Development Board. It will remain in effect until a revised District Management Plan is certified or September 2003, whichever is earlier.

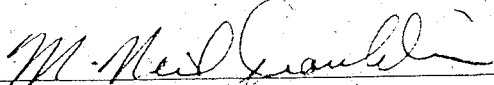
AND IT IS SO ORDERED.

The motion passed with 5 ayes, and 0 nays.

PASSED AND APPROVED THIS 20th DAY OF August, 1998.


Jack Goodman, President

ATTESTED BY:


Neil Franklin, Secretary

Appendix II - Notice of Meetings

NOTICE OF MEETING

Notice is given that a **Regular Meeting** of the Board of Directors of the Barton Springs/Edwards Aquifer Conservation District will be held at the District office located at 1124-A Regal Row, Austin, Texas on **Thursday, September 11, 1997 at 6:00 p.m.** for the following purposes:

1. Call to order.
2. Public Comments.
3. Routine Business.
 - a. Discussion and possible action on Financial Reports, Director's Compensation Claims, the Public Funds Investment Act and expenditures greater than \$5,000.
 - b. General Manager and Director's reports.
 - c. Discussion and possible action on meeting minutes from the August 7, 1997 Regular Meeting and Executive Session and the August 13, 1997 Called Meeting.
4. New Business.
 - a. Discussion and possible action on the District's participation with a committee of local governments and invited participants in developing and evaluating recovery plans for Barton Springs salamander.
 - b. Discussion and possible action on the District's representation at the American Water Resources Association's Annual Conference in Long Beach, CA. on October 19-23.
 - c. Discussion and possible action on proposed District Spring Conference on the Evaluation of Technical Considerations in Water Resource Management and Pollution Prevention. (JAG)
 - d. Discussion and possible action on Board Meeting times. (JAG)
 - e. Discussion and possible action on a briefing on Senate Bill 1 for permittees. (BEC)
 - f. Work Session on Management Plan and Senate Bill 1. (BEC)
 - g. Discussion and possible action on work order #21 for DGRA on 2770 BMP project. (RF/DGRA)

September 11, 1997
P. Miller

h. Discussion and possible action on grant application to TWDB for Water/Wastewater Supply Studies in cooperation with Bureau of Economic Geology (BEG) and City of Buda or Hays County.

i. Discussion and possible action on proposal to develop funding formula with the City of Austin to present to legislature. (RD)

5. Adjournment.

Came to hand and posted on a Bulletin Board in the Courthouse, Travis County, Texas, on this, the _____ day of _____ 1997, at _____ p.m.

_____, Deputy Clerk
Travis County, TEXAS

NOTICE OF MEETING

Notice is given that a **Called Meeting and Executive Session** of the Board of Directors of the Barton Springs/Edwards Aquifer Conservation District will be held at the District office located at 1124-A Regal Row, Austin, Texas on **Thursday, January 8, 1998 at 9:00 a.m.** for the following purposes:

1. Call to order.
2. Public Comments.
3. Routine Business.
 - a. Discussion and possible action on Financial Reports, Director's Compensation Claims, the Public Funds Investment Act and expenditures greater than \$5,000.
 - b. General Manager and Director's reports.
 - c. Discussion and possible action on meeting minutes from the October 28, 1997 Work Session and the December 11, 1997 Regular Meeting.
4. Executive Session.
 - a. Executive Session: The Board may meet in Executive Session with legal counsel if necessary, to discuss the 1990 Federal Court Order and Consent Decree Civil Action No. A89CA719 as authorized by Section 551.071 of the Texas Government Code.
5. Continued Business.
 - a. Discussion and possible action on TxDOT non-compliance with Consent Decree Civil Action No. A89CA719.
 - b. Discussion and possible action on Senate Bill 1 Rules in regards to the District Management Plan.
 - c. Discussion and possible action on application to transfer ownership from Plum Creek Development/Negly Ranch to the City of Kyle and issue pumpage permit.
 - d. Discussion and possible action on non-compliant users including Bob Lowden.
6. New Business.
 - a. Discussion and action on the Fiscal Year 1997 Annual Report.

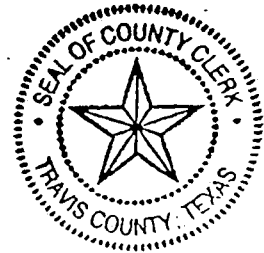
b. Discussion and possible action on negotiating an interlocal agreement for the Groundwater and Dye Tracing 319h grants with the City of Austin.

c. Discussion and possible action on development of future legislation.

7. Adjournment.

Came to hand and posted on a Bulletin Board in the Courthouse, Travis County, Texas, on this, the 5th day of January 1998, at 8:45 ^{4:17} ~~p.m.~~

D. Anderson, Deputy Clerk
Travis County, TEXAS

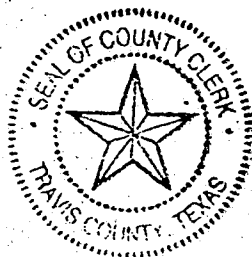


NOTICE OF MEETING

Notice is given that a **Called Meeting and Public Hearing** of the Board of Directors of the Barton Springs/Edwards Aquifer Conservation District will be held at the District office located at 1124 A Regal Row Austin, Texas 78748 on **Tuesday July 28, 1998 at 6:00 p.m.** for the following purposes:

1. Call to order.
2. Public Hearing.
 - a. The Board will hold a Public Hearing on Rule revisions which include transporting water out of the District and the District Management Plan required under Senate Bill 1.
3. New Business.
 - a. Discussion and possible action on District Management Plan.
 - b. Discussion and possible action on District Rules and Bylaws.
4. Adjournment.

Came to hand and posted on a Bulletin Board in the Courthouse, Travis County, Texas, on this, the 27 day of July 1998, at 7:50 p.m.



Michael P. Gonzales, Deputy Clerk
Travis County, TEXAS

Michael P. Gonzales

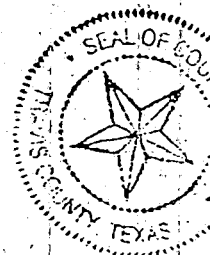
The Board will announce it will go into Executive Session, if necessary pursuant to Chapter 551.071 of the Texas Government Code, to receive advice from Legal Counsel, to discuss matters of Land acquisition, litigation and personnel matters or on any matters specifically listed on this agenda.

NOTICE OF MEETING

Notice is given that a **Regular Meeting** of the Board of Directors of the Barton Springs/Edwards Aquifer Conservation District will be held at the District office located at 1124-A Regal Row, Austin, Texas on **Thursday, August 13, 1998 at 4:00 p.m.** for the following purposes:

1. Call to order.
2. Public Comments.
3. Routine Business.

Came to hand and posted on a Bulletin Board in the Courthouse,
Austin, Texas County, Texas on this the 5th day of
August 19 98
Denz DeBeauvoir,
Deputy Clerk, Travis County, Texas
By [Signature] Deputy



- a. Discussion and possible action on Financial Reports under the Public Funds Investment Act, Director's Compensation Claims and expenditures greater than \$5,000.
 - b. General Manager and Director's reports.
 - c. Discussion and possible action on meeting minutes from the July 2, 1998 Called Meeting and Work Session, the July 9, 1998 Called Meeting, Public Hearing and Executive Session, and the July 28, 1998 Called Meeting and Public Hearing.
4. Public Hearing.
 - a. The Board will hold a Public Hearing on proposed Rules and Bylaws, the District Management Plan, Fees, and Fee Schedule.
 - b. The Board will hold a Public Hearing on proposed Fiscal Year 1998 Budget Amendments.
 5. Continued Business.
 - a. Discussion and possible action on City of Austin settlement agreement. (JG)
 - b. Discussion and possible action on 1998 PAC appointments. (Brd)
 - c. Discussion and possible action on lease purchase of District offices. (Brd)
 - d. Discussion and possible action on Fiscal Year 1998 budget amendments. (BEC/ER)
 - e. Discussion and possible action on Longhorn Pipeline Litigation. (NH)

NOTICE OF MEETING

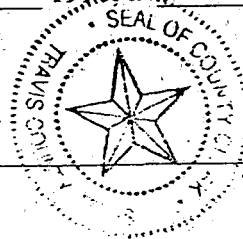
Notice is given that a Called Meeting of the Board of Directors of the Barton Springs/Edwards Aquifer Conservation District will be held at the District office located at 1124-A Regal Row, Austin, Texas on Thursday, August 20, 1998 at 2:00 p.m. for the following purposes:

1. Call to order.
2. Public Comments.
3. Routine Business.
 - a. Discussion and possible action on meeting minutes from the July 9, 1998 Called Meeting.
4. Continued Business.
 - a. Discussion and possible action on Plum Creek Water Supply pumpage volume amendment requested under emergency Rule #3-1.17B.
 - b. Discussion and possible action on Centex Materials and City of Buda water reuse project and water use permit. (NF)
 - c. Discussion and possible action on District Management Plan. (BEC, SB)
 - d. Discussion and possible action on District Rules and Bylaws, Fees and Fee Schedule. (Brd)
 - e. Discussion and possible action on Fiscal Year 1999 Board Meeting Calendar. (Brd)
5. Adjournment.

Came to hand and posted on a Bulletin Board in the Courthouse, Travis County, Texas, on this, the _____ day of _____, 1998, at _____ p.m.

Came to hand and posted on a Bulletin Board in the Courthouse,
Austin, Travis County, Texas on this, the _____ day of _____,

By *[Signature]*
Dana DeLoach
County Clerk, Travis County, Texas
V. AHUERO



_____, Deputy Clerk
Travis County, TEXAS

The Board will announce it will go into Executive Session, if necessary pursuant to Chapter 551.071 of the Texas Government Code, to receive advice from Legal Counsel, to discuss matters of Land acquisition, litigation and personnel matters or on any matters specifically listed on this agenda.

Appendix III - Letters from GBRA, LCRA and COA

- f. Discussion and possible action on Centex Materials and City of Buda water reuse project and water use permit. (NF)
 - g. Discussion and possible action on District Management Plan. (BEC, SB)
 - h. Discussion and possible action on Media Communication Seminar at the Center for Media Training on August 19, 1998. (Brd)
 - i. Discussion and possible action on District Rules and Bylaws, Fees and Fee Schedule. (Brd)
 - j. Discussion and possible action on Director's Compensation Guidelines.
6. New Business.
- a. Discussion and possible action on Director and Dissolution election expenses with the City of Austin and approval of payment.
 - b. Discussion and possible action on co-sponsoring Household Hazardous Waste Clean-Up event with Hays County. (SB)
 - c. Discussion and possible action on Fiscal Year 1999 Board Meeting Calendar (Brd)
 - d. Discussion and possible action on Plum Creek Water Supply pumpage volume amendment requested under emergency Rule #3-1.17B.
 - e. Discussion and possible action on travel to Karst Symposium at Mammoth Cave, Kentucky on September 23-25, 1998 where Nico Hauwert will be presenting the Groundwater Tracing Report. (NH)
7. Adjournment.

Came to hand and posted on a Bulletin Board in the Courthouse, Travis County, Texas, on this, the _____ day of _____ 1998, at _____ p.m.

_____, Deputy Clerk
Travis County, TEXAS

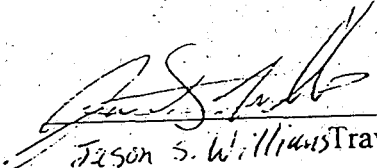
The Board will announce it will go into Executive Session, if necessary pursuant to Chapter 551.071 of the Texas Government Code, to receive advice from Legal Counsel, to discuss matters of Land acquisition, litigation and personnel matters or on any matters specifically listed on this agenda.

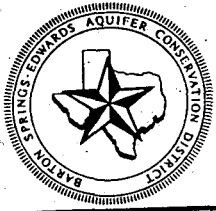
NOTICE OF MEETING

Notice is given that a Work Session of the Board of Directors of the Barton Springs/Edwards Aquifer Conservation District will be held at 1124 A Regal Row, Austin, Texas 78748 on Wednesday, August 19, 1998 at 4:00 p.m. for the following purposes:

1. Call to order.
2. Work Session.
 - a. Discussion and possible action on District Management Plan. (BEC, SB)
 - b. Discussion and possible action on District Rules and Bylaws, Fees and Fee Schedule. (Brd)
3. Adjournment.

Came to hand and posted on a Bulletin Board in the Courthouse, Travis County, Texas, on this, the 14 day of August 1998, at 1:27 p.m.


Jason S. Williams, Deputy Clerk
Travis County, TEXAS



Barton Springs/Edwards Aquifer Conservation District

1124A Regal Row
Austin, TX 78748
(512) 282-8441

July 24, 1998

Mr. Steve Parks, PE
LCRA
PO Box 220
Austin, TX 78767-0220

Dear Steve:

As I conveyed by phone today, the Barton Springs / Edwards Aquifer Conservation District is in the process of developing our management plan as required by 31TAC§356. One component of the plan is the evidence of our coordination with surface water management entities pursuant to 31TAC §356.6 (a)(4):

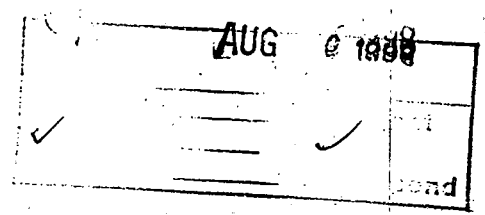
Evidence that following notice and hearing the Barton Springs / Edwards Aquifer Conservation District coordinated in the development of its management plan with surface water management entities.

Attached you will find notice that the District is conducting a public hearing here at our office on July 28, at 6:00 PM concerning the management plan. I am looking forward to your input into our plan. After your review, please furnish us with a letter confirming your review of our management plan and any comments or concerns you may have.

Sincerely,

Stovy L. Bowlin, AICP
Planning and Resource Development Division Manager





August 5, 1998

Mr. Bill Couch
General Manager
Barton Springs/Edwards Aquifer
Conservation District
1124-A Regal Row
Austin, Texas 78748

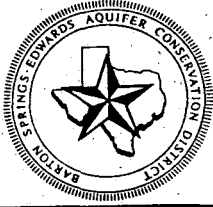
Dear Bill:

Thank you for the opportunity for the Lower Colorado River Authority to review the District's draft management plan. We are pleased that the District is actively planning to meet the water needs of the rapidly expanding population in your area by identifying and evaluating alternative surface water supplies to augment pumpage from the Edwards Aquifer. The LCRA welcomes the opportunity to discuss implementation of your identified alternative for the supply of Highland Lakes water from the LCRA to aid in meeting your District's long-term water needs.

If I can provide any additional information, please feel free to contact me at 473-4064.

Sincerely,

Quentin W. Martin, Ph.D., P.E.
Chief Water Resources Planner



Barton Springs/Edwards Aquifer Conservation District

1124A Regal Row
Austin, TX 78748
(512) 282-8441

July 24, 1998

Mr. Tommy Hill, PE
GBRA
933 E. Court Street
Seguin, TX 78156-0271

Dear Tommy:

As we discussed by phone today, the Barton Springs / Edwards Aquifer Conservation District is in the process of developing our management plan as required by 31TAC§356. One component of the plan is the evidence of our coordination with surface water management entities pursuant to 31TAC §356.6 (a)(4):

Evidence that following notice and hearing the Barton Springs / Edwards Aquifer Conservation District coordinated in the development of its management plan with surface water management entities.

Attached you will find notice that the District is conducting a public hearing here at our office on July 28, at 6:00 PM concerning the management plan. I am looking forward to your input into our plan. After your review, please furnish us with a letter confirming your review of our management plan and any comments or concerns you may have.

Sincerely,

A handwritten signature in cursive script that reads "Stovy Bowlin".

Stovy L. Bowlin, AICP
Planning and Resource Development Division Manager





GUADALUPE-BLANCO RIVER AUTHORITY

AUG 19 1998	
<input type="checkbox"/> Copy to <u>GB</u>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Record	<input checked="" type="checkbox"/>
<input type="checkbox"/> Agenda	<input type="checkbox"/>

GENERAL OFFICE
933 East Court Street
Seguin, Texas 78155
Phone: 830-379-5822
Fax: 830-379-9718

COLETO CREEK PARK
AND RESERVOIR
P.O. Box 68
Fannin, Texas 77960
Phone: 512-575-6366
Fax: 512-575-2267

LAKE WOOD
RECREATION AREA
Route 2, Box 158-A
Gonzales, Texas 78629
Phone: 830-672-2779

LOCKHART
WASTEWATER
RECLAMATION
SYSTEM
109 Larremore
Lockhart, Texas 78644
Phone 512-398-6052
Fax 512-398-6250

LULING WATER
TREATMENT PLANT
350 Memorial Drive
Luling, Texas 78648
Phone: 830-875-2132
Fax: 830-875-3670

PORT LAVACA
OPERATIONS
P.O. Box 146
Port Lavaca, Texas 77979
Phone: 512-552-9751
Fax: 512-552-6529

VICTORIA REGIONAL
WASTEWATER
RECLAMATION
SYSTEM
P.O. Box 2085
Victoria, Texas 77902-2085
Phone: 512-578-2878
Fax: 512-578-9039

GBRA WEBSITE
<http://www.gbra.org>

August 6, 1998

Mr. Stovy L. Bowlin, AICP
Barton Springs/Edwards Aquifer Conservation District
1124A Regal Row
Austin, TX 78748

File: 19-010-01-0481

Dear Mr. Bowlin:

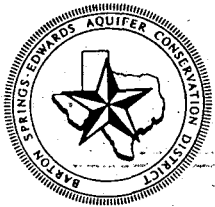
Thank you for submitting your District Management Plan for our review. The conjunctive water management section builds upon our regional study effort for the Hays and Caldwell areas.

Participation in the San Marcos Regional Surface Water Project is still open. GBRA is still looking for additional partners and would welcome additional discussions.

Again, thank you for sharing your plan with GBRA.

Sincerely,

Fred M. Blumberg
Deputy General Manager



**Barton Springs/Edwards Aquifer
Conservation District**
1124A Regal Row
Austin, TX 78748
(512) 282-8441

July 24, 1998

Mr. Craig Bell
City of Austin
Water and Wastewater Utility
625 E. 10th Street, Suite 700
Austin, TX 78701

Dear Craig:

As we discussed by phone today, the Barton Springs / Edwards Aquifer Conservation District is in the process of developing our management plan as required by 31TAC§356. One component of the plan is the evidence of our coordination with surface water management entities pursuant to 31TAC §356.6 (a)(4):

Evidence that following notice and hearing the Barton Springs / Edwards Aquifer Conservation District coordinated in the development of its management plan with surface water management entities.

Attached you will find notice that the District is conducting a public hearing here at our office on July 28, at 6:00 PM concerning the management plan. I am looking forward to your input into our plan. After your review, please furnish us with a letter confirming your review of our management plan and any comments or concerns you may have.

Sincerely,

Stovy L. Bowlin, AICP
Planning and Resource Development Division Manager





City of Austin

Founded by Congress, Republic of Texas, 1839
Municipal Building, Eighth at Colorado, P.O. Box 1088, Austin, Texas 78767 Telephone 512/499-2000

August 20, 1998

AUG 20 1998

Mr. Stovy L. Bowlin, AICP
Planning and Resource Development Division Manager
Barton Springs/Edwards Aquifer Conservation District
1124-A Regal Row
Austin, Texas 78748

Dear Stovy:

As you requested, we recently performed a quick review of your draft District Management Plan, dated July 28, 1998, focusing on the "Conjunctive Water Management" section, and more specifically on the subsection entitled "City of Austin."

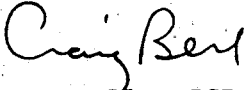
As we understand this option, it would entail a connection to the City of Austin water system and a 12-inch transmission main to some "water demand centers" within the District. We further understand that when the connection is made, the "demand centers" would rely on the City of Austin for year-around "base" demands, and that aquifer water would be used only as a supplement. This last concept would be important to the City of Austin, since we would be reluctant to enter into a contract that may cause seasonal peaking fluctuations created by using the Austin water system to supplement another source. We also recognize that that a future connection to the City of Austin is only one of multiple options that your Board may consider in the future.

We have no objection to the "City of Austin" option remaining in your District Management Plan, and look forward to further investigation of this possibility in the future. However, please pay attention to the following qualifications: (1) In order to have an adequate water supply for the District's needs, we anticipate that a 16-inch diameter water main should be constructed to connect existing Austin facilities in Manchaca Road to those near IH-35, with the probable alignment being along FM 1626. (2) The district and the City of Austin should investigate cost sharing for the construction of this transmission main. (3) At the point of connection, we would expect an air gap and storage tank for the district's pump station that would supply and repressurize water to the District's distribution system. (4) The rate of take would be in the range of 1,500 to 2,400 acre feet per year, and we will need to discuss how to accommodate daily and seasonal peaking. (5) All wholesale water agreements must be approved by the Austin City Council.

Mr. Stovy Bowlin
August 20, 1998
Page 2

Thanks for the opportunity to review your plan. If you have any questions, please call me at 322-3610.

Sincerely,



Craig Bell, AICP
Manager of Integrated Water Resources Planning
Water and Wastewater Utility

CB:fw

BS/EACD Fee Schedule Fiscal Year 1999

Adopted by Board August 20, 1998

I. PERMIT AND WATER USE FEES

A. Permit Fees

\$50.00 - fee assessed to all permittees to partially recover administrative cost for issuing annual permits.

B. Water Use Fees

\$0.17 per 1000 gallons for annual permitted pumpage for water to be withdrawn from a well or aggregate of wells.

\$1.00 per acre foot for Agricultural Irrigation Wells for annual permitted pumpage for water to be withdrawn from a well or aggregate of wells.

Water use Fees are assessed annually based on the current permitted pumpage volume of nonexempt wells. Permits are issued annually for nonexempt wells and are explicit to the volume of water permitted to be withdrawn from a well or aggregate of wells over a specific time period.

C. Transport Fees

- 1) **\$1000.00 Application Fee** assessed to all permittees who propose to transport water outside the District. The fee covers the administrative expenses of processing the application including reviewing the plans and the information required by the rules and the District, communicating and developing recommendations with the applicant and interested parties. A non-refundable fee assessment.
- 2) **\$1000.00 Transport Deposit** a deposit collected from the transport applicant to cover cost associated with any administrative or legal hearings required to be held following the review of the administratively complete application. This deposit will include cost for public notices, legal fees, facility rental fees, and other expenses, whether requested by the Board, the applicant, any protestant to the application, or interested party. Remaining deposit balance, if any, is refundable following approval of transport application. An additional deposit may be required if the original deposited funds are expended prior to the District's determination on the permit to transport water outside the District.
- 3) **\$0.33 per 1000 gallons Transport Fee** assessed annually to all permittees based on the volume permitted to be transported outside the District boundaries. The Transport Fee is used to help offset the cost of those programs, or activities, which purpose is to conserve, or protect, the groundwater quality and quantity, recharge the aquifer or obtain alternative sources of water. Or it is used to make

grants, loans, or contractual payments to achieve, facilitate, or expedite reductions in groundwater pumping or the development or distribution of alternative water supplies.

D. Annual Well Registration Fees

\$20.00 (\$10.00 per loop for ECHE-Closed Loop Systems)

Fee assessed annually to all wells within the District for record keeping and data collection purposes. Annual well registration fees for Earth Coupled Heat Exchange-Closed Loop System are assessed on each loop of the system rather than each well.

E. Pumpage Permit Amendments - Minor/Major

PUMPAGE PERMIT AMENDMENTS - changes of ownership and minor amendments to pumpage volumes. - **\$50.00**

PUMPAGE PERMIT MAJOR AMENDMENTS - (requiring full review) - **\$500.00**

F. Excess Pumpage Fee

Permittees who exceed their annual permitted pumpage by more than 500,000 gallons shall be assessed an excess pumpage fee for waters withdrawn in excess of the permitted volume in accordance with the following schedule:

500,000 gallons or less:	\$0.17 per 1000 gallons
more than 500,000 gallons:	
up to 25% of permitted pumpage	\$0.50 per 1000 gallons
25% to 100% of permitted pumpage	\$1.00 per 1000 gallons
Over 100% of permitted pumpage	\$2.00 per 1000 gallons

II. WELL CONSTRUCTION FEES

A. Well Development Application / Classification Fee - per well (except as noted)

\$1000.00 - Public Water Supply / Commercial (also see below) / Industrial / Injection / Irrigation / Agricultural Irrigation

\$250.00 - Domestic Residential / Agricultural / Domestic Commercial / Remediation / Monitor - Observation / Earth Coupled Heat Exchange - Closed Loop System / **Commercial wells permitted for less than 12,000,000 gallons and converted from an exempt use within the past 12 months**

Used for application to drill or modify any well in the District. Also assessed when classifying existing wells as nonexempt and bringing them into compliance with the permitting process. The first assessment of this fee on a new or existing nonexempt well also registers the well with the District for that Fiscal Year.

However, existing nonexempt wells coming into compliance will be assessed annual well registration fees for previous years. All wells will be classified in one of the following categories:

Domestic Residential Well - A well producing water exclusively used by an individual or a household for typical residential type uses. (usually an exempt well)

Domestic Commercial Well - A well used to supply water for both domestic household use and an on-site business such as those that build, supply, or sell products, provide goods, services, or repairs, or other business enterprises for which monetary consideration is given or received, and which use water in those processes. (a nonexempt well)

Commercial Well - A well used to supply water to properties or establishments which are in business to build, supply or sell products, or provide goods, services or repairs and which use water in those processes. (a nonexempt well)

Earth Coupled Heat Exchange - Closed Loop System - An interconnected system of wells drilled and equipped for the purpose of utilizing the subsurface as a source of energy for heat exchange in heating and cooling system. These are sealed systems, no water or material of any kind is to be produced or injected. For Closed Loop wells only, the District will assess a \$250.00 application fee for each site plus a \$250.00 inspection fee for each site and a \$50.00 well log deposit for each site. (an exempt well)

Industrial Well - A well used primarily in the building, production, manufacturing or alteration of a product or goods, or used to wash, cleanse, cool, or heat such goods or products. (a nonexempt well)

II. WELL CONSTRUCTION FEES (Continued)

Public Water Supply Well - A well used to provide water to non-profit and for-profit water supply companies, which sell and/or distribute water to their customers. This includes municipal water supply systems. (a nonexempt well)

Agricultural Well - A well used only for watering, feeding, and care of livestock or poultry connected with farming, ranching, or dairy operations. The property on which the well is located and the area served by the well must be recorded and taxed in the County as an agricultural land use. (an exempt well)

Irrigation Well - A well used to provide water for application to plants or land in order to promote growth of plants, turf, or trees. (a nonexempt well)

Agricultural Irrigation Well - A well used only to provide water for application to plants or land in connection with the production of agricultural food or fiber crops for human or animal consumption. The property on which the well is located and the area served by the well must be recorded and taxed in the County as an agricultural land use. (a nonexempt well). (This classification does not include wells used for other agricultural or irrigation purposes).

Monitor or Observation Well - A well generally used for collecting data on water quality and/or the elevation of the water table or the potentiometric surface of groundwater. The District will require an application for each site and assess a \$250.00 per site application fee. A \$250.00 construction inspection fee will be assessed for each site drilled except those under TNRCC supervision. For monitor wells drilled under TNRCC supervision, the construction inspection fee will be considered as being included in the application fee. A \$50.00 well log deposit will be required for each well. (an exempt well)

Injection Well - A well used to inject water or other material into a subsurface formation or into pipe or tubing placed in the formation for the purpose of storage or disposal of the fluid (an exempt well if drilled under a permit issued by the Railroad Commission of Texas, otherwise a nonexempt well).

Remediation - A well used to pump or vent contaminated air, water, or fluids from the ground.
(a nonexempt well)

B. Well Construction Inspection Fee

\$250.00 - Well construction inspection fee - Assessed to all wells constructed within the District including well modifications. District staff provides inspection for compliance with District standards. An hourly rate of **\$25.00** per hour will be assessed beyond 5 hours of inspector's time.

C. Well Log Deposit

\$50.00 - Applicants submitting a well development application which involves drilling will be required to pay a \$50.00 Well Log Deposit Fee at the time of submission. This fee will be fully refunded when the well logs are received at the District office within 30 days of the completion of the well. Logs submitted to the District after 30 days will receive a \$25.00 refund.

D. Well Abandonment / Capping Fee

\$50.00 - Well abandonment fee used to recover partial costs for site review, review of proposed abandonment procedure, inspection, and one time registration on abandonments. Capped wells require annual registration and payment of the annual well registration fee. Half of this fee will be refunded when a copy of the plugging report is received at the District office within 30 days of the plugging of the well.

\$250.00 - Closure or abandonment of Municipal, Public Water Supply, Industrial, Monitor, Remediation, and Commercial Wells. An hourly rate of \$25.00 per hour will be assessed beyond 5 hours of inspector's time.

III. OTHER FEES

METER VERIFICATION / INSPECTION FEE - \$50.00

Assessed only when user fails inspection after being advised that meters must be installed or calibrated, or when permittee fails to submit the required meter readings and District personnel must visit the well site or take the meter readings. May be assessed as many times as user fails to comply with Board orders or District rules to come into compliance.

SPECIAL FEES - Fee rate will be based on time required for such things as plan review, type of project, field work required, and inspection time. These fees may be applicable to a variety of special cases including closed loop heat exchange injection wells, special or innovative well developments or closures, and special inspections or requests from local government or private entities. Some cases may qualify for reduced fees due to the nature of the project (such as closed loop heat exchange wells).

RETURNED CHECK FEE - \$25.00

The District will assess the person writing the returned check a \$25.00 fee for each check returned by the District depository due to non-sufficient funds, account closed, signature missing, or any other problem causing such a return. This fee will be charged each time a check is returned. If bank charges to the District's account exceed \$25.00, the District shall assess the higher of the two amounts.

ACCOUNTING FEE - \$25.00 per hour

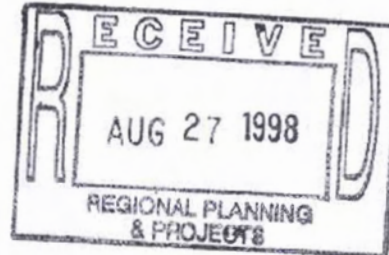
Anyone requesting that the District conduct any accounting other than the routine accounting normally done by the District, shall be assessed an accounting fee of \$25.00 per hour of District staff time spent on the accounting. Permittee's may request one review of their account per Fiscal Year without charge. Accounting fees will not be assessed if District generated errors are found in the Permittee's account.



**Barton Springs/Edwards Aquifer
Conservation District**
1124A Regal Row
Austin, TX 78748
(512) 282-8441

August 27, 1998

Mr. Craig Pedersen
Executive Administrator
Texas Water Development Board
1700 N. Congress
Austin, TX 78711-3231



Re: *Transmittal of District Management Plan*

Dear Mr. Pedersen,

The Barton Springs / Edwards Aquifer Conservation District (BS/EACD) is submitting our *Management Plan* that was adopted by our Board of Directors on August 20, 1998 for certification by the TWDB. It will remain in effect until a revised District Management Plan is certified or September 2003, whichever is earlier. This plan is in partial fulfillment of the requirements of SB 1 and TWDB rules, specifically Texas Administrative Code, Chapter 356 (31TAC §356). The District's Rules and By-Laws and Fee Schedule are attached as an addendum to support the management goals, objectives and performance standards detailed in the plan.

On page 26 of the plan, you and your staff will find a checklist of mandated components required in the plan, and the page number where you will find information concerning that item. Page 27 is a correlation matrix that identifies which District management goals correspond to the SB1 goals of efficient use, prevention of waste, conjunctive use of surface and groundwater, and natural resource issues. As you will notice, all District goals specifically address each SB1 goal.

All local surface water entities have been involved in the production of this plan. LCRA, GBRA and the City of Austin have reviewed the document and have provided letters confirming the coordination effort by the BS/EACD.

The District appreciates the effort TWDB staff has made during the production of this plan. Many members of the TWDB team have contributed in many significant ways to help bring this project to closure. You should be proud of them.

Please let me know if you need any additional information in the review of our plan for administrative completeness.

Sincerely,

Bill E. Couch, AICP
General Manager

BC/sb

