



## Texas Commission on Environmental Quality

### UTILITY PROFILE & WATER CONSERVATION PLAN FOR WHOLESALE WATER SUPPLIERS

Name of Entity: City of Austin Water Utility

Address & Zip: 625 East 10<sup>th</sup> Street Austin, Texas 78701

Telephone Number: (512) 974-2199 Fax: (512) 974-3504

Form Completed by: Drema Gross

Title: Water Conservation Division Manager

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name and Phone Number of Person/Department responsible for implementing a  
water conservation program: Drema Gross (512) 974-2787

**Note to Readers:** This report is required by the Texas Commission on Environmental Quality (TCEQ) for all Wholesale Water Suppliers. A Wholesale Water Supplier is an entity (i.e. the City of Austin) that supplies water for human consumption to another entity (i.e. the City of Austin's Wholesale Customers) for resale to its retail customers. The report will discuss various issues with regard to the City of Austin (City) as a Wholesale Supplier and the City's Wholesale Customers.

## PROFILE

### I. SERVICE AREA POPULATION AND CUSTOMER DATA

#### A. Wholesale Population and Service Area Data

1. Wholesale service area size in square miles:

Wholesale water Service area: 61.60

Emergency water service only: 25.15  
Total: 86.75

2. Current population of wholesale service area: 52,483

3. Current wholesale population served for:

a) Water: 52,483

b) Wastewater: 46,223

4. Wholesale population served for previous five years:

5. Projected population for wholesale service area in the following decades:

<u>Year</u>	<u>Population</u>	<u>Year</u>	<u>Population</u>
<u>FY 2007</u>	<u>54,000</u>	<u>2020</u>	<u>60,724</u>
<u>FY 2007</u>	<u>54,000</u>	<u>2030</u>	<u>72,989</u>
<u>FY 2009</u>	<u>44,000</u>	<u>2040</u>	<u>85,326</u>
<u>FY 2010</u>	<u>50,610</u>	<u>2050</u>	<u>N/A</u>
<u>FY 2011</u>	<u>51,538</u>	<u>2060</u>	<u>N/A</u>

The City's service area includes City retail customers and wholesale customers. Several wholesale customers' service area extends outside the City's service area because of the wholesale customer's infrastructure design and layout, operational limitations, or water supply demands. A copy of the City's service-area map is included in Appendix A.

Population is based on the City Demographer's estimate of the City's population (within the City's corporate limits and extraterritorial jurisdiction) and the population of the surrounding counties. Every ten years, Austin Water obtains updated census data and refines the City's population projections based on that information. In addition, Austin Water uses information from the City's Demographer and GIS information, including information about the City's water service areas, to roughly estimate the population of surrounding areas. Austin Water validates the City's projected population once the projection year has passed. Austin Water does not project wholesale service area population past the year 2040 because of the greater uncertainty of reliable projections.

## **B. Wholesale Customer Data**

Following is a list of City wholesale customers, the contracted amount of potable water, and their annual use for FY 2011:

<b>Wholesale Customer</b>	<b>Contracted Amount (acre-feet)</b>	<b>FY 2011 Water Delivered (acre-feet)</b>
<b>Water</b>		
<b>Aqua Texas-Morningside</b>	52.42	3.25
<b>Aqua Texas- Rivercrest Water Systems</b>	1,119.43	506.82
<b>City of Manor</b>	1,680.75	0.01 (meter testing only-wholesale water service not initiated to date)
<b>City of Rollingwood</b>	1,119.43	548.81
<b>City of Sunset Valley</b>	715.77	362.32
<b>Creedmoor-Maha WSC</b>	838.76	286.95
<b>High Valley WSC</b>	68.33	20.64
<b>Lost Creek MUD</b>	Contract states that the City will meet the MUD's future water needs, which were undefined	1,051.99
<b>Manville WSC</b>	4,480.93	160.47
<b>Marsha WSC</b>	26.89	38.96
<b>Mid-Tex Utilities</b>	6,564.94	No usage during this period; connection to City's system has not been completed
<b>Night Hawk WSC</b>	42.70	38.57
<b>North Austin MUD #1</b>	Contract states that the City will meet the MUD's future water needs, which were undefined	1,542.26
<b>Northtown MUD</b>	Contract states that the City will meet the MUD's future water needs, which were undefined	994.36
<b>Shady Hollow MUD</b>	Contract states that the City will meet the MUD's future water needs, which were undefined	876.65
<b>Travis County WCID #10</b>	3,360.43	3,119.69
<b>Village of San Leanna</b>	325.83	19.79
<b>Wells Branch MUD</b>	Contract states that the City will meet the MUD's future water needs, which were undefined	1,777.01

<b>Windermere Utility</b>	2,240.47	14.09
<b><i>Emergency Water Only</i></b>		
<b>Travis County MUD #4</b>	Water usage limited based upon pressure sustaining valve so that City retail customers do not experience a degradation of the level of service	No usage during this period
<b>Travis County WCID #17</b>	Water usage limited based upon pressure sustaining valve so that City retail customers do not experience a degradation of the level of service	No usage during this period; connection to City's system has not been completed
<b>River Place MUD</b>	No volumetric limitation	No usage during this period

## **II. WATER USE DATA FOR SERVICE AREA**

### **A. Water Delivery to Wholesale Customers**

All water delivered to City wholesale customers is treated water. The amount delivered to wholesale customers in FY 2011, was 10,785.43 acre-feet, which represents approximately six percent of total water delivered to all City retail and wholesale customers.

### **B. Water Accounting Data for All Water Uses**

Total amount of water delivered at point of diversion(s) for previous five years (in acre-feet) for all water uses:

	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
<b>January</b>	10,991.57	11,108.45	11,899.99	9,976.12	9,895.75
<b>February</b>	10,014.45	11,149.45	10,977.96	8,469.47	9,592.67
<b>March</b>	11,739.92	11,589.14	11,993.55	9,836.66	11,899.88
<b>April</b>	11,406.43	12,275.95	12,108.80	11,020.98	14,141.72
<b>May</b>	11,767.35	13,479.61	13,791.66	13,506.95	14,810.51
<b>June</b>	11,893.62	17,731.03	16,462.53	13,558.41	16,950.97
<b>July</b>	11,497.23	17,786.72	18,652.19	13,179.72	19,155.41
<b>August</b>	14,636.25	17,053.97	18,124.10	16,623.93	20,278.29
<b>September</b>	13,600.98	17,013.11	12,053.23	12,639.22	15,892.97
<b>October</b>	14,518.40	15,346.65	10,535.46	13,534.55	14,246.34
<b>November</b>	12,621.05	13,408.90	10,016.62	11,620.04	11,640.63
<b>December</b>	11,101.10	12,178.98	9,647.38	11,005.24	9,835.62

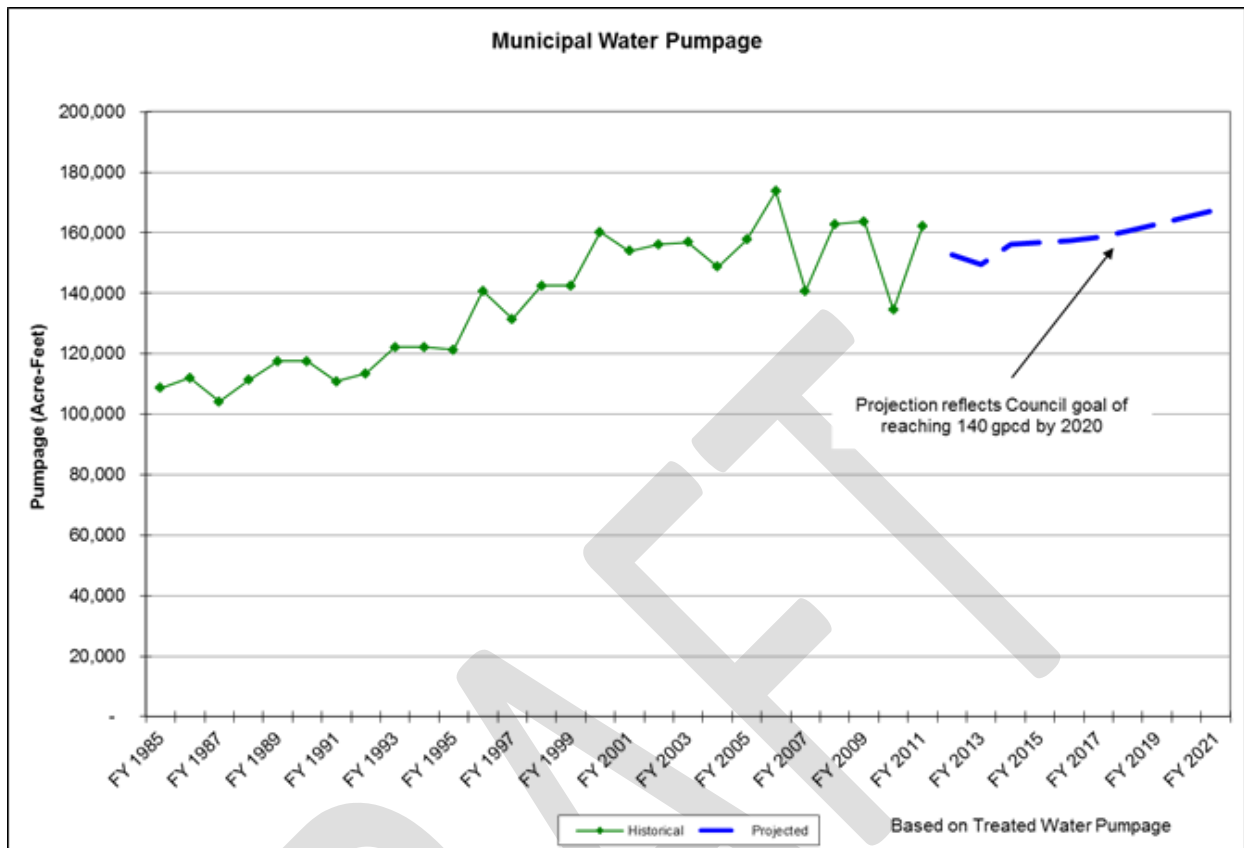
<b>TOTAL</b>	<b>145,788.36</b>	<b>170,121.96</b>	<b>156,263.46</b>	<b>144,971.30</b>	<b>168,341.00</b>
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The wholesale population served and total amount of water delivered for use for the previous five years is shown below:

	<b>Total Wholesale Population Served</b>	<b>Total Annual Water Delivered for Use (acre feet)</b>
<b>FY 2007</b>	54,000	9,704.24
<b>FY 2008</b>	54,000	10,516.61
<b>FY 2009</b>	44,000	10,072.48
<b>FY 2010</b>	50,610	8,799.18
<b>FY 2011</b>	51,538	11,258.64

### **C. Projected Water Supply Demands for All City Retail and Wholesale Customers**

The City does not anticipate the necessity for any additional contracted water supply amounts from the Lower Colorado River Authority (LCRA) during the next ten years. Projected water supply demands for the City's service area are shown in the chart on the following page and are based on population trends, historical water use, and expected conservation savings.



### III. WATER SUPPLY SYSTEM DATA

#### A. Water Supply Sources

Austin Water receives 100 percent surface water through a combination of water rights and a firm water back-up contract with LCRA. The current authorized supply is 325,000 acre feet per year (AF/year) based on a 1999 water supply contract with LCRA. In 2007, the City entered into an agreement with LCRA for an additional 250,000 AF/year (total of 575,000 AF/year) to be planned, likely incrementally, for future use.

#### B. City's Retail Treatment and Distribution System (*Excludes Wholesale Customer's Distribution System*)

Austin Water's current water treatment and distribution system has a design daily capacity of 285 million gallons per day (MGD) including 14 million gallons (MG) of elevated and 157 MG of ground storage capacity. Less than 3 percent of filter backwash is recycled to the head of the plants.

Austin Water operates two water treatment plants with a third currently under construction and scheduled to be operational by 2014. The system comprises 3,656 miles of water mains, nine major pressure zones, 45 water pumping stations and local boosters, and 38 city-maintained reservoirs with 171 million gallons of effective storage capacity. A sketch of the system layout is included in Appendix B.

#### **IV. WASTEWATER SYSTEM DATA**

##### **A. City Retail and Wholesale Customer Wastewater System Data (*Excludes Wholesale Water and Emergency Water Customers whose Wastewater Systems are not Connected to the City's Wastewater System or that do not operate a Wastewater System*)**

The design capacity of the Austin Water wastewater treatment plants is currently 135 MGD. The City has two major wastewater treatment plants that provide wastewater treatment for almost 95 percent of City customers: Walnut Creek (Walnut Creek) Wastewater Treatment Plant (WWTP) and South Austin Regional (SAR) WWTP. Both Walnut Creek and SAR discharge most of their treated effluent to the Colorado River. Some of the treated effluent from these plants is used as reclaimed water for golf course irrigation, cooling tower, and other non-potable uses. The City also has a major wastewater treatment facility that handles biosolids (Hornsby Bend WWTP).

In addition to the major plants, the City has nine small wastewater treatment plants that serve small areas in their vicinity and has an ownership interest in the Brushy Creek Regional Wastewater System. Together they serve the remaining five percent of City customers. Most of these plants discharge their treated effluent to the Colorado River or its tributaries. The Brushy Creek Regional Wastewater System, however, discharges to the San Gabriel River, a tributary of the Brazos River. Others irrigate golf courses and do not discharge to the surface waters.

The City is the owner or has an ownership interest of all these wastewater plants. Austin Water operates and maintains all the plants except for:

- a. the Lost Creek MUD plant, which is operated and maintained by the Lost Creek MUD until December 31, 2015 (after that date, the City will assume operation and maintenance responsibilities and the Lost Creek MUD customers will become City retail customers);
- b. the River Place MUD plant, which is operated and maintained by the River Place MUD until October 1, 2014 (after that date, the City will assume operation and maintenance responsibilities and the River Place MUD customers will become City retail customers); and
- c. the Brushy Creek Regional Wastewater Treatment Plant, which is operated by the Brazos River Authority (the Brushy Creek Regional Wastewater

Treatment Plant only provides wastewater treatment for a very small portion of City retail customers).

Appendix C shows the City's wastewater treatment plant permits. Appendix D shows a map of the City's large wastewater treatment plants, and Appendix E shows a map of the City's small wastewater treatment plants.

**B. Wastewater Data for Service Area for City Retail and Wholesale Customers (*Excludes Wholesale Water and Emergency Water Customers whose Wastewater Systems are not Connected to the City's Wastewater System or that do not operate a Wastewater System*)**

The City's wastewater system serves approximately 80 percent of the City's water system service area. The treated volume includes those wholesale wastewater customers that receive wastewater service by the City.

**Monthly Volume Treated (in million gallons)**

<b>Year</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
January	2,594.01	3,339.52	2,737.83
February	2,450.64	3,227.40	2,593.82
March	2,767.26	3,360.61	2,859.47
April	2,697.20	2,945.99	2,731.45
May	2,829.79	2,806.37	2,845.53
June	2,727.28	2,813.31	2,795.27
July	2,754.11	3,054.46	2,896.89
August	2,803.49	2,845.80	2,935.06
September	2,928.78	3,287.05	2,743.75
October	3,457.01	2,697.17	2,853.61
November	3,017.43	2,506.09	2,814.31
December	3,099.03	2,603.86	3,195.99
<b>Total</b>	<b>34,126.03</b>	<b>35,487.64</b>	<b>34,002.98</b>



## REQUIREMENTS FOR WATER CONSERVATION PLANS FOR WHOLESALE PUBLIC WATER SUPPLIERS

### Introduction

This Utility Profile & Water Conservation Plan for Wholesale Water Suppliers has been prepared by Austin Water to comply with Title 30 Texas Administrative Code §288.5 regarding the development of water conservation plans. The objective of the utility profile is to convey required information about the City's water and wastewater system to the Texas Commission on Environmental Quality (TCEQ). The water conservation plan provides an overview of current water conservation initiatives and future plans within the framework recommended by form TCEQ-20162.

### Specific, Quantified Five & Ten-Year Targets for City Retail Customers

Austin Water has three primary goals for its conservation programs: to reduce average per capita demand, to reduce peak demand, and to delay the point at which total water diversions trigger additional payments to LCRA. Because peak demand and total use goals are long-range, only the per capita goal is addressed here.

On May 13, 2010, Austin's City Council adopted a goal of reducing total water use to 140 gallons per capita per day (GPCD) by the year 2020. Austin Water is currently working with the City's advisory Resource Management Commission to construct a plan to reduce average water use that balances anticipated population growth and cost with conservation. The targets specified below will reduce water use to 143 GPCD by the year 2020, given average weather conditions. Progress will be evaluated annually to determine what additional measures may be necessary to further reduce water use in pursuit of the Council-set goal.

Year	Total GPCD (average year)	Total GPCD (wet year)	Total GPCD (dry year)	Water Loss (not to exceed)
FY 2014	149	126	163	11.5%
FY 2017	145	123	159	11.2%
FY 2019	143	122	157	11.0%
FY 2022	142	121	157	10.7%

*Target dates shown represent 5 and 10-year goals from both the 2009 Water Conservation Plan and this 2012 update.*

Austin Water is undertaking a comprehensive effort to reduce unaccounted-for water and to improve the quality of data in water loss estimates. It is expected that water loss percentages

will fluctuate annually with weather and demand conditions, and that some fluctuation will occur as a result of improved data collection.

### **Record Management System for City Retail Customers and Wholesale Master Meters**

Daily water pumping records are maintained at the treatment facilities. The City maintains records of water distribution and sales through a central billing system which segregates water sales into Single-family Residential, Multi-family, Commercial, Wholesale, and Large Volume Industrial user classes which are then charged different rates for water and wastewater services. The Customer Care and Billing database (CC&B) provides a central location for water billing information. Austin Water also maintains a wholesale database that allows for monitoring compliance with wholesale customer contract provisions. A separate Austin Water database, Hansen, serves as the database for City record asset management and tracking work orders and service requests. Hansen interfaces with GIS information to allow mapping of City utility distribution lines, hydrants and meters, and to geographically track service requests.

Austin Water conducts annual Water Loss Audits according to Texas Water Development Board methodology and has made significant progress in reducing unaccounted-for water for City retail customers. Austin Water's internal Water Accountability Committee monitors progress and makes recommendations for reducing lost water.

### **Historical Water Loss**

<b>Year</b>	<b>Amount (gal)</b>	<b>%</b>
FY 2007	6,775,948,382	14.20
FY 2008	6,617,858,663	12.22
FY 2009	5,882,655,456	10.81
FY 2010	4,719,352,698	10.56
FY 2011	5,394,581,008	10.01

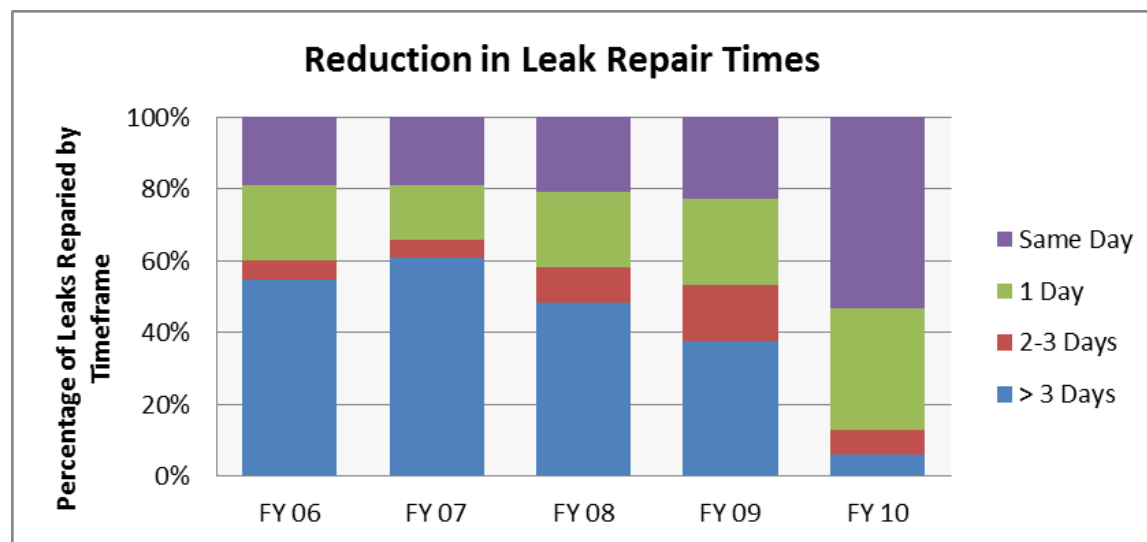
Austin Water has a comprehensive plan to reduce unaccounted-for City retail water use, including contracts for subsurface leak detection of the entire distribution system on a five-year schedule. Austin Water routinely analyzes consumption data for zero-reads and suspicious patterns for City retail customers and wholesale master meters. Austin Water has two full-time employees dedicated to meter tampering and theft investigations. Additionally, theft from City hydrants can be reported to 3-1-1, as advertised on numerous water hydrants in areas with high construction traffic. Austin Water has also added staff to reduce response times for reported leaks, and is undergoing an extensive capital project to replace piping with a history of leaks and breaks for City infrastructure.

### **Metering/Leak Detection and Repair Program**

Austin Water has staff that performs leak detection, and also contracts for leak detection services to locate subsurface leaks in the water distribution system for the City's infrastructure.

It is expected that a project begun in FY 2007 to perform leak detection on all City distribution mains will be completed by the close of FY 2012.

In FY 2009, Austin Water added a second shift to its leak response teams to reduce the amount of time a reported leak continues before repair. A graph indicating improvement in response times is shown below.



Austin Water universally meters all of its customers. Wholesale customers have one or more master meters. All master meters are routinely tested as part of their contract with the City.

The meters that Austin Water installs for its retail customers are tested to measure the flow within a  $\pm 5$  percent accuracy range. Each meter of 1½ inch or larger is tested before installation, and 10 percent of the smaller meters are tested. Three inch or larger meters are tested routinely through a contract with a private firm. Small meters are replaced when a problem is suspected, as replacement is more cost effective than repair for 1" and smaller meters.

For wholesale customers, Austin Water staff annually tests wholesale master meters that are three inches and above. The accuracy range considered acceptable for these meters varies according to the specifics of each wholesale customer's contract, but are generally required to be within a  $\pm 5$  percent accuracy range. Wholesale customer master meters of less than three inches are periodically replaced by Austin Water staff.

### Reservoir Systems Operations Plan

LCRA owns and operates the key water supply reservoirs in the region, Lakes Travis and Buchanan. LCRA operates these reservoirs in accordance with its state-approved Water Management Plan. The plan governs operation of Lakes Travis and Buchanan and is reviewed

periodically to keep pace with growing water demands and improved information. The internet link to LCRA's *Water Management Plan for the Lower Colorado River Basin (Effective September 20, 1989 Including Amendments Approved by TCEQ through January 27, 2010)* is:

[http://www.lcra.org/library/media/public/docs/water/wmp/lcra\\_wmp\\_june2010.pdf](http://www.lcra.org/library/media/public/docs/water/wmp/lcra_wmp_june2010.pdf)

Both Lake Austin and Lady Bird Lake, also on the lower Colorado River, are owned by the City.

### **Contract Requirements for Successive Customer Conservation**

Wholesale water supply contracts entered into, amended, extended, or renewed after official adoption of Austin's 2009 Water Conservation Plan are required to include language stating that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements of 30 TAC Chapter 288. However, all City wholesale customers only resell City wholesale water to their retail customers. The City's wholesale customers do not sell City wholesale water to another utility that then resells the water to its retail customers (i.e. successive wholesale customers). Therefore; the requirement related to successive wholesale customers does not apply to the City.

Wholesale water supply contracts entered into, amended, extended, or renewed after official adoption of Austin's 2009 Water Conservation Plan include language stating that the wholesale customer will adhere to the City's water management ordinance and establish a water conservation program similar to the one enforced by the City. Enforcement of these ordinances is the responsibility of the City and entities receiving City wholesale water.

### **Enforcement Procedure & Plan Adoption**

The Utility Profile & Water Conservation Plan for Wholesale Water Suppliers is expected to be reviewed by the Austin City Council on June 28, 2012. Once reviewed and approved the following statement will be included in the Plan:

"Authority to implement this plan is granted by the Austin City Council. Austin City Council approved the Utility Profile & Water Conservation Plan for Wholesale Water Suppliers on June 28, 2012."

### **Coordination with the Regional Water Planning Group(s)**

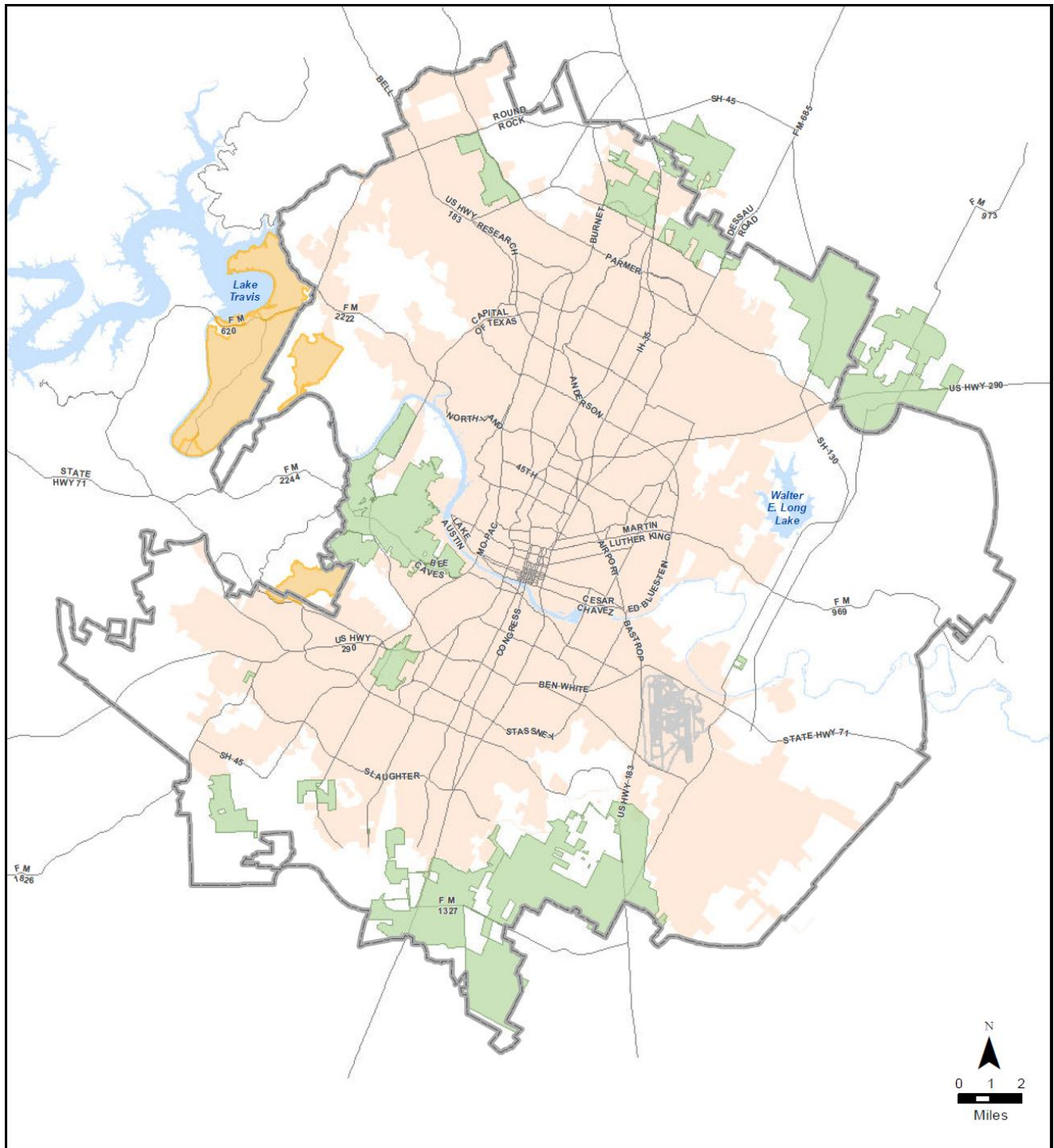
The Austin Water service area is located within the Region K Planning Group. Austin Water has provided a copy of this water conservation plan to the Region K Planning Group.

## **Plan Review and Update**

Austin Water staff reviews conservation programs and targets annually. The Utility Profile & Water Conservation Plan for Wholesale Water Suppliers is reviewed and updated every five years according to TCEQ requirements under Title 30 Texas Administrative Code §288.30 or more frequently as needed to reflect changes in the City's water conservation policy. Wholesale customers are provided any updates of the City's water conservation ordinance(s). The next revision of the plan is expected not later than May 1, 2014.

**Appendix A**  
**Service Area Map**

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- AWU Wholesale Water Customers
- AWU Wholesale Water Customers - Emergency Only
- AWU Retail Water Service as of May 2012
- Impact Fee - Service Area Boundary 2007

This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. This product has been produced by the Austin Water Utility for the sole purpose of geographic reference. No warranty is made by the City of Austin regarding specific accuracy or completeness.

TCEQ-10218 (Rev. 11-5-04)



City of Austin  
Austin Water Utility  
May 2012



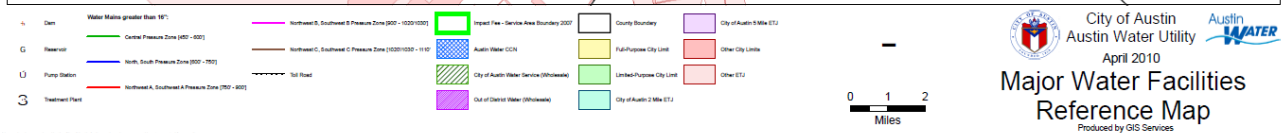
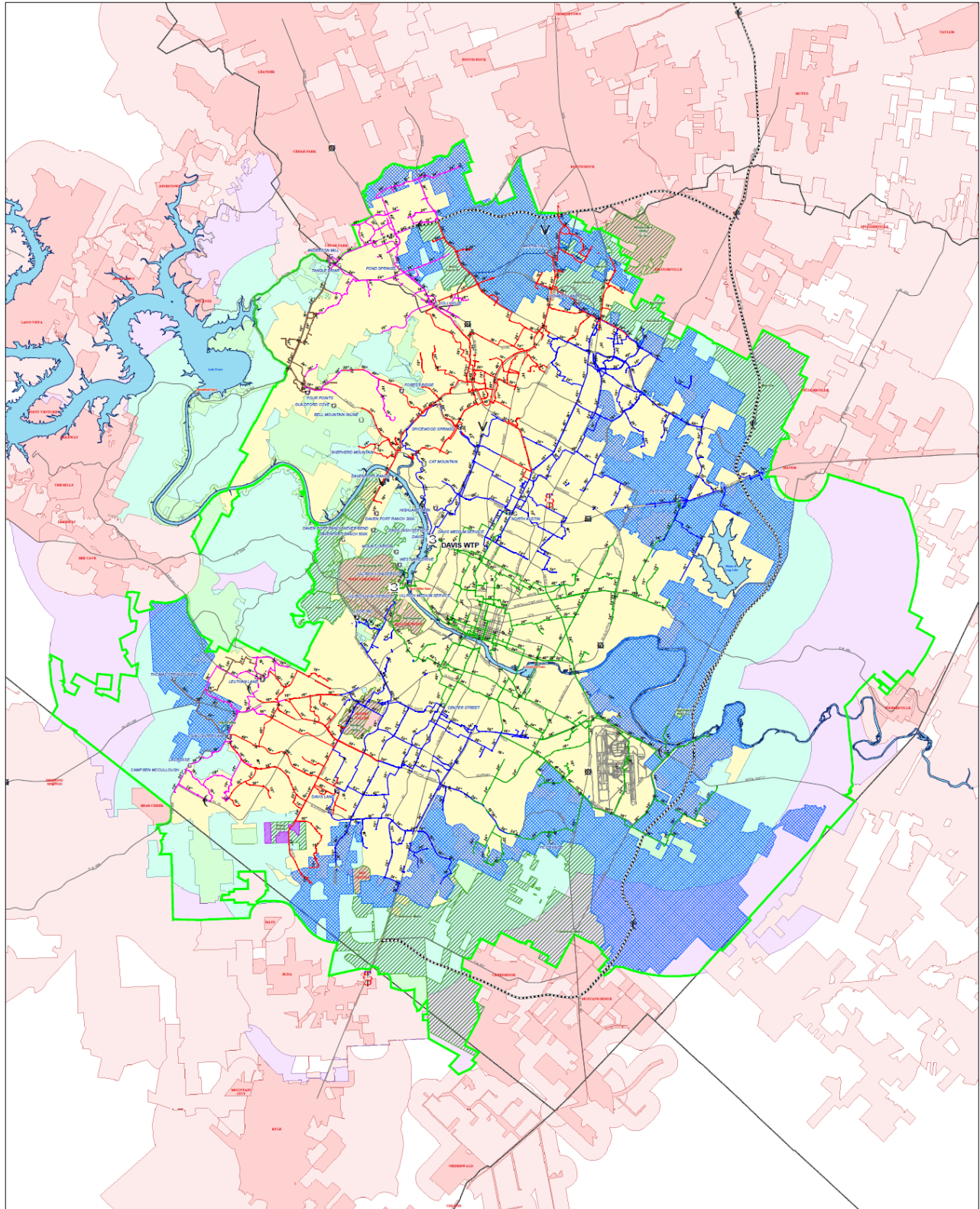
## Wholesale Customers

Produced by GIS Services

**Appendix B**  
**Sketch of System Layout**

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**Appendix C**  
**Wastewater Treatment Plants and Permits**

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**City of Austin (CN600135198)**  
**Austin Water Utility**  
**Wastewater Treatment Plants and Permits**

1. Walnut Creek Wastewater Treatment Plant, TPDES Permit No. WQ0010543011, EPA ID No. TX0046981, RN101607901, 75 MGD (annual average), 10/15/2 (monthly average) and 5/5/2 (annual average) to the Colorado River
2. South Austin Regional Wastewater Treatment Plant, TPDES Permit No. WQ0010543012, EPA ID No. TX0071889, RN101607794, 75 MGD (annual average), 10/15/2 (monthly average) and 5/5/2 (annual average) to the Colorado River
3. Wild Horse Ranch Wastewater Treatment Plant, TPDES Permit No. WQ0010543013, EPA ID No. TX0124800, RN103014577, 0.75 MGD, 5/5/2/1 to a tributary of Gilleland Creek
4. Whisper Valley Wastewater Treatment Plant, TPDES permit No. WQ0010543014, EPA ID No. TX0129950, RN105331755, (inactive, plant not constructed yet), contemplated discharge of 3 MGD (annual average), 5/5/2/1 to Gilleland Creek
5. Pearce Lane Wastewater Treatment Plant, TPDES Permit No. WQ0010543015, EPA ID No. TX0132934, RN106066715, (inactive, plant not constructed yet), contemplated discharge of 0.3 MGD 5/5/2/1 to a tributary of Dry Creek
6. Harris Branch Wastewater Treatment Plant, TPDES Permit No. WQ0013318001, EPA ID No. TX0101532, RN102806635, 0.4 MGD, 5/5/2/1 to Harris Branch
7. Thoroughbred Farms Wastewater Treatment Plant, TPDES Permit No. WQ0014459001, EPA ID No. TX0067466, RN101265254, 0.065 MGD, 20/20 to Dry Creek
8. Dessau Wastewater Treatment Plant, TPDES Permit No. WQ0012971001, EPA ID No. TX0097870, RN102077328, 0.5 MGD, 10/15/3 to a tributary of Harris Branch
9. Anderson Mill Wastewater Treatment Plant, TPDES Permit No. WQ0011459001, EPA ID No. TX0034207, RN101612737, 0.99 MGD, 7/15/3 to Lake Creek
10. Brushy Creek Regional Wastewater Treatment Plant (Co-permittee with City of Round Rock, City of Cedar Park, and Brazos River Authority), TPDES Permit No. WQ010264002, EPA ID No. TX0101940, RN10082260, 21.5 MGD (annual average), 10/15/2, to Brushy Creek.
11. Balcones Water Reclamation Plant, TCEQ Permit No. WQ0011363001, RN102095114, no discharge, irrigation of golf course, 0.292 MGD/10
12. Onion Creek Water Reclamation Plant, TCEQ Permit No. WQ0011467001, RN102078763, no discharge, irrigation of golf course, 0.345 MGD, 20/20

13. Lost Creek Water Reclamation Plant, TCEQ Permit No. WQ0011319001, RN100641653, no discharge, irrigation of golf course, 0.42 MGD, 10/15

14. River Place Water Reclamation Plant, TCEQ Permit No. WQ0011514001, RN100843283, no discharge, irrigation of golf course, 0.207 MGD, 5/5

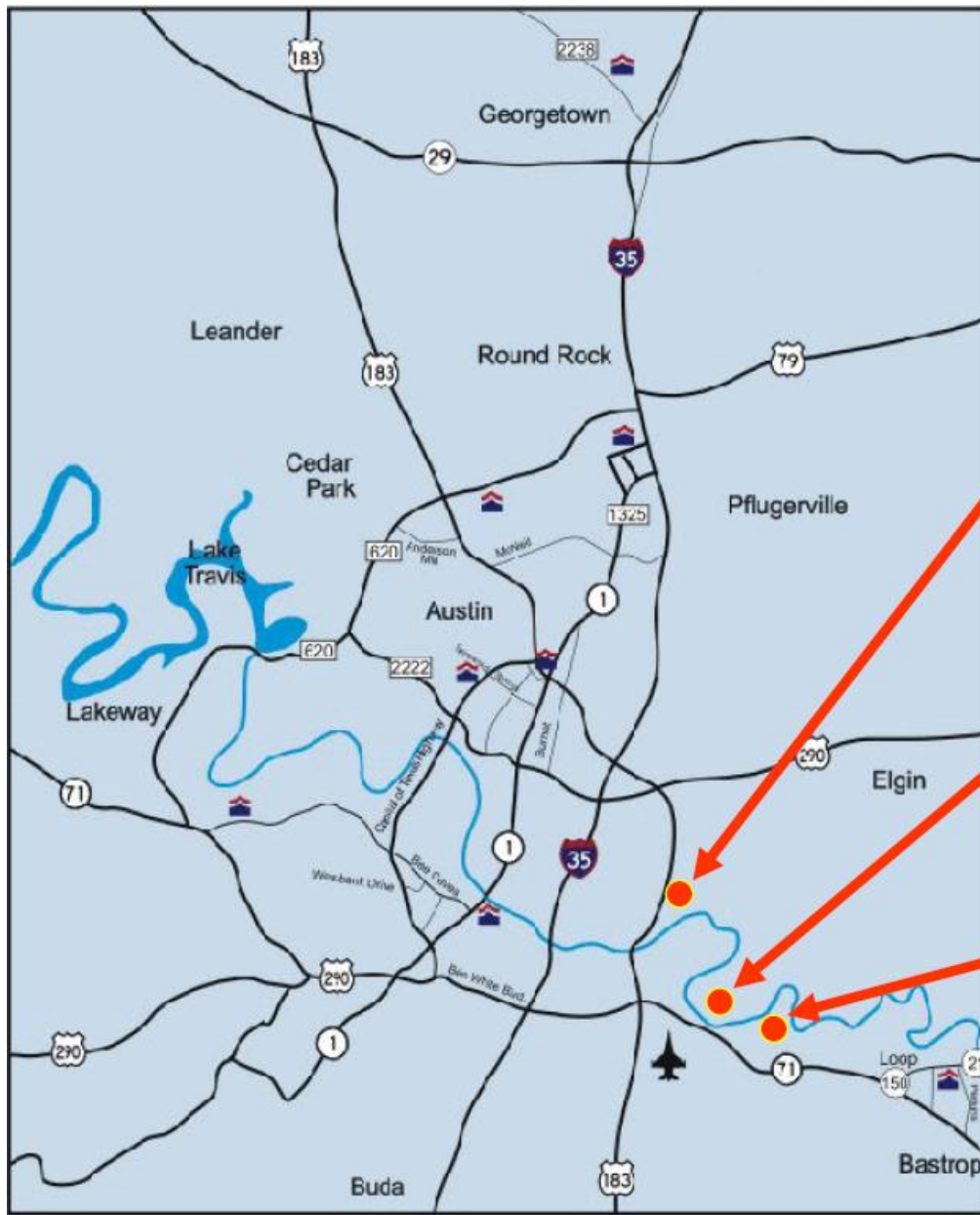
15. Hornsby Bend Biosolids Management Plant, TCEQ Permit No. WQ0003823000, EPA ID No. TXL0050005, RN101607679, biosolids treatment plant, no discharge

Plants 1 through 10 are permitted to discharge to a stream. Plants 11 through 15 are not permitted to discharge to the waters of the state.

Permitted flows are expressed as monthly averages unless specified otherwise. Effluent quality is expressed as monthly average (unless specified otherwise) and written after the permitted average flow in the following order: 5-day Carbonaceous Biochemical Oxygen Demand (CBOD<sub>5</sub>)/Total Suspended Solids (TSS)/Ammonia-Nitrogen (NH<sub>3</sub>-N)/Total Phosphorus (TP), when applicable. For Balcones, Onion Creek, Lost Creek, River Place and Thoroughbred Farms, the effluent limit is on 5-Day Biochemical Oxygen Demand (BOD<sub>5</sub>), and not on CBOD<sub>5</sub>.

**Appendix D**  
**Map of Large Wastewater Treatment Plants**

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Walnut Creek  
Wastewater  
Plant  
(1977)

Hornsby Bend  
Biosolids  
Plant  
(1956)

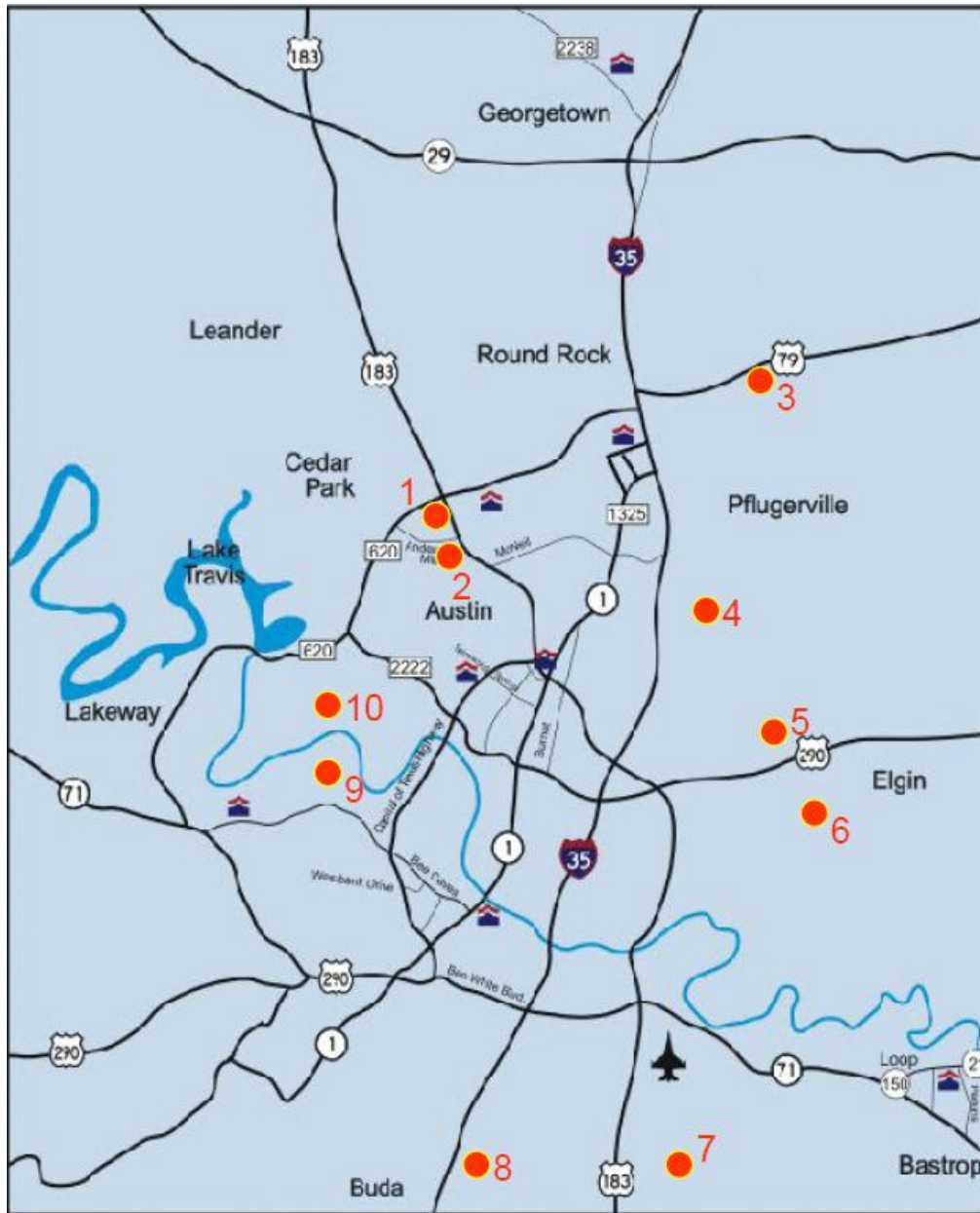
South Austin  
Regional  
Wastewater  
Plant  
(1986)

**Appendix E**  
**Map of Small Wastewater Treatment Plants**

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# Austin's Small Wastewater Plants



1. Anderson Mill
2. Balcones
3. Brushy Creek Regional
4. Dessau
5. Harris Branch
6. Wild Horse Ranch
7. Thoroughbred Farms
8. Onion Creek
9. Lost Creek
10. River Place