

## **Water Use Modeling Request with Revised Population Estimates**

### **Disaggregated Water Use Categories**

#### **Residential Indoor:**

FY 11: 10,842,075,705 (54% of class)

FY 13: 11,279,989,930 (70% of class)

#### **Residential Outdoor:**

FY 11: 9,238,288,595 (46% of class)

FY 13: 4,776,815,370 (30% of class)

#### **Multifamily Indoor:**

FY 11: 7,582,167,600 (80% of class)

FY 13: 7,139,734,800 (79% of class)

#### **Multifamily Outdoor:**

FY 11: 1,895,844,800 (20% of class)

FY 13: 1,860,760,400 (21% of class)

#### **Commercial Indoor:**

FY 11: 6,691,880,400 (53% of class)

FY 13 7,153,964,400 (67% of class)

#### **Commercial Outdoor:**

FY 11: 5,830,801,400 (47% of class)

FY 13: 3,591,125,510 (33% of class)

#### **Wholesale Indoor:**

FY 11: 2,227,506,000 (63% of class)

FY 13: 2,197,483,200 (74% of class)

#### **Wholesale Outdoor:**

FY 11: 1,286,937,400 (37% of class)

FY 13: 756,792,728 (26% of class)

#### **\*Notes**

The residential class includes duplexes, triplexes and fourplexes.

The Multifamily class includes fiveplexes and higher.

The indoor/outdoor splits are based on varied assumptions among different user classes.

All indoor/outdoor splits are based on billed consumption of the individual classes.

Large Volume Use:

FY 11:

Samsung - 1,212,413,000

Freescale – 651,613,700

University of Texas – 547,009,600

Spansion – 419,899,000

Hospira – 114,565,000

Novati – 69,790,000

Total – 3,015,290,300

(Total does not include an additional 599,992,400 gallons of University of Texas Commercial class consumption)

FY 13:

Samsung - 1,436,772,000

Freescale – 644,751,000

University of Texas – 464,694,200

Spansion – 389,113,000

Hospira – 83,756,000

Novati – 64,112,000

Total – 3,083,198,200

(Total does not include an additional 384,509,800 gallons of University of Texas Commercial class consumption)

System Use and Losses:

See attached Water Loss Summary

**Use Factors**

Number of connections

Residential – 193,278

Multi-family – 5,692

Commercial – 16,906

Industrial (Large Volume) – 28

Wholesale - 51

Total connections – 215,955

(Source: TWDB Annual Water Conservation Report for Water Suppliers for the City of Austin FY 13)

Persons per connection

FY13 Residential Service Area Population (projected) – 523,798

FY13 Multi-family Service Area Population (projected) – 350,608

FY13 Wholesale Service Area Population (projected) – 53,620

FY13 Total Service Area Population (Residential+Multifamily+Wholesale projected) – 928,026

(Source for Service Area Population: Utility Billing Dataset)

Average Household Size – 2.49

Average Family Size – 3.27

(Source for demographic data: American Community Survey Profile Report 2012 for Austin)

Per Capita Income

Per Capita Income - \$31,130

Median Household Income - \$52,453

Mean Household Income -\$76,287

(Source for income data: American Community Survey Profile Report 2012 for Austin)

Rainwater Harvesting

<b>Date Range</b>	<b>System</b>	<b>Participants</b>	<b>Capacity</b>
2010 - 2014	Over 500 Gallons	303	799,909
2010 - 2014	Under 500 Gallons	929	140,976
2003 - 2010	Rain Barrel	3,170	401,490
<b>Totals</b>		<b>4,402</b>	<b>1,342,375</b>

(Source: WCTS query)

Graywater Reuse

2 gravity systems

(Source: Auxiliary Water Permit Search CY12-CY14)

4 systems of unknown type

(Source: Informal staff discussions)

Weather:

Maximum Temperature –

1994 – 104, 07-25

1995 – 103, 07-28

1996 – 102, 06-20

1997 – 100, 08-09

1998 – 108, 06-14

1999 – 106, 07-20

2000 – 112, 08-05

2001 – 105, 07-18

2002 – 102, 07-26

2003 – 110, 07-08

2004 – 101, 07-05

2005 – 107, 08-25

2006 – 104, 07-24

2007 – 100, 07-13

2008 – 105, 07-14

2009 – 106, 06-26

2010 – 107, 08-24

2011 – 112, 08-28

2012 – 109, 06-26

2013 – 108, 06-29

Mean Monthly Max Temp

1994 – 80.1

1995 – 78.8

1996 – 80.1

1997 – 76.4

1998 – 80.5

1999 – 82.1

2000 – 80.6

2001 – 78.8

2002 – 78.9

2003 – 79.9

2004 – 78.9  
2005 – 80.8  
2006 – 82.9  
2007 – 78.8  
2008 – 82.9  
2009 – 81.8  
2010 – 79.5  
2011 – 84.0  
2012 – 82.6  
2013 – 81.3

Precipitation (Calendar year/inches) -

1994 – 41.16  
1995 – 33.98  
1996 – 29.56  
1997 – 46.79  
1998 – 39.12  
1999 – 23.93  
2000 – 37.27  
2001 – 42.87  
2002 – 36.00  
2003 – 21.41  
2004 – 52.27  
2005 – 22.33  
2006 – 34.7  
2007 – 46.95  
2008 – 16.07  
2009 – 31.38  
2010 – 37.76  
2011 – 19.68  
2012 – 32.98  
2013 – 41.03

(Source for weather data: NOAA, Mabry Site)

AWU Water Loss Calculation		FY 11	FY 12	FY13				
<b>WATER UTILITY GENERAL INFORMATION</b>								
Water Utility Name:		Austin Water Utility	Austin Water Utility	Austin Water Utility				
Reporting Period:		October 1, 2010 to September 30, 2011	October 1, 2011 to September 30, 2012	October 1, 2012 to September 30, 2013				
Retail Population		855,699	855,869	874406				
<b>SYSTEM INPUT VOLUME</b>								
Water Volume from own Sources		52,834,738,000	47,137,782,000	45,927,345,000	gals		243,014,931,000	
Production Meter Accuracy (%)		98.00%	98.00%	98.00%	pct.			
Corrected System Input Volume		53,912,997,959	48,099,777,551	46,864,637,755	gals		247,974,419,388	
Wholesale Import Volumes		0	71,845,000	88,098,000			159,943,000	
Total System Input Volume		53,912,997,959	48,171,622,551	46,952,735,755			248,134,362,388	
<b>AUTHORIZED CONSUMPTION</b>								
Billed Metered	88.11%	48,165,313,300	89.34%	43,970,260,087	91.28%	41,793,546,138	89.01%	gals 221,481,472,325
Billed Unmetered	0.70%	187,897,505	0.35%	3,310,877	0.01%	4,265,828	0.01%	gals 650704620.1 222,132,176,945
Unbilled Metered (amount used at AWU buildings/facilities)	0.20%	70,478,800	0.13%	55,684,700	0.12%	56,241,600	0.12%	gals 342911600
Unbilled Unmetered (amount used by other city Departments)	0.43%	94,727,346	0.18%	73,059,820	0.15%	69,148,969	0.12%	gals 563844394 906,755,994
Total Authorized Consumption	89.44%	48,518,416,951	89.99%	44,102,315,484	91.55%	41,923,202,535	89.26%	gals 223,038,932,939 223,038,932,939
<b>Water Losses</b>								
(System input volume minus authorized consumption)	10.56%	5,394,581,008	10.01%	4,069,307,067	8.45%	5,029,533,220	10.71%	gals
Total Apparent Losses	2.26%	1,062,369,523	1.97%	1,063,431,734	2.21%	1,006,723,469	2.14%	gals 5,353,388,660
Total Real Losses	8.31%	4,332,211,485	8.04%	3,005,875,333	6.24%	4,022,809,751	8.57%	gals 19,742,040,788 25,095,429,448
Unavoidable Real Losses, in MGD	3.24%	3,982,260	2.70%	4,007,127	3.04%	4,054,298	3.15%	MGD
<b>Infrastructure Leakage Index</b>								
(Equals real loss volume (div by 365) divided by unavoidable real losses)								
		<b>2.980</b>	<b>2.057</b>	<b>2.718</b>				
Retail Price of Water		\$4.12	\$4.40	\$4.53				Cost per 1,000 gal
<b>Cost of Apparent Losses</b>		\$4,376,962	\$4,667,768	\$4,560,457				
Variable Production Cost of Water*		\$0.33	\$0.39	\$0.41				Cost per 1,000 gal
<b>Cost of Real Losses</b>		\$1,429,630	\$1,173,296	\$1,662,145				
<b>Total Cost Impact of Apparent and Real Losses</b>		\$5,806,592	\$5,841,063	\$6,222,602				
<b>SAVINGS FROM REDUCING ILI FROM FY08 LEVEL</b>								
Real Water Loss at FY08 ILI		4,742,031,965	4,771,643,318	4,827,814,033				<b>Cumulative savings</b>
Actual real water loss		4,332,211,485	3,005,875,333	4,022,809,751				
Savings in gal		<b>409,820,480</b>	<b>1,765,767,985</b>	<b>805,004,282</b>			##### gal	
Savings in AF		<b>1,257.69</b>	<b>5418.942969</b>	<b>2,470</b>			<b>9,836</b> AF	
Savings in \$		<b>\$135,240.76</b>	<b>\$688,649.51</b>	<b>\$330,051.76</b>			#####	
<b>TWDB reliability assessment score</b>								
		<b>69</b>	<b>69</b>	<b>67.5</b>				
Water loss GPCD		17.27	13.03	15.76			5 year average	16.17
water loss percentage without wholesale							5 year average % loss	10.11%